

International Taxation of Cloud Computing

Permanent Establishment, Treaty
Characterization, and Transfer Pricing

Alexander Weisser



UNIVERSITÉ
DE GENÈVE



EDITIONS JURIDIQUES LIBRES
FREIER JURISTISCHER VERLAG

International Taxation of Cloud Computing

Permanent Establishment, Treaty
Characterization, and Transfer Pricing

Alexander Weisser



**UNIVERSITÉ
DE GENÈVE**



**EDITIONS JURIDIQUES LIBRES
FREIER JURISTISCHER VERLAG**

Éditions juridiques libres (Freier juristischer Verlag)

Les Éditions juridiques libres (EJL | FJV) sont une maison d'édition juridique suisse fondée par un groupe de chercheurs en droit.

Sans but lucratif, les EJL publient des ouvrages scientifiques en allemand, français, italien et anglais à destination de tous les professionnels du droit suisse. Au sein de leurs collections, les EJL accueillent tout type d'ouvrage scientifique de qualité (monographie et thèse, ouvrage collectif, commentaire, revue, etc.), qu'il s'agisse des travaux de chercheurs indépendants ou issus d'institutions publiques de recherche.

Les ouvrages publiés aux EJL sont disponibles au format numérique, gratuitement et en intégralité (*open access*). Des exemplaires papier de leurs publications sont également disponibles au moyen d'un système d'impression à la demande.

Les EJL ont pour triple objectif d'améliorer l'accessibilité des publications juridiques, d'en réduire les coûts pour les institutions et les particuliers, ainsi que d'en améliorer le bilan écologique.

Toutes les publications des EJL | FJV sont en accès libre et gratuit sur

<https://www.ejl-fjv.ch/>



La présente œuvre est soumise à une licence Creative Commons CC BY-NC-ND 4.0. L'utilisation, la reproduction, le partage de l'œuvre sont notamment autorisés à condition : (i) d'attribuer l'œuvre à son auteur ; (ii) de ne pas exploiter l'œuvre commercialement ; (iii) de ne pas effectuer de modifications de l'œuvre. Le logo « open access », créé par The Public Library of Science (PLoS), est soumis à une licence CC BY-SA 3.0. Les polices de caractères Roboto et Roboto Condensed, créées par Christian Robertson, sont soumises à une licence Apache 2.0.

La présente publication a bénéficié d'une subvention octroyée par la Faculté de droit de l'Université de Genève.

Editions Juridiques Libres (Freier Juristischer Verlag)

Lausanne 2020

ISBN 978-2-88954-030-3 (print)

ISBN 978-2-88954-031-0 (PDF)

Outline

| | |
|--|------------|
| Acknowledgements | XIX |
| List of Abbreviations | XXI |
| Bibliography | XXXIII |
| Part I: <i>De Lege Lata</i> | 1 |
| Chapter 1: Introduction | 3 |
| Chapter 2: Cloud Computing..... | 5 |
| Chapter 3: Current International Taxation Rules..... | 39 |
| Chapter 4: Application to Cloud Computing..... | 159 |
| Chapter 5: Conclusion De Lege Lata | 277 |
| Part II: Are the Current Rules Appropriate? | 279 |
| Chapter 1: Introduction | 281 |
| Chapter 2: Ottawa Principles of Taxation | 285 |
| Chapter 3: Prior Work..... | 307 |
| Chapter 4: Application to Cloud Computing..... | 337 |
| Chapter 5: Conclusion on Appropriateness..... | 425 |
| Part III: <i>De Lege Ferenda</i> | 427 |
| Chapter 1: Introduction | 429 |
| Chapter 2: Recommendations..... | 431 |
| Chapter 3: Avenues of Further Research | 503 |
| Chapter 4: Summary of the International Taxation of Cloud Computing..... | 513 |

Table of Contents

| | |
|---|----------|
| Acknowledgements | XIX |
| List of Abbreviations | XXI |
| Bibliography | XXXIII |
| Part I: <i>De Lege Lata</i> | 1 |
| Chapter 1: Introduction | 3 |
| Chapter 2: Cloud Computing..... | 5 |
| Section I Basics | 5 |
| Section II Typical Fact Patterns | 9 |
| § I. Introduction | 9 |
| § II. Case Study A: Cloud Provider..... | 9 |
| § III. Case Study B: Cloud Customer | 10 |
| Section III Types of Transactions..... | 13 |
| § I. Introduction | 13 |
| § II. Taxonomy | 14 |
| § III. Commentary..... | 16 |
| Section IV Parties to Transactions | 19 |
| § I. Introduction | 19 |
| § II. Cloud-Specific Transactions with a Centralized Provider..... | 22 |
| A) Cloud-Specific Pricing | 22 |
| B) Risks | 25 |
| § III. Transactions within a Decentralized Cloud Provider | 27 |
| A) Introduction | 27 |
| B) Software Development Team..... | 28 |

| | | |
|------------|---|----|
| C) | Hardware Operation Team | 29 |
| D) | Intellectual Property Rights Company | 32 |
| E) | Real Estate Company | 35 |
| Section V | Summary..... | 37 |
| Chapter 3: | Current International Taxation Rules | 39 |
| Section I | Permanent Establishments | 39 |
| § I. | Introduction | 39 |
| § II. | General Definition of Permanent Establishment.. | 42 |
| A) | Introduction | 42 |
| B) | Place of Business Test | 43 |
| 1) | Introduction | 43 |
| 2) | Tangible Nature of a Place of Business | 44 |
| 3) | Right of Use (“at disposal”) | 44 |
| a) | Introduction | 44 |
| b) | Negative Definition..... | 48 |
| i) | Legal Right..... | 48 |
| ii) | Association with Other Permanent Establishment Tests..... | 48 |
| iii) | Association with Other Types of Permanent Establishments | 51 |
| iv) | Mere Presence..... | 52 |
| 4) | Conclusion on the Place of Business Test | 53 |
| C) | Fixation Test | 53 |
| 1) | Introduction | 53 |
| 2) | Geographical Link..... | 54 |
| 3) | Duration | 54 |
| a) | Required Minimum Period of Time | 55 |

| | | |
|--------|--|----|
| b) | Non-temporary Nature | 56 |
| 4) | Conclusion on the Fixation Test | 57 |
| D) | Business Activity Test | 57 |
| 1) | Introduction and General Features of Business Activity | 57 |
| 2) | Functional Integration (“through which”) | 60 |
| 3) | Attribution of Activity (“of an enterprise”)..... | 64 |
| a) | Introduction..... | 64 |
| b) | Standard Case: Personnel | 65 |
| c) | Subcontractors? | 66 |
| d) | Conclusion on the Attribution of Activity..... | 69 |
| 4) | Conclusion on the Business Activity Test | 69 |
| E) | Preparatory or Auxiliary Activities Exception | 70 |
| 1) | Introduction | 70 |
| 2) | List of Examples | 71 |
| 3) | General Criterion | 73 |
| 4) | Anti-avoidance Rules | 75 |
| 5) | Conclusion on the Activities Exception..... | 76 |
| F) | Conclusion on the General Definition | 77 |
| § III. | Dependent Agent Permanent Establishment | 77 |
| A) | Treaty Definition | 77 |
| B) | Person..... | 80 |
| C) | Authority to Conclude Contracts in the Name of the Enterprise | 81 |
| 1) | Literal Meaning of Pre-BEPS Art. 5(5) MOECD ... | 81 |
| 2) | “Commissionnaire” Arrangements and Similar Schemes..... | 83 |

| | | |
|------------|---|-----|
| 3) | BEPS Action 7 | 84 |
| 4) | Economic Interpretation of the Pre-BEPS Art. 5(5) MOECD | 88 |
| 5) | Summary..... | 91 |
| D) | Exclusion of Independent Agents | 91 |
| 1) | Introduction | 91 |
| 2) | Independence of the Agent | 92 |
| 3) | Acting in the Ordinary Course of the Agent's Business | 94 |
| 4) | BEPS Action 7 | 95 |
| 5) | Summary..... | 97 |
| E) | Habitual Exercise..... | 97 |
| F) | Preparatory or Auxiliary Activities Exception..... | 99 |
| G) | Conclusion on Dependent Agent Permanent Establishments | 99 |
| § IV. | Services Permanent Establishment..... | 100 |
| § V. | Substantial Equipment Permanent Establishment | 101 |
| § VI. | Swiss Domestic Permanent Establishment..... | 102 |
| A) | Introduction and Scope of Application..... | 102 |
| B) | Basics and Legislative History..... | 103 |
| C) | Comparison with the MOECD General Definition | 105 |
| D) | Comparison with a Dependent Agent Permanent Establishment..... | 107 |
| E) | Summary..... | 110 |
| § VII. | Conclusion on Permanent Establishments | 111 |
| Section II | Treaty Characterization..... | 113 |

| | | |
|-------------|--|-----|
| § I. | Introduction | 113 |
| § II. | Income from Immovable Property | 114 |
| A) | General Features | 114 |
| B) | Immovable Property | 115 |
| C) | Accessories to Immovable Property | 117 |
| D) | ICS Equipment | 118 |
| E) | Summary | 119 |
| § III. | Royalties | 120 |
| A) | General Features | 120 |
| B) | Definitions | 121 |
| 1) | Royalties | 121 |
| 2) | Copyright | 122 |
| 3) | Know-How | 122 |
| C) | Summary | 124 |
| § IV. | Capital Gains | 124 |
| § V. | Technical Services | 125 |
| A) | General Features | 125 |
| B) | MOECD | 128 |
| C) | UN Model | 128 |
| D) | Law of the Source Jurisdiction | 129 |
| E) | Summary | 130 |
| § VI. | Business Profits | 130 |
| § VII. | Summary of Treaty Characterization | 132 |
| Section III | Transfer Pricing | 135 |
| § I. | Introduction | 135 |
| § II. | Associated Enterprises | 137 |

| | | |
|------------|---|-----|
| § III. | Arm’s Length Principle | 138 |
| § IV. | Comparability Analysis..... | 140 |
| § V. | Transfer Pricing Methods | 141 |
| A) | Introduction | 141 |
| B) | Comparable Uncontrolled Price Method..... | 142 |
| C) | Cost-Plus Method | 142 |
| D) | Transactional Net Margin Method | 144 |
| E) | Transactional Profit Split Method | 147 |
| F) | Summary on Transfer Pricing Methods..... | 149 |
| § VI. | Swiss Legal Basis for Initial Adjustment | 150 |
| A) | Introduction | 150 |
| B) | Commercial Accounts..... | 150 |
| C) | Corrective Rules and Adjustments..... | 151 |
| D) | Connection with Profit Attribution to Permanent Establishments | 152 |
| § VII. | Summary of Transfer Pricing | 154 |
| Section IV | Summary of the Relevant Rules | 157 |
| Chapter 4: | Application to Cloud Computing | 159 |
| Section I | Permanent Establishment | 159 |
| § I. | General Definition of Permanent Establishment | 159 |
| A) | Introduction | 159 |
| B) | Case Study A: Cloud Provider | 162 |
| 1) | Introduction | 162 |
| 2) | Place of Business Test | 163 |
| 3) | Fixation Test | 165 |
| 4) | Business Activity Test..... | 166 |
| a) | Introduction..... | 166 |

| | | |
|------|--|-----|
| b) | General Features | 166 |
| c) | Functional Integration (“through which”)..... | 166 |
| d) | Attribution of Activity (“of an enterprise”) | 168 |
| e) | Conclusion on the Business Activity Test..... | 169 |
| 5) | Exception of Preparatory or Auxiliary Activities | 169 |
| a) | Introduction..... | 169 |
| b) | Lists of Examples | 170 |
| c) | General Criterion..... | 172 |
| d) | Conclusion on the Exception of Activities | 174 |
| 6) | Conclusion on Case Study A: Cloud Provider ... | 174 |
| C) | Case Study B: Cloud Customer..... | 175 |
| 1) | Introduction | 175 |
| 2) | Place of Business Test..... | 175 |
| a) | Introduction..... | 175 |
| b) | Tangible Nature of the Place of Business..... | 175 |
| c) | Right of Use (“at disposal”) | 177 |
| i) | Introduction..... | 177 |
| ii) | Right of Use in the Context of E-commerce | 177 |
| iii) | Critical Appraisal | 179 |
| iv) | Application to Cloud Computing | 182 |
| v) | Possible Answer No. 1: Cloud Customers Have a Right of Use over the Physical Server | 183 |
| vi) | Possible Answer No. 2: Cloud Customers Have No Right of Use over the Physical Server | 185 |
| d) | Conclusion on the Place of Business Test.... | 188 |

| | | |
|-------|---|-----|
| 3) | Fixation Test | 188 |
| a) | Introduction | 188 |
| b) | Execution of Virtual Servers Shared Between Different Items of Physical Infrastructure | 189 |
| c) | Interruptions | 190 |
| d) | Conclusion on the Fixation Test..... | 191 |
| 4) | Business Activity Test..... | 192 |
| a) | Introduction | 192 |
| b) | General Features of the Business Activity..... | 192 |
| c) | Functional Integration (“through which”) | 193 |
| d) | Attribution of Activity (“of an enterprise”)..... | 194 |
| e) | Conclusion on the Business Activity Test | 195 |
| 5) | Exception of Preparatory or Auxiliary Activities | 195 |
| a) | Introduction | 195 |
| b) | Lists of Examples..... | 195 |
| c) | General Criterion | 196 |
| d) | Anti-avoidance Rules..... | 197 |
| e) | Conclusion on the Exception of Activities..... | 199 |
| 6) | Conclusion on Case Study B: Cloud Customer.. | 199 |
| D) | Conclusion on the Application of the General Definition..... | 200 |
| § II. | Dependent Agent Permanent Establishment..... | 200 |
| A) | Introduction | 200 |
| B) | Person | 200 |
| C) | Authority to Conclude Contracts in the Name of the Enterprise | 203 |
| 1) | Literal Meaning of Pre-BEPS Art. 5(5) MOECD.. | 203 |

| | | |
|--------|---|-----|
| 2) | BEPS Action 7 | 204 |
| 3) | Economic Interpretation of Current Art. 5(5) MOECD | 206 |
| D) | Exclusion of Independent Agents | 207 |
| E) | Habitual Exercise | 209 |
| F) | Exception of Preparatory or Auxiliary Activities | 210 |
| G) | Conclusion on the Application of the Dependent Agent Permanent Establishment | 210 |
| § III. | Services Permanent Establishment | 211 |
| § IV. | Substantial Equipment Permanent Establishment | 211 |
| § V. | Swiss Domestic Permanent Establishment | 212 |
| A) | Introduction | 212 |
| B) | Case Study A: Cloud Provider..... | 213 |
| 1) | Introduction | 213 |
| 2) | Place of Business Test..... | 213 |
| 3) | Fixation Test..... | 214 |
| 4) | Business Activity Test and Exception of Preparatory or Auxiliary Activities | 214 |
| 5) | Conclusion on Case Study A: Cloud Provider ... | 215 |
| C) | Case Study B: Cloud Customer..... | 216 |
| 1) | Introduction | 216 |
| 2) | Place of Business Test..... | 216 |
| 3) | Fixation Test..... | 217 |
| 4) | Business Activity Test and Exception of Preparatory or Auxiliary Activities | 217 |
| 5) | Conclusion on Case Study B: Cloud Customer . | 218 |

| | | |
|------------|---|-----|
| D) | Conclusion on the Application of the Swiss Domestic Permanent Establishment | 218 |
| § VI. | Conclusion on the Cloud Computing Permanent Establishment | 219 |
| Section II | Treaty Characterization..... | 221 |
| § I. | Introduction..... | 221 |
| § II. | Income from Immovable Property..... | 223 |
| A) | Transactions | 223 |
| B) | Data Center as Immovable Property | 225 |
| C) | Server as a Constituent Part..... | 225 |
| D) | Server as an Accessory..... | 227 |
| E) | Server as ICS Equipment..... | 228 |
| F) | Conclusion | 231 |
| § III. | Royalties | 232 |
| A) | Copyright | 232 |
| 1) | Introduction in the Context of E-Commerce..... | 232 |
| 2) | Cloud Computing Transactions at Issue | 235 |
| 3) | Distinction from Software Code Transmission . | 238 |
| 4) | Conclusion | 240 |
| B) | Know-How..... | 240 |
| C) | Conclusion | 242 |
| § IV. | Capital Gains | 243 |
| § V. | Technical Services..... | 245 |
| A) | OECD and UN Model | 245 |
| B) | Law of the Source Jurisdiction | 248 |
| § VI. | Business Profits | 249 |
| A) | General Considerations..... | 249 |

| | | |
|--|--|------------|
| B) | Summary | 250 |
| § VII. | Conclusion on Treaty Characterization | 252 |
| Section III | Transfer Pricing | 255 |
| § I. | Introduction | 255 |
| § II. | Comparability Analysis | 256 |
| A) | Cloud-Specific Transactions with a Centralized Provider | 256 |
| B) | Transactions within a Decentralized Cloud Provider | 258 |
| 1) | Between the Software Development and Hardware Operation Teams..... | 258 |
| 2) | Between Software Development Team and Intellectual Property Rights Company..... | 262 |
| 3) | Between Hardware Operation Team and Real Estate Company..... | 263 |
| C) | Conclusion on the Comparability Analysis..... | 264 |
| § III. | Choice of Transfer Pricing Method | 265 |
| A) | Introduction | 265 |
| B) | Comparable Uncontrolled Price Method | 265 |
| C) | Cost-Plus Method..... | 266 |
| D) | Transactional Net Margin Method..... | 270 |
| E) | Transactional Profit Split Method | 272 |
| § IV. | Conclusion on Transfer Pricing | 274 |
| Chapter 5: | Conclusion De Lege Lata | 277 |
| Part II: Are the Current Rules Appropriate? | | 279 |
| Chapter 1: | Introduction | 281 |
| Chapter 2: | Ottawa Principles of Taxation | 285 |
| Section I | Effectiveness and Fairness..... | 285 |

| | | |
|-------------|---|-----|
| Section II | Certainty and Simplicity | 289 |
| Section III | Flexibility | 295 |
| Section IV | Neutrality | 301 |
| Section V | Efficiency | 303 |
| Section VI | Summary..... | 305 |
| Chapter 3: | Prior Work | 307 |
| Section I | Introduction | 307 |
| Section II | Modification of the OECD COMMENTARY | 311 |
| Section III | PE Report | 315 |
| Section IV | TP Report..... | 319 |
| Section V | Example in BEPS Action 1 | 323 |
| § I. | Problem | 323 |
| § II. | Risk Level | 325 |
| § III. | Connection with Cloud Computing | 332 |
| § IV. | Conclusion on BEPS Action 1 | 334 |
| Section VI | Summary of Prior Work | 335 |
| Chapter 4: | Application to Cloud Computing | 337 |
| Section I | Introduction | 337 |
| Section II | Effectiveness and Fairness | 337 |
| § I. | Introduction..... | 337 |
| § II. | Permanent Establishment | 339 |
| A) | Manipulation of the Location of Virtual Servers | 339 |
| 1) | Problem | 339 |
| 2) | Connection with Cloud Computing..... | 340 |
| 3) | Risk Level..... | 341 |
| 4) | Conclusion | 342 |

| | | |
|--------|--|-----|
| B) | Avoidance of Permanent Establishment Status Through Lack of Personnel | 344 |
| 1) | Problem..... | 344 |
| 2) | Connection with Cloud Computing | 345 |
| 3) | Risk Level | 345 |
| 4) | Conclusion..... | 346 |
| C) | Avoidance of Permanent Establishment Status Through Outsourcing | 347 |
| 1) | Problem..... | 347 |
| 2) | Connection with Cloud Computing | 348 |
| 3) | Risk Level | 350 |
| 4) | Conclusion..... | 351 |
| § III. | Avoidance of Withholding Taxes | 352 |
| A) | Problem..... | 352 |
| B) | Connection with Cloud Computing | 352 |
| C) | Risk Level | 353 |
| D) | Conclusion..... | 354 |
| § IV. | Transfer Pricing..... | 354 |
| A) | Difficulty of Valuing Intangibles | 354 |
| 1) | Problem..... | 354 |
| 2) | Connection with Cloud Computing | 356 |
| 3) | Risk Level | 359 |
| 4) | Conclusion..... | 361 |
| B) | Effects of Cost Savings on Transfer Pricing | 361 |
| 1) | Problem..... | 361 |
| 2) | Connection with Cloud Computing | 362 |
| 3) | Risk Level | 362 |

| | | |
|-------------|---|-----|
| 4) | Conclusion | 363 |
| C) | Shifting of Business Functions to Low-Tax Jurisdiction | 363 |
| 1) | Problem | 363 |
| 2) | Connection with Cloud Computing..... | 364 |
| 3) | Risk Level..... | 366 |
| 4) | Conclusion | 368 |
| § V. | Enforcement..... | 368 |
| A) | Problem | 368 |
| B) | Connection with Cloud Computing..... | 369 |
| C) | Risk Level..... | 370 |
| D) | Conclusion | 371 |
| § VI. | Conclusion on Effectiveness and Fairness | 372 |
| Section III | Certainty and Simplicity | 375 |
| § I. | Introduction..... | 375 |
| § II. | Permanent Establishment | 375 |
| § III. | Treaty Characterization | 377 |
| A) | Significance in General | 377 |
| B) | Application to Cloud Computing..... | 379 |
| § IV. | Transfer Pricing..... | 382 |
| A) | Introduction | 382 |
| B) | Data Centers | 383 |
| C) | Intangibles | 384 |
| D) | Remote Control and Automation | 386 |
| E) | Choice of Method | 387 |
| § V. | Future Tax Policy | 390 |
| § VI. | Conclusion on Certainty | 391 |

| | | |
|------------|--|-----|
| Section IV | Flexibility | 393 |
| § I. | Introduction | 393 |
| § II. | Absence of Physical Presence | 394 |
| A) | Problem..... | 394 |
| B) | Technological Advancements | 396 |
| C) | Tax System Inflexibility..... | 397 |
| D) | Conclusion..... | 400 |
| § III. | Disintermediation and Outsourcing | 400 |
| A) | Problem..... | 400 |
| B) | Tax System Inflexibility..... | 402 |
| C) | Technological Advancements | 402 |
| D) | Conclusion..... | 402 |
| § IV. | Automation and Remote Control | 403 |
| A) | Problem..... | 403 |
| B) | Tax System Inflexibility..... | 403 |
| C) | Technological Advancements | 405 |
| D) | Conclusion..... | 406 |
| § V. | Empirical Evidence of Flexibility Issues | 407 |
| § VI. | Conclusion on Flexibility | 410 |
| Section V | Neutrality..... | 413 |
| § I. | Between Cloud Computing and Brick-and-Mortar Businesses | 413 |
| § II. | Between Similar Cloud Computing Businesses | 414 |
| § III. | Specific Areas of Application | 414 |
| A) | Introduction | 414 |
| B) | Permanent Establishment..... | 415 |
| C) | Treaty Characterization | 416 |

| | | |
|--|---|------------|
| D) | Transfer Pricing..... | 416 |
| § IV. | Conclusion on Neutrality | 417 |
| Section VI | Efficiency | 419 |
| Section VII | Provisional Conclusion..... | 421 |
| Section VIII | Comparison with Prior Work | 423 |
| Chapter 5: | Conclusion on Appropriateness | 425 |
| Part III: De Lege Ferenda | | 427 |
| Chapter 1: | Introduction | 429 |
| Chapter 2: | Recommendations | 431 |
| Section I | General Considerations..... | 431 |
| Section II | Transfer Pricing..... | 435 |
| § I. | General Idea | 435 |
| § II. | Implementation | 436 |
| § III. | Justification | 438 |
| A) | OECD Interpretation of the Arm's Length Principle | 438 |
| B) | Overview on the Consequences of a New Interpretation..... | 441 |
| C) | Interchangeable Forms of Cross-Border Human- Machine Interaction | 443 |
| D) | Remuneration for Direct Human Activity | 447 |
| E) | Application to Subsidiaries | 451 |
| F) | Applicability to a Virtual Permanent Establishment | 452 |
| 1) | Introduction | 452 |
| 2) | Applications of the Proposed Interpretation..... | 453 |
| 3) | Related Work..... | 455 |
| 4) | Conclusion | 456 |

| | | |
|-------------|---|-----|
| G) | Summary of the Justification..... | 457 |
| § IV. | Examples | 458 |
| § V. | Alternative | 463 |
| § VI. | Connection with Cloud Computing..... | 465 |
| § VII. | Conclusion..... | 467 |
| Section III | Permanent Establishment..... | 469 |
| § I. | Abolition of Right of Use | 469 |
| A) | General Idea | 469 |
| B) | Implementation..... | 469 |
| C) | Justification | 470 |
| D) | Connection with Cloud Computing | 473 |
| E) | Conclusion..... | 475 |
| § II. | Positive Meaning of Right of Use..... | 476 |
| A) | General Idea | 476 |
| B) | Implementation..... | 476 |
| C) | Justification | 477 |
| D) | Connection with Cloud Computing | 478 |
| E) | Conclusion..... | 479 |
| § III. | Concretization of Essential vs. Auxiliary | 479 |
| A) | General Idea | 479 |
| B) | Implementation..... | 480 |
| C) | Justification | 481 |
| D) | Connection with Cloud Computing | 484 |
| E) | Conclusion..... | 485 |
| § IV. | Independence vis-à-vis On-Site Personnel..... | 486 |
| A) | General Idea | 486 |

| | | |
|-------------|--|-----|
| B) | Implementation | 486 |
| C) | Justification | 487 |
| D) | Connection with Cloud Computing..... | 488 |
| E) | Conclusion | 489 |
| Section IV | Treaty Characterization..... | 491 |
| § I. | Reducing Withholding Tax Compliance Costs... | 491 |
| A) | General Idea | 491 |
| B) | Implementation | 491 |
| C) | Justification | 493 |
| D) | Connection with Cloud Computing..... | 493 |
| E) | Conclusion | 494 |
| § II. | Adapting Income from Employment..... | 494 |
| A) | General Idea | 494 |
| B) | Implementation | 495 |
| C) | Justification | 496 |
| D) | Connection with Cloud Computing..... | 499 |
| E) | Conclusion | 500 |
| Section V | Summary of the Present Recommendations..... | 501 |
| Chapter 3: | Avenues of Further Research..... | 503 |
| Section I | Introduction | 503 |
| Section II | Other Aspects of Tax Law | 503 |
| Section III | Other Fields of Legal Study | 507 |
| Section IV | Quantitative Research..... | 509 |
| Section V | Conclusion on Further Research..... | 511 |
| Chapter 4: | Summary of the International Taxation of Cloud Computing | 513 |

Acknowledgements

This doctoral thesis was defended in front of a panel of five Professors of the Faculty of Law at the University of Geneva on March 10, 2020 (online references last updated on July 2, 2020). I thank my thesis director Prof. Dr. Xavier Oberson, Professor for tax law at the University of Geneva, for sparking my first interest in tax law in undergraduate school and for later accepting me as a research and teaching assistant in this field, and Prof. Dr. Christian Bovet, for accompanying my seminar paper on the subject of this thesis in graduate school. I thank them along with Professors Madeleine Simonek (Professor for tax law at University of Zurich), Thierry Obrist (Professor for tax law at University of Neuchâtel), and Sylvain Marchand (Vice-Director of the Faculty of Law at University of Geneva) for having participated in the thesis defense and for their valuable critique.

Special thanks belong to Swisscom AG in Worblaufen, especially Romana Giesen, Mirko Cimeli, and Peter Stummer, who provided me with a realistic view of the cloud computing business from the perspective of a large cloud service provider and hoster. Further thanks to ATEGRA AG in Zurich and its developers of the cloud-based rapid application development toolkit Protogrid (an example for a platform as a service), in particular Joel Uster, Michel Müller, and Josias Müller, who involved me in some aspects of the design process and explained critical technological aspects of it. Moreover, I would like to thank the tax team of Bär & Karrer AG in Zurich, especially Susanne Schreiber, Daniel Bader, Dr. Daniel Lehmann, and Dr. Ruth Bloch-Riemer for their comments on the manuscript and their flexibility as employers during the editing phase.

Furthermore, I would like to express my deepest gratitude to my French teacher Mr. Florian Ellenberger for his linguistic support up until the preparation of the thesis defense and beyond. Finally, I am very thankful for the comments and pointers from Dr. Richard Hill, Dr. Giedre Lideikyte-Müller, Dr. Fabien Liégeois, Dr. Aurélie Gavillet, Dr. Michel Reymond, Dr. Robert Jacobson, Pierre Heuzé, Henrik

Dummermuth from Ernst & Young in Zurich, Pascal Duss from the Swiss Federal Tax Administration in Berne, Nicolas Haas, Romain Leblond-Masson, Anton Vallélian, Robin Souarez, Yasmine Sabry Dellagana, and Lisa Raiz. With Federico Zari Malacrida, Sven Hammann, and Kanika Shirole I was able to further boost my motivation throughout the writing process.

The thesis is dedicated to my parents, María Francisca Machado Weisser and Gregor Weisser.

Männedorf, May 1, 2020

Alexander Weisser

List of Abbreviations

| | |
|-----------|---|
| 10-K form | Annual report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)) to the US Securities and Exchange Commission |
| AAR | Authority for Advance Rulings |
| ACF | <i>arrêté du Conseil fédéral</i> (=decision of the Federal Council) |
| ACM | Association for Computing Machinery |
| AO | <i>Abgabenordnung in der Fassung der Bekanntmachung vom 1. Oktober 2002</i> (BGBl. I S. 3866; 2003 I S. 61), <i>die zuletzt durch Artikel 5 des Gesetzes vom 3. Dezember 2015</i> (BGBl. I S. 2178) <i>geändert worden ist</i> (=Order of Public Contributions) |
| AOA | Authorized OECD Approach |
| ASA | <i>Archives de droit fiscal suisse</i> (=Archive for Swiss Public Contribution Law) |
| ASP | application service provider |
| ASR | <i>Études en Droit Suisse</i> (=Studies in Swiss Law) |
| ATF | <i>Recueil officiel des arrêts du Tribunal fédéral</i> (=Official Collection of Swiss Federal Supreme Court Decisions) |
| AWS | Amazon Web Services |
| B2B | business to business |
| B2C | business to consumer |
| BB | <i>Der Betriebsberater</i> (=The Business Adviser) |

| | |
|---------|--|
| BEPS | base erosion and profit shifting |
| BFH | <i>Bundesfinanzhof</i> (=German Federal Fiscal Court) |
| BGBL. | <i>Bundesgesetzblatt</i> (=Federal Law Gazette) |
| BStBl. | <i>Bundessteuerblatt</i> (=Federal Tax Gazette) |
| BTR | British Tax Review |
| BV | <i>Constitution fédérale de la Confédération suisse du 18 avril 1999</i> (RS 101) (=Swiss Federal Constitution) |
| CA | California |
| CC | <i>Code civil suisse du 10 décembre 1907</i> (RS 101) (=Swiss Federal Constitution) |
| CCA | cost contribution arrangement |
| CCFI | <i>Centre de Droit Commercial, Fiscal et de l'Innovation</i> (=Center for Commercial, Tax and Innovation Law) |
| CD | compact disc |
| CDFI | <i>Cahiers de droit fiscal international</i> (=International Tax Law Reports) |
| CEDIDAC | <i>Centre du droit de l'entreprise de l'Université de Lausanne</i> (=Center for the Law of the enterprise at University of Lausanne) |
| CFC | controlled foreign company |
| CHE | three-letter country code for Switzerland defined in ISO 3166-1 alpha-3 standard, as used in the Swiss system of business identification numbers pursuant to Art. 5(a) of the relevant regulation, i.e., the <i>Ordonnance sur le numéro d'identification des entreprises (OIDE) du 26 janvier 2011</i> (RS 431.031) |

| | |
|------|---|
| CHF | ISO 4217 abbreviation for the Swiss franc, national currency |
| CIV | collective investment vehicle |
| CO | Code of Obligations, Federal Act on the Amendment of the Swiss Civil Code (Part Five: The Code of Obligations); in French: <i>Loi fédérale complétant le Code civil suisse (Livre cinquième: Droit des obligations) (CO) du 30 mars 1911</i> (RS 220) |
| COM | European Commission |
| CopA | Federal Act on Copyright and Related Rights (Copyright Act, CopA); in French: <i>Loi fédérale sur le droit d'auteur et les droits voisins (Loi sur le droit d'auteur, LDA) du 9 octobre 1992</i> (RS 231.1) |
| CoRo | <i>Commentaire romand</i> (=Collection of French-Swiss Law Commentaries) |
| CPU | central processing unit |
| CSS | cascading style sheet |
| Cst. | <i>Constitution fédérale de la Confédération suisse du 18 avril 1999</i> (RS 101) (=Federal Constitution of the Swiss Confederation) |
| CTR | <i>Current Tax Reporter</i> |
| CUP | comparable uncontrolled price |
| DBA | <i>Doppelbesteuerungsabkommen</i> (=Double Taxation Agreement) |
| DBG | <i>Loi fédérale sur l'impôt fédéral direct (LIFD) du 14 décembre 1990</i> (RS 642.11) (=Swiss Direct Tax Code—DTC) |
| DC | District of Columbia |

| | |
|---------|--|
| Del | Delhi income tax bench |
| DEMPE | development, enhancement, maintenance, protection and exploitation (of intangibles) |
| DPC | <i>Droit et politique de la concurrence en pratique</i> (=Antitrust Law and Politics in Practice, Swiss review) |
| DTA | Double Taxation Agreement |
| DTC | Swiss Direct Tax Code; in French: <i>Loi fédérale sur l'impôt fédéral direct (LIFD) du 14 décembre 1990</i> (RS 642.11) |
| DTD | Decision of the Federal Council concerning the levy of a federal direct tax; in French: <i>ACF concernant la perception d'un impôt fédéral direct (AIFD) du 9 décembre 1940</i> (RO 56 2021) |
| EC | European Community |
| EC2 | Amazon Elastic Compute Cloud (Compute Cloud → C2) |
| ECS | <i>L'expert comptable suisse</i> (=The Swiss Tax Expert) |
| EG ZGB | <i>Einführungsgesetz zum Schweizerischen Zivilgesetzbuch (EG ZGB) vom 2. April 1911</i> (230) (=Zurich Law Implementing the Swiss Civil Code) |
| EU | European Union, <i>Europäische Union</i> |
| EUCOTAX | European Universities COoperating on TAXes |
| f. | and the following page(s)/paragraph(s) |
| FF | <i>Feuille Fédérale</i> (=Federal Gazette; page references are made to the French version, which may differ from the versions in German and Italian) |

| | |
|---------------|--|
| FStR | <i>IFF Forum für Steuerrecht</i> (=IFF Forum for Tax Law) |
| GAAP | Generally Accepted Accounting Principles |
| GDP | gross domestic product |
| GesKR | <i>Gesellschafts- und Kapitalmarktrecht</i> (=Company and Capital Market Law) |
| GPT | general purpose technology |
| GST | goods and services tax |
| HBLR | Harvard Business Law Review |
| HM | Her Majesty's |
| HTML | hypertext markup language |
| IaaS | infrastructure as a service |
| IBFD | International Bureau of Fiscal Documentation |
| IBM | International Business Machines Corporation |
| ICS equipment | industrial, commercial, or scientific equipment |
| ICT | information and communication technology |
| IEEE | Institute of Electrical and Electronics Engineers |
| IFA | International Fiscal Association |
| IFF | <i>Institut für Finanzwissenschaft, Finanzrecht und Law and Economics</i> (=Institute for Financial Sciences, Financial Law and Law and Economics) |
| IFI | Department of Informatics, <i>Institut für Informatik</i> |
| ifst | <i>Institut Finanzen und Steuern</i> (=Institute for Finance and Taxes) |
| IJCSET | International Journal of Computer Science & Engineering Technology |

| | |
|----------------|---|
| IJCSIT | International Journal of Computer Science and Information Technologies |
| IMC | Internet Measurement Conference |
| inl. | <i>inländisch/-e</i> (=domestic/inbound/local) |
| InTeR | <i>Zeitschrift zum Innovations- und Technikrecht</i> (=Journal for Innovation and Technology Law) |
| IP | Internet protocol; intellectual property |
| ISO | International Organization for Standardization |
| ISP | Internet service provider |
| ISR | <i>Internationale Steuerrundschau</i> (=International Tax Overview) |
| IStR | <i>Internationales Steuerrecht</i> (=International Tax Law) |
| IT | information technology |
| ITJ | International Tax Journal |
| ITNG | Information Technology: New Generations |
| ITRB | <i>Der IT-Rechts-Berater</i> (=IT Law Adviser) |
| JLTP, Illinois | University of Illinois Journal of Law, Technology & Policy |
| JMIS | Journal of Management Information Systems |
| LaCC | <i>Loi d'application du code civil suisse et d'autres lois fédérales en matière civile (LaCC) du 11 octobre 2012 (E 1 05)</i> (=Geneva law implementing the Swiss Civil Code) |
| LGVE | <i>Luzerner Gerichts- und Verwaltungsentscheide</i> (=Lucerne Court and Administrative Opinions) |

| | |
|-----------------|---|
| LIA | <i>Loi fédérale sur l'impôt anticipé (LIA) du 13 octobre 1965 (RS 642.21) (=Anticipated Tax Law)</i> |
| LIFD | <i>Loi fédérale sur l'impôt fédéral direct (LIFD) du 14 décembre 1990 (RS 642.11) (=Swiss Direct Tax Code—DTC)</i> |
| LVIS | low value-adding intragroup services |
| MA | <i>Musterabkommen</i> (=Model Convention); Commonwealth of Massachusetts |
| MBB | <i>Maandblad Belasting Beschouwingen</i> (=Monthly Bulletin of Tax Studies) |
| MIT | Massachusetts Institute of Technology |
| MLI | OECD Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting |
| MNE | multinational enterprise |
| MOECD | OECD Model Tax Convention on Income and on Capital |
| n.p. | no place (of publication) |
| NIST | National Institute of Standards and Technology |
| NJ | New Jersey |
| NZZ | <i>Neue Zürcher Zeitung</i> (=New Zurich Newspaper) |
| OCDE | Organisation de coopération et de développement économiques, Organisation for Economic Co-operation and Development |
| OECD COMMENTARY | Commentaries on the Articles of the Model Tax Convention, in: OECD, <i>Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)</i> , Paris 2019, pp. C(1) f. |

| | |
|-----------|--|
| OECD TPG | OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, Paris July 2017 |
| OECD | Organisation for Economic Co-operation and Development |
| PaaS | platform as a service |
| PE | permanent establishment |
| PJA | <i>Pratique Juridique Actuelle</i> (=Current Legal Practice) |
| R&D | research and development |
| RAM | random-access memory |
| RDAF | <i>Revue de droit administratif et de droit fiscal</i> (=Administrative and Tax Law Review) |
| RDS | <i>Revue de droit suisse</i> (=Swiss Law Review) |
| RF | <i>Revue fiscale</i> (=Tax Law Review) |
| RS | <i>Recueil systématique du droit fédéral</i> (=Classified Compilation of Federal Law) |
| RSDA | <i>Revue suisse de droit des affaires et du marché financier</i> (=Swiss Review of Business and Financial Markets Law) |
| SA | société anonyme |
| SaaS | software as a service |
| SAN | storage area network |
| SCC | IEEE International Conference on Services Computing |
| SchlT ZGB | <i>Titre final Code civil suisse du 10 décembre 1907</i> (RS 210) (=Final Title Swiss Civil Code) |

| | |
|---------------|--|
| <i>sic!</i> | <i>sic! – Revue du droit de la propriété intellectuelle, de l'information et de la concurrence (=sic! – Intellectual Property, Information and Competition Law Review)</i> |
| SIF | Swiss State Secretariat for International Financial Matters |
| SIGCOMM | Association for Computing Machinery's Special Interest Group on Data Communications |
| SIGMETRICS | Association for Computing Machinery's Special Interest Group on Measurement and Evaluation |
| SLA | service-level agreement |
| SOT | Select Order of Tribunals |
| StE | <i>Der Steuerentscheid (=The Tax Decision)</i> |
| StHG | <i>Loi fédérale sur l'harmonisation des impôts directs des cantons et des communes (LHID) du 14 décembre 1990 (RS 642.14) (=Swiss Federal Tax Harmonization Law)</i> |
| StuW | <i>Steuer und Wirtschaft (=Tax and Economy)</i> |
| SWI | <i>Steuern und Wirtschaft International (=Taxes and Economy International)</i> |
| T.C. | Tax Court |
| TIA | Telecommunications Industry Association |
| TK | <i>Telekommunikation (=Telecommunication)</i> |
| TNMM | transactional net margin method |
| TOE-DOI model | technology-organization-environment and diffusion-of-innovation model |
| TP | transfer pricing |
| TRACE | OECD Treaty Relief and Compliance Enhancement project |

| | |
|----------------|---|
| TTJ | Tax tribunal judgment |
| Ubg | <i>Die Unternehmensbesteuerung</i> (=Business Taxation) |
| UN COMMENTARY | Part Two: Commentaries on the Articles of the United Nations Model Double Taxation Convention between Developed and Developing Countries, in: United Nations Model Double Taxation Convention between Developed and Developing Countries 2017 Update, ST/ESA/PAD/SER.E/, New York 2018, pp. 57 f. |
| UN Model | United Nations Model Double Taxation Convention |
| UN | United Nations |
| URG | <i>Loi fédérale sur le droit d'auteur et les droits voisins (Loi sur le droit d'auteur, LDA) du 9 octobre 1992 (RS 231.1)</i> (=Federal Act on Copyright and Related Rights, CopA) |
| US Treas. Reg. | US Treasury Regulations |
| US | United States |
| VAT | value-added tax |
| VCLT | Vienna Convention on the Law of Treaties, concluded at Vienna on May 23, 1969; in French: <i>Convention de Vienne sur le droit des traités, Conclue à Vienne le 23 mai 1969, Approuvée par l'Assemblée fédérale le 15 décembre 1989, Instrument d'adhésion déposé par la Suisse le 7 mai 1990, Entrée en vigueur pour la Suisse le 6 juin 1990</i> (RS 0.111) |
| VEB | <i>Volkseigener Betrieb</i> (=Publicly Owned Enterprise of the German Democratic Republic) |
| VoIP | Voice over IP (=Internet Protocol) |
| XXX | |

| | |
|------|--|
| WISE | International Conference on Web Information Systems Engineering |
| XaaS | anything (=“X”) as a service |
| ZGB | <i>Code civil suisse du 10 décembre 1907</i> (RS 210) (=Swiss Civil Code) |
| ZStP | <i>Zürcher Steuerpraxis</i> (=Zurich Tax Practice) |

Bibliography

ABDALLAH, WAGDY M./MURTUZA, ATHAR, *Transfer Pricing Strategies of Intangible Assets, E-Commerce and International Taxation of Multinationals*, ITJ 2/2006 pp. 5–46.

ACKERMANN, MONIKA, *Software: Beschränkte Steuerpflicht bei der grenzüberschreitenden Überlassung von Software*, ISR 2016 pp. 258–264.

AGNER, PETER/JUNG, BEAT/STEINMANN, GOTTHARD/DIGERONIMO, ANGELO, *Commentaire de la loi sur l'impôt fédéral direct*, translated from the German by Laffely Maillard, Gladys/Lampert, Jean, Schulthess, Zurich 2001.

AIGNER, HANS-JÖRGEN/ZÜGER, MARIO (eds.), *Permanent Establishments in International Tax Law*, Linde, Vienna 2003 (*Schriftenreihe zum Internationalen Steuerrecht* 29).

ALKAHIL, ADEL/SAHANDI, REZA/JOHN, DAVID, *An exploration of the determinants for decision to migrate existing resources to cloud computing using an integrated TOE-DOI model*, *Journal of Cloud Computing* 6/2017 [online only]

ALLMAN, MARK (ed.), *IMC '10 Proceedings of the 10th ACM SIGCOMM Conference on Internet Measurement*, ACM, New York 2010.

ANDRIKOPOULOS, VASILIOS/SONG, ZHE/LEYMANN, FRANK, *Supporting the Migration of Applications to the Cloud through a Decision Support System*, in: *Proceedings 2013 IEEE Sixth International Conference on Cloud Computing (CLOUD 2013)*, Conference Publishing Services, Los Alamitos/Washington/Tokyo 2013, pp. 565–572.

ARNOLD, BRIAN J., *Threshold Requirements for Taxing Business Profits Under Tax Treaties*, *Bulletin for International Taxation* 2003 pp. 476–492.

ASSMUS, UBBO/KEPELER, LUTZ M./AMANN, ANTON, *Rechtliche Implikationen der Einbettung von (Open Source-) Software in technischen Normen und Dokumenten*, InTeR 2017 pp. 79–85.

ATHANAS, PETER, 6. Kapitel—Die Betriebsstätte bzw. die feste Einrichtung, in: Höhn, Ernst (ed.), *Handbuch des Internationalen Steuerrechts der Schweiz*, 2nd ed., Haupt, Bern/Vienna/Stuttgart 1993, pp. 206–225.

ATHANAS, PETER, *Aussensteuerliche Bestimmungen im DBG und StHG*, in: Höhn, Ernst/Athanas, Peter (eds.), *Das neue Bundesrecht über die direkten Steuern*, Haupt, Bern 1993, pp. 405–445.

ATHANAS, PETER/GIGLIO, GIUSEPPE, in: Zweifel, Martin/Athanas, Peter (eds.), *Kommentar zum Schweizerischen Steuerrecht I/2a, Bundesgesetz über die direkte Bundessteuer (DBG)*, 2nd ed., Helbing & Lichtenhahn, Basel 2008, Art. 51.

AVERY JONES, JOHN F./WARD, DAVID A., *Agents as Permanent Establishments under the OECD Model Tax Convention*, *European Taxation* 1993 pp. 154–181.

ÁVILA, HUMBERTO, *Certainty in Law*, Springer, Cham 2016 (*Law and Philosophy Library* 114).

AVI-YONAH, REUVEN S./XU, HAIYAN, *Evaluating BEPS: A Reconsideration of the Benefits Principle and Proposal for UN Oversight*, *HBLR* 2017 pp. 185–237.

BACKU, FRIEDER, *Steuerliche Aspekte von Cloud Computing und anderen Webservices*, *ITRB* 2011 pp. 184–186.

BAKER, PHILIP (ed.), *Double Taxation Conventions: A Manual on the OECD Model Tax Convention on Income and on Capital*, Thomson/Sweet & Maxwell, London 2015 (loose-leaf; from 2001).

BAL, ALEKSANDRA, *(Mis)guided by the Value Creation Principle—Can New Concepts Solve Old Problems?*, *Bulletin for International Taxation* 2018 [online only].

BAL, ALEKSANDRA, *The Spanish Dell Case—Do We Need Anti-BEPS Measures If the Existing Rules Are Broad Enough?*, *European Taxation* 2016 pp. 574–577.

BAL, ALEKSANDRA, *The Sky's the Limit—Cloud-Based Services in an International Perspective*, *Bulletin for International Taxation* 2014 pp. 515–521.

BAL, ALEKSANDRA, *Tax Implications of Cloud Computing—How Real Taxes Fit into Virtual Clouds*, *Bulletin for International Taxation* 2012 pp. 335–339.

BAL, ALEKSANDRA/OFFERMANN, RENÉ, *Internationale belastingheffing van cloud computing*, MBB 2014 pp. 325–332.

BALDWIN, CARLISS Y., *Bottlenecks, Modules and Dynamic Architectural Capabilities*, May 2015 (Harvard Business School Working Paper 15-028).

BARDIN, MICHAËL, *L'émergence du principe de la sécurité juridique en droit fiscal*, in: Boyer, Alain/Schmitt, Sylvie (eds.), *La sécurité juridique et le contribuable*, Presses universitaires d'Aix-Marseille, Aix-en-Provence 2016, pp. 63–80.

BARKI, HENRI/RIVARD, SUZANNE/TALBOT, JEAN, *Toward an Assessment of Software Development Risk*, *JMIS* 2/1993 pp. 203–225.

BARSONY, FARKAS, *The Agency Permanent Establishment*, in: Aigner, Hans-Jürgen/Züger, Mario (eds.), *Permanent Establishments in International Tax Law*, Linde, Vienna 2003, pp. 127–179 (*Schriftenreihe zum Internationalen Steuerrecht* 29).

BAUER, ERIC/ADAMS, RANDEE, *Reliability and Availability of Cloud Computing*, Wiley/IEEE Press, Hoboken 2012.

BAUER-BALMELLI, MAJA/OMLIN, LUCIA, in: Zweifel, Martin/Athanas, Peter (eds.), *Kommentar zum Schweizerischen Steuerrecht I/2a, Bundesgesetz über die direkte Bundessteuer (DBG)*, Helbing & Lichtenhahn, Basel 2008, Art. 4.

BAUMGARTNER, PETER, *Switzerland—Comments on Revised Draft of PE Definition*, *Tax Planning International e-commerce* 7/2000 pp. 18–19.

BAUMHOFF, HUBERTUS, *Kapitel 5: Methoden zur Ermittlung des angemessenen Verrechnungspreises, B. Klassische Methoden*, in: Wassermeyer, Franz/Baumhoff, Hubertus (eds.), *Verrechnungspreise international verbundener Unternehmen*, Otto Schmidt, Cologne 2014, pp. 317–389.

BAUMHOFF, HUBERTUS/LIEBCHEN, DANIEL, *Kapitel 3: Der Fremdvergleich als Instrument internationaler Einkünfteabgrenzung*, in: Wassermeyer,

Franz/Baumhoff, Hubertus (eds.), *Verrechnungspreise international verbundener Unternehmen*, Otto Schmidt, Cologne 2014, pp. 158–278.

BECKER, JOHANNES/ENGLISCH, JOACHIM, *Taxing Where Value Is Created: What's "User Involvement" Got to Do with It?*, *Intertax* 2019 pp. 161–171.

BEDNER, MARK, *Cloud Computing–Technik, Sicherheit und rechtliche Gestaltung*, thesis, Kassel University Press, Kassel 2012 (*Forum Wirtschaftsrecht* 14).

BÉNARD, MARC/BERDOZ, DENIS/BOURTERAULT, PIERRE-YVES, in: Danon, Robert/Gutmann, Daniel/Oberson, Xavier/Pistone, Pasquale (eds.), *Modèle de Convention fiscale OCDE concernant le revenu et la fortune, Commentaire*, Helbing & Lichtenhahn, Basel 2014, Art. 5.

BENDLINGER, STEFAN, *Die Betriebsstätte in der Praxis des internationalen Steuerrechts*, 3rd ed., LexisNexis, Vienna 2016.

BENDLINGER, STEFAN, *Massnahmen der OECD gegen die künstliche Vermeidung von Betriebsstätten (BEPS-Action 7)*, *SWI* 2015 pp. 2–12.

BENDLINGER, STEFAN, *Austria*, in: *Is there a permanent establishment?*, Sdu, The Hague/London/Boston 2009 (CDFI 94a), pp. 109–130.

BENNETT MOSES, LYRIA, *Recurring Dilemmas: The Law's Race to Keep up with Technological Change*, Illinois JLTP 2007 pp. 239–286.

BERANEK ZANON, NICOLE/DE LA CRUZ BÖHRINGER, CARMEN, *Urheberrechtliche Beurteilung von IaaS- (und XaaS-) Cloud-Diensten für die betriebliche Nutzung gemäss Art. 19 URG, sic!* 2013 pp. 663–681.

BERNSTEIN, PHILIP A./NEWCOMER, ERIC, *Principles of Transaction Processing*, 2nd ed., Morgan Kaufmann, Burlington, MA 2009.

BIAGGINI, GIOVANNI, *BV Kommentar, Bundesverfassung der Schweizerischen Eidgenossenschaft*, 2nd ed., Orell Füssli, Zurich 2017.

BIANCO, JOÃO FRANCISCO/TOMAZELA SANTOS, RAMON, *A Change of Paradigm in International Tax Law: Article 7 of Tax Treaties and the Need To Resolve the Source versus Residence Dichotomy*, *Bulletin for International Taxation* 2016 [online only].

BINGGELI, ANDRÉ, in: Zweifel, Martin/Beusch, Michael/Matteotti, René (eds.), *Internationales Steuerrecht*, Helbing & Lichtenhahn, Basel 2015, Arts. 23 A–23 B.

BORGES, GEORG/MEENTS, JAN GEERT (eds.), *Cloud Computing–Rechtshandbuch*, Beck, Munich 2016.

BOSS, WALTER/IGLESIAS, NELLY, *Host Country Switzerland, Tax Management International Journal*, 4/2014 pp. 110–113.

BOYER, ALAIN/SCHMITT, SYLVIE (eds.), *La sécurité juridique et le contribuable*, Presses universitaires d'Aix-Marseille, Aix-en-Provence 2016.

BRADY, JAMES C., *Legal Certainty: the Durable Myth*, *Irish Jurist* 1973 pp. 18–32.

BRAUNER, YARIV/PISTONE, PASQUALE, *Some Comments on the Attribution of Profits to the Digital Permanent Establishment*, *Bulletin for International Taxation* 4a/2018 pp. 1–3.

BRÜLISAUER, PETER, in: Zweifel, Martin/Beusch, Michael/Matteotti, René (eds.), *Internationales Steuerrecht*, Helbing & Lichtenhahn, Basel 2015, Art. 7.

BUCHANAN, RANDOLPH J., *The New-Millennium Dilemma: Does Reliance on the Use of Computer Servers and Websites in a Global Electronic Commerce Environment Necessitate a Revision to the Current Definition of a Permanent Establishment?*, *Southern Methodist University Law Review* 2001 pp. 2109–2152.

BÜCHLER, ANDREA/JAKOB, DOMINIQUE (eds.), *Kurzkommentar ZGB Schweizerisches Zivilgesetzbuch*, Helbing & Lichtenhahn, Basel 2018.

BULLA, DANAMMA M./UDUPI, V. R., *Cloud Billing Model: A Review*, *IJSIT* 2014 pp. 1455–1458.

CADOSCH, ROGER M., *Besteuerungsprobleme beim Electronic Commerce*, University of Berne thesis, Stämpfli, Bern 2001 (*Berner Beiträge zum Steuer- und Wirtschaftsrecht* 14).

CAGIANUT, FRANCIS/VALLENDER, KLAUS A. (eds.), *Ausgewählte Probleme am Ende des 20. Jahrhunderts–Festschrift zum 65. Geburtstag von Ernst Höhn*, Haupt, Bern/Stuttgart/Vienna 1995.

CAN, HARUN, *Switzerland*, in: *Enterprise services*, Sdu, The Hague 2012 (CDFI 97a), pp. 669–683.

CARIDI, ALESSANDRO, *Proposed changes to the OECD Commentary on Article 5: Part I—The Physical PE Notion*, *European Taxation* 2003 pp. 8–20.

CASTELON, MARTA, *International Taxation of Income from Services under Double Taxation Conventions—Development, Practice and Policy*, University of São Paulo thesis, Wolters Kluwer, Alphen aan den Rijn 2018 (*Series on International Taxation* 63).

CATALDI, MATTEO, *The Attribution of Income to a Digital Permanent Establishment*, in: Kerschner, Ina/Somare, Maryte (eds.), *Taxation in a Global Digital Economy*, Linde, Vienna 2017, pp. 143–159.

CHERPILLOD, IVAN, in: Müller, Barbara K./Oertli, Reinhard (eds.), *Urheberrechtsgesetz (URG)—Bundesgesetz über das Urheberrecht und verwandte Schutzrechte mit Ausblick auf EU-Recht, deutsches Recht, US-Recht und Staatsverträge*, 2nd ed., Stämpfli, Bern 2012, Art. 2.

CHYTHANYA, K. K./NAYAK, RAJENDRA, *India*, in: *Withholding tax in the era of BEPS, CIVs and the digital economy*, Sdu, The Hague 2018 (CDFI 103b) [online only].

COBHAM, ALEX/JANSKÝ, PETR, *Global distribution of revenue loss from corporate tax avoidance: re-estimation and country results*, *Journal of International Development* 2018 pp. 206–232.

COCKFIELD, ARTHUR J., *Through the Looking Glass: Computer Servers and E-Commerce Profit Attribution*, *Tax Notes International* 2002 pp. 269–275.

COCKFIELD, ARTHUR J./HELLERSTEIN, WALTER/MILLAR, REBECCA/WAERZEGGERS, CHRISTOPHE, *Taxing Global Digital Commerce*, Wolters Kluwer, Alphen aan den Rijn 2013.

COTRUT, MADALINA/BAL, ALEKSANDRA/BETTEN, RIJKELE/HAMZAOU, RIDHA/OBUOFORIBO, BELEMA/OSTASZEWSKA, OLA (eds.), *International Tax Structures in the BEPS Era: An Analysis of Anti-Abuse Measures*, IBFD, Amsterdam 2015 (*IBFD Tax Research Series* 2).

COZMEI, CATALINA, *Is it any EU Corporate Income Tax Rate Revenue Paradox?*, *Procedia Economics and Finance* 2015 pp. 818–827.

DANON, ROBERT, in: Noël, Yves/Girardin, Florence Aubry (eds.), *Impôt fédéral direct—Commentaire de la loi sur l'impôt fédéral direct*, 2nd ed., CoRo, Helbing & Lichtenhahn, Basel 2017, Arts. 57, 58.

DANON, ROBERT, *Steuerfragen mit internationalem Bezug/Bénéfices "offshores" et exemption au sens de l'Art. 52 al. 1 LIFD—Analyse de l'arrêt rendu par le Tribunal Fédéral le 5 octobre 2012*, in: Uttinger, Laurence/Rentzsch, Daniel P./Conradin, Luzi (eds.), *Dogmatik und Praxis im Steuerrecht—Festschrift für Markus Reich*, Schulthess, Zurich 2014, pp. 355–370.

DANON, ROBERT, *Le principe de territorialité de l'impôt à l'épreuve de la planification fiscale des entreprises—Réflexions à propos de l'ATF 139 II 78 (arrêt 2C_708/2011, du 5.10.2012)*, RDAF 2013 II pp. 429–444.

DANON, ROBERT, *Fiscalité directe et restructurations internationales de sociétés de capitaux—Analyse comparative du droit suisse, européen et conventionnel*, ASA 2005/2006 pp. 257–311.

DANON, ROBERT/FALTIN, ALEXANDRE, in: Danon, Robert/Gutmann, Daniel/Oberson, Xavier/Pistone, Pasquale (eds.), *Modèle de Convention fiscale OCDE concernant le revenu et la fortune, Commentaire*, Helbing & Lichtenhahn, Basel 2014, Art. 13.

DANON, ROBERT/GUTMANN, DANIEL/OBERSON, XAVIER/PISTONE, PASQUALE (eds.), *Modèle de Convention fiscale OCDE concernant le revenu et la fortune, Commentaire*, Helbing & Lichtenhahn, Basel 2014.

DE BEAUREGARD-BERTHIER, DAVID, *Quelques réflexions générales sur la sécurité juridique et le contribuable*, in: Boyer, Alain/Schmitt, Sylvie (eds.), *La sécurité juridique et le contribuable*, Presses universitaires d'Aix-Marseille, Aix-en-Provence 2016, pp. 17–19.

DE LIMA CARVALHO, LUCAS, *Spiritus Ex Machina: Addressing the Unique BEPS Issues of Autonomous Artificial Intelligence by using "Personality" and "Residence"*, Intertax 2019 pp. 425–443.

DE MITRI, THIERRY, *Le traitement fiscal de la vente d'une société immobilière suisse par une société de capitaux étrangère—Questions choisies dans les relations internationales*, GesKR 2009 pp. 563–572.

DE VRIES REILINGH, DANIEL, *Manuel de droit fiscal international*, Weblaw, Bern 2014.

DE VRIES REILINGH, DANIEL, *Le droit fiscal intercantonal et le droit fiscal international de la Suisse: systèmes, relations, comparaison et examen de la jurisprudence*, University of Neuchâtel thesis, Schulthess, Geneva 2011 (CCFI 6).

DE VRIES REILINGH, DANIEL, *The concept of permanent establishment*, *Intertax* 2010 pp. 577–587.

DEITMER, ANNIKA/DÖRR, INGMAR/RUST, ALEXANDER, *Invitational Seminar on Tax Treaty Rules Applicable to Permanent Establishments—in Memoriam of Prof. Dr Berndt Runge*, *Bulletin for International Fiscal Documentation* 2004 pp. 183–189.

DILL, MARKUS, *Internet-Verträge*, PJA 2000 pp. 1513–1525.

DITZ, XAVER, G. *Verrechnungspreise im Bereich des e-Business*, in: Wassermeyer, Franz/Baumhoff, Hubertus (eds.), *Verrechnungspreise international verbundener Unternehmen*, Otto Schmidt, Cologne 2014, pp. 858–893.

DOERNBERG, RICHARD L./HINNEKENS, LUC, *Electronic Commerce and International Taxation*, Kluwer Law International, The Hague 1999.

DOERNBERG, RICHARD L./HINNEKENS, LUC/HELLERSTEIN, WALTER/LI, JINYAN, *Electronic Commerce and Multijurisdictional Taxation*, Kluwer Law International, The Hague 2001.

DOMÉJ, TANJA/SCHMIDT, CÉLINE P., in: Büchler, Andrea/Jakob, Dominique (eds.), *Kurzkommentar ZGB Schweizerisches Zivilgesetzbuch*, Helbing & Lichtenhahn, Basel 2018, Art. 642.

DUBOIS, CAMILLE, *Le Modèle de Convention fiscale concernant le revenu et la fortune de l'OCDE et son Commentaire – Compte rendu de la contribution orale de Messieurs Pascal Duss et Gian Sandri*, *LeGes* 2018 pp. 1–4.

DURKEE, DAVE, *Why Cloud Computing Will Never Be Free*, *Communications of the ACM* 5/2010 pp. 62–69.

DÜRR, SAMUEL/RUMO, GABRIEL, *Betriebstätten im Internet—Neue Regelungen nur auf multilateraler Ebene sinnvoll*, *ECS* 1999 pp. 395–402.

ECKL, PETRA, *Germany*, in: *Is there a permanent establishment?*, Sdu, The Hague/London/Boston 2009 (CDFI 94a), pp. 317–335.

EISENBEISS, JUSTUS, *BEPS Action 7: Evaluation of the Agency Permanent Establishment*, *Intertax* 2016 pp. 481–502.

EISENRING, PETER, in: Zweifel, Martin/Beusch, Michael/Matteotti, René (eds.), *Internationales Steuerrecht*, Helbing & Lichtenhahn, Basel 2015, Art. 9.

EISENRING, PETER/REGLI, FLORIAN, *Switzerland*, in: *Assessing BEPS: origins, standards and responses*, Sdu, The Hague 2017 (CDFI 102b), pp. 753–770.

ETRO, FEDERICO, *The Economic Impact of Cloud Computing on Business Creation, Employment and Output in Europe—An application of the Endogenous Market Structures Approach to a GPT innovation*, *Review of Business and Economics* 2009 pp. 179–208.

EVANS, KEITH R., *Leased Equipment: When Does a Permanent Establishment Exist?*, *Canadian Tax Journal* 2002 pp. 489–523.

FALTIN, ALEXANDRE, in: Danon, Robert/Gutmann, Daniel/Oberson, Xavier/Pistone, Pasquale (eds.), *Modèle de Convention fiscale OCDE concernant le revenu et la fortune, Commentaire*, Helbing & Lichtenhahn, Basel 2014, Art. 6.

FERRARI, ELENA/KALIAPPA, RAVINDRAN/HUNG, PATRICK C. K. (eds.), *Proceedings 2014 IEEE International Conference on Services Computing (SCC 2014)*, Conference Publishing Services, Los Alamitos/Piscataway/Tokyo 2014.

FISHER, MARA, *New Zealand—Comments on Revised Draft of PE, Tax Planning International e-commerce 7/2000* pp. 17–18.

FLANAGAN, DAVID, *JavaScript: the definitive guide*, O'Reilly, Sebastopol, CA 2011.

FLICK, HANS/WASSERMEYER, FRANZ/KEMPERMANN, MICHAEL (eds.), *Doppelbesteuerungsabkommen Deutschland-Schweiz*, 48th update, Otto Schmidt, Cologne 2018 (loose-leaf; from 1981).

FLÜCKIGER, ALEXANDRE, *(Re)faire la loi – Traité de légistique à l'ère du droit souple*, Bern 2019

FLYNN, CHANNING/CROSBY, JOE/PERKS, NANCY/SPRAGUE, GARY D., *Session 7. Navigating the Cloud: Keeping Pace with the Evolving Taxation of Cloud Computing and E-Commerce, Taxes—The Tax Magazine* 6/2013 pp. 77–88 & 124.

FOËX, BÉNÉDICT, in: Pichonnaz, Pascal/Foëx, Bénédicte/Piotet, Denis (eds.), *Code Civil II—Art. 457–977 CC, Art. 1–61 Tit. fin. CC*, CoRo, Helbing & Lichtenhahn, Basel 2016, Arts. 644–645.

FORMENTI, MARTHA/TROUW, ERNESTO, *Brazil*, in: *Withholding tax in the era of BEPS, CIVs and the digital economy*, Sdu, The Hague 2018 (CDFI 103b) [online only].

FORST, DAVID L., *Old and New Issues in the Taxation of Electronic Commerce*, *Berkeley Technology Law Journal* 1999 pp. 711–719.

FORST, DAVID L., *The Continuing Vitality of Source-Based Taxation in the Electronic Age*, *Tax Notes International* 1997 pp. 1455–1473.

FORSTMOSER, PETER, *Hektik statt Bedächtigkeit: Entwicklungen in der Schweizer Gesetzgebung*, in: Griffel, Alain (ed.), *Vom Wert einer guten Gesetzgebung*, Stämpfli, Bern 2014, pp. 9–24.

FROTSCHER, GERRIT, *Internationales Steuerrecht*, 3rd ed., Beck, Munich 2009.

FULLER, THOMAS D./REYNOLDS, BRUCE W., *United States*, in: *Withholding tax in the era of BEPS, CIVs and the digital economy*, Sdu, The Hague 2018 (CDFI 103b) [only online].

GARCÍA HEREDIA, ALEJANDRO, *Software Royalties in Tax Treaties: Should Copyright Rights Be Reconsidered in the OECD Commentary on Article 12?*, *Bulletin for International Taxation* 2005 pp. 225–235.

GAVILLET, AURÉLIE, *La pratique administrative dans l'ordre juridique suisse*, University of Geneva thesis, Stämpfli, Bern 2018 (ASR 827).

GENG, HWAIYU (ed.), *Data Center Handbook*, Wiley, Hoboken, NJ 2015.

GLAUSER, PIERRE-MARIE/OBERSON, XAVIER, in: Noël, Yves/Girardin, Florence Aubry (eds.), *Impôt fédéral direct—Commentaire de la loi sur l'impôt fédéral direct*, 2nd ed., CoRo, Helbing & Lichtenhahn, Basel 2017, Art. 61.

GOLDMAN, JAMES E./RAWLES, PHILLIP T./MARIGA, JULIE R., *Client/Server Information Systems: A Business-Oriented Approach*, Wiley, New York 1999.

GOMETZ, GIANMARCO, *Indici di certezza del diritto, Diritto & Questioni pubbliche* 2012 pp. 309–343.

GÓMEZ REQUENA, JOSÉ ÁNGEL, *Tax Treaty Characterization of Income Derived from Cloud Computing and 3D Printing and the Spanish Approach*, *Intertax* 2018 pp. 408–421.

GÖRL, MAXIMILIAN, in: Vogel, Klaus/Lehner, Moris (eds.), *Doppelbesteuerungsabkommen der Bundesrepublik Deutschland auf dem Gebiet der Steuern vom Einkommen und Vermögen—Kommentar auf der Grundlage der Musterabkommen*, Beck, Munich 2015, Art. 5.

GRAF, MATHIAS, *Gewinnabgrenzung im Electronic Commerce—Eine funktionsanalytische Untersuchung der steuerlichen Verrechnungspreise im Internationalen Konzern*, Katholische Universität Eichstätt-Ingolstadt thesis, Kovač, Hamburg 2003 (*Schriftenreihe Betriebswirtschaftliche Steuerlehre in Forschung und Praxis* 8).

GREENBERG, BRAD A., *Rethinking Technology Neutrality*, *Minnesota Law Review* 2016 pp. 1495–1562.

GREIL, STEFAN/FEHLING, DANIEL, *Verrechnungspreisbestimmung im Zeitalter der Digitalisierung*, *IStR* 2017 pp. 757–765.

GREINERT, MARKUS, *Kapitel 5: Methoden zur Ermittlung des angemessenen Verrechnungspreises, C. Gewinnerorientierte Methoden*, in: Wassermeyer, Franz/Baumhoff, Hubertus (eds.), *Verrechnungspreise international verbundener Unternehmen*, Otto Schmidt, Cologne 2014, pp. 351–389.

GRIFFEL, ALAIN (ed.), *Vom Wert einer guten Gesetzgebung*, Stämpfli, Bern 2014.

GUNDERSON, RYAN, *The sociology of technology before the turn to technology*, *Technology in Society* 2016 pp. 40–48.

HAASE, FLORIAN, *Kapitel 9. Steuerrechtliche Aspekte, § 21 Steuerrechtliche Aspekte*, in: Borges, Georg/Meents, Jan Geert (eds.), *Cloud Computing-Rechtshandbuch*, Beck, Munich 2016, pp. 607–641.

HÄCK, NILS, in: Flick, Hans/Wassermeyer, Franz/Kempermann, Michael (eds.), *Doppelbesteuerungsabkommen Deutschland-Schweiz*, Otto Schmidt, Köln 2013 (Art. 5).

HÄFELIN, ULRICH/MÜLLER, GEORG/UHLMANN, FELIX, *Allgemeines Verwaltungsrecht*, 7th ed., Dike, Zurich 2016.

HANKEN, JÖRG, *Teil B: Grundlagen steuerlicher Verrechnungspreise*, in: Hanken, Jörg/Kleinhietspass, Guido/Lagarden, Martin (eds.), *Verrechnungspreise—Praxisleitfaden für Controller und Steuerexperten*, 2nd ed., Haufe, Freiburg (Ger.) 2017, pp. 77–406.

HANKEN, JÖRG/KLEINHETPASS, GUIDO/LAGARDEN, MARTIN, *Verrechnungspreise—Praxisleitfaden für Controller und Steuerexperten*, 2nd ed., Haufe, Freiburg (Ger.) 2017.

HARRIS, MARK, *Data Center Infrastructure Management*, in: Geng, Hwaiyu (ed.), *Data Center Handbook*, Wiley, Hoboken, NJ 2015, pp. 601–618.

HASHEM, IBRAHIM ABAKER TARGIO/YAQOUB, IBRAR/ANUAR, NOR BADRUL/MOKHTAR, SALIMAH/GANI, ABDULLAH/KHAN, SAMEE ULLAH, *The rise of “big data” on cloud computing*, *Information Systems* 2015 pp. 98–115.

HEINSEN, OLIVER/VOß, OLIVER, *Cloud Computing under Double Tax Treaties: A German Perspective*, *Intertax* 2012 pp. 584–592.

HELLERSTEIN, WALTER/SEDON, JON, *State Taxation of Cloud Computing: A Framework for Analysis*, *Journal of Taxation* 1/2012 pp. 11–32.

HESS, ERIC, *Switzerland*, in: *Tax Treatment of Computer Software*, Kluwer, Deventer 1988 (CDFI 73b), pp. 527–548.

HEY, JOHANNA, *Steuerplanungssicherheit als Rechtsproblem*, Otto Schmidt, Cologne 2002.

HILTY, THOMAS, *Kompaktcommentar zum Doppelbesteuerungsabkommen (DBA) Deutschland-Schweiz*, 2nd ed., Handelskammer Deutschland-Schweiz, Zurich 2005.

HINNEKENS, LUC, *The Uneasy Application of the Current Concepts of Permanent Establishment and Corporate Residence to Cross-Border*

Electronic Commerce, Tax Management International e-commerce 1/1999 pp. 3–9.

HINNEKENS, LUC, *Looking for an Appropriate Jurisdictional Framework for Source-State Taxation of International Electronic Commerce in the Twenty-first Century*, *Intertax* 1998 pp. 192–200.

HINNY, PASCAL/ECKERT, JEAN-BLAISE (eds.), *Droit fiscal 2020*, Schulthess, Zurich 2020.

HOFMANN, PATRICIA/RIEDEL, NADINE, *Comment on J. Becker & J. Englisch, "Taxing Where Value Is Created: What's 'User Involvement' Got to Do with It?"*, *Intertax* 2019 pp. 172–175.

HÖHN, ERNST (ed.), *Handbuch des Internationalen Steuerrechts der Schweiz*, 2nd ed., Haupt, Bern/Vienna/Stuttgart 1993.

HÖHN, ERNST, *Steuereinsparung und Steuerumgehung*, RF 1974 pp. 141–153.

HÖHN, ERNST/ATHANAS, PETER (eds.), *Das neue Bundesrecht über die direkten Steuern*, Haupt, Bern 1993.

HOLLANDER, SAMUEL, *William Whewell and John Stuart Mill on the methodology of political economy*, *Studies in History and Philosophy of Science Part A* 1983 pp. 127–168.

HOLLER, GUIDO/HEERSPINK, FRANK, *Betriebstättenbegründung durch Errichtung eines Verkaufsservers im Internet?*, BB 1998 pp. 771–773.

HON, KUAN W./MILLARD, CHRISTOPHER/WALDEN, IAN, *Negotiating Cloud Contracts: Looking at Clouds from Both Sides Now*, *Stanford Technology Law Review* 2012 pp. 79–129.

HON, KUAN W/MILLARD, CHRISTOPHER, *Control, Security, and Risk in the Cloud*, in: Millard, Christopher (ed.), *Cloud Computing Law*, Oxford University Press, New York 2013, pp. 18–36.

HONG, YU-JU/XUE, JIACHEN/THOTTETHODI, MITHUNA, *Dynamic server provisioning to minimize cost in an IaaS cloud*, in: *Proceedings of the ACM SIGMETRICS joint international conference on measurement and modeling of computer systems*, ACM, San Jose, CA 2011, pp. 147–148.

HONSELL, HEINRICH/VOGT, NEDIM PETER/GEISER, THOMAS (eds.), *Zivilgesetzbuch II. Art. 457–977 ZGB und Art. 1–61 SchlT ZGB–Basler Kommentar*, Helbing & Lichtenhahn, Basel 2015.

HOOR, OLIVER R., *Comments on the OECD Discussion Draft on the Meaning of “Permanent Establishment,” Tax Notes International 2012* pp. 207–214.

HORNER, FRANCES M./OWENS, JEFFREY, *Tax and the Web: New Technology, Old Problems, Bulletin for International Fiscal Documentation 1996* pp. 516–523.

HUBER, EUGEN, in: Reber, Markus/Hurni, Christoph (eds.), *Die Erläuterungen von Eugen Huber, Text des Vorentwurfs von 1900 Schweizerisches Zivilgesetzbuch, Materialien zum Zivilgesetzbuch*, Stämpfli, Bern 2007 (1914).

HWANG, KAI, *Cloud Computing for Machine Learning and Cognitive Applications*, MIT Press, Cambridge, MA 2017.

IANSITI, MARCO/RICHARDS, GREGORY L., *A Study of Economic Impact of Cloud Computing, International Journal of Technology, Policy and Management 2012* pp. 344–372.

IMHOF, CHRISTIAN M., *Der ASP-Vertrag*, University of Fribourg thesis, Schulthess, Zurich/Basel/Geneva 2008 (*Publikationen aus dem Zentrum für Informations- und Kommunikationsrecht der Universität Zürich* 43).

JAGMETTI, RICCARDO, *Herausforderung und Antwort*, in: Griffel, Alain (ed.), *Vom Wert einer guten Gesetzgebung*, Stämpfli, Bern 2014, pp. 25–38.

JAMES, ANNEMARIE, *Switzerland*, in: Russo, Raffaele (ed.), *The Attribution of Profits to Permanent Establishments–The taxation of intra-company dealings*, IBFD, Amsterdam 2005, pp. 337–362.

JEANNERET, VINCENT (ed.), *Aspects juridiques du commerce électronique*, Schulthess, Zurich 2001.

JOHNSON, JIM, *Mixing Humans and Nonhumans Together: The Sociology of a Door-Closer, Social Problems 1988* pp. 298–310.

KÄBISCH, VOLKER, *Tax aspects of international electronic commerce*, in: Walden, Ian/Hörnle, Julia (eds.), *E-commerce Law and Practice in Europe*, Woodhead, Abington 2001, ch. 1, p. 1 f.

KAGAN, JARED, *Bricks, Mortar, and Google: Defining the Relevant Antitrust Market for Internet-Based Companies*, *New York Law School Law Review* 2010/2011 pp. 271–292.

KARUNDIA, ASHISH, *Fixed Place Permanent Establishment—“Disposal Test,” International Taxation* 2013 pp. 452–455.

KERSCHNER, INA/SOMARE, MARYTE (eds.), *Taxation in a Global Digital Economy*, Linde, Vienna 2017.

KIM, KYU-DONG, *Korea (Rep.)—The Cloud, E-Commerce and Taxable Presence*, *Asia-Pacific Tax Bulletin* 2/2015 pp. 1–5.

KJÆRSGAARD, LOUISE FJORD, *Allocation of the Taxing Right to Payments for Cloud Computing-as-a-Service*, *World Tax Journal* 2019 pp. 379–423.

KLASSEN, KENNETH J./LOISOWSKY, PETRO/MESCALL, DEVAN, *Transfer Pricing: Strategies, Practices, and Tax Minimization*, *Contemporary Accounting Research* 2017 pp. 455–493.

KOFLER, GEORG/SCHMIDT, CHRISTIAN/SIMONEK, MADELEINE, *Vertreterbetriebsstätten in Deutschland, Österreich und der Schweiz im Hinblick auf BEPS-Aktionspunkt 7—Unter besonderer Berücksichtigung von Kommissionärsstrukturen*, *ASA* 2016/2017 pp. 433–490.

KOHLER, GEORG, *Solons schwierige Erbschaft oder: Der objektive Faktor. Gesetzgebung und Gegenwartsmoderne*, in: Griffel, Alain (ed.), *Vom Wert einer guten Gesetzgebung*, Stämpfli, Bern 2014, pp. 39–48.

KOLB, ANDREAS, *Überblick über das Update 2002 des OECD-Musterabkommens*, *ASA* 2002/2003 pp. 275–287

KRAUSE, JÖRG, *Introducing Web Development*, Apress, Berkeley 2016.

KRAUSE, MICHAEL, *Tax Treatment of the Provision of Technical Services*, in: Valdés Costa, Ramón/Atchabahian, Adolfo/Gnazzo, Edison/Krause, Michael/Maisto, Guglielmo/Vaish, O. P. (eds.), *International Taxation of Services—Proceedings of a Seminar held in*

Rio de Janeiro in 1989 during the 43rd Congress of the International Fiscal Association, Kluwer, Deventer/Boston 1991, pp. 35–42.

KRAUZE, MATEUSZ, *Impact of Cloud Computing on Permanent Establishments Under the OECD Model Tax Convention*, *Tax Management International Journal* 3/2015 pp. 131–156.

KRUMWIEDE, TIM/WITNER, LARRY, *The Feasibility of a GAAP-Based Income Tax System*, *Taxes—The Tax Magazine* 1/2009 pp. 37–51.

KUNZ, PETER V./ARTER, OLIVER/JÖRG, FLORIAN S. (eds.), *Entwicklungen im Gesellschaftsrecht VIII*, Stämpfli, Bern 2013.

LAATIKAINEN, GABRIELLA/OJALA, ARTO, *SaaS architecture and pricing models*, in: Ferrari, Elena/Kaliappa, Ravindran/Hung, Patrick C. K. (eds.), *Proceedings 2014 IEEE International Conference on Services Computing (SCC 2014)*, Conference Publishing Services, Los Alamitos/Piscataway/Tokyo 2014, pp. 597–604.

LAIM, HERMANN, *Grundstrukturen der ausserordentlichen Ersitzung nach Schweizerischem Zivilgesetzbuch*, University of Zurich thesis, Schulthess, Zurich 1993 (*Zürcher Studien zum Privatrecht* 103).

LARKING, BARRY, *The Importance of Being Permanent*, *Bulletin for International Fiscal Documentation* 1998 pp. 265–273.

LEHMANN, DANIEL, *E-Commerce: Steuerliche Rahmenbedingungen, eine Standortbestimmung*, RF 2001 pp. 1–16.

LEHNER, MARTIN, *Kostenverteilungsverträge—Steuerliche Planung und Umsetzung der Verrechnungspreisgestaltung*, Linde, Wien 2014 (*Schriftenreihe zum Internationalen Steuerrecht* 82).

LI, ANG/YANG, XIAOWEI/KANDULA, SRIKANTH/ZHANG, MING, *CloudCmp: comparing public cloud providers*, in: Allman, Mark (ed.), *IMC '10 Proceedings of the 10th ACM SIGCOMM conference on Internet measurement*, ACM, New York 2010, pp. 1–14.

LI, JINYAN, *Rethinking Canada's Source Rules in the Age of Electronic Commerce: Part 2*, *Canadian Tax Journal* 1999 pp. 1411–1478.

LLINAS, FRANCK/GOENKA, ABHISHEK/DUKMEDJIAN, PIERRE-REGIS/WISNER, KENT, *Cloud activities: check your tax forecasts*, *Tax Planning International Review* 10/2013 pp. 4–8.

LOCHER, KURT/MEIER, WALTER/VON SIEBENTHAL, RUDOLF/KOLB, ANDREAS (eds.), *Doppelbesteuerungsabkommen Schweiz-Deutschland*, Helbing & Lichtenhahn, Basel 2015 (loose-leaf; from 1971).

LOCHER, PETER, *Einführung in das internationale Steuerrecht der Schweiz*, 3rd ed., Stämpfli, Bern 2005.

LOCHER, PETER, *Kommentar zum DBG, I. Teil*, Verlag für Recht und Gesellschaft, Therwil/Basel 2001.

LOCHER, PETER, *Praktikabilität im Steuerrecht (unter Berücksichtigung des materiellen Rechts der direkten Steuern)*, in: Cagianut, Francis/Vallender, Klaus A. (eds.), *Ausgewählte Probleme am Ende des 20. Jahrhunderts—Festschrift zum 65. Geburtstag von Ernst Höhn*, Haupt, Bern/Stuttgart/Vienna 1995, pp. 189–222.

LOCHER, PETER/ROLLI, BERNARD/SPORI, PETER (eds.), *Festschrift/Mélanges Walter Ryser—Internationales Steuerrecht der Schweiz*, Stämpfli, Bern 2005.

LOHMANN, MELINDA/MÜLLER-CHEN MARKUS, *Selbstlernende Fahrzeuge—eine Haftungsanalyse*, RSDA 2017 pp. 48–58.

LUDWIG, MAX BEAT, *Der Begriff der Betriebsstätte und seine Entwicklung in verschiedenen Ländern im Hinblick auf die Harmonisierung künftiger Doppelbesteuerungsabkommen*, ASA 1967/1968 pp. 1–19.

LÜTHI, DANIEL, *Die Anwendung des OECD- (bzw. DBA-) Betriebsstättenkonzepts auf den elektronischen Geschäftsverkehr*, in: Locher, Peter/Rolli, Bernard/Spori, Peter (eds.), *Festschrift/Mélanges Walter Ryser—Internationales Steuerrecht der Schweiz*, Stämpfli, Bern 2005, pp. 121–138.

MAISTO, GUGLIELMO, *Taxation of Technical Assistance and Independent Personal Services—Technical Assistance Services and Independent Personal Services under Model Treaties*, in: Valdés Costa, Ramón/Atchabahian, Adolfo/Gnazzo, Edison/Krause, Michael/Maisto, Guglielmo/Vaish, O. P. (eds.), *International Taxation of Services—Proceedings of a Seminar held in Rio de Janeiro in 1989 during the 43rd Congress of the International Fiscal Association*, Kluwer, Deventer/Boston 1991, pp. 43–49.

MALHERBE, JACQUES/MARAIA, JEAN-FRÉDÉRIC/TRAVERSA, EDOARDO, in: Danon, Robert/Gutmann, Daniel/Oberson, Xavier/Pistone, Pasquale (eds.), *Modèle de Convention fiscale OCDE concernant le revenu et la fortune, Commentaire*, Helbing & Lichtenhahn, Basel 2014, Art. 12.

MARAIA, JEAN-FRÉDÉRIC, *Prix de transfert des biens incorporels*, University of Geneva thesis, Schulthess, Geneva/Zurich/Basel 2008 (*Droit Fiscal Suisse et International* 3).

MARCHAND, SYLVAIN, in: Pichonnaz, Pascal/Foëx, Bénédicte/Piotet, Denis (eds.), *Code Civil II—Art. 457–977 CC, Art. 1–61 Tit. fin. CC*, CoRo, Helbing & Lichtenhahn, Basel 2016, Art. 667.

MARKWALDER, NORA/SIMMLER, MONIKA, *Roboterstrafrecht—Zur strafrechtlichen Verantwortlichkeit von Robotern und künstlicher Intelligenz*, PJA 2017 pp. 171–182.

MARTI, ARMIN/WECHNER-ROTH, URSULA, *E-Commerce—Anwendung der bestehenden Betriebsstätten-Definition der OECD Analyse des Entwurfes zur Ergänzung des Kommentars zum OECD-Musterabkommen*, ECS 2000 pp. 344–350.

MASSHARDT, HEINZ (ed.), *Kommentar zur direkten Bundessteuer*, 2nd ed., Schulthess, Zurich 1985.

MAXEINER, JAMES R., *Some Realism About Legal Certainty in the Globalization of the Rule of Law*, *Houston Journal of International Law* 2008 pp. 27–46.

MAXEINER, JAMES R., *Legal Certainty: A European Alternative to American Legal Indeterminacy?*, *Tulane Journal of International & Comparative Law* 2007 pp. 541–607.

MAZUR, ORLY, *Transfer Pricing Challenges in the Cloud*, *Boston College Law Review* 2016 pp. 643–693.

MAZUR, ORLY, *Taxing the Cloud*, *California Law Review* 2015 pp. 1–65.

MEILI, MARKUS, *Steuerliche "Fallgruben" bei Treuhandgeschäften im internationalen Verhältnis*, RF 1982 pp. 480–511.

MEUTER, HANS ULRICH, *Besteuerung einer E-commerce-Betriebsstätte*, ZStP 2010 pp. 1–28.

MILLARD, CHRISTOPHER (ed.), *Cloud Computing Law*, Oxford University Press, New York 2013.

MÜLLER, ANDREAS/LINDER, THOMAS, in: Zweifel, Martin/Beusch, Michael/Matteotti, René (eds.), *Internationales Steuerrecht*, Helbing & Lichtenhahn, Basel 2015, Art. 12.

MÜLLER, BARBARA K./OERTLI, REINHARD (eds.), *Urheberrechtsgesetz (URG)–Bundesgesetz über das Urheberrecht und verwandte Schutzrechte mit Ausblick auf EU-Recht, deutsches Recht, US-Recht und Staatsverträge*, 2nd ed., Stämpfli, Bern 2012.

MÜLLER, GEORG/UHLMANN, FELIX, *Elemente einer Rechtssetzungslehre*, 3rd ed., Schulthess, Zurich/Basel/Geneva 2013.

MÜLLER, JÖRG PAUL, *Gute Gesetzgebung in der Demokratie–Chancen und Klippen*, in: Griffel, Alain (ed.), *Vom Wert einer guten Gesetzgebung*, Stämpfli, Bern 2014, pp. 75–96.

MUÑOZ, MARÍA ALEJANDRA, *Disposal of the Fixed Place of Business: A Further Erosion of the Residence State Principle?*, *Tax Notes International* 2010 pp. 371–392.

NEMANI, RAO, *The Journey from Computer Time-Sharing to Cloud Computing: A Literature Review*, *IJCSET* 2011 pp. 267–273.

NIEMANN, FABIAN/PAUL, JÖRG-ALEXANDER (eds.), *Praxishandbuch Rechtsfragen des Cloud Computing*, De Gruyter, Berlin/Boston 2014.

NITIKMAN, JOEL, *The Painter and the PE*, *Canadian Tax Journal* 2009 pp. 213–258.

NOËL, YVES, *Commerce électronique et fiscalité directe: à la recherche de l'établissement stable*, *CEDIDAC* 2004 pp. 255–274.

NOËL, YVES/AUBRY GIRARDIN, FLORENCE (eds.), *Impôt fédéral direct–Commentaire de la loi sur l'impôt fédéral direct*, 2nd ed., CoRo, Helbing & Lichtenhahn, Basel 2017.

NOSETTI, CLAUDIO, *Die Steuerumgehung: Grundlagen, Merkmale und Konzepte*, University of Zurich thesis, 2014.

OBERSON, RAOUL, *L'établissement d'entreprises étrangères par des sociétés suisses et les problèmes fiscaux qui en découlent (Texte revu d'une conférence présentée à la Hochschule de St-Gall, à l'occasion du*

"Kurs über Steuerprobleme der Unternehmungen", 25 et 26 mars 1968), RF 1969 pp. 288–302.

OBERSON, XAVIER, *Taxing Robots – Helping the Economy to Adapt to the Use of Artificial Intelligence*, Edward Elgar, Cheltenham/Northampton, MA 2019

OBERSON, XAVIER, *Taxer les robots? L'émergence d'une capacité contributive électronique*, PJA 2017 pp. 232–239.

OBERSON, XAVIER, *Précis de droit fiscal international*, 4th ed., Stämpfli, Bern 2014.

OBERSON, XAVIER, *Droit fiscal suisse*, 4th ed., Helbing & Lichtenhahn, Basel 2012.

OBERSON, XAVIER, *Le traitement fiscal du commerce électronique, premières réponses et nouveaux problèmes*, in: Tissot, Nathalie (ed.), *Quelques facettes du droit de l'internet*, Presses académiques Neuchâtel, Neuchâtel 2002, pp. 63–75.

OBERSON, XAVIER, *Problèmes fiscaux posés par le développement du commerce électronique*, in: Jeanneret, Vincent (ed.), *Aspects juridiques du commerce électronique*, Schulthess, Zurich 2001, pp. 93–112.

OBERSON, XAVIER, *Switzerland*, in: *Taxation of income derived from electronic commerce*, Kluwer Law International, The Hague/London/Boston 2001 (CDFI 86a), pp. 691–710.

OBERSON, XAVIER/HULL, HOWARD R., *Switzerland in International Tax Law*, 4th ed., IBFD, Amsterdam 2011.

OBERSON, XAVIER/PIAGET, LORENZO, *Commerce électronique et fiscalité: évolution ou révolution?*, ASA 1998/1999 pp. 362–390.

OESTERHELT, STEFAN/SCHREIBER, SUSANNE, in: Zweifel, Martin/Beusch, Michael (eds.), *Kommentar zum Schweizerischen Steuerrecht, Bundesgesetz über die direkte Bundessteuer (DBG)*, 3rd ed., Helbing & Lichtenhahn, Basel 2017, Arts. 49, 51.

OLBERT, MARCEL/SPENGEL, CHRISTOPH, *International Taxation in the Digital Economy: Challenge Accepted?*, *World Tax Journal* 2017 pp. 3–46.

OWENS, JEFFREY, *The Tax Man Cometh to Cyberspace*, *Tax Notes International* 1997 pp. 1833–1852.

PAPAZOGLU, MIKE P., *Service-Oriented Computing: Concepts, Characteristics and Directions*, in: *Proceedings of the 4th International Conference on Web Information Systems Engineering (WISE 2003), December 10–12, 2003*, IEEE Computer Society, Washington, DC 2003, pp. 1–10.

PASCHOUD, JEAN-BLAISE/RAPHAËL GANI, in: Noël, Yves/Girardin, Florence Aubry (eds.), *Impôt fédéral direct—Commentaire de la loi sur l'impôt fédéral direct*, 2nd ed., CoRo, Helbing & Lichtenhahn, Basel 2017, Art. 51.

PASCHOUD, JEAN-BLAISE/DE VRIES REILINGH, DANIEL, in: Noël, Yves/Girardin, Florence Aubry (eds.), *Impôt fédéral direct—Commentaire de la loi sur l'impôt fédéral direct*, 2nd ed., CoRo, Helbing & Lichtenhahn, Basel 2017, Art. 4.

PEETERS, BERNARD, in: Danon, Robert/Gutmann, Daniel/Oberson, Xavier/Pistone, Pasquale (eds.), *Modèle de Convention fiscale OCDE concernant le revenu et la fortune, Commentaire*, Helbing & Lichtenhahn, Basel 2014, Art. 15.

PETER, NATALIE, in: Zweifel, Martin/Beusch, Michael/Matteotti, René (eds.), *Internationales Steuerrecht*, Helbing & Lichtenhahn, Basel 2015, Art. 6.

PETRUZZI, RAFFAELE/BURIAK, SVITLANA, *Addressing the Tax Challenges of the Digitalization of the Economy—A Possible Answer in the Proper Allocation of the Transfer Pricing Rules?*, *Bulletin for International Taxation* 4a/2018 [online only].

PICHONNAZ, PASCAL/FOËX, BÉNÉDICT/PIOTET, DENIS (eds.), *Code Civil II—Art. 457–977 CC, Art. 1-61 Tit. fin. CC*, CoRo, Helbing & Lichtenhahn, Basel 2016.

PINKERNELL, REIMAR, *Internationale Steuergestaltung im Electronic Commerce*, Institut Finanzen und Steuern, Berlin 2014 (*ifst-Schriften* 494).

PINKERNELL, REIMAR, *Das Steueroasen-Dilemma der amerikanischen IT-Konzerne*, IStR 2013 pp. 180–187.

PINKERNELL, REIMAR, *Cloud Computing–Besteuerung des grenzüberschreitenden B2B- und B2C-Geschäfts*, Ubg 2012 pp. 331–344.

PINKERNELL, REIMAR, *Ein Musterfall zur internationalen Steuerminimierung durch US-Konzerne*, StuW 2012 pp. 369–374.

PINKERNELL, REIMAR, *Ertrag- und umsatzsteuerrechtliche Behandlung des grenzüberschreitenden Softwarevertriebs über das Internet*, StuW 1999 pp. 281–294.

PINTO, DALE, *E-Commerce and Source-Based Income Taxation*, University of Melbourne thesis, IBFD, Amsterdam 2002 (*Doctoral Series 6*).

PISCITELLI, TATHIANE/CANEN, DORIS, *Taxation of Cloud Computing in Brazil: Legal and Judicial Uncertainties*, *Bulletin for International Taxation* 4a/2018 [online only].

PLEIJSIER, ARTHUR, *The Agency Permanent Establishment in BEPS 7: Treaty Abuse or Business Abuse?*, *Intertax* 2015 pp. 147–154.

PÖLLATH, REINHARD/LOHBECK, ALLIT, in: Vogel, Klaus/Lehner, Moris (eds.), *Doppelbesteuerungsabkommen der Bundesrepublik Deutschland auf dem Gebiet der Steuern vom Einkommen und Vermögen–Kommentar auf der Grundlage der Musterabkommen*, Beck, Munich 2015, Art. 12.

PORTER, MICHAEL E., *Competitive Advantage–Creating and Sustaining Superior Performance*, Collier Macmillan, New York 1985.

PORTNER, ROSEMARIE, *Ertragssteuerrechtliche Aspekte des E-Commerce*, Institut Finanzen und Steuern, Bonn 2001 (*ifst-Schriften 390*).

PORTNER, ROSEMARIE, *The internet server as a permanent establishment–some further thoughts*, *Tax Planning International e-commerce* 9/1999 pp. 20–26.

PORTNER, ROSEMARIE, *Betriebsstätte durch grenzüberschreitende Internet-Transaktionen? Insbesondere vor dem Hintergrund der Entscheidung des BFH vom 30.10.1996*, *IStR* 1998 pp. 553–557.

RADBRUCH, GUSTAV, *Gesetzliches Unrecht und übergesetzliches Recht*, *Süddeutsche Juristenzeitung* 1946 pp. 105–108 (as reprinted in: *Gesamtausgabe*, vol. 3, ed. Hassemer, Winfried, C. f. Müller, Heidelberg 1990, pp. 83–93).

RASCHLE, NORBERT A./BORRIELLO, MAURIZIO/HÄMMERLE, STEFAN, *Transfer Pricing in der Unternehmenspraxis—Steuerplanung und Verteidigung*, in: Kunz, Peter V./Arter, Oliver/Jörg, Florian S. (eds.), *Entwicklungen im Gesellschaftsrecht VIII*, Stämpfli, Bern 2013, pp. 107–134.

RAUBER, GEORG, § 3 *Software als urheberrechtlich geschütztes Werk*, in: Streuli-Youssef, Magda (ed.), *Urhebervertragsrecht*, Schulthess, Zurich 2006, pp. 124–132.

REICH, MARKUS, *Steuerrecht*, 2nd ed., Schulthess, Zurich 2012.

REIMER, EKKEHART, *Permanent Establishment in the OECD Model Tax Convention*, in: Reimer, Ekkehart/Urban, Nathalie/Schmid, Stefan (eds.), *Permanent Establishments—A Domestic Taxation, Bilateral Tax Treaty and OECD Perspective*, 5th ed., Wolters Kluwer, The Hague 2016, pp. 3–192.

REIMER, EKKEHART, in: Reimer, Ekkehart/Rust, Alexander (eds.), *Klaus Vogel on Double Taxation Conventions*, 4th ed., Wolters Kluwer, Alphen aan den Rijn 2015, Art. 5.

REIMER, EKKEHART, in: Vogel, Klaus/Lehner, Moris (eds.), *Doppelbesteuerungsabkommen der Bundesrepublik Deutschland auf dem Gebiet der Steuern vom Einkommen und Vermögen—Kommentar auf der Grundlage der Musterabkommen*, Beck, Munich 2015, Arts. 6, 13.

REIMER, EKKEHART/RUST, ALEXANDER (eds.), *Klaus Vogel on Double Taxation Conventions*, vol. 1, 4th ed., Wolters Kluwer, Alphen aan den Rijn 2015.

REIMER, EKKEHART/URBAN, NATHALIE/SCHMID, STEFAN (eds.), *Permanent Establishments—A Domestic Taxation, Bilateral Tax Treaty and OECD Perspective*, 5th ed., Wolters Kluwer, The Hague 2016.

REISER, HAGEN/CORTEZ, BENJAMIN, *Betriebsstättenbegriff im Wandel—Zur veränderten Bedeutung des Kriteriums der Verfügungsmacht*, *ISrR* 2013 pp. 6–15.

REULEAUX, FRANZ, *Theoretische Kinematik : Grundzüge einer Theorie des Maschinenwesens*, Friedrich Vieweg und Sohn, Braunschweig 1875.

RICHNER, FELIX/FREI, WALTER/KAUFMANN, STEFAN/MEUTER, HANS ULRICH, *Handkommentar zum DBG*, 3rd ed., Geiger, Zurich 2016.

RICHNER, FELIX/FREI, WALTER/KAUFMANN, STEFAN/MEUTER, HANS ULRICH, *Kommentar zum Zürcher Steuergesetz*, 3rd ed., Geiger, Zurich 2013.

RIEDWEG, PETER/SUTER, CLAUDIA, in: Zweifel, Martin/Beusch, Michael/Matteotti, René (eds.), *Internationales Steuerrecht*, Helbing & Lichtenhahn, Basel 2015, Art. 13.

RIGONI, GABRIELA, *Argentina*, in: *Withholding tax in the era of BEPS, CIVs and the digital economy*, Sdu, The Hague 2018 (CDFI 103b) [online only].

ROBINSON, PHILIP, *E-Business und direkte Steuern Ein "Update,"* ECS 2001 pp. 1271–1274.

ROBINSON, PHILIP/WEIGEND, BERTIL, *Im E-Commerce steuerlich nichts Neues? Ein Überblick u.a. über die neue Kommentierung des Betriebsstätte-Artikels und Neuerungen zur elektronischen Rechnungsstellung*, ECS 2001 pp. 376–383.

ROCHA, SERGIO ANDRÉ, *General Report*, in: *The future of transfer pricing*, The Hague 2017 (CDFI 102b), pp. 17–64.

ROPOHL, GÜNTER, *Allgemeine Technologie: eine Systemtheorie der Technik*, 3rd ed., Universitätsverlag Karlsruhe, Karlsruhe 2009.

ROUNTREE, DERRICK/CASTRILLO, ILEANA, *The Basics of Cloud Computing—Understanding the Fundamentals of Cloud Computing in Theory and Practice*, Syngress, Amsterdam/Boston/Heidelberg/London/New York/Oxford/Paris/San Diego/San Francisco/Singapore/Sydney/Tokyo 2014.

RUFER, STEPHANE, *The Hidden Extras: The Pricing Scheme of Cloud Computing*, in: Stiller, Burkhard/Farkas, Karoly/Hecht, Fabio/Sperb Machado, Guilherme/Poullie, Patrick/Santos, Flavio/Tsiaras, Christos/Vancea, Andrei/Waldburger, Martin (eds.), *Internet Economics IV—Technical Report No. IFI-2012.02*, Zurich 2012, pp. 93–114.

RUSSO, RAFFAELE (ed.), *The Attribution of Profits to Permanent Establishments—The taxation of intra-company dealings*, IBFD, Amsterdam 2005.

SALOM, JESSICA, in: Danon, Robert/Gutmann, Daniel/Oberson, Xavier/Pistone, Pasquale (eds.), *Modèle de Convention fiscale OCDE concernant le revenu et la fortune, Commentaire*, Helbing & Lichtenhahn, Basel 2014, introduction to Arts. 23 A-23 B.

SASSEVILLE, JACQUES/SKAAR, ARVID A., *General Report*, in: *Is there a permanent establishment?*, Sdu, The Hague 2009 (CDFI 94a), pp. 17–63.

SCHAEFER, BARRETT, *International Taxation of Electronic Commerce Income. A Proposal to Utilize Software Agents for Source-Based Taxation*, *Santa Clara Computer & High Technology Law Journal* 1999 pp. 111–140.

SCHAFFNER, JEAN, *How Fixed Is a Permanent Establishment?*, Wolters Kluwer, New York 2013.

SCHAFFNER, JEAN, *The territorial link as a condition to create a permanent establishment*, *Intertax* 2013 pp. 638–651.

SCHELLING, CHRISTOPH, *Swiss Tax Treaty Policy*, *Bulletin for International Taxation* 2015 pp. 216–221.

SCHMID, STEFAN/ORELL, MARIANNE, *Switzerland*, in: Reimer, Ekkehart/Urban, Nathalie/Schmid, Stefan (eds.), *Permanent Establishments—A Domestic Taxation, Bilateral Tax Treaty and OECD Perspective*, 5th ed., Wolters Kluwer, The Hague 2016, pp. 1–25.

SCHÖN, WOLFGANG, *Ten Questions about Why and How to Tax the Digitalized Economy*, *Bulletin for International Taxation* 2018 pp. 278–292.

SCHREIBER, RENÉ/HONOLD, KERSTEN A./JAUN, ROGER, in: Zweifel, Martin/Beusch, Michael/Matteotti, René (eds.), *Internationales Steuerrecht*, Helbing & Lichtenhahn, Basel 2015, Art. 5.

SCHUPPERT, STEFAN, *Website-Hosting*, in: Spindler, Gerald (ed.), *Vertragsrecht der Internet-Provider*, Otto Schmidt, Cologne 2000, pp. 399–476.

SCHUSTER, FABIAN/REICHL, WOLFGANG, *Cloud Computing & SaaS: Was sind die wirklich neuen Fragen? Die eigentlichen Unterschiede zu Outsourcing, ASP & Co liegen im Datenschutz und der TK-Anbindung*, *Computer und Recht* 2010 pp. 38–43.

SCHWARZ, ANGELICA MARIA, *Die handels- und steuerrechtliche Behandlung von Daten – Unter besonderer Berücksichtigung von verrechnungspreislichen Aspekten im internationalen Konzernverhältnis*, University of Zurich thesis, Stämpfli, Bern 2019.

SCORNOS, DINA, *Cloud Computing: Difficultes in Applying Current and Proposed Nexus and Profit Allocation Rules in a Cross-Border Scenario*, *Bulletin for International Taxation* 2020 [online only].

SEARLE, JOHN R., *Minds, brains, and programs*, *Behavioral and Brain Sciences* 1980 pp. 417–424.

SEER, ROMAN, *Der Vollzug von Steuergesetzen unter den Bedingungen einer Massenverwaltung*, in: Widmann, Werner (ed.), *Steuervollzug im Rechtsstaat, Jahrestagung der Deutschen Steuerjuristischen Gesellschaft*, vol. 32, Otto Schmidt, Cologne 2008.

SEJATI, UNTORO, *Value Creation in the Digital Economy*, in: Kerschner, Ina/Somare, Maryte (eds.), *Taxation in a Global Digital Economy*, Linde, Vienna 2017, pp. 257–282.

SILVA, EDNALDO, *The Fallacy of Asset-Based Adjustments to Profits, Transfer Pricing Report* 2003 [online only].

SIMONEK, MADELEINE, in: Zweifel, Martin/Beusch, Michael/Matteotti, René (eds.), *Internationales Steuerrecht*, Helbing & Lichtenhahn, Basel 2015, Arts. 23 A-23 B.

SINEWE, PATRICK/FRASE, HENNING, B. *Steuerrecht*, in: Niemann, Fabian/Paul, Jörg-Alexander (eds.), *Praxishandbuch Rechtsfragen des Cloud Computing*, De Gruyter, Berlin/Boston 2014, pp. 267–308.

SINEWE, PATRICK/FRASE, HENNING, *Steuerrechtliche Aspekte des Cloud Computing*, *BB* 2011 pp. 2198–2203.

SKAAR, ARVID A., *Erosion of the Concept of Permanent Establishment: Electronic Commerce*, *Intertax* 2000 pp. 188–194.

SKAAR, ARVID A., *Subject to What Conditions Will the Provision of Services Constitute a Permanent Establishment?*, in: International Fiscal Association (ed.), *The OECD Model Convention 1997 and Beyond—Current Problems of the Permanent Establishment Definition*, Kluwer Law International, The Hague/London/Boston 1997, pp. 19–47.

SKAAR, ARVID A., *Permanent Establishment, Erosion of a Tax Treaty Principle*, Kluwer, Deventer 1991.

SOKATCH, JOHN, *Transfer-Pricing with Software Allows for Effective Circumvention of Subpart F Income: Google’s “Sandwich” Costs Taxpayers Millions*, *The International Lawyer* 2011 pp. 725–747.

SPINDLER, GERALD (ed.), *Vertragsrecht der Internet-Provider*, Otto Schmidt, Cologne 2000.

SPRAGUE, GARY D., *Canada Revenue Agency Issues Important Ruling on PE Aspects of Data Center*, *Tax Management International Journal* 2013 pp. 290–293.

SPRAGUE, GARY D./BOYLE, MICHAEL P., *General Report*, in: *Taxation of income derived from electronic commerce*, Kluwer Law International, The Hague/London/Boston 2001 (CDFI 86a), pp. 21–63.

SPRAGUE, GARY D./HERSEY, RACHEL, *Permanent Establishment and Internet-Enabled Enterprises: The Physical Presence and Contract Concluding Dependent Agent Tests*, *Georgia Law Review* 2003 pp. 299–343.

SPRAGUE, GARY D./REID, TAYLOR S., *A Break in the Clouds: A Proposed Framework for Analyzing Cloud Computing Transactions, Taxes—The Tax Magazine* 3/2014 pp. 31–126.

STERN, NICHOLAS, *The effects of taxation, price control and Government contracts in oligopoly and monopolistic competition*, *Journal of Public Economics* 1987 pp. 133–158.

STILLER, BURKHARD/FARKAS, KAROLY/HECHT, FABIO/SPERB MACHADO, GUILHERME/POULLIE, PATRICK/SANTOS, FLAVIO/TSIARAS, CHRISTOS/VANCEA, ANDREI/WALDBURGER, MARTIN (eds.), *Internet Economics VI—Technical Report No. IFI-2012.02*, University of Zurich, Zurich 2012.

STOCKER, RAOUL/STUDER, CHRISTOPH D., *Bestimmung von Verrechnungspreisen—Ausgewählte Aspekte der schweizerischen Praxis*, ECS 2009 pp. 386–392.

STRAUB, WOLFGANG, *Rechtlicher Schutz von Software-Entwicklungen*, in: Weinmann, Conrad/Münch, Peter/Herren, Jürg (eds.), *Schweizer IP-Handbuch—Intellectual Property—Konzepte, Checklisten und Musterdokumente für die Praxis*, Helbing & Lichtenhahn, Basel 2013, pp. 287–331.

STREBEL, LORENZ/LAIM, HERMANN, in: Honsell, Heinrich/Vogt, Nedim Peter/Geiser, Thomas (eds.), *Zivilgesetzbuch II. Art. 457–977 ZGB und Art. 1–61 SchlT ZGB—Basler Kommentar*, Helbing & Lichtenhahn, Basel 2015, Art. 655.

STREULI-YOUSSEF, MAGDA (ed.), *Urhebervertragsrecht*, Schulthess, Zurich 2006.

SULLIVAN, MARTIN A., *Microsoft Moving Profits, Not Jobs, Out of the U.S.*, *Tax Notes* 2010 pp. 271–274.

SUTTER-SOMM, THOMAS/GRIEDER, ALAIN/LÖTSCHER, CORDULA/SCHRANK, CLAUDE/VON AARBURG, THIERRY, *Eigentum und Besitz*, Helbing & Lichtenhahn, Basel 2014 (*Schweizerisches Privatrecht V/1*).

SWEET, JOHN K., *Formulating International Tax Laws in the Age of Electronic Commerce: The Possible Ascendancy of Residence-Based Taxation in an Era of Eroding Traditional Income Tax Principles*, *University of Pennsylvania Law Review* 1998 pp. 1949–2011.

TAN, ALLEN/LEE, SHIH HUI/TOH, TIFFANY, *Singapore—The Cloud, E-Commerce and Taxable Presence*, *Asia-Pacific Tax Bulletin* 2/2015 pp. 1–8.

TAPPE, HENNING, *Steuerliche Betriebsstätten in der “Cloud”: neuere technische Entwicklungen im Bereich des E-Commerce als Herausforderung für den ertragsteuerrechtlichen Betriebsstättenbegriff*, *ISr* 2011 pp. 870–874.

THAGARD, PAUL, *Parallel Computation and the Mind-Body Problem*, *Cognitive Science* 1986 pp. 301–318.

THALMANN, PAUL, *Switzerland*, in: *The taxation of income derived from the supply of technology*, Kluwer Law International, The Hague/London/Boston 1997 (CDFI 82a), pp. 739–767.

TIAN, GEORGE YIJUN, *Cloud Computing and Cross-Border Transfer Pricing: Implications of Recent OECD and Australian Transfer Pricing Laws on Cloud Related Multinational Enterprises and Possible Solutions*, *Rutgers Computer and Technology Law Journal* 2018 pp. 33–91.

TING, ANTONY, *iTax – Apple’s International Tax Structure and the Double Non-Taxation Issue*, BTR 2014, pp. 40–71.

TISSOT, NATHALIE (ed.), *Quelques facettes du droit de l’internet*, Presses académiques Neuchâtel, Neuchâtel 2002.

TSAI, WEI-TEK/SUN, XIN/BALASOORIYA, JANAKA, *Service-oriented cloud computing architecture*, in: *Information Technology: New Generations (ITNG), 2010 Seventh International Conference on Information Technology*, April 12–14, 2010, IEEE Computer Society, Los Alamitos, California/Washington/Tokyo 2010, pp. 684–689.

UTTINGER, LAURENCE/RENTZSCH, DANIEL P./CONRADIN, LUZI (eds.), *Dogmatik und Praxis im Steuerrecht—Festschrift für Markus Reich*, Schulthess, Zurich 2014.

VAN DEN HURK, HANS, *Starbucks versus the People*, *Bulletin for International Taxation* 2014 pp. 27–34.

VLASCEANU, RUXANDRA, *Chapter 8—Intellectual Property Structuring in the Context of the OECD BEPS Action Plan*, in: Cotrut, Madalina/Bal, Aleksandra/Betten, Rijkele/Hamzaoui, Ridha/Obuoforibo, Belema/Ostaszewska, Ola (eds.), *International Tax Structures in the BEPS Era: An Analysis of Anti-Abuse Measures*, IBFD, Amsterdam 2015 (*IBFD Tax Research Series 2*).

VOGEL, KLAUS/LEHNER, MORIS (eds.), *Doppelbesteuerungsabkommen der Bundesrepublik Deutschland auf dem Gebiet der Steuern vom Einkommen und Vermögen—Kommentar auf der Grundlage der Musterabkommen*, Beck, Munich 2015.

VOGEL, KLAUS/RUST, ALEXANDER, *Introduction*, in: Reimer, Ekkehart/Rust, Alexander (eds.), *Klaus Vogel on Double Taxation*

Conventions, vol. 1, 4th ed., Wolters Kluwer, Alphen aan den Rijn 2015, pp. 1–72.

VOGELSANG, MARC, *Der Begriff der Betriebsstätte im schweizerischen und internationalen Steuerrecht*, University of Zurich thesis, Schulthess, Zurich/Basel/Geneva 2015 (*Schriften zum Steuerrecht* 25).

VON ARNAULD, ANDREAS, *Rechtssicherheit: perspektivische Annäherungen an eine "idée directrice" des Rechts*, Mohr Siebeck, Tübingen 2006 (*Jus Publicum* 148).

WAGH, SAGAR, *The Taxation of Digital Transactions in India: The New Equalization Levy*, *Bulletin for International Taxation* 2016 pp. 538–552.

WALKER, JOHN/ROTH, TOM, *Australia—The Cloud, E-Commerce and Taxable Presence*, *Asia-Pacific Tax Bulletin* 2/2015 pp. 1–7.

WASSERMEYER, FRANZ, in: Wassermeyer, Franz/Kaesler, Christian/Schwenke, Michael/Drüen, Klaus-Dieter/Jülicher, Marc (eds.), *Doppelbesteuerung—Kommentar zu allen deutschen Doppelbesteuerungsabkommen*, 68th ed., 136th supplement (January 2017), Beck, Munich 2017, Arts. 5, 6, 9, 12, 13.

WASSERMEYER, FRANZ/BAUMHOFF, HUBERTUS (eds.), *Verrechnungspreise international verbundener Unternehmen*, Otto Schmidt, Cologne 2014.

WASSERMEYER, FRANZ/KAESER, CHRISTIAN, in: Wassermeyer, Franz/Kaesler, Christian/Schwenke, Michael/Drüen, Klaus-Dieter/Jülicher, Marc (eds.), *Doppelbesteuerung—Kommentar zu allen deutschen Doppelbesteuerungsabkommen*, 68th ed., 136th supplement (January 2017), Beck, Munich 2017, Art. 7.

WASSERMEYER, FRANZ/KAESER, CHRISTIAN/SCHWENKE, MICHAEL/DRÜEN, KLAUS-DIETER/JÜLICHER, MARC (eds.), *Doppelbesteuerung—Kommentar zu allen deutschen Doppelbesteuerungsabkommen*, 68th ed., 136th supplement (January 2017), Beck, Munich 2017.

WEBER, DENNIS, *Tax Avoidance and the EC Treaty Freedoms—A Study of the Limitations under European Law to the Prevention of Tax Avoidance*, Wolters Kluwer, The Hague 2005 (*EUCOTAX Series on European Taxation* 11).

WEBER, ROLF H./VOLZ, STEPHANIE, *E-commerce und Recht, Rechtliche Rahmenbedingungen elektronischer Geschäftsformen*, 2nd ed., Schulthess, Zurich 2010.

WEINHARDT, CHRISTOF/ANANDASIVAM, ARUN/BLAU, BENJAMIN/STÖSSER, JOCHEN, *Business Models in the Service World, IT Professional 2009* pp. 28–33.

WEINMANN, CONRAD/MÜNCH, PETER/HERREN, JÜRIG (eds.), *Schweizer IP-Handbuch—Intellectual Property—Konzepte, Checklisten und Musterdokumente für die Praxis*, Helbing & Lichtenhahn, Basel 2013.

WEISSER, HANS-RUDOLPH, *Traitement électronique des informations et vérification comptable*, University of Neuchâtel thesis, 1969.

WELLS, BRET/LOWELL, CYM H., *Income Tax Treaty Policy in the 21st Century: Residence vs. Source*, *Columbia Journal of Tax Law* 2013 pp. 1–39.

WEYL, GLEN E./FABINGER, MICHAL, *Pass-Through as an Economic Tool: Principles of Incidence under Imperfect Competition*, *Journal of Political Economy* 2013 pp. 528–583.

WIDMANN, WERNER (ed.), *Steuervollzug im Rechtsstaat, Jahrestagung der Deutschen Steuerjuristischen Gesellschaft*, vol. 32, Otto Schmidt, Cologne 2008.

WIDMER, STEFAN, *Switzerland*, in: *Is there a permanent establishment?*, Sdu, The Hague/London/Boston 2009 (CDFI 94a), pp. 631–643.

WIDMER, STEFAN, *Die Betriebsstättebegründung des Principals nach der allgemeinen Betriebsstättedefinition*, *FStR* 2005 pp. 95–110.

WIDMER, STEFAN, *Die Vertreterbetriebsstätte im Internationalen Steuerrecht der Schweiz*, *ASA* 2003/2004 pp. 97–130.

WIDMER, URSULA, *Der urheberrechtliche Schutz von Computerprogrammen*, *RDS* 1993 pp. 247–268.

WIEGAND, WOLFGANG, in: Honsell, Heinrich/Vogt, Nedim Peter/Geiser, Thomas (eds.), *Zivilgesetzbuch II. Art. 457–977 ZGB und Art. 1–61 SchlT ZGB—Basler Kommentar*, Helbing & Lichtenhahn, Basel 2015, Art. 644.

WILD, KURT, *Gruppeninterne Verrechnungspreise: Die schweizerischen Normen, der neue OECD-Bericht von 1995, die endgültigen US-Richtlinien gemäss Section 482 von 1994 sowie deren mutmassliche Auswirkungen auf schweizerische Steuerpflichtige*, RF 1996 pp. 211–226.

WILDHABER, ISABELLE, *Robotik am Arbeitsplatz—Robo-Kollegen und Robo-Bosse*, PJA 2017 pp. 213–224.

WILLIAMS, ROBERT L., *Fundamentals of Permanent Establishments*, Wolters Kluwer, The Hague 2014.

WOLFFGRAMM, HORST, *Allgemeine Technologie—Elemente, Strukturen und Gesetzmässigkeiten technologischer Systeme*, VEB Fachbuchverlag, Leipzig 1978.

ZANGARI, ERNESTO/CAIUMI, ANTONELLA/HEMMELGARN, THOMAS, *Tax Uncertainty: Economic Evidence and Policy Responses*, European Commission, Luxembourg March 2017 (*Taxation Papers—Working Paper 67*).

ZUCKSCHWERDT, CHRISTOPH/MEUTER, HANS ULRICH, *Gegenberichtigung im interkantonalen und interkommunalen Verhältnis (Teil I)*, ZStP 2015 pp. 1–21.

ZWAHLEN, BERNHARD/LISSI, ALBERTO, in: Zweifel, Martin/Beusch, Michael (eds.), *Bundesgesetz über die direkte Bundessteuer (DBG)—Kommentar zum Schweizerischen Steuerrecht*, Helbing & Lichtenhahn, Basel 2017, Art. 21.

ZWEIFEL, MARTIN/ATHANAS, PETER (eds.), *Kommentar zum Schweizerischen Steuerrecht I/2a, Bundesgesetz über die direkte Bundessteuer (DBG)*, 2nd ed., Helbing & Lichtenhahn, Basel 2008.

ZWEIFEL, MARTIN/BEUSCH, MICHAEL (eds.), *Kommentar zum Schweizerischen Steuerrecht, Bundesgesetz über die direkte Bundessteuer (DBG)*, 3rd. ed., Helbing & Lichtenhahn, Basel 2017.

ZWEIFEL, MARTIN/BEUSCH, MICHAEL/MATTEOTTI, RENÉ (eds.), *Internationales Steuerrecht*, Helbing & Lichtenhahn, Basel 2015.

Part I: *De Lege Lata*

Chapter 1: Introduction

The proliferation of cloud computing is fundamentally changing the way hardware is used. Cloud computing has made IT resources and data storage mobile. At the same time, it acts as a catalyst for other disruptive technologies, such as big data analysis and artificial intelligence based on machine learning. Some claim that the cloud should become part of all economic sectors. It is already part of modern business reliant on information and communications technology (hereinafter “ICT-based business”). This includes all businesses, ranging from simple webshops to sophisticated fintech operations. As such, it underlies global value chains, mostly based on the World Wide Web.

Cloud computing may be borderless, but taxes are territorial. It is easy to imagine how the two concepts can clash. Much effort has gone into harmonizing tax rules across borders with the result that many jurisdictions have very similar tax rules. Even so, taxation remains a basic expression of national sovereignty.

The goal of this thesis is to examine how international tax law applies to the cross-border cloud computing business. Part I assesses the current taxation of cloud computing. Part II evaluates whether the findings of this initial assessment conform to various superior principles of good rulemaking. It identifies which of the present tax rules ought to be adapted. Part III considers how the rules could be amended to become more compliant with the superior principles. In this way, Part I embodies the *thesis*, Part II the *antithesis*, and Part III seeks a *synthesis*.

Following this introduction, Part I of the thesis looks at the law as it currently stands. It follows the classical legal approach of first explaining the facts of cloud computing, then detailing the rules of law in as far as they are applicable (and not any further), and finally

applying the rules to the facts (subsumption). For this purpose, the thesis discusses the international tax situations of both multinational providers and customers of cloud computing services. Reflecting three traditional areas of international tax scholarship, the goal could be encapsulated in three questions. **Which jurisdictions have the right to tax? What kinds of cloud computing transactions can be taxed? What amount of the profit is taxable?** In more technical terms, this means enquiring into how the use of cloud computing affects the permanent establishment status of taxpayers, how the different kinds of cloud computing transactions are characterized under international double taxation treaties, and how the calculation of taxable cloud computing profit is affected by transfer pricing.

Chapter 2: Cloud Computing

Section I Basics

A cloud computing service is performed where the cloud provider allocates any kind of standardized computing resources in software form to users via networks such as the Internet.¹ This means that computing resources are no longer provided as physical goods (such as physical computers or CDs with software on them).² The cloud providers are themselves responsible for the physical infrastructure necessary for these services. This infrastructure consists of physical hardware servers organized in data centers.³

¹ A widely used definition of cloud computing is provided by the National Institute of Standards and Technology of the US Department of Commerce; see MELL, PETER/GRANCE, TIMOTHY, *The NIST Definition of Cloud Computing*, NIST Special Publication 800-145, n.p. 2011, p. 2. The definition reflects the high level of standardization and commoditization of hardware and software (OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 41). On the history, the often inappropriate use of, and the “hype” of the term “cloud computing,” see BEDNER, pp. 16 f.

² The acronym “XaaS” has been coined to denote this phenomenon of providing something (“X”) as a service (“aaS”) through cloud computing.

³ A server is a computer whose primary function is to offer specialized computing services or manage system resources for client devices (such as PCs) requesting those services via network connections (GOLDMAN/RAWLES/MARIGA, p. 137). The word server may refer either to the hardware, the software, or a combination of both, depending on the context. Basically, hardware is what we can touch, while software is physically a pattern of electron movements within the hardware that constitute a set of instructions (programs) to process input. The OECD describes software “as a programme or series of programmes containing instructions for a computer” (OECD, *The Tax Treatment of Software*, Paris July 23, 1992, p. 2; for a different OECD definition, see *infra* note 57). As with the mind-body problem in philosophy, distinguishing software from hardware remains difficult (see THAGARD, pp. 301 f.). The term server may also refer to software running on a computer that may or may not have specialized characteristics enabling it to run the server software more

- 6 There are various kinds of computing resources available through cloud computing. They are generally divided into three broad categories: infrastructure, platforms, and application software.
- 7 **Infrastructure as a Service** (“IaaS”) entails the provision of virtual servers, which have all the components of physical servers but exist on the software layer (i.e., in virtualized form). That makes the use of the underlying physical infrastructure more efficient.
- 8 **Platform as a Service** (“PaaS”) provides software developers with the programming tools and computing resources necessary for developing, testing, and deploying new software programs intended for end users.
- 9 **Software as a Service** (“SaaS”) gives the user access to a software application. However, the software code is executed remotely at the site of the cloud provider and only the input and output are communicated over the network.
- 10 The word “cloud” is often believed to refer to the tendency for hardware to disappear into nebulous data streams that cannot be pinned down to a particular location. A closer examination reveals that hardware does not disappear, but is merely relocated. It is true that migration to public clouds may cause in-house server farms to disappear. Yet, cloud providers build costly and unusually large physical data centers in order to accommodate the infrastructure needed to provide cloud services. In a so-called public cloud, the same infrastructure hosts the clouds of all users, which represents a significant investment.
- 11 In other words, the computing infrastructure is concentrated in the cloud providers’ data centers. This concentration can increase

efficiently than regular computers. Basically, any computer can run server software; in the cloud computing business, however, it can be assumed that the hardware will in most cases be of a specialized kind. For the purposes of this thesis, the term “server” will refer to the combination of specialized server hardware with server software. Hereinafter, the expression “physical server” will be used to refer to this combination in order to distinguish it from virtual servers.

efficiency on the production side by leveraging economies of scale and improving software and business processes.⁴ Thereby, customers can ultimately benefit from a decrease in the production price per computing resource and time unit. Further, they are billed (per time unit) only for the volume of their actual on-demand use of the computing.⁵ This more efficient allocation of the means of production may explain the continuing success of cloud computing.⁶

⁴ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 60.

⁵ See *infra* paras. 39 f. for a more detailed discussion of this pricing model.

⁶ As the OECD correctly points out, cloud computing technologies are descendants of time-sharing technologies invented long ago (OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 41), although, strictly speaking, the concept of time sharing existed even before the 1960s (see McCARTHY, JOHN *Reminiscences on the History of Time Sharing*, 1983, <http://www-formal.stanford.edu/jmc/history/timesharing/timesharing.html> (last viewed July 2, 2020)). The fact that cloud computing has only recently started to attract public attention under this new name is generally explained by reference to developments in the centralization of computing infrastructure (see PULLEN, JOHN PATRICK, *Where Did Cloud Computing Come From, Anyway?*, March 19, 2015, <http://time.com/collection-post/3750915/cloud-computing-origin-story/>, last viewed July 2, 2020). Other theories link it to the increase in demand for data storage and big data processing, the slowing down of Moore's law, or simply good marketing.

Section II Typical Fact Patterns

§ I. Introduction

This section contains two basic case studies that will serve as a foundation for further legal consideration. They are, of course, imaginary, which allows the present writer to freely combine the determining characteristics of several actors and situations that actually exist in the cloud computing business. 12

The first case study (A) concerns a cloud provider (X Corp.) and the second case study (B) describes the general situation of a corporate cloud customer⁷ (Y Corp.). These will represent the most basic and common situations in which cloud computing is used in a corporate setting.⁸ 13

§ II. Case Study A: Cloud Provider

X Corp. is a cloud computing provider incorporated in the United States of America.⁹ The cloud computing service offered by X Corp. consists in the provision of virtual servers for its customers (i.e., 14

⁷ In the technological literature the more usual expression is “cloud consumer.” In this thesis the expression “cloud customer” will be used to designate the party acquiring by contract the right to use cloud services. In most cases, this would be a firm as a legal entity (as opposed to its employees) contracting to use the cloud for its business activity (which is why the term “consumer” may be misleading here). The firm’s employees will be called “users.” The word “client” will be reserved for use in relation to client/server architecture.

⁸ The corporate setting is more relevant for the direct tax issues tackled in this thesis. In comparison, private use cloud customers rarely adapt their behavior after tax considerations. Private customers are more relevant to indirect tax analysis.

⁹ Similar to Amazon Web Services. Other examples of cloud providers of this kind are the leading contemporary IT firms that host public cloud services on their own infrastructure (e.g., Apple, Google, and Microsoft).

laaS). X Corp. is responsible for making virtual servers of the required quality available at all times.

- 15 For the purposes of its business activity, X Corp. operates physical infrastructure consisting of a dozen interconnected data centers all over the world. In order to provide services to customers in Europe, X Corp. owns and operates a data center in Switzerland. A team of twenty employees (engineers, administrators, housekeeping, and security personnel) works on the premises. Most tasks on the servers in the data center are performed remotely by other workers located in the United States. Contracts with customers are concluded through a web interface hosted on the servers in the data center. Customers are billed monthly on the basis of the volume of the computing resources they have used during the month.

§ III. Case Study B: Cloud Customer

- 16 Y Corp. is a provider of Internet video streaming and is incorporated in the United States of America.¹⁰ Its service consists in providing users with access to an Internet website from which they can stream videos for a small fee per video.
- 17 The underlying infrastructure for the streaming service is based on cloud computing. Y Corp.'s laaS cloud provider is the above-mentioned X Corp. Y Corp. defines the precise characteristics of the virtual servers it requires, which it manages through a secure Internet connection to a website. All of this is possible without any direct interaction with X Corp.'s personnel.
- 18 The physical infrastructure and servers that are used for Y Corp.'s cloud are also used to host the clouds of the provider's other customers. However, the different customers' clouds are isolated from each other at the software level. The content of the virtual

¹⁰ Similar to Netflix.

servers can be accessed only by Y Corp. since encryption protects against access by others, including the cloud provider X Corp. itself.

Y Corp. does not own, possess, or have physical access to the server hardware in X Corp.'s data centers. The contract between Y Corp. and X Corp. simply gives Y Corp. the right to remotely access the virtual servers. Upon termination of the contract, Y Corp. has the right to have the virtual servers transferred to another cloud provider.

Y Corp. is not aware of the exact location in which the virtual servers execute their functions, nor where the physical servers processing the value-generating calculations are located. In fact, there is no way of knowing, since X Corp. attributes the computing resources within the data center network autonomously. The various calculation processes of Y Corp.'s cloud are balanced across the global network of data centers depending on their workload.¹¹

¹¹ X Corp. might shift one of Y Corp.'s virtual servers from one physical server to another for various reasons such as to replace old physical servers, to free up physical server space for other cloud customers, or to reduce the physical distance between connecting virtual servers.

Section III Types of Transactions

§ I. Introduction

Within the cloud computing fact patterns described above it is possible to encounter various kinds of transactions. The most obvious is the provision of virtual servers by X Corp. in exchange for corresponding payment by Y Corp. (i.e., IaaS). There may be other transactions, not yet explicitly mentioned, which precede or accompany the ongoing business operations. 21

Some authors have referred to additional examples of cloud-related transactions. These include the provision of SaaS,¹² IaaS, or PaaS allowing users to access computing resources on a more fundamental level such as that of the operating system or the virtual server.¹³ They also include the granting of access to an information database through the cloud.¹⁴ The storage of business data on an external cloud and file sharing have also been mentioned,¹⁵ as have support services for the software.¹⁶ There may be many more examples. 22

These examples do not cover all the transactions necessarily taking place in the cloud computing business. They generally overlook transactions between different subunits of a multinational provider of cloud computing and transactions involving the creation and the maintenance of software. These entail quite distinct activities and are remunerated and characterized accordingly. 23

¹² See BAL 2014, p. 517 (example of accounting software); MAZUR 2016, pp. 652 f.

¹³ See SPRAGUE/REID, p. 32.

¹⁴ See BAL 2014, p. 518.

¹⁵ See BERANEK ZANON/DE LA CRUZ BÖHRINGER, p. 665.

¹⁶ See BAL 2014, p. 519 (“Support services”).

- 24 The main challenge for academic writing on the cloud computing business lies in the huge variety of transactions it encompasses. Very different conclusions can be reached depending on the transactions contemplated. The conclusions of the present thesis also depend to a large degree on the kinds of transactions under consideration. A subjective choice of transactions will lead to subjectivity in the results of the legal analysis. Consequently, this section seeks to achieve a certain degree of objectivity by systematizing the diversity.

§ II. Taxonomy

- 25 The following taxonomy gives a complete account of the transactions envisioned in this thesis. Thereby, it creates the basis for an objective scientific analysis. The taxonomy relies on the application of various criteria, which allow it to be visualized as a table. This systematic presentation depicts the full set of contemplated phenomena.

| <i>Distinction between broad categories of transactions¹⁷</i> | | | | | |
|---|---|--------------------|--|--|---|
| | | Ancillary services | Transfer of assets | Transfer of usage rights | |
| | | a | b | c | |
| <i>Distinction between objects delivered at different levels of computing</i> | Physical infrastructure (data center building, physical servers, cables, etc.) | 1 | For example, construction of data centers, installation of servers, hardware and building maintenance in data centers, security services for data centers, provision of electricity. | Buying and selling of movable or immovable property, e.g., data centers, parts thereof, servers. | Renting or leasing of movable or immovable property, e.g., data centers, parts thereof, servers. |
| | Infrastructure software (operating systems, virtual servers, virtualization software, networking, load balancing, etc.) | 2 | For example, freelance software development services, software support and training services, software maintenance (i.e., updates, bug fixes, reestablishing compatibility with other software, etc.). | (Copyrights and know-how assets pertaining to this kind of software can be bought and sold, see cell b-4.) | For example, IaaS and certain features of PaaS. |
| | Application software (accounting software, e-mail, data storage, information databases, development platforms, etc.) | 3 | See cell a-2. | (Copyrights and know-how assets pertaining to this kind of software can be bought and sold, see cell b-4.) | For example, SaaS (which may contain any of the ancillary services in cell a-2) and certain features of PaaS. |
| | Intellectual property rights (copyrights, patents, trademarks, know-how, etc.) | 4 | For example, protecting copyright in court, IP-administration services (see cells a-1 to a-3 for the development of IP rights in software and hardware). | For example, buying and selling of software copyrights, patents, know-how, trade secrets, etc. | For example, software copyright license. |

¹⁷ This distinction was inspired by MARAIA, p. 11, who explained the transfer pricing for intangibles by distinguishing between the different stages in their life cycle, namely development, finalization, licensing, sale, and extinction.

§ III. Commentary

- 26 As suggested in the table above, the transactions can be categorized according to two criteria: the object (rows) and nature (columns) of the transaction.
- 27 For instance, the upper left-hand box (cell a-1) represents the service of building a data center. This transaction requires a company to erect a building within which to host the infrastructure and install the necessary servers and equipment. The construction and the installation are provided in return for a fee remunerating the construction company. The same cell box (cell a-1) also covers the provision of specialized personnel to maintain another company's (or permanent establishment's) data center. If certain parts of the data center, such as the empty building, have been acquired already completed and ready for use, that case is contained in the box immediately to the right (cell b-1). Finally, the building can be rented instead of owned (cell c-1). As all these transactions concern the physical infrastructure, they belong in the upmost row of the table (row 1). Given that they can be subdivided according to whether they concern the transfer of assets, usage rights, or merely ancillary services, they are broken down into three boxes (cells a-1, b-1, and c-1).
- 28 It should be pointed out that some of the transactions alluded to in this table (at least, on their own) are not necessarily specific to cloud computing. The most typical cloud computing transactions are those represented in cells c-2 and c-3 (shaded gray). They include the service models characteristic of cloud computing: IaaS (cell c-2), SaaS (cell c-3), and PaaS as a combination of the former two (see *supra* paras. 6 f.). It is specific to cloud computing that software can be used as a service, that is, without the transfer of the corresponding software code. In the following analysis, these transactions will be called "cloud-specific."

However, transactions that are cloud-specific are generally either preceded or accompanied by transactions covered in the other cells of the table. Although these transactions often occur in the cloud computing business, they also occur in other business sectors. Thus, they are cloud-related, but not cloud-specific. For instance, software development exists in many businesses that do not use cloud computing. They may constitute a business sector on their own, comprising companies that specialize in software development and provide their services independently of any hardware. The software development industry can therefore be considered as an industry in its own right. In an SaaS business, the development of software may be outsourced to a software development service provider (see *infra* paras. 49 f.). That is the reason why it is shown in cell a-3. Such a transaction would be cloud-related, but not cloud-specific. 29

The taxonomy also differentiates between services relating to copyright (cell a-4) and those relating to software (cells a-2 and a-3). For instance, maintaining software is different from managing copyright in that software. They involve different kinds of expertise, personnel, resources, and business risks. 30

Cells a-2 and a-3 differentiate between cloud layers and, therefore, between different kinds of providers of cloud services. An IaaS provider will be more likely to invest in physical infrastructure than an SaaS provider, as the latter can build its cloud on top of an IaaS cloud.¹⁸ 31

Of course, the table could in theory be extended. For instance, the different levels of cloud layers and the transaction categories could be broken down further. As it is, this table identifies twelve different types of cloud-related transactions, including two specific to the cloud. These will prove sufficient for the purposes of the present 32

¹⁸ An SaaS service is often built on top of an IaaS infrastructure to allow a seamless increase in SaaS volume. By contrast, traditional, non-virtualized hardware infrastructure theoretically allows the SaaS service to grow only incrementally through the addition of hardware servers.

thesis. Further differentiation would be irrelevant from a tax point of view.

Section IV Parties to Transactions

§ I. Introduction

To properly understand and evaluate a transaction, it is always necessary to consider its context, which can best be analyzed by looking at the functions, assets, and risks of each party, their economic circumstances, and their market, as well as the business strategies they employ.¹⁹ In essence, this means that the parties to a transaction and the relationship between them must be studied. 33

For instance, in case study B (see *supra* para. 16), there is a cloud-specific transaction (notably cell c-2 in the taxonomy of cloud computing transactions; see *supra* para. 25) between the cloud customer Y Corp. and the cloud provider X Corp. This transaction is markedly different from a transaction between the US head office of X Corp. and its Swiss data center in case study A, although it would be classified in the same box in the taxonomy. The difference lies in the choice of the parties and the functions, assets, and risks distributed among them. Y Corp. is an independent corporation that acquires IaaS from X Corp. Y Corp. has its own management and does not provide any services to X Corp. in return for the computing resources (only a purely monetary, market-priced remuneration). In contrast, X Corp. and its provider of IaaS (namely the Swiss data center) are both part of the same international corporate structure, which provides the data center with management and software developed in the United States. 34

There are basically two different scenarios that should be distinguished for the following analysis. In the first scenario, a cloud- 35

¹⁹ Apart from the characteristics of the transaction itself (these were explained in the previous section describing the taxonomy of transactions, *supra* para. 25), this contextual view corresponds to the comparability factors of a transaction according to OECD TPG, para. 1.36.

specific transaction (cells c-2 and c-3) takes place between a cloud customer and a cloud provider in return for remuneration. This can happen between two unrelated parties, between two members of a multinational group of enterprises, or even between a permanent establishment and its head office within a single legal entity. The most interesting alternative is when one or more legal entities are intragroup cloud service providers. It is conceivable that a multinational group of enterprises in a business sector other than the cloud (or related to a different cloud) develops a corporate group structure that concentrates IT services in one of its subsidiaries. Such subsidiary would operate data centers and employ engineers to develop and maintain the software necessary for its non-cloud business. In that case, the other members of the group would acquire IT and cloud services from that specialized IT subsidiary. This kind of cloud is called an internal private cloud.²⁰ In this first scenario, the transaction consists mostly of nothing more than the provision of a service in return for consideration in the form of a certain amount of cash.

²⁰ For a definition of “private cloud,” see MELL, PETER/GRANCE, TIMOTHY, *The NIST Definition of Cloud Computing*, NIST Special Publication 800-145, n.p. 2011, p. 3; see also, and more precisely, VON EICKEN, THORSTEN, *Internal External Private Public Hybrid Virtual Cloud*, Cloud Management Blog, September 3, 2009, <https://www.rightscale.com/blog/enterprise-cloud-strategies/internal-external-private-public-hybrid-virtual-cloud> (last viewed July 2, 2020), concluding that a private cloud can be internal and external. In essence, an internal private cloud is hosted on the hardware infrastructure that is directly operated by the user, whereas an external private cloud is operated by a third-party cloud provider but on hardware infrastructure dedicated to that customer (which is what distinguishes it from a public cloud). Where the cloud is separated from other clouds hosted by the third-party cloud provider only at the software level and not at the hardware level, such cloud may be called a “virtual private cloud”; see the Amazon Virtual Private Cloud, <https://aws.amazon.com/de/vpc/> (last viewed July 2, 2020).

In the second scenario, both parties to a transaction exchange unique and valuable contributions with each other on a regular basis;²¹ in other words, both parties have to work together to create a marketable product. For instance, a software development team and a data center may have to work together to create a unique cloud service. Such transactions will be most common in groups whose main business is the provision of cloud computing services (e.g., the Amazon Web Services group). In this scenario, the group's various functions—such as the operating of the data centers, the administration of the real estate of the data centers, the development of the software, and the possession of the intellectual property rights—could be spread among specialized subsidiaries located in different jurisdictions.

36

In practice, some multinational groups may well encounter transactions from both scenarios. For instance, a group in a business sector other than the cloud (as in the first scenario) might wish to distribute IT functions among various subsidiaries, which, together, would act like a cloud service provider group (as in the second scenario). Further, *private* clouds (i.e., clouds on infrastructure dedicated to a single customer, as in the first scenario) and *public* clouds (hosted by third-party cloud providers on infrastructure offered to the general public) are often combined (so-called hybrid clouds²²).

37

However, in most cases it should be possible to determine, based on the context, whether a particular transaction is part of the first or

38

²¹ It is possible that such unique and valuable transactions also occur in both directions in the first scenario, e.g., when intragroup users of a service contribute to a cloud-based and shared group know-how database. However, in the first scenario the bidirectionality is rarer.

²² For a definition of "hybrid cloud," see MELL, PETER/GRANCE, TIMOTHY, *The NIST Definition of Cloud Computing*, NIST Special Publication 800-145, n.p. 2011, p. 3.

second scenario.²³ The following explanations will therefore differentiate between the two.

§ II. Cloud-Specific Transactions with a Centralized Provider

A) Cloud-Specific Pricing

39 Cloud-specific transactions (i.e., cells c-2 and c-3 in the table of cloud computing transactions, *supra* para. 25) are regularly based on some kind of dynamic pay-as-you-go pricing model, whereby customers are billed on the basis of the computing resources they have actually used, in a similar fashion to gas and electricity bills.²⁴ However, as the services involved are highly distinct, the pricing models in use vary considerably depending on the cloud service model.

40 For instance, billing practices for IaaS provision have undergone a degree of standardization. The most basic and common parameters for IaaS pricing are: the average amount of use of the service over time; the number of virtual servers; and their CPU, RAM, and storage space. Another common feature is the assurance of a certain availability standard. For example, a cloud provider may promise that the cloud service is available 99.9 percent of the time over a year.²⁵ For an increased fee, that same provider may be able to provide a

²³ These two scenarios loosely resemble the case studies described earlier in paras. 14 f. and 16 f. The first scenario is basically case study B, except that X Corp. and Y Corp. were members of the same multinational group and Y Corp. was not necessarily itself an SaaS provider. The second scenario basically corresponds to case study A, except that the Swiss data center was to be operated by a local legal entity and the business functions were further decentralized. However, given that they are used to exemplify different concepts later in the tax analysis, the scenarios cannot be merged with the case studies.

²⁴ BULLA/UDUPI, p. 1457; WEINHARDT/ANANDASIVAM/BLAU/STÖSSER, p. 33.

²⁵ Annual availability of 99.9 percent amounts to maximum downtime of 8 hrs., 45 min., 56 sec.

higher quality service ensuring 99.999 percent availability.²⁶ The level of availability depends mostly on the number of physical servers used to create redundancy.²⁷ It can be assumed that more servers mean more redundancy and, therefore, greater availability.

Sometimes, cloud providers offer special price calculators²⁸ or detailed pricing lists,²⁹ which allow customers to see the price for the exact product and quantity they expect to use.³⁰ These calculators and price lists are supposed to increase comparability between

41

²⁶ Annual availability of 99.999 percent amounts to maximum downtime of 5 min., 15 sec.

²⁷ Redundancy in an engineering project means that extra components are added to the project that are not strictly necessary to its functioning, so that, in the event the necessary components fail, the extra components can take their place and thereby ensure that the project continues to function. A cloud can be made redundant by storing several identical sets of the data it contains on several servers in different locations and by preparing software so that it can be executed on several servers in different locations other than the server on which the software is already being executed.

²⁸ Such as the Microsoft Azure Pricing Calculator, <https://azure.microsoft.com/en-us/pricing/calculator/> (last viewed July 2, 2020), or the AWS Total Cost of Ownership Calculator, <https://awstcocalculator.com/> (last viewed July 2, 2020).

²⁹ Such as the pricing list for Amazon EC2, https://aws.amazon.com/ec2/pricing/on-demand/?nc1=h_ls (last viewed July 2, 2020).

³⁰ This reference to the most basic and common kinds of pricing leaves out other more interesting models. For instance, Amazon EC2 offers four types of pricing: on demand (the customer pays for compute capacity by the hour with no long-term commitments or upfront payments), spot instances (the spot price represents the price above which the customer has to bid to guarantee that a single spot request is fulfilled), reserved instances (the customer reserves a certain instance with certain characteristics up front by paying a sometimes considerably decreased price), and dedicated hosts (the customer pays up front for a physical server); see AMAZON WEB SERVICES, *Amazon EC2 Pricing*, https://aws.amazon.com/ec2/pricing/?nc1=h_ls (last viewed July 2, 2020). If used between associated enterprises, spot instance pricing would most likely constitute the basis for an arm's length price according to the CUP method (after applying the necessary adjustments); see *infra* para. 541.

competitors.³¹ When applied to a specific case,³² they may be able to provide merely a first impression of the cost of outsourcing certain IT infrastructure to a cloud provider.

- 42 SaaS pricing models are more diverse. Some services are offered free of charge (such as Gmail). Customers may need to pay only for extensions of the service's functionalities (such as the full functionality of Evernote). There are other services for which payment is required, either in the form of monthly subscription fees per user (such as Protogrid for more than two users) or as part of the purchase price for physical items (such as the full functionality of Apple iCloud). In sum, each component of a service may be subject to a different pricing mechanism.
- 43 However, the publicly announced prices are not sufficient to determine the overall cost of cloud adoption.³³ The range of factors affecting the cost and benefits of cloud adoption has often been underestimated.³⁴ Any outsourcing of IT may relieve the customer of certain responsibilities, but it also creates others. Examples are the active integration of the outsourced resources into the internal business process, instructing the personnel on how to use the cloud, and monitoring the cost and quality of the cloud provider's services. These responsibilities represent costs that are peculiar to each enterprise and, thus, difficult to anticipate.
- 44 Furthermore, cloud providers may deliberately avoid being transparent in their pricing in order to prevent direct comparisons with

³¹ Some even say that the transparency achieved leads to perfect competition; see DURKEE, pp. 63 f.

³² According to RUFER, p. 103, it is impossible to compare cloud services without a case of concrete use at hand.

³³ See generally ROGERS, OWEN/ATELSEK, JEAN, *The Cloud Pricing Codex - 2013*, December 6, 2013, <https://451research.com/report-long?icid=2770> (last viewed July 2, 2020).

³⁴ For an introduction to the research in this field, see ALKAHIL/SAHANDI/JOHN, pp. 1 f.; ANDRIKOPOULOS/SONG/LEYMANN, pp. 570 f.

competitors. For example, they may use different names for offers that are in fact identical, add hidden fees, or lock customers into long-term commitments without delivering the thereby anticipated benefits.³⁵ Hence, the aforementioned calculators cannot reliably predict actual costs, as the quality of the product may differ greatly from what is advertised.

B) Risks

Compared with the classic software sales business of the 1990s, the cloud model shifts risks from the software user to the cloud provider.³⁶ And there are cloud-specific risks on top of regular software development risks. For instance, the cloud provider is contractually responsible for the availability and functionality of the software (applications or virtual servers). The cloud-specific risks are listed in the following table:³⁷

45

³⁵ DURKEE, pp. 64 f., with many more examples of ways in which the prices may be obscured.

³⁶ MAZUR 2015, p. 10.

³⁷ These categories are proposed by the OECD; see OECD TPG, paras. 6.65 and 6.128.

| | |
|--|---|
| Development risks | There may be development risks that are specifically related to the operation of a software program on a cloud, such as the risk of dependency on network connection and security. ³⁸ Regular software development risks, such as the risk of suddenly needing more computing resources and not being able to scale up the computing resources fast enough, may decrease through the use of cloud computing. ³⁹ |
| Risks of product obsolescence and depreciation | The depreciation rate and useful life of software can depend on the quality of the software code. ⁴⁰ |
| Infringement risks | Because cloud computing services do not require the transfer of software codes, copyright infringement risks are practically nonexistent. However, cloud computing is exposed to specific risks regarding data security and data protection. |

³⁸ For a more detail discussion of security issues, see STAFFORD, JAN, *Public cloud security: 10 ways to keep your applications safe*, June 11, 2012, <https://searchcloudcomputing.techtarget.com/tip/Public-cloud-security-10-ways-to-keep-your-applications-safe> (last viewed July 2, 2020).

³⁹ For a review of 144 elements of risk in regular software development projects, see BARKI/RIVARD/TALBOT, pp. 207 f.

⁴⁰ See Decision of the US Tax Court of March 23, 2017, *Amazon.com, Inc. & Subsidiaries v. Commissioner of Internal Revenue*, 148 T.C. No. 8, Docket No. 31197-12, pp. 107 f.

| | |
|-------------------------|--|
| Product liability risks | The risk of failing to meet contractually agreed requirements is typically defined in the service-level agreement (“SLA”). For example, the amount of time the cloud service is required to be available to the client will be expressly stated in the contract (for more on availability, see <i>supra</i> para. 40). |
| Exploitation risks | As cloud computing involves new technology relatively vulnerable to security breaches, it comes under considerable public scrutiny. Thus, the reputational risks in the event of failures consequent upon such breaches may be greater than in sectors where more established technology is used. |

In sum, the risk distribution is different in cloud computing in general compared to traditional software- or ICT-related transactions and business.

46

§ III. Transactions within a Decentralized Cloud Provider

A) Introduction

As mentioned earlier, a cloud provider may perform the following business functions in different jurisdictions: the operating of data centers, the administration of the real estate housing data centers, the development of software, and the management of intellectual property rights. This would be typical of a decentralized multinational cloud provider group, such as Amazon Web Services.

47

It is possible to imagine the decentralization of additional business functions such as marketing, management, and legal operations.

48

However, not all of these business functions are necessarily present in all kinds of cloud computing, as shown by the example of SaaS (see *supra* para. 29). The following explanations will cover the four principal functions mentioned in the preceding paragraph.

B) Software Development Team

- 49 Cloud computing always implies the use of software, as illustrated by SaaS. However, even IaaS requires software for the creation and deployment of virtual servers. Software can be developed in-house or bought from third-party developers. In practice, most cloud providers adopt both approaches, they have an internal team of engineers to develop their own software while occasionally buying software or software parts from third parties. Many multinational cloud computing providers develop their software in their respective US head office.
- 50 Usually, the in-house software development team will create the software that is the main value driver of a cloud computing business. In most cases, the development, enhancement, and maintenance of the software will be handled by the same team, even after third-party customers begin to use the software. Users of cloud services generally have access to continuous updates, bug fixes, and extensions of the software's initial functionality. During that entire time, the engineers in the in-house software development team stay put geographically.
- 51 There are certain risks linked to these software-related functions.⁴¹ The precise allocation of these risks among the parties to a cloud

⁴¹ See *supra* note 39.

transaction will depend on the contractual arrangements they have made.⁴²

C) Hardware Operation Team

Cloud computing services generally require a physical server infrastructure. For instance, SaaS needs it to execute the software and store the data related to the software. IaaS relies on it to provide and execute virtual servers. Today, the most efficient way of operating a physical server infrastructure is in the concentrated form of a data center. A data center is usually a highly specialized building equipped with an appropriate supply of electricity and cooling (e.g., through the use of water or air), in which servers, cables, and other electronic equipment are arranged in the most efficient way. There are even special certifications for particularly well-organized and highly equipped data centers.⁴³ Most such data centers appear to be situated in separate local subsidiaries.⁴⁴

Usually, a data center is managed by both on-site and off-site personnel. The latter are often in the same location as the software development team at the company's head office, which is in charge of all sorts of strategic and financial decision making, as well as varying degrees of software maintenance, development, and acquisition (as described in the case study, *supra* para. 15). Simply put, the head office develops the software and deploys it remotely on the infrastructure at the data center. The on-site personnel carry out

⁴² This allocation of risk will normally be respected, subject to any corrections that may be necessary to ensure that the transaction is at arm's length. A risk factor should be borne by the party exercising control and having financial capacity to assume the risk (OECD TPG, para. 1.98).

⁴³ TIA and the Uptime Institute are the best-known data center certifiers; see BAUER/ADAMS, pp. 8 f.

⁴⁴ FLYNN/CROSBY/PERKS/SPRAGUE, p. 88 (mentioned in conversation by Mr. Gary Sprague); The use of subsidiaries is probably due to the intention of avoiding the risk of permanent establishment (see PINKERNELL 2012a, p. 344).

the tasks that cannot be performed through remote control or cannot yet be automated. Indeed, remote control⁴⁵ and automation⁴⁶ are replacing an increasing number of on-site data center jobs.

- 54 The most important global providers and many local providers operate their own cloud infrastructure.⁴⁷ Building, buying, or even renting a data center is a major investment.⁴⁸ The costs arising from a data center, be they capital costs or operating costs, basically relate to labor, the building, the servers and the internal infrastructure, as well as the external supply of cooling and electricity.⁴⁹
- 55 Finally, it is important to take into account the fact that data centers are subject to a particular set of risks,⁵⁰ which may include those listed in the following table.⁵¹

⁴⁵ For example, VMware, SAP, and Amazon; see job descriptions at <https://www.flexjobs.com/jobs/telecommuting-jobs-at-vmware>, <https://www.flexjobs.com/jobs/telecommuting-jobs-at-sap>, and <https://www.flexjobs.com/jobs/telecommuting-jobs-at-amazon> (all last viewed July 2, 2020).

⁴⁶ COMPUTER ECONOMICS, *Data Center Staffing Drops Sharply*, September 2015, <https://www.computereconomics.com/article.cfm?id=2135> (last viewed July 2, 2020).

⁴⁷ See, e.g., GREENE, JAY, *Tech's High-Stakes Arms Race: Costly Data Centers -- Top three cloud-computing firms have spent \$31.5 billion in 2016 on capital expenses and leases*, Wall Street Journal, Apr. 7, 2017, <https://www.wsj.com/articles/techs-high-stakes-arms-race-costly-data-centers-1491557408?mod=e2fbd> (last viewed July 2, 2020).

⁴⁸ "Cloud computing depends heavily on servers and other IT infrastructure" (MAZUR 2016, p. 689); GREIL/FEHLING, p. 764.

⁴⁹ See *infra* note 54.

⁵⁰ The functional analysis requires economically significant risks to be precisely identified; see OECD TPG, para. 1.71.

⁵¹ These categories are described in OECD TPG, para. 1.72; for an analysis of weighted risks specific to data centers, see TREVOR, MARK/INGLIS, KEITH/HEARD, ANDREW, *Cushman & Wakefield Data Centre Risk Index 2016*, https://verne-global-lackey.s3.amazonaws.com/uploads%2F2017%2F1%2Fb5e0a0da-5ad2-01b3-1eb8-8f782f22a534%2FC%26W_Data_Centre+Risk_Index_Report_2016.pdf (last viewed July 2, 2020), p. 4.

| | |
|--------------------------------------|---|
| Strategic risks or marketplace risks | Risks arising from current pressure on own data center costs compared to outsourcing to the cloud of another data center owner; ⁵² risks of not keeping up with technological progress. |
| Infrastructure operational risks | IT security risks; energy and cooling supply risks; the risk of not having the capacity to meet fluctuations in demand (availability); inadequate Internet bandwidth; political instability; natural disasters. |
| Financial risks | Corporate tax; the risk arising from customers defaulting on payment is reduced in cloud computing because the service is provided on demand. |
| Transactional risks | - |
| Hazard risks | Accidents, natural disasters, and the loss of reputation they may cause. |

Compared to traditional data centers, data centers offering cloud computing solutions are exposed to increased risk in many respects. Above all, the services of the hardware operation team are completely reliant on the data center's availability. These special risks can be mitigated by insurance, special hardware, and software. For instance, the energy supply risks may be mitigated by investing in a backup power generator. Additionally, a cloud computing data center's physical and software architecture sets it apart from traditional data

56

⁵² See UPTIME INSTITUTE, *2016 Data Center Industry Survey Results*, 2016, https://uptimeinstitute.com/uptime_assets/10605ff30621660fd68cebfee7a8d407831ad4113d896cea1d5a33e4ac331b56-Survey16.pdf (last viewed July 2, 2020).

centers.⁵³ Cloud computing used to host computing services may lead to more efficient use of server hardware, thereby reducing hardware costs. Finally, increased automation in hardware management may reduce the costs of labor, electricity, and cooling.⁵⁴

57 In conclusion, traditional and cloud computing data centers are not directly comparable with each other. Today, the operation of a data center presupposes sizable assets and brings special risks.

D) Intellectual Property Rights Company

58 The creation of software gives rise to an intellectual property right in the software code (see Art. 2(3) of the Swiss Federal Act on Copyright and Related Rights, hereinafter “CopA”⁵⁵). Such intellectual property right is a so-called intangible. An intangible can be defined as “something which is not a physical asset or a financial asset, which is capable of being owned or controlled for use in commercial activities, and whose use or transfer would be compensated had it occurred in a transaction between independent parties in comparable circumstances.”⁵⁶

⁵³ If available, certifications may facilitate comparisons between certified data centers. In the present author’s experience, certificates for data centers are not particularly common in Switzerland, however.

⁵⁴ James Hamilton from Amazon claims that, for a data center intended for Internet services, labor often represents less than 5 percent of the total cost, while hardware is the most costly item, typically followed by cooling, power, and networking; see his influential presentation on March 29, 2009 at the 25th International Conference on Data Engineering (ICDE 2009) in Shanghai (and repeated on other occasions), http://mvdirona.com/jrh/TalksAndPapers/JamesHamilton_SMDB2009.pdf (last viewed July 2, 2020), pp. 5 and 9, and as a video <https://channel9.msdn.com/Events/MIX/MIX10/EX01> (last viewed July 2, 2020).

⁵⁵ *Loi fédérale sur le droit d’auteur et les droits voisins (Loi sur le droit d’auteur, LDA) du 9 octobre 1992* (RS 231.1).

⁵⁶ OECD TPG, para. 6.6. This definition is distinct from any definitions used in Art. 12 MOECD (OECD TPG, para. 6.13).

In the cloud computing business, software⁵⁷ copyrights are an essential category of intangibles.⁵⁸ They can be categorized as trade intangibles, as opposed to marketing intangibles.⁵⁹ Moreover, software can constitute a unique and valuable intangible. It is unique when it is not comparable to intangibles used by others.⁶⁰ It is valuable when its use in business yields greater future economic benefits than would be the case without it.

59

There may be other kinds of intangibles that play a role in a software-based transaction. For instance, a cloud service is likely to be performed under a valuable brand name (i.e., a marketing intangible), and there may be other intangibles specific to a given cloud service.⁶¹ Furthermore, intangibles may include additional copyrights, such as human- or machine-generated electronic data and data collections, as

60

⁵⁷ In this context, the term “software” should be understood broadly as including not only “the sums of all programs required to ensure that i) the computer can be operational autonomously; ii) the computer can be linked via communication lines with one or more computers in other locations, including the warehouse; iii) the computer can be linked via modem lines (or similar means of communication) with any person seeking to access the website; iv) the computer can maintain the website and v) the computer can perform operations relating to the processing of commercial transactions with customers, including seeking and obtaining authorization from the financial institution for the payment to be made” (OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, in: *OECD Tax Policy Studies*, No. 10, Paris May 2005, p. 16, para. 17), but also any software required to ensure cloud computing, such as virtualization software, hypervisors, and load balancers.

⁵⁸ GREIL/FEHLING, P. 764.

⁵⁹ OECD TPG, p. 30 (Glossary): “Trade intangible: An intangible other than a marketing intangible.” The term marketing intangible refers to “an intangible ... that relates to marketing activities, aids in the commercial exploitation of a product or service, and/or has an important promotional value for the product concerned,” such as “trademarks, trade names, customer lists, customer relationships, and proprietary market and customer data that is used or aids in marketing and selling goods or services to customers.” (OECD TPG Glossary, as referenced in OECD TPG, para. 6.16).

⁶⁰ With regard to this and the following sentence, see OECD TPG, para. 6.17.

⁶¹ For a case study arriving at the same conclusion, see OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, in: *OECD Tax Policy Studies*, No. 10, Paris May 2005, p. 17 (paras. 18 f.).

well as a website.⁶² An intangible relating to the ability to handle large quantities of data is also possible.⁶³ This kind of intangible could be prevalent in cloud computing used for big data analysis.⁶⁴

61 In short, many kinds of intangibles may be involved in cloud computing transactions. The most significant of these will of course relate to the software, the value of which will be the chief factor determining the value of the transaction.

62 The aforementioned intangibles are sometimes transferred to a specialized subsidiary called an intellectual property rights company. In the US *Amazon* case,⁶⁵ for instance, the transferred intangibles were exploited by a Luxembourg subsidiary. It is important to bear in mind that software and software copyrights can be transferred to locations other than those where they were originally developed. A corollary of the transfer of these rights is the entitlement to income arising from the licensing of the copyrights. The intellectual property rights company is entitled to receive royalties for the use of software in other locations (e.g., in data centers)⁶⁶ and it sometimes has a legal team dedicated to the administration and protection of intellectual property rights.

⁶² See *infra* para. 481.

⁶³ What is special about this kind of intangible is that large quantities of data do not have a high value per se. However, a large quantity of data may gain value by adding a method or software for evaluating the data (SCHWARZ, pp. 13 f., with further reference, and p. 443, with an example of “wertlose Rohdaten”). For instance, large quantities of photos are worth a lot more with modern face recognition software. The fact that a combination of two intangibles can create a higher value is to be taken into account in relation to transfer pricing (OECD TPG, paras. 6.92 f.).

⁶⁴ Big data analysis describes the rather recent problem of exponentially growing sets of data that are difficult to store and to evaluate. For a brief overview of big data, see, e.g., OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 69.

⁶⁵ Decision of the US Tax Court of March 23, 2017, *Amazon.com, Inc. & Subsidiaries v. Commissioner of Internal Revenue*, 148 T.C. No. 8, Docket No. 31197-12, p. 26.

⁶⁶ Royalty income will be explained and defined further below; see *infra* para. 222.

Deploying software as a service rather than as a downloadable code significantly decreases the risks related to intellectual property rights, as the code cannot be copied or decompiled. Further, the risk of technological obsolescence appears in a different light due to the frequency with which software is updated by development teams. Updating can be assumed to reduce the risk of technological obsolescence. In other respects, however, the risks associated with holding intellectual property rights in the cloud computing business do not significantly differ from those in other business sectors.

63

E) Real Estate Company

In large firms, the assets constituting a data center may be divided between IT and real estate departments, which may take the form of two separate subsidiaries. Major cloud providers often have similar arrangements.⁶⁷ The real estate company will build, buy, or rent the real estate from third parties. The real estate consists of the buildings and land necessary for the business operation. Then, the company will administer and rent these buildings to the other subsidiaries of the group according to their respective needs.

64

For instance, the company will rent the data center building to the hardware operation team. Then, the hardware operation team will be able to equip it with physical servers and other equipment, as well as on-site personnel, and use the building as a data center.

65

⁶⁷ For instance, Swisscom Immobilien AG (CHE-102.689.884) may fulfill this requirement for the Swiss cloud provider Swisscom, as that subsidiary seems to be part of the structure that owns the Swisscom group's data centers according to its website, <https://www.swisscom.ch/de/about/unternehmen/portraet/organisation/immobilien.html> (last viewed July 2, 2020).

Section V Summary

This section has provided a basic introduction to cloud computing. It contains two case studies, as well as a complete account of the various kinds of transactions and parties present in the cloud computing business. The transactions were categorized in a taxonomy which distinguishes between those transactions that are cloud-specific and those that are merely cloud-related. The potential parties to such transactions were presented in two scenarios, the first of which involved cloud-specific transactions with a centralized cloud provider, and the second transactions between decentralized business functions working together to create a cloud computing product. The subsequent analysis of this second scenario covered four business functions: the development of software, the operation of hardware, and the administration of real estate and intellectual property rights.

66

Chapter 3: Current International Taxation Rules

Section I Permanent Establishments

§ I. Introduction

In 1919, the International Chamber of Commerce put forward a proposal to reduce double taxation for individuals and companies.⁶⁸ It called for an international consensus on rules allocating taxing rights among states. Shortly thereafter, in response to this plea, the League of Nations issued the first model bilateral tax conventions for the prevention of double taxation.⁶⁹ These conventions were invariably based on the source and residence taxation paradigm, according to which all business income other than revenue originating from a source country where the business has a permanent establishment⁷⁰ is taxed in the taxpayer's country of residence. It was these first attempts at harmonization that led the Organisation for Economic Co-operation and Development (hereinafter "OECD") to develop the current OECD Model Tax Convention on Income and on Capital (hereinafter "MOECD")⁷¹ and its

67

⁶⁸ For this and the following sentence, see INTERNATIONAL CHAMBER OF COMMERCE, *Congress of London 1921*, Brochure 11, at 3, as referenced in WELLS/LOWELL, note 30.

⁶⁹ LEAGUE OF NATIONS, COMMITTEE OF TECHNICAL EXPERTS ON DOUBLE TAXATION AND TAX EVASION, *League of Nations Double Taxation and Tax Evasion*, C.562.M.178.1928.II., Geneva, October 1928.

⁷⁰ *Ibid.*, p. 8: "The real centres of management, branches, mining and oilfields, factories, workshops, agencies, warehouses, offices, depots, shall be regarded as permanent establishments."

⁷¹ This is the model used for most Double Taxation Agreements (DTAs) between most OECD member countries. Switzerland is an OECD member country.

accompanying commentary (hereinafter the “OECD COMMENTARY”).⁷² The new model continued and reinforced the residence and source taxation paradigm (see Art. 7(2) MOECD), meaning that the presence of a permanent establishment within a certain jurisdiction can entitle that jurisdiction to impose taxes on the profits of the company to which the permanent establishment belongs.

68 The paradigm has come under regular attack during the evolution of the world economy and the technology on which it relies.⁷³ It is a symptom of the discontent with the current paradigm that the definition of permanent establishment has also regularly been subject to scrutiny at both OECD and unilateral levels.⁷⁴ The criticism often stems from a belief that modern inventions enable business to be carried on in unprecedented ways which the permanent establishment concept cannot capture.⁷⁵

69 At the time of writing, the OECD is working on the development of new nexus and profit allocation rules that might make the permanent establishment concept obsolete for cloud computing business. In the most recent documents, cloud computing services have been mentioned as possible targets of these reforms.⁷⁶ Unfortunately, the

⁷² OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. I-1. Regarding the role and normative power of the model convention, its commentary and other OECD materials, instead of many others, see VOGELSANG, PP. 26 f.; DUBOIS, passim.

⁷³ For instance, OECD, *Public Consultation Document: Addressing the Tax Challenges of the Digitalisation of the Economy*, Paris February 13, 2019, passim.

⁷⁴ ARVID SKAAR famously names his 1991 book *Permanent Establishment: Erosion of a Tax Treaty Principle*, and there are many similar publications.

⁷⁵ For a detailed discussion of this critique, see *infra* paras. 764 f.

⁷⁶ OECD, *Statement by the OECD/G20 Inclusive Framework on BEPS on the Two-Pillar Approach to Address the Tax Challenges Arising from the Digitalisation of the Economy – As approved by the OECD/G20 Inclusive Framework on BEPS on 29-30 January 2020*, Paris January 2020, p. 10, mentioning “cloud computing services” as a form of “automated digital service”, meaning a particular form of business model. Up until that point, it seemed unlikely that cloud computing would still be targeted by the OECD policy debate (see SCORNOS, p. 8).

exact scope of the reforms is not yet sufficiently detailed and can still be modified substantially. It will take some time to change the international tax system in such a fundamental way.⁷⁷ Therefore, the new nexus and profit allocation rules are not within the scope of analysis of this thesis.

The fact patterns having been described in the preceding section, the next step in the legal analysis is to describe the applicable legal rules, which is the purpose of the present chapter. The general definition of permanent establishment is a construct consisting of several cumulative requirements and it must be studied at the level of treaty law (§ II). Other treaty-level definitions of permanent establishment will be covered too, namely, the dependent agent permanent establishment (§ III), the services permanent establishment (§ IV), and the substantial equipment permanent establishment (§ V).⁷⁸ Once these definitions have been presented, it will be necessary to review the legal basis in Swiss law for taxation of general definition permanent establishments (§ VI) and dependent agent permanent establishments (so-called permanent representatives, § VI.D)).

70

⁷⁷ A first report based on international consensus is to be expected by December 2020. The global pandemic of Sars-CoV-2 did not delay the plans, according to PASCAL SAINT-AMANS, *OECD Tax Talks #15*, Paris May 4, 2020, <http://www.oecd.org/tax/tax-talks-webcasts.htm> (last viewed July 2, 2020), p. 48.

⁷⁸ See REIMER 2016, Part 1, para. 20, specifying the most important deviations from the basic permanent establishment principle in domestic permanent establishment definitions. He explicitly mentions the construction site permanent establishment, which could have been included here. However, as it is only a variation of the general definition of permanent establishment, it is discussed in that context (see *infra* para. 97). Further, the newly introduced Diverted Profit Taxes (e.g., in the United Kingdom) may be of importance as an alternative to permanent establishment status. However, it cannot be included in the present thesis as it has a foreign legal basis.

§ II. General Definition of Permanent Establishment

A) Introduction

- 71 The leading definition of permanent establishment is contained in Art. 5(1) MOECD: The presence of a permanent establishment is admitted whenever there is “a fixed place of business through which the business of an enterprise is wholly or partly carried on.” This will be referred to as the general definition of permanent establishment, as distinct from other special kinds of permanent establishment, which will be discussed in subsequent sections.⁷⁹
- 72 According to the OECD COMMENTARY,⁸⁰ the general definition of permanent establishment is composed of three main cumulative conditions or tests: the place of business test (“place of business”), the fixation test (“fixed”), and the business activity test (“the business of an enterprise is wholly or partly carried on”). It may be useful to discuss the negative definition of the eligible activities in Art. 5(4) MOECD in a separate test instead of integrating the question into the business activity test. The following sections explain the legal rules implied in each of these tests.
- 73 Most of Switzerland’s double tax treaties use the same wording as Art. 5 MOECD, and Switzerland generally follows the OECD

⁷⁹ “General definition” is the term used in the OECD COMMENTARY, Art. 5, para. 6. Of the many kinds of permanent establishment, the definition of server permanent establishments (see OECD COMMENTARY, Art. 5, paras. 122 f.), based on this general definition of permanent establishment in Art. 5(1) MOECD, is the only one of any real importance to cloud computing, as the present author intends to demonstrate; see *infra* para. 453. According to COCKFIELD/HELLERSTEIN/MILLAR/WAERZEGGERS, p. 113, the only forms of permanent establishment that are relevant to e-commerce taxation are physical permanent establishments and dependent agent permanent establishments.

⁸⁰ OECD COMMENTARY, Art. 5, para. 6.

interpretation of permanent establishment.⁸¹ However, as will be shown, there is a lack of international consensus on certain important issues. These controversies will be discussed from the perspectives of comparative and Swiss law.⁸² Unlike the OECD and other jurisdictions, Switzerland has always interpreted the treaty definition of permanent establishment in a liberal (i.e., restrictive) way in order to avoid unnecessarily fragmenting taxation rights between jurisdictions.⁸³

The Swiss treaty definition of permanent establishment based on Art. 5 MOECD should not be confused with the international Swiss definition of permanent establishment⁸⁴ in Arts. 4(2) and 51(2) Direct Tax Code⁸⁵ (hereinafter “DTC”). This second definition has its own scope of application and will be discussed afterwards in a separate section (§ VI).

74

B) Place of Business Test

1) Introduction

According to Art. 5(1) MOECD, the term “permanent establishment” in principle designates a particular type of place of business. This section will explain what qualifies as such, as not all places of business are permanent establishments for tax purposes. A place of business can constitute a permanent establishment of a taxpayer

75

⁸¹ OBERSON 2001b, p. 691; SCHELLING, p. 218.

⁸² Guidance on the Swiss domestic definition is lacking (see SCHMID/ORELL, para. 44; WIDMER 2009, p. 631), so a comparative approach is indispensable in relation to matters on which Switzerland remains undecided.

⁸³ Decision of the Swiss Federal Supreme Court of September 19, 1976, ATF 102 Ib 264, recital 3(b); decision of the Swiss Federal Supreme Court of June 5, 1961, ASA 1963 (vol. 31) p. 326, recital 5; LUDWIG, p. 6.

⁸⁴ OBERSON 2014, para. 448.

⁸⁵ Swiss Direct Tax Code; in French: *Loi fédérale sur l'impôt fédéral direct (LIFD) du 14 décembre 1990* (RS 642.11).

only if it is both tangible and can actually be attributed to that taxpayer. Attribution presupposes a certain degree of power over the place of business—a “right of use.” Hence, this section will discuss the exact nature and scope of the required right of use.

2) *Tangible Nature of a Place of Business*

⁷⁶ A “place of business” (in French, more generally: *installation d'affaires*) can be constituted by any physical object that is tangible and capable of supporting commercial activity.⁸⁶ The most basic example is, of course, a building. It is generally agreed that automated equipment such as oil pipelines or gaming and vending machines can constitute a place of business.⁸⁷ The tangibility requirement excludes any kind of software or copyright from the definition of place of business.⁸⁸ Tangibility is a relatively well-understood concept and does not call for further illustration.

3) *Right of Use (“at disposal”)*

a) Introduction

⁷⁷ In principle, Art. 5(1) MOECD demands the place of business to be “at the disposal” of the enterprise. Although not in Art. 5(1) MOECD itself, the expression is used in the OECD COMMENTARY to describe a necessary condition for a permanent establishment.⁸⁹ In other words,

⁸⁶ SKAAR 1991, p. 123.

⁸⁷ MARTI/WECHNER-ROTH, p. 348, stating that there is an important difference, however, between computing equipment and regular vending and gaming machines. For the present author’s position on such technological distinctions, see *infra* paras. 585 f.

⁸⁸ SKAAR 1991, p. 122.

⁸⁹ NITIKMAN, p. 225; the most unambiguous examples are in the OECD COMMENTARY, Art. 5, paras. 38, 44, and 64.

the taxpaying enterprise must have a “right of use”⁹⁰ in order for the place of business to constitute a permanent establishment. Under Art. 5, the OECD COMMENTARY uses the expression “at the disposal of” on forty-eight occasions in various examples and rules. Therefore, it is unquestionably a requirement for a permanent establishment.⁹¹

However, nobody seems to know what it means.⁹² Authors in several countries have agreed on what it does *not* mean, but attempts to define the right-of-use requirement in positive terms have been in vain.⁹³ The OECD itself has tried to clarify the matter on several occasions, but without success.⁹⁴

78

⁹⁰ The same terminology is used in: SKAAR 1991, pp. 155 f.; SASSEVILLE/SKAAR, pp. 35 f. Other authors refer to this concept as “disposal” (WILLIAMS, p. 32; CARIDI, p. 8; KARUNDIA, *passim*), “control” (REIMER 2016, Part 2, para. 97), or even “power of disposition” (HEINSEN/VOß, p. 589).

⁹¹ VOGELSANG, p. 100. Specifically in e-commerce, see MARTI/WECHNER-ROTH, p. 346; *contra*: WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 42a.

⁹² WILLIAMS, pp. 33 f. (“ambiguous”); SKAAR, in: DEITMER/DÖRR/RUST, p. 184 (“confusing”); WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 42. Even the OECD acknowledges a “lack of clarity” in: OECD, *Interpretation and Application of Article 5 (Permanent Establishment) of the OECD Model Tax Convention*, Paris October 2012, p. 5.

⁹³ It is clearly beyond the scope of this thesis to elaborate on the different proposals for a positive definition of “at disposal.” Some examples can be found in: VOGELSANG, pp. 110 f.; SKAAR (see *infra* para. 89); KÄBISCH, pp. 9 f.; KARUNDIA, p. 455; specifically on cloud computing: HEINSEN/VOß, p. 589. The OECD has endorsed none of these propositions.

⁹⁴ Most recently: OECD, *Interpretation and Application of Article 5 (Permanent Establishment) of the OECD Model Tax Convention*, Paris October 2012, para. 12 (p. 10). For public comments on this proposal, see <http://www.oecd.org/ctp/treaties/publiccommentsreceivedonthereviseddiscussiondraftonthedefinitionofpermanentestablishmentarticle5oftheoecdmodeltaxconvention.htm> (last viewed July 2, 2020). The proposed change to the OECD COMMENTARY to Art. 5 has not yet been adopted by the OECD Council (the 2014 update was approved by the OECD Council on July 15, 2014 after being approved by the OECD’s Committee on Fiscal Affairs on June 26, 2014).

79 The term “disposal” was first introduced in the OECD COMMENTARY regarding the possibility of constituting a permanent establishment at a location where “the enterprise ... simply has a certain amount of space at its disposal.”⁹⁵ This statement per se does not raise any issues of “right of use”. In the opinion of the present author, this is merely an example for the kinds of places of business that need to be borne in mind when assessing the permanent establishment character of a local business operation. In 2002, the OECD held a relatively unprompted⁹⁶ discussion on introducing the requirement of

⁹⁵ OECD COMMENTARY, Art. 5, para. 10, as introduced (originally as para. 4) on April 11, 1977.

⁹⁶ Considering that the paragraphs on the permanent establishment in the context of e-commerce, that also use the term “disposal”, were inserted into the OECD COMMENTARY on the same date (i.e., on January 28, 2003), the concept (as something that can truly limit tax liability) may originally have been invented with e-commerce in mind, specifically to prevent users of web hosting services to establish permanent establishments at the location of the servers (see *infra* para. 346). Furthermore, this idea of right of use developed broadly within the same time period both in its general form and in relation to e-commerce (as one of the earliest examples, see DÜRR/RUMO, p. 398, from 1999). By that logic, the discussion of right of use in OECD COMMENTARY, Art. 5, para. 10 f., in more general terms could be seen as a goal-oriented extension of the original e-commerce-related concept in OECD COMMENTARY, Art. 5, para. 124, in order to ensure equal treatment between the digital and the rest of the economy. After all, it was clear from the outset that “[e]xamination and interpretation of the permanent establishment concept in the context of electronic commerce may well result in an extension of the policies and the resulting exceptions to electronic commerce.” (U.S. DEPARTMENT OF THE TREASURY OFFICE OF TAX POLICY, *Selected Tax Policy Implications of Global Electronic Commerce*, Washington November 1996, p. 26). Thus, it may be impossible to understand the right-of-use requirement without a clear understanding of the taxation of ICT-based business. Alternatively, there also is (and was at the time) international case law concerning the situation wherein one business temporarily uses the offices of another business and thereby creates a permanent establishment, which could also be at the root of the OECD’s wish to develop the concept of right of use (see *infra* note 98). It would also need to be taken into account that the requirement of some form of legal right seems to have been discussed in scholarly literature before the OECD started its discussion on the subject, as discussed *supra* para. 89.

a legal right over the permanent establishment.⁹⁷ This proposition was rejected, with the argument that it suffices to establish the impossibility of a permanent establishment through “mere presence” of one enterprise at the premises of another.⁹⁸ Searching for a justification for that argument, the OECD decided to introduce various examples in an attempt to explain the concept of “disposal” in paras. 11 f. of the OECD COMMENTARY, Art. 5. Thus, the right-of-use requirement appears to have been born from a rejection of the requirement of a legal right over the place of business.

Today, the meaning of right of use is controversial.⁹⁹ The controversy does not concern obvious places of business such as buildings. It goes without saying that a building is at the disposal of the person who possesses the keys to it. However, what is the equivalent of the keys when it comes to an accessible piece of land,¹⁰⁰ the right to access parts of a third party’s building,¹⁰¹ or a server in a third party’s premises? The disposal test refers only to an abstract level of control. Naturally, the debate revolves around this abstraction.

80

⁹⁷ For this and the following sentences: OECD, *Issues Arising under Article 5 (Permanent Establishment) of the Model Tax Convention*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, pp. R(19)-11 (para. 27).

⁹⁸ There was a well-established international consensus on the fact that – in the context of the fixation test regarding the concept of the permanent establishment as a “coherent economic whole” – “while a salesman or consultant could frequently visit a customer or client, his mere presence in the customer’s or client’s premises would not be enough to constitute a permanent establishment as no place would, in these circumstances, be made available to him for carrying on his activities.” (OECD, *Working Party No. 1 on Double Taxation: Issues Arising under Article 5 (Permanent Establishment) of the Model Tax Convention*, DAFNE/CFA/WP1/WD(95)13/REV3, September 13, 1996, p. 7, para. 21). This might constitute the actual origin of the concept of “disposal”.

⁹⁹ See VOGELSANG, p. 110, with references.

¹⁰⁰ See OECD COMMENTARY, Art. 5, para. 11, concerning “a certain amount of space.”

¹⁰¹ OECD COMMENTARY, Art. 5, paras. 15 and 17; for more examples of permanent establishments at the customer’s premises, see SKAAR 1991, pp. 188 f. and 195; BAKER, paras. 5B.08 f.; REISER/CORTEZ, pp. 7 f.

81 In the spriti of its inception, this section will attempt to elucidate the meaning of the right-of-use requirement by determining its limits through a step-by-step negative definition. It is possible to apprehend current thinking on right of use only by listing what it is *not* about.

b) Negative Definition

i) Legal Right

82 Right of use—or right of disposal—does not need to be a formal, or even a legal, right.¹⁰² Rather, it can be a merely factual right.¹⁰³ According to the OECD COMMENTARY, Art. 5, para. 11, the right-of-use requirement could be fulfilled even when the place of business is illegally occupied. In fact, it is immaterial whether the place of business is owned, rented, or at the disposal of the enterprise by other means.¹⁰⁴

83 Further, it is not necessary for the enterprise in question to be the only user of the place of business.¹⁰⁵ Hence, multiple occupants can constitute permanent establishments at the same place of business. That remains the case even if one of the occupants has an exclusive legal right in the place of business (e.g., sole ownership).

ii) Association with Other Permanent Establishment Tests

84 A possible overlap with other permanent establishment tests was not discussed in the report that ultimately introduced the requirement to

¹⁰² OECD COMMENTARY, Art. 5, para. 11; contra: SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 11; NITIKMAN, p. 225 (note 38).

¹⁰³ SCHAFFNER 2013a, p. 137; SASSEVILLE/SKAAR, pp. 35 f.

¹⁰⁴ OECD COMMENTARY, Art. 5, para. 10.

¹⁰⁵ DÜRR/RUMO, p. 398; SCHAFFNER 2013a, p. 139; SASSEVILLE/SKAAR, p. 38; REIMER 2016, Part 2, paras. 103 and 111 f.; DE VRIES REILINGH 2014, p. 129.

the OECD COMMENTARY.¹⁰⁶ Regardless, it would be undeniably detrimental to a positive meaning of the right-of-use requirement if it were identical to or part of one of the other tests for a permanent establishment. “Taking rules seriously means interpreting them in a non-redundant way.”¹⁰⁷

Therefore, the right-of-use requirement cannot be about a business having to act “through” the place of business (since that requirement is already covered by the “functional integration” requirement; see *infra* paras. 109 f.).¹⁰⁸ Nor can disposal be defined in terms of the duration¹⁰⁹ or regularity¹¹⁰ of the activity (see *infra* paras. 99 f.), or the connection between the permanent establishment and the enterprise (see *infra* note 170).¹¹¹

Logically, the right-of-use requirement implies use that goes beyond the merely factual use, which is commonly made the object of the business activity test (and which, in that context, is called “essential activity”). Simply requiring the place of business to be used would be nothing more than a duplication of the business activity test, which

¹⁰⁶ OECD, *Issues Arising under Article 5 (Permanent Establishment) of the Model Tax Convention*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, pp. R(19)-11 (para. 27).

¹⁰⁷ REIMER, in: REIMER/RUST, Art. 5, para. 46.

¹⁰⁸ VOGELSSANG, p. 113.

¹⁰⁹ MUÑOZ, pp. 374 f.; see *infra* paras. 99 f. This was proposed by SCHAFFNER 2013a, p. 147, linking right of use to other tests such as fixation.

¹¹⁰ The administrative tribunals of both Solothurn (StGer SO July 4, 2011, SGSTA.2010.90; BST.2010.87, LOCHER/MEIER/VON SIEBENTHAL/KOLB, B 4.2 No. 66) and Zurich (VGer ZH August 30, 1978, SR 24/1978; R B 1978 No. 27, LOCHER/MEIER, VON SIEBENTHAL/KOLB, B5.2 No. 10) have considered that a right of use can be inferred whenever the place of business is used regularly. In the present writer’s opinion, this does not address the question of the standard to be met by such use (whether regular or not), but instead refers to the already existing condition that the activity should not be purely temporary (see OECD COMMENTARY, Art. 5, paras. 28 and 29, on activities of a “recurrent nature,” and, para. 35, on activities carried out on a “regular basis”).

¹¹¹ See *infra* note 170.

demands that an essential activity be carried on at the place of business. If the reason why an enterprise A could not constitute a permanent establishment by merely being present on the premises of another enterprise was that it also needed to execute a substantial business activity there, the OECD¹¹² would not have referred to a supposed right-of-use criterion (“disposal”), but simply to the business activity test instead.

87 Accordingly, given that a minimal essential activity is a prerequisite for passing the business activity test, a business would have to make more extensive use of the place of business to fulfill the right-of-use requirement than it does in pursuing the essential business activity.¹¹³ So, what else could reasonably be expected beyond merely factual use?

88 It should be said that most countries require only factual use.¹¹⁴ A certain number of independent authors have endorsed this view.¹¹⁵ It can be assumed that this is Switzerland’s position, too, given that Swiss law rules out right of use where an enterprise is not actually making use of the place of business.¹¹⁶

¹¹² OECD, *Issues Arising under Article 5 (Permanent Establishment) of the Model Tax Convention*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, pp. R(19)-11 (para. 27).

¹¹³ This is regardless of whether the test in question would make any sense or not. *De lege lata* propositions will be addressed in later chapters; see *infra* para. 916.

¹¹⁴ SKAAR 1997, pp. 24 and 55 f.; specifically referring to Germany, India, and Norway: KARUNDIA, p. 453; Australia: WALKER/ROTH, p. 1; Singapore: TAN/LEE/TOH, pp. 1 f.; Korea: KIM, p. 1.

¹¹⁵ ARNOLD, p. 479; WIDMER 2005, p. 105; CARIDI, pp. 8 f.; according to SCHAFFNER 2013a, p. 141, factual use is sufficient provided it does not simply mean the mere presence of an enterprise. For a general discussion on mere presence and right of use, see the following sections.

¹¹⁶ WIDMER 2009, p. 634; KOLB, p. 279; see also ROBINSON/WEIGEND, p. 377. In the present author’s view, these authors seem to confuse right of use with the business activity test.

This opinion contrasts with that of SKAAR. He writes: “in the present writer’s opinion, the factual use test is not a reasonable interpretation of the wording in the Commentary.”¹¹⁷ In his view, “the ‘right of use test’ is met if the taxpayer’s use of the place of business cannot be prevented without his consent.”¹¹⁸ PORTNER relativizes this view, pointing out that a right of use can be required only when there are no extraordinary circumstances.¹¹⁹ Be this as it may, if SKAAR is referring to the legal notion of “consent,” it should be recalled that this line of thought has explicitly been ruled out in the OECD COMMENTARY at Art. 5, para. 11 of which, added on January 28, 2003, states that no legal right is needed.¹²⁰

89

iii) Association with Other Types of Permanent Establishments

If the right-of-use requirement is interpreted as being more stringent than the dependence test for Art. 5(5) MOECD (so-called dependent agent permanent establishment), it would risk depriving Art. 5(5) MOECD of meaning.¹²¹ Therefore, right of use must imply something other than dependence (for a general description of the exclusion of independent agents, see *infra* paras. 170 f.).

90

¹¹⁷ SKAAR 1997, p. 24.

¹¹⁸ SKAAR 1991, p. 158.

¹¹⁹ PORTNER 1999, p. 20.

¹²⁰ Meanwhile, SKAAR, and PORTNER may have modified their views following the OECD’s clear answer to this question. By contrast, still in support of this view: SCHAFFNER 2013b, p. 641. WIDMER 2005, p. 105, who regard it as the traditional opinion, as opposed to the newer opinion defending mere factual use.

¹²¹ WIDMER 2003, p. 106.

iv) Mere Presence

- 91 According to the OECD COMMENTARY, Art. 5, para. 12, “the mere presence of an enterprise at a particular location does not necessarily mean that that location is at the disposal of that enterprise.”
- 92 This means that mere presence is normally not sufficient for right of use and that the right-of-use requirement implies something more. However, the wording “does not necessarily mean that” indicates that there may be cases where the mere presence of an enterprise does in fact amount to the required degree of right of use. Otherwise, the OECD would not have used the word “necessarily.”
- 93 In the present writer’s opinion, the concept of mere presence relates to the business activity test, not the right-of-use requirement. This can be explained with a simple thought experiment: If one imagines that factual use is sufficient to acquire right of use (*ceteris paribus*), that would still not allow mere presence to create a permanent establishment. The reason for this is that the permanent establishment would still involve some amount of business activity. It is the lack of business activity—rather than the lack of right of use—that prevents mere presence from being considered as a permanent establishment.¹²² That said, the question of whether mere presence can amount to valid right of use is still debated in scholarly writing in various countries.¹²³ In any event, right of use must imply more than mere presence combined with sufficient business activity (mere

¹²² For the present author’s view on right of use *de lege ferenda*, see *infra* paras. 909 f.

¹²³ BENDLINGER 2009, p. 113, considering that the OECD may in some cases accept mere presence as implying sufficient right of use and affirming that Austria would never consider mere presence to be sufficient; ECKL, p. 325, considering that the OECD never accepts mere presence as being sufficient to meet the right-of-use requirement; SASSEVILLE/SKAAR, pp. 35–36 and 38, consider that “mere presence” can never satisfy the right-of-use requirement because business activity is lacking. However, in the present writer’s opinion, that would unjustifiably equate the right-of-use requirement with the business activity test; see *infra* paras. 105 f.

omission does not fulfill the activity requirement; see *infra* para. 106).

4) *Conclusion on the Place of Business Test*

A permanent establishment can exist only if there is a place of business. A place of business can be embodied in any kind of physical or tangible object. 94

However, for a permanent establishment to be taxable, the taxpayer must have a right of use over that place of business. It can take the form of ownership of a building. However, there are other ways in which a place of business can be at the taxpayer's disposal. Unfortunately, there is no consensus on a definition of right of use that is sufficiently abstract to encompass these other forms of disposal. The present author will express his opinion on this controversy when discussing the application of the concept to cloud computing (see *infra* paras. 342 f.). 95

C) *Fixation Test*

1) *Introduction*

A permanent establishment traditionally presupposes a stable geographical location.¹²⁴ This idea dates from the industrial revolution in the nineteenth century. It targeted factories and manufactures located in one state which belonged to an enterprise in another state.¹²⁵ A factory building is of course considered to be "fixed." 96

However, the degree of fixation is relative. For example, a building site can constitute a permanent establishment if it lasts for more than twelve months (Art. 5(3) MOECD). This example shows that there are 97

¹²⁴ SKAAR 1991, p. 73.

¹²⁵ SCHAFFNER 2013a, p. 5; see Art. 5(2)(d) MOECD.

two distinct aspects to “fixation”:¹²⁶ the link between the place of business and a certain geographical location (geographical link), and the persistence of this link during a certain period of time (duration).¹²⁷

2) *Geographical Link*

98 The existence of a permanent establishment presupposes that the place of business has a link to a geographical location. This can be inferred from “the ordinary meaning” (Art. 31(1) VCLT¹²⁸) of the terms “fixed” and “place” (Art. 5(1) MOECD).¹²⁹ A place of business does not have to be irremovable or inseparable from the ground;¹³⁰ it basically has to remain on the same spot.¹³¹ However, movement within the place of business is not restricted in any way.¹³²

3) *Duration*

99 In addition to satisfying the geographical criteria set out above, a place of business has to persist for a certain period of time.¹³³ To

¹²⁶ It is also possible to describe them as “cumulative” conditions.

¹²⁷ REIMER 2016, Part 2, para. 61; see also SCHAFFNER 2013a, p. 148.

¹²⁸ Vienna Convention on the Law of Treaties, concluded in Vienna on May 23, 1969; in French: *Convention de Vienne sur le droit des traités, Conclue à Vienne le 23 mai 1969, Approuvée par l'Assemblée fédérale le 15 décembre 1989, Instrument d'adhésion déposé par la Suisse le 7 mai 1990, Entrée en vigueur pour la Suisse le 6 juin 1990* (RS 0.111).

¹²⁹ See REIMER 2016, Part 2, para. 40; for more information on interpretation of the MOECD, see OBERSON 2014, para. 112; SEE also VOGEL/RUST, para. 84.

¹³⁰ SCHAFFNER 2013a, p. 159; see also OECD COMMENTARY, Art. 5, para. 21.

¹³¹ OECD COMMENTARY, Art. 5, para. 21; WIDMER 2009, p. 634.

¹³² LARKING, p. 267.

¹³³ VOGELSANG, p. 79, points out that permanence and duration should constitute two different tests. According to him, the duration test checks that a sufficient amount of time has passed, while the permanence test verifies that the permanent establishment is not purely temporary.

constitute a permanent establishment, the place of business must support a lasting (i.e., “permanent”), not a temporary, activity.¹³⁴

a) Required Minimum Period of Time

The OECD COMMENTARY indicates that there is some consensus over a minimum duration of six months for a permanent establishment.¹³⁵ However, the model convention itself does not specify a required duration (other than twelve months for building sites, etc.; see Art. 5(3) MOECD). This is due partly to a lack of agreement among member states and partly to the wish to leave contracting states free to design double taxation conventions that meet their particular needs.¹³⁶ That said, contracting states are encouraged to set forth in their double taxation conventions precise conditions regarding duration in order to prevent double taxation.¹³⁷ The prevailing position in Swiss scholarly writing is that a duration of six months is the minimum.¹³⁸

100

¹³⁴ OECD COMMENTARY, Art. 5, para. 28; SCHAFFNER 2013a, pp. 147 f.; REIMER 2016, Part 2, paras. 79 f.; contra: SASSEVILLE/SKAAR, p. 28 and SKAAR 1991, pp. 209 f. who, in keeping with German scholarly opinion, indicate that it is the right of use rather than the business activity that is required to persist. However, in light of the 2003 modifications in the OECD COMMENTARY, it is not certain that this view still holds sway. HÄCK, in: FLICK/WASSERMEYER/KEMPERMANN, Art. 5, para. 25, representing German scholarly thinking, considers the duration test to refer only to the place of business and the business activity.

¹³⁵ OECD COMMENTARY, Art. 5, para. 28.

¹³⁶ REIMER 2016, Part 2, para. 65.

¹³⁷ According to Art. 5(1) of its DTA with Austria, Switzerland has agreed on a minimum duration of twelve months for permanent establishments; see *Tagesfragen/Actualités, DBA-Verhandlungen mit Österreich*, ASA 1999/2000 (vol. 68) p. 490.

¹³⁸ MEUTER, p. 11. However, according to the OECD COMMENTARY, Art. 5, para. 36, when the activity consists of leasing out, operating, and maintaining ICS equipment, such as computers, for a third party, the time limit of twelve months applies. There have so far been no official statements from Switzerland regarding this *lex specialis* rule.

b) Non-temporary Nature

- 101 A business activity is temporary when the place of business is intended to be used for a single transaction and the undertaking is therefore limited in time.¹³⁹ Short or insignificant interruptions do not prevent a place of business from qualifying as a permanent establishment.¹⁴⁰ The OECD COMMENTARY offers no guidance on the difference between significant and insignificant interruptions.¹⁴¹
- 102 If an enterprise displays an intention to continue performing its business activity at a particular location for longer than the required minimum time, the duration condition is fulfilled from the first period of recurrent activity onwards.¹⁴² It may be that an enterprise initially intends to perform business activities for a certain length of time, but then abandons these intentions, causing the activity to cease earlier than intended. In such a case, it is the length of the period during which the enterprise initially intended to carry on the activity that will determine whether the activity is of a non-temporary nature.¹⁴³
- 103 On August 28, 2000, the cantonal administrative tribunal of Lucerne held that the listing of a branch¹⁴⁴ in the local commercial registry is proof of a company's intention to remain in Switzerland for a prolonged period of time, thereby satisfying the time condition for permanent establishment.¹⁴⁵ Although "branch" is a concept

¹³⁹ HILTY, Art. 5, p. 35.

¹⁴⁰ OECD COMMENTARY, Art. 5, para. 32; REIMER 2016, Part 2, para. 79.

¹⁴¹ REIMER 2016, Part 2, para. 79, on the basis of an interpretation of the OECD COMMENTARY, regards an insignificant interruption as a cessation of activity without cessation of the right to use the place of business.

¹⁴² REIMER 2016, Part 2, paras. 83 f.

¹⁴³ OECD COMMENTARY, Art. 5, para. 34.

¹⁴⁴ The reference was to a branch office (French: *succursale*; German: *Zweigniederlassung*; Italian: *succursale*), within the meaning of Art. 935 CO.

¹⁴⁵ For this and the next sentence, see the decision of the Lucerne cantonal administrative tribunal (VG LU) of August 28, 2000, LGVE 2000 II No. 25, recital 2d.

undefined in law, the existence of a branch in Switzerland always presupposes a permanent establishment. The fact that a branch is given as an example in the Swiss domestic definition of permanent establishment in Arts. 4(2) and 51(2) DTC¹⁴⁶ may have had a (nonbinding) influence on the tribunal when interpreting Art. 5(1) MOECD. However, this kind of automatism is easy to circumvent given that, according to Swiss law, it is not mandatory for a branch to be registered at the commercial registry. Be that as it may, the impact of the Lucerne judgment is limited as it is not a binding precedent for any other canton.

4) *Conclusion on the Fixation Test*

Fixation has temporal (“duration”) and geographical (“geographical link”) elements. The temporal element consists of two requirements: one concerns the minimum required length of presence, while the other relates to the nature and consequences of any interruptions in that presence. Notwithstanding some uncertainties, fixation is a relatively well-understood test for permanent establishment.

104

D) *Business Activity Test*

1) *Introduction and General Features of Business Activity*

For a fixed place of business to constitute a permanent establishment, it is necessary that a “business” be carried on through it. Art. 3(1)(h) MOECD defines the term as the “performance of

105

¹⁴⁶ For more details on the Swiss domestic definition of permanent establishment and the constitutive or merely illustrative purpose of the list of examples in Arts. 4(2) and 51(2) DTC, see *infra* para. 198.

professional services and of other activities of an independent character.”¹⁴⁷

106 The performance requirement¹⁴⁸ means that omissions of activity cannot generally constitute a permanent establishment.¹⁴⁹ In the same vein, inactive places of business, such as those merely holding property or earning passive income from dividends, interest, royalties, or rent are not permanent establishments.¹⁵⁰ Although the transportation of goods, electricity, or data (e.g., via cables and pipelines) was originally believed to lie outside the scope of the term “business,”¹⁵¹ the German *Pipeline* case law has nuanced this belief.¹⁵² Further, only those activities that are performed in pursuing

¹⁴⁷ Some Swiss treaties do not yet contain this definition, which was introduced only in the year 2000. In some of these cases, the term is defined in accordance with the internal law of Switzerland (see Art. 3(3) MOECD). According to the Swiss Federal Supreme Court, the term describes an organized unit of work and capital that independently, visibly from the outside, and in a planned order performs economically for third parties (decision of the Swiss Federal Supreme Court of March 23, 2018, StE 2018 A 31.1. No. 13, recital 2.4.4).

¹⁴⁸ See also OECD COMMENTARY, Art. 5, para. 35.

¹⁴⁹ VOGEL/SANG, p. 89; contra: REIMER 2016, Part 2, paras. 20 and 122.

¹⁵⁰ By contrast, an activity that covers trading or active administration of investments from a fixed place of business in the source state may, after all, constitute a permanent establishment (see OECD COMMENTARY, Art. 5, para. 36; GÖRL, in: VOGEL/LEHNER, Art. 5, para. 25); see especially the example concerning the rental of equipment in the following section, *infra* para. 113.

¹⁵¹ GÖRL, in: VOGEL/LEHNER, Art. 5, para. 24.

¹⁵² Decision of the German Bundesfinanzhof of October 30, 1996, II R 12/92, BStBl. II 1997, 12. The OECD COMMENTARY, Art. 5, para. 64, explains that transportation activity is to be analyzed in relation to the core business of the enterprise in order to know whether it is preparatory or auxiliary to the main occupation of the business. It also says that the owner of the data, power, or property transported has no tax-relevant right of use over the cable or pipeline and therefore cannot be considered to have a permanent establishment there. However, Germany has made an official observation on this paragraph (OECD COMMENTARY, Art. 5, para. 170), whereas other states may disagree based on other general criteria (such as Australia, based on its reservations in the OECD COMMENTARY, Art. 5, para. 188).

the general purpose of the enterprise as a whole qualify as “business” activity.¹⁵³

The business activity test has a particular bearing on the leasing of property and know-how. Those kinds of activities do not qualify as “business” and therefore lie outside the definitions of a permanent establishment.¹⁵⁴ For instance, in the case of a real estate proprietor, the existence of a permanent establishment will be conditional upon the proprietor retaining authority to make managerial decisions, having the right to veto certain decisions of the tenant, assuming a certain economic risk, or performing on-site services.¹⁵⁵

In general, it is reasonable to interpret the term “business” as broadly as possible, especially as the negative definition of Art. 5(4) MOECD reduces the scope of the term in a separate test (see *infra* paras. 125 f.).¹⁵⁶ Additionally, it is important to ascertain that the contemplated business activity is actually performed “through” the permanent establishment (so-called functional integration) and that it is performed by none other than the taxpayer’s business itself (so-called attribution of activity).¹⁵⁷ The following sections will elaborate on these two features.

¹⁵³ SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 9; VOGELSANG, p. 90; GÖRL, in: VOGEL/LEHNER, Art. 5, para. 24; HÄCK, in: FLICK/WASSERMEYER/KEMPERMANN, Art. 5, para. 27.

¹⁵⁴ REIMER 2016, Part 2, para. 26; see also OECD COMMENTARY, Art. 5, para. 37. Some authors consider that the exclusion of property leasing stems from the definition of “business” (VOGELSANG, p. 90; WILLIAMS, p. 88; GÖRL, in: VOGEL/LEHNER, Art. 5, para. 25).

¹⁵⁵ REIMER 2016, Part 2, paras. 27 f.; contra: DE VRIES REILINGH 2014, p. 127. However, the present author considers the Swiss *Shell* case (decision of the Swiss Federal Supreme Court of June 17, 2008, ATF 134 I 303), as referenced by DE VRIES REILINGH, not to be apposite, as the intercantonal definition of permanent establishment may be different from the international definition (again, contra: DE VRIES REILINGH 2010, p. 586). On the relationship between international and intercantonal definitions of permanent establishment, see *infra* para. 192.

¹⁵⁶ SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 9.

¹⁵⁷ On the source of expression “attribution of activity,” see *infra* note 170.

2) *Functional Integration (“through which”)*

109 According to Art. 5(1) MOECD, the business of the enterprise has to be carried on “through” the place of business. This means that the place of business must be connected to the enterprise through so-called functional integration, which basically demands that the place of business be the *instrument*, not the *object*, of the business activity.¹⁵⁸ For instance, the leasing of property (e.g., a building or a machine) for the sole purpose of earning rental income does not conform to the definition of “business” within the meaning of Art. 3(1)(h) MOECD and, a priori, cannot therefore have permanent establishment status.¹⁵⁹ Only a small number of countries use the functional integration requirement as a test for a permanent establishment.¹⁶⁰

110 According to the OECD COMMENTARY, Art. 5, para. 20, the words “through which” must be understood broadly¹⁶¹ to cover activities physically performed by a machine at the place of business that is being controlled by personnel at a remote location.¹⁶²

¹⁵⁸ REIMER 2016, Part 2, paras. 124 f.; VOGELSANG, p. 96.

¹⁵⁹ REIMER 2016, Part 2, paras. 26 f.; WILLIAMS, p. 88.

¹⁶⁰ SASSEVILLE/SKAAR, p. 25.

¹⁶¹ REIMER 2016, Part 2, para. 128; SKAAR 1991, p. 327; VOGELSANG, pp. 95 f.; contra: NITIKMAN, p. 220; HÄCK, in: FLICK/WASSERMEYER/KEMPERMANN, Art. 5, para. 31; see also SASSEVILLE/SKAAR, p. 43. For a critique and a policy recommendation concerning this test, see REIMER 2016, Part 2, para. 129.

¹⁶² See the decision of the German Bundesfinanzhof of October 30, 1996, II R 12/92, BStBl. II 1997, 12, IStR 1997, p. 148, recital II.1(a)(dd), mentioning “Fernsteuerung” without reference to the OECD COMMENTARY, but with further references such as the decision of the German Bundesfinanzhof of October 12, 1977, I R 227/75, BStBl. II 1978, 160, recital 2, stating that such interpretation is made in the light of modern technological developments.

By logical extension, this also covers activities performed by automated equipment.¹⁶³ As automation is part of the very nature of a machine, the remote control of a machine will always involve a certain degree of automation. Setting up a machine to perform a certain task can be considered a form of remote control, as the act of commanding the machine and the machine's response do not occur simultaneously. Thus, it appears coherent to the present author to attach the same legal consequences to both phenomena in order to avoid the need for a tax lawyer to distinguish between a remote-controlled activity and an automated activity (this argument is developed further below; see *infra* paras. 854 f.).

111

However, some authors deny that a machine can have any tax-relevant activity without the physical presence of personnel¹⁶⁴ (for an

112

¹⁶³ Decision of the German Bundesfinanzhof of October 30, 1996, II R 12/92, BStBl. II 1997, 12, IStR 1997, p. 148, recital II.1(a)(dd). This is further confirmed by the OECD COMMENTARY, Art. 5, para. 20, as presented in OECD, *Issues Arising under Article 5 (Permanent Establishment) of the Model Tax Convention*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, pp. R(19)-11 f. (para. 31), expressly aimed at avoiding the exclusion of "automated equipment" for want of right of use; automated equipment such as "gaming and vending machines" is expressly mentioned as a possible permanent establishment in OECD COMMENTARY, Art. 5, para. 41, representing the international consensus since 1977, provided the enterprise "carries on a business activity besides the initial setting up of the machines"; contra, with a different interpretation of the same paragraph in the OECD COMMENTARY: REIMER 2016, Part 2, para. 126; also contra[?]: LEHMANN, pp. 6 f.

¹⁶⁴ HÄCK, in: FLICK/WASSERMEYER/KEMPERMANN, Art. 5, para. 31, based on HOLLER/HEERSPINK, pp. 772 f. (from 1998!), stating that the only activity taking place at the location of a server would be user downloads from that server. Similarly, BAUMGARTNER, p. 19, and MARTI/WECHNER-ROTH, p. 347, state that the OECD guidance can be interpreted to mean that human personnel are always necessary for a permanent establishment. However, this appears to the present writer to be inconsistent with the clear statement in the OECD COMMENTARY, Art. 5, para. 127, that "a permanent establishment may exist even though no personnel of that enterprise is required at that location for the operation of the equipment. The presence of personnel is not necessary." Under the current rules, the nature of the activity taking place at the server's location would primarily determine the attribution of profit (a question that the current rules consider strictly distinct from the question, where

extended discussion on the role of personnel, see *infra* para. 116). This view is based on a restrictive interpretation of the word “in” (as in Art. 5(1) MOECD in its 1962 version), which in many DTAs has not yet been replaced with the more open-ended wording “through which” (as in Art. 5(1) MOECD from 1977 onwards).¹⁶⁵ According to that view, the “real” activity is performed by the personnel who set up or programmed the machine. The functioning of the machine is considered as a mere echo of the human activity and not worthy of consideration for tax purposes.¹⁶⁶ Only the setting up and programming of the machine are relevant for tax purposes. When the process of programming the machine is ongoing, these authors argue that the tax-relevant activity continues to occur at the remote location of the programmer.

113 The restrictive view described in the preceding paragraph should be rejected, because it runs counter to the intention of the OECD COMMENTARY, Art. 5, para. 127 (“a permanent establishment may exist even though no personnel of that enterprise is required at that location”). Furthermore, it would unduly shift and blur the distinction between an active business activity and the mere renting-out of property or equipment. If the tax-relevant activity is performed only at the time of the machine’s setup, this may not fulfill the requirement of a business activity in general, as the mere functioning of the machine would be more akin to “inactive” than to “active” activity (see *supra* para. 106). By contrast, if the functioning of the machine is

taxes can be levied due to the qualitative approach of Art. 5(4) MOECD, see *infra* para. 936). For a potential comparison, the question of whether taxation is dependent on the physical presence of personnel has also been studied in relation to Art. 15 MOECD in OBERSON/PIAGET, p. 372, where it is answered affirmatively. For an evaluation of the physical presence criterion in Art. 15 MOECD, see *infra* para. 972 f.

¹⁶⁵ HÄCK, in: FLICK/WASSERMEYER/KEMPERMANN, Art. 5, para. 31; on “through”, see *supra* paras. 109 f.

¹⁶⁶ HOLLER/HEERSPINK, p. 773; see also FISHER, p. 17, stating that value creation occurs only when the software is developed. BAUMGARTNER, p. 19, infers from that observation that any automated activity on a server can only be auxiliary (however, this was before the OECD’s special rules on e-commerce).

accompanied by some additional services (such as maintenance, inspection, repair, or operation of the machine) performed by on-site personnel, the requirement of an active business activity where the place of business is the *instrument* and not the *object* of the business activity (functional integration) would be met.¹⁶⁷ Only then could there be a permanent establishment. The distinction would thus depend merely on the level of on-site maintenance by personnel rather than on the actual entrepreneurial activity being performed remotely.

Of the eighty-nine DTAs concluded by Switzerland based on the MOECD, eleven still contain wording equivalent to “in” instead of “through which.” The eleven countries concerned are Austria, Denmark, Germany, Ireland, Italy, Japan, Malaysia, Portugal, Spain, Sweden, and Trinidad and Tobago. Therefore, the implications of this interpretation may be considerable. As yet, however, there is no Swiss case law on the question and the exact legal consequences of “in” remain unknown. In any case, the narrow interpretation of “in” is clearly contrary to the OECD’s current interpretation of “through which.”¹⁶⁸

114

¹⁶⁷ EVANS, pp. 501 f., considers it a question of functional analysis. However, as a rule, a business function is always performed by human personnel, as will become apparent as the analysis proceeds (see, in particular, the immediately following section).

¹⁶⁸ DOERNBERG/HINNEKENS/HELLERSTEIN/LI, p. 211, referring to the OECD’s explicit statement that personnel are not necessary for a permanent establishment; see also Australian Tax Office Ruling 1011785471824 (August 26, 2011); CADOSCH, pp. 125 f., deduces the same result from the German *Pipeline* case (BFH IR 226/75, (1978) BStBl. II 111, 122 (FRG), October 12, 1977).

3) Attribution of Activity (“of an enterprise”)

a) Introduction

115 In this context, the expression “activity attribution” refers to a test based on the wording “of an enterprise”¹⁶⁹ (emphasis added) in Art. 5(1) MOECD. The test aims to determine the connection between the enterprise and the place of business¹⁷⁰ and seeks to answer a question that has so far remained open: Is it truly the same taxpayer

¹⁶⁹ In French: “une installation fixe d'affaires par l'intermédiaire de laquelle une entreprise exerce tout ou partie de son activité” (emphasis added). Other authors refer to this test as “joint control” (REIMER 2016, Part 2, paras. 111 f.) or “Zurechnung” (VOGELSANG, pp. 115 f.).

¹⁷⁰ In distinguishing it from other tests, SKAAR 1991, p. 327, and SASSEVILLE/SKAAR, p. 43, introduce a “business connection test,” whose purpose is to exclude business activities that are not performed at the place of business. However, this different test will not be discussed in this analysis. This is because, in theory, it may be considered part of the activity attribution test and, as presented, it does not influence cloud computing in any particular way. Some jurisdictions and some authors equate activity attribution with the right-of-use requirement in relation to the place of business (see *supra* paras. 77 f.). For instance, SKAAR 1991, p. 191, categorizes a Finnish case and a German case as relating to right of use, whereas they concern activity attribution (see also BÉNARD/BERDOZ/BOURTOURALT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, paras. 49 f.). For the sake of clarity, the business connection test and the right-of-use requirement are different from attribution of activity as presented in this section. In the present writer’s view, there are also reasons for distinguishing the business connection test from the right-of-use requirement, which justifies the omission of the business connection test from the section on the right-of-use requirement. The right-of-use requirement implies many other aspects that go beyond mere connection. This becomes obvious from the examples given for right of use in the OECD COMMENTARY, Art. 5, paras. 12 f. These examples, which relate to situations in which the activity attribution test is already met, seek to show in what respect right of use is different, see OECD COMMENTARY, Art. 5, para. 12: “the mere presence of an enterprise at a particular location does not necessarily mean that that location is at the disposal of that enterprise” (emphasis added). To show the meaning of the right-of-use requirement, it is necessary that all other conditions for a permanent establishment be met. However, it is doubtful whether the business activities in the examples would in each case satisfy the business activity test (see *supra* paras. 105 f.). Furthermore, the origin of the right-of-use requirement lies in the expression “at disposal” in the OECD COMMENTARY, Art. 5, while the activity attribution test is directly based on the Model Convention (“of an enterprise”). Therefore, one test should not be mistaken for the other.

who is performing the activity or is the activity performed at the permanent establishment attributable to a third party instead?¹⁷¹ In other words, *whose* business activity is being performed at the place of business?

b) Standard Case: Personnel

The activity performed on the premises is primarily attributable to the taxpaying company whose personnel work there.¹⁷² The OECD COMMENTARY, Art. 5, para. 39, defines “personnel” as “persons who are in a paid-employment relationship with the enterprise (personnel). This personnel includes employees and other persons receiving instructions from the enterprise (e.g., dependent agents).” How a contract binding such personnel to the taxpayer is qualified under contract law is intentionally left open. The essential characteristic is whether or not the person is “receiving instructions from the enterprise.”

116

For example, if an enterprise A hires a subcontractor B to establish an office in a given jurisdiction and the personnel working in that jurisdiction are employees of B, this will generally mean that only B can have a permanent establishment in that country.¹⁷³ However, if A sends its own employees to work at that office,¹⁷⁴ or if B can arguably be considered to “receive instructions” directly from A (as will be

117

¹⁷¹ See SASSEVILLE/SKAAR, p. 39; WILLIAMS, pp. 44 f.

¹⁷² See OECD COMMENTARY, Art. 5, para. 39; SASSEVILLE/SKAAR, p. 39. For illustrations, see the abundant case law, which can be analyzed in respect of activity attribution, in the examples provided in WILLIAMS, pp. 44 f. and SKAAR, pp. 191 f.

¹⁷³ See SASSEVILLE/SKAAR, pp. 39 f.

¹⁷⁴ It should be noted that even employees might not always perform only their employers’ business activities (OECD, *Interpretation and Application of Article 5 (Permanent Establishment) of the OECD Model Tax Convention*, Paris October 2012, p. 15).

discussed in the following section),¹⁷⁵ then A may be considered to have a permanent establishment in that country.

c) Subcontractors?

118 There are situations in which no personnel are required. The OECD explicitly states¹⁷⁶ that the presence of personnel is not a necessary condition for the existence of a permanent establishment (this proposition is still partly controversial in Switzerland¹⁷⁷). The underlying idea is that sometimes the activity at the place of business is not performed directly by the personnel of the taxpaying company, yet the activity is still considered attributable to it via another entity that is either subordinated to (“vertical attribution”)¹⁷⁸ or on an equal footing with (“horizontal attribution”) the taxpaying company.¹⁷⁹ Horizontal attribution covers activities among joint ventures or partnerships, etc., while vertical attribution concerns activities attributable to personnel, subcontractors, dependent and independent agents, etc. Vertical attribution is especially relevant

¹⁷⁵ WIDMER 2005, p. 105.

¹⁷⁶ OECD COMMENTARY, Art. 5, paras. 36, 39, and 127; ROBINSON, p. 1272, calls it a “clear answer.” But see OECD, *Clarification on the Application of the Permanent Establishment Definition in E-Commerce: Changes to the Commentary on the Model Tax Convention on Article 5*, Paris December 2000, pp. 3 f., observing that prior to the OECD’s answer in 2000, a minority of commentators contended that the requirement for human intervention was implied in the OECD COMMENTARY, Art. 5, paras. 6 and 39.

¹⁷⁷ It is widely accepted that automated equipment can replace personnel (see MEUTER, p. 12; contra[?]: MARTI/WECHNER-ROTH, p. 347), given that this has been the line taken by the Supreme Court in intercantonal matters since 1903 (decision of the Swiss Federal Supreme Court of March 25, 1903, ATF 29 I 8, recitals 2 f.). Subcontractors, however, cannot replace personnel (see SCHELLING, p. 218); see *infra* para. 122.

¹⁷⁸ VOGELSANG, p. 117.

¹⁷⁹ *Ibid.*, p. 115. As has been seen, the performance of activity by physically absent personnel through remote control of (to some degree automated) machinery is performed “through” the place of business; see *supra* paras. 113 f. There is no reason to exclude this kind of activity from the attribution test or the permanent establishment definition.

within multinational groups, where personnel are hired out to affiliated companies.¹⁸⁰

For example, an enterprise A may mandate a subcontractor B to perform a certain business activity, such as equipment maintenance, at a certain place of business. Given that B is not an employee of A, the question arises as to whether B's activity can be attributed to A and thereby constitute a permanent establishment of A.

There are two contrasting opinions on this question. Some consider that a subcontractor's activity may be attributed to the principal contractor whenever the subcontractor is under the principal's full supervision and control.¹⁸¹ Under this view, the subcontractor's personnel who maintain the equipment under contract for the taxpayer would be attributed to the taxpayer.¹⁸²

The OECD seems to support this idea, as suggested by the fact that the OECD COMMENTARY explicitly states that the taxpayer's personnel are not necessary for the existence of a permanent establishment.¹⁸³ Furthermore, the OECD proposed including the Art. 15 MOECD criteria

¹⁸⁰ OECD, *Interpretation and Application of Article 5 (Permanent Establishment) of the OECD Model Tax Convention*, Paris October 2012, p. 15.

¹⁸¹ REIMER 2016, Part 2, para. 115. For the inconclusive discussion on an amendment to the OECD COMMENTARY to include more examples rather than abstract criteria, see OECD, *Interpretation and Application of Article 5 (Permanent Establishment) of the OECD Model Tax Convention*, Paris October 2012, p. 19; see also the decision of the Swiss Federal Supreme Court of February 5, 1982, ATF 108 Ib 44, recital 2(b), concerning a case involving tax evasion (in the present author's opinion not representative).

¹⁸² OECD, *Are the Current Treaty Rules for Taxing Business Profits Appropriate for E-Commerce?/Final Report of the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for Taxing Business Profits*, Paris June 2004, p. 30; see also OECD COMMENTARY, Art. 5, para. 40; WIDMER 2005, p. 106; HOOR, p. 210; OBERSON/PIAGET, p. 369.

¹⁸³ OECD COMMENTARY, Art. 5, para. 127.

in the activity attribution test for a permanent establishment.¹⁸⁴ Art. 15 MOECD is the provision on source taxation of income from employment. Contrary to its title, this provision is not restricted to personnel under a formal employment contract.¹⁸⁵ The OECD COMMENTARY provides various criteria that may be helpful in identifying whether remuneration for a service falls under Art. 15 MOECD.¹⁸⁶ Under the OECD's proposition, these criteria would serve to establish who acts for the enterprise within the activity attribution test, which (under certain circumstances) may include subcontractors.

122 According to the second, more restrictive opinion, Art. 5(6) MOECD rules out attributing an independent agent's activities to the taxpayer for the purposes of Art. 5(1) MOECD.¹⁸⁷ Therefore, any activity would be excluded from the taxpayer's permanent establishment if it were attributable to a subcontractor falling within the definition of an independent agent. An independent agent is defined as a person who is both legally and economically independent of the taxpayer and who, in the ordinary course of his business, acts on behalf of the taxpayer.¹⁸⁸ The prevailing opinion in Swiss scholarship is that a subcontractor normally cannot act on behalf of the principal

¹⁸⁴ OECD, *Interpretation and Application of Article 5 (Permanent Establishment) of the OECD Model Tax Convention*, Paris October 2012, p. 15. However, this proposal has not yet been included in the official OECD COMMENTARY.

¹⁸⁵ See OECD COMMENTARY, Art. 15, para. 8.12.

¹⁸⁶ *Ibid.*, paras. 8.14 f.

¹⁸⁷ WILLIAMS, pp. 51 f. This corresponds to the Swiss tax authority's practice concerning independent agents at the level of Swiss federal law; see SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 14 de l'Administration fédérale des contributions concernant l'imposition des sociétés suisses qui exercent leur activité commerciale principalement à l'étranger*, June 29, 1959, ASA 1960 (vol. 28) p. 44.

¹⁸⁸ OECD COMMENTARY, Art. 5, para. 103.

taxpaying enterprise under the general definition of permanent establishment.¹⁸⁹

d) Conclusion on the Attribution of Activity

The activity performed at the place of business is not always attributable solely to the taxpayer. This becomes evident when more than one entity operates a place of business. The OECD COMMENTARY clearly states that, generally, the activity performed by the employees of an enterprise is attributable to that enterprise. In addition, it affirms that activities performed by subcontractors can be attributed to the principal taxpayer, provided that the former “receive instructions” from the latter. A more restrictive, dissenting opinion, predominant in Switzerland, rules out activities performed by subcontractors being attributed to the principal taxpayer. This is why the OECD is proposing to add clarification on this matter to the OECD COMMENTARY.

123

4) Conclusion on the Business Activity Test

A permanent establishment depends on the existence of an eligible business activity that must be performed “through” a place of business and be attributable to the taxpayer in question. A “business” activity should be distinguished from the passive earning of income from the holding of property or mere transportation. An activity performed through a machine is presumably an eligible activity, as long as an appropriate number of maintenance personnel are present on the premises. An activity is attributable to the taxpayer if the taxpayer’s personnel perform it. If a subcontractor performs it, a particularly close relationship with the principal taxpayer is necessary, although some would exclude attributing a subcontractor’s activity to the principal taxpayer altogether.

124

¹⁸⁹ LUDWIG, pp. 10 f.; SCHELLING, p. 218; contra: OBERSON/PIAGET, p. 369, specifying that the personnel may be hired from a third party. For the definition in Swiss domestic law, see *infra* para. 197.

E) Preparatory or Auxiliary Activities Exception

1) Introduction

125 Even though a permanent establishment's activity may be an eligible business activity according to the business activity test, it would be inappropriate to create tax liability for a business activity that is but negligible. If the activity plays only a minor role in the business overall, the compliance and administrative burden tax liability places on the enterprise would seem unjustified.¹⁹⁰ Consequently, Art. 5(4) MOECD provides an exception for that kind of permanent establishment. It does so through the use of a list of negative examples and a general criterion.¹⁹¹

126 Which of the two prevails in the event of conflict remains a matter of debate.¹⁹² The view of the OECD seems to have shifted over time.¹⁹³ The present author has found that a majority of scholarly writings give precedence to the general criterion over the list of negative examples¹⁹⁴ and he sides with that position. As will be shown below,

¹⁹⁰ VOGELSANG, p. 171.

¹⁹¹ *Ibid.*, p. 171, calls it a "compromise".

¹⁹² *Ibid.*, p. 193.

¹⁹³ The OECD is of the opinion that a change in the OECD COMMENTARY, Art. 5, as well as in the text of the MOECD, is necessary in order to give precedence to the general criterion over the list of negative examples (OECD, *Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7/2015 Final Report*, Paris October 2015, p. 28). In relation to e-commerce, the OECD stated the opposite (see OECD COMMENTARY, Art. 5, para. 129), but in BEPS Action 1 concerning the digital economy recommended giving national legislators the option of making fulfillment of the general criterion mandatory (OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2014 Deliverable*, Paris September 2014, p. 143). Art. 13 MLI ("Artificial Avoidance of Permanent Establishment Status through the Specific Activity Exemptions") now offers this option.

¹⁹⁴ See SCHAFFNER 2013a, pp. 213 f.; SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 87. For ATHANAS 1993a, p. 220, the general criterion should take precedence as soon as any listed activity is performed in favor

none of the examples in the list applies in cloud computing (see *infra* paras. 389 f.). Therefore, this debate is largely irrelevant to the analysis in the present thesis. Nevertheless, the examples lead to some uncertainty, which may cause concern (see *infra* paras. 331 f.).

2) List of Examples

Art. 5(4)(a)–(d) and (f) MOECD excludes the various examples from the permanent establishment definition. Excluded are the use of facilities (a) and the maintenance of a stock of goods or merchandise solely for storage, display, or delivery (b); or for processing by another enterprise (c);¹⁹⁵ and the maintenance of a place of business solely for the purchase of goods or merchandise (d). Furthermore, the mere collection of information (d) and any combination of the aforementioned (f) are also excluded.

127

The expression “goods and merchandise” is limited to any physical and tangible¹⁹⁶ objects that belong to the taxpayer.¹⁹⁷ If these goods and merchandise are held somewhere solely for the purposes of storage, display, or delivery, or a place of business is maintained

128

of third-party customers. REIMER, in: REIMER/RUST, Art. 5, para. 287; SKAAR 1991, p. 290; BÉNARD/BERDOZ/BOURTOURAU, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 95; SASSEVILLE/SKAAR, p. 42. The German Bundesfinanzhof takes the opposite position (January 23, 1985, I R 292/81, BStBl. II 1985, 417), which has met with criticism from local scholars (WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 177; HÄCK, in: FLICK/WASSERMEYER/KEMPERMANN, Art. 5, para. 77).

¹⁹⁵ WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 163, considers the situations mentioned in (b) and (c) to be subsumed under the normative content of (a) and therefore to be largely superfluous. The new OECD COMMENTARY, Art. 5, paras. 65 f., addressed this issue by pointing out that (b) and (c) cover situations in which the taxpayer is not the owner of the facility in which the goods are stored but simply has “unlimited access to a separate part of the warehouse for the purpose of inspecting and maintaining the goods” (para. 65). The OECD seems to be alluding to situations in which the facility is “otherwise at the disposal of the enterprise” (OECD COMMENTARY, Art. 5, para. 10).

¹⁹⁶ SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 69; REIMER 2016, Part 2, para. 262.

¹⁹⁷ WILLIAMS, p. 184.

solely for purchasing goods or merchandise, they will not constitute a permanent establishment. This would be the case for warehoused goods, for example. *A contrario*, if the activity performed with the goods and merchandise exceeds any of the aforementioned purposes, the list of negative examples is not applicable. Accordingly, as soon as the goods or merchandise are sold, used, or processed by the taxpaying enterprise, they fall outside the scope of the list of negative examples.¹⁹⁸

129 As regards the collection of information, such information can take any form—written, oral, or electronic.¹⁹⁹ However, as soon as the activity performed through the fixed place of business exceeds the mere collection of such information, the list of negative examples ceases to apply. Collecting information should be understood to cover any activities intrinsically related thereto, such as storage and processing to a limited degree, as well as “information hunting.”²⁰⁰ However, any kind of processing that goes beyond a systematic arrangement and filtering of the information²⁰¹ falls outside Art. 5(4)(d) MOECD. Examples include evaluating, editing, and other kinds of transformation,²⁰² as well as “housing goodwill” while putting clients into contact with a foreign head office for contracting.²⁰³

¹⁹⁸ REIMER 2016, Part 2, paras. 268 f.; BÉNARD/BERDOZ/BOURTOURAU, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 103. However, when they are processed by another enterprise (such as a subsidiary), they fall under the negative example in Art. 5(4)(c) MOECD, which rules out permanent establishment status.

¹⁹⁹ REIMER 2016, Part 2, para. 266.

²⁰⁰ *Ibid.*, para. 272.

²⁰¹ *Ibid.*, para. 273.

²⁰² *Ibid.*, para. 275.

²⁰³ The decision of the Swiss Federal Supreme Court of September 19, 1976, ATF 102 Ib 264, recital 3(c), considered that such activity was not an example of “collecting information” even though it was held to be merely preparatory in relation to the core business of a bank; see WILLIAMS, p. 193 (note 34), with references to similar international case law.

3) *General Criterion*

Art. 5(4)(e) MOECD provides an abstract criterion for excluding certain activities from the permanent establishment definition, namely, the preparatory or auxiliary nature of the activity. An activity is preparatory or auxiliary when it serves to make a fixed place of business ready for at least part of the ensuing core business activity of the enterprise, or when it accompanies the core business activity of the enterprise without being a significant and essential part of it.²⁰⁴ Therefore, activities identical to the core business of the enterprise can never be preparatory or auxiliary.²⁰⁵ Activities that serve the enterprise itself are generally deemed preparatory or auxiliary, whereas those that are performed for the benefit of a third party are always essential and significant, even if the beneficiary is a related enterprise.²⁰⁶ It is likely that an activity will not be deemed auxiliary if it requires the use of a significant proportion of the taxpayer's assets or employees.²⁰⁷ When in doubt, the practicality principle dictates that the activity should be regarded as preparatory or auxiliary.²⁰⁸

130

In 1976, the Swiss Federal Supreme Court ruled that a Spanish bank did not constitute a permanent establishment because its activity in Switzerland was merely preparatory.²⁰⁹ The bank had set up an office with two staff members, whose job was to gather information, contact potential customers in Switzerland, and refer them back to the head

131

²⁰⁴ OECD COMMENTARY, Art. 5, para. 60.

²⁰⁵ *Ibid.*, para. 59.

²⁰⁶ Art. 5(4)(e) MOECD: "... for the enterprise ..."; Athanas 1993a, p. 220; REIMER 2016, Part 2, para. 288; KÄBISCH, p. 11. MEUTER, p. 14, specifies that there are exceptions to this rule, such as research activity for a pharmaceutical company.

²⁰⁷ OECD COMMENTARY, Art. 5, para. 60.

²⁰⁸ MEUTER, p. 15.

²⁰⁹ Decision of the Swiss Federal Supreme Court of September 19, 1976, ATF 102 Ib 264, recital 3(c). Representative offices are often covered by the Art. 5(4)(d) MOECD exception, as when their activity is simply to collect information (WILLIAMS, pp. 192 f.).

office in Spain for the conclusion of banking service contracts. The contact office in Switzerland had no authority to enter into contracts in the name of the bank. Therefore, it was considered to be performing a preparatory or auxiliary activity in relation to the core business of a bank.

132 As a precedent, this case shows that the authority to conclude contracts on behalf and in the name of the principal may be considered a fundamental aspect of an essential and significant activity in Switzerland.²¹⁰ The Swiss Federal Tax Administration characterizes a representative without contracting powers as a permanent establishment only in exceptional circumstances, namely, where the representative is employed by and in the service of the taxpayer alone, or where the representative operates a delivery facility owned by the taxpayer and regularly follows the taxpayer's instructions.²¹¹

133 As can now be deduced from the above, the characterization of the activity performed at the place of business as auxiliary or essential depends on its relationship with the core business of the enterprise. The characterization can change from auxiliary to essential, or vice versa, as a result of a change in the activity of the place of business or in the core business of the enterprise as a whole. Consequently, a place of business can become a permanent establishment when an activity originally characterized as auxiliary is outsourced to another

²¹⁰ OBERSON 2014, paras. 428 f.; WIDMER 2009, p. 638; SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 24 de l'Administration fédérale des contributions concernant l'imposition des sociétés étrangères qui entretiennent en Suisse des établissements stables*, June 1, 1960, ASA 1960 (vol. 28) p. 498.

²¹¹ SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 24 de l'Administration fédérale des contributions concernant l'imposition des sociétés étrangères qui entretiennent en Suisse des établissements stables*, July 1, 1960, ASA 1960 (vol. 28) p. 498. In the present author's view, if the counterexception regarding the delivery facility concurs with a DTA modeled on Art. 5(4)(a) or (b) (i.e., use of the facility or maintenance of the stock for the purpose of delivery), the negative effect of the DTA would override this counterexception.

legal entity.²¹² This would be the case even when the activity performed at the place of business does not change.

4) *Anti-avoidance Rules*

The business activity test as described so far would seem to be a potential target for contrivances aimed at tax avoidance. For instance, taxpayers could divide their activity into several smaller activities performed in different places in order to fall below the threshold of an essential and significant activity. 134

In 2015, the OECD's antifragmentation rule was accepted for implementation by the G20²¹³ and included in the Final Report on Action 7 of the BEPS project²¹⁴ and in Art. 14 MLI.²¹⁵ Simply put, it aims to prevent an artificial fragmentation of one originally *essential* business activity into multiple complementary *auxiliary* activities performed by subsidiaries. Given that the purpose of such fragmentation is to fail the business activity test and thereby avoid 135

²¹² FROTSCHER, para. 267; for an explanation of the role of integration in this respect, see REIMER 2016, Part 2, paras. 277 f.

²¹³ See OECD, *G20 finance ministers endorse reforms to the international tax system for curbing avoidance by multinational enterprises*, October 9, 2015, <http://www.oecd.org/tax/g20-finance-ministers-endorse-reforms-to-the-international-tax-system-for-curbing-avoidance-by-multinational-enterprises.htm> (last viewed July 2, 2020).

²¹⁴ OECD, *Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7/2015 Final Report*, Paris October 2015, p. 39. The BEPS (Base Erosion and Profit Shifting) Action Plan of the OECD is a project aimed at implementing concrete measures against current loopholes and mismatches in tax rules. It started in July 2013 with the publication of the Action Plan; see OECD, *Action Plan on Base Erosion and Profit Shifting*, Paris July 2013.

²¹⁵ *Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting (MLI; see infra para. 147)*. Art. 14 will not apply to Swiss DTAs; see Swiss position paper, *Confédération suisse/Statut de la liste de réserves et des notifications au moment de la signature*, <https://www.news.admin.ch/newsd/message/attachments/48549.pdf> (last viewed July 2, 2020), p. 9.

acquiring permanent establishment status, the rule proposes to treat the sum of the auxiliary activities as a single essential activity.²¹⁶

136 This rule replaces its predecessor in the OECD COMMENTARY, Art. 5, para. 73, which sets forth an antifragmentation rule applicable only to single entities that distributed the components of an essential activity among different places of business. The new antifragmentation rule therefore simply extends a rule addressing the economic interests of single entities to one addressing the economic interests of groups.²¹⁷

5) *Conclusion on the Activities Exception*

137 When defining a permanent establishment, a distinction is made between *essential and significant* activities on the one hand, and *preparatory or auxiliary* activities on the other. This distinction reflects the relationship that exists between the activity that is performed through the place of business and the activity that constitutes the enterprise's core business.

138 For practical purposes, Art. 5(4) MOECD seeks to limit the characterization of places of business as permanent establishments through a list of negative examples and a general criterion. While the examples chiefly concern the handling of physical or tangible goods, they also include the collection of information, which, if it were the sole activity performed, would prevent a taxpayer from constituting a permanent establishment.

139 The general criterion rules out permanent establishment status where the activities performed at the place of business are merely preparatory or auxiliary in relation to the core business of the enterprise as a whole. The OECD COMMENTARY describes two clear

²¹⁶ See OECD COMMENTARY, Art. 5, para. 79.

²¹⁷ However, the question of whether the antifragmentation rule goes beyond what is provided in the OECD COMMENTARY, Art. 5, para. 51 or 22, remains unanswered; see REIMER, in: REIMER/RUST, Art. 5, para. 210.

implications of this criterion: the exception will not apply if the activity of the place of business is either identical to the core business of the enterprise or performed for the benefit of other enterprises.

In Switzerland, a lack of power to conclude contracts independently is a significant factor in characterizing an activity as either *essential* or *preparatory*. It would be rare for a permanent establishment to exist without such power. 140

The OECD's BEPS project has added an anti-avoidance rule to the exception. Consequently, the artificial fragmentation of an activity can no longer serve as a means of avoiding permanent establishment status. 141

F) Conclusion on the General Definition

In recent decades, the OECD has worked hard on defining the basic concept of permanent establishment. The definition relies on three cumulative conditions or "tests": the place of business test, the fixation test, and the business activity test. The preparatory or auxiliary activities exception, which, even in its most fundamental features, is marked by several ambiguities, is best assessed separately. 142

§ III. Dependent Agent Permanent Establishment

A) Treaty Definition

The dependent agent definition of permanent establishment represents an important addition to the scope of application of the 143

general definition.²¹⁸ It is applied only if there is evidence that the taxpayer lies outside the general definition of permanent establishment in Art. 5(1) MOECD.²¹⁹

144 The definition set forth in the pre-BEPS version of Art. 5(5) MOECD (which had existed since 1977) stated that: “Notwithstanding the provisions of paragraphs 1 and 2, where a person—other than an agent of an independent status to whom paragraph 6 applies—is acting on behalf of an enterprise and has, and habitually exercises, in a Contracting State an authority to conclude contracts in the name of the enterprise, that enterprise shall be deemed to have a permanent establishment in that State in respect of any activities which that person undertakes for the enterprise, unless the activities of such person are limited to those mentioned in paragraph 4 which, if exercised through a fixed place of business, would not make this fixed place of business a permanent establishment under the provisions of that paragraph.”

145 Pre-BEPS Art. 5(6) MOECD introduces the following exception: “An enterprise shall not be deemed to have a permanent establishment in a Contracting State merely because it carries on business in that State through a broker, general commission agent, or any other agent of an independent status, provided that such persons are acting in the ordinary course of their business.”

²¹⁸ This addition is often called an “extension” of the permanent establishment; see, e.g., BARSONY, p. 135. The present author considers this slightly misleading, as the dependent agent permanent establishment should be considered as a separate definition distinct from the general definition in Art. 5(1) MOECD (Art. 5(5) MOECD). Further, the fact that a given case meets the requirements of both a dependent agent permanent establishment and the general definition of a permanent establishment is irrelevant to the attribution of profits (WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 192).

²¹⁹ Art. 5(5) MOECD: “Notwithstanding the provisions of paragraphs 1 and 2 ...”; OECD COMMENTARY, Art 5, para. 82.

Many commentators, including the OECD itself, had long considered that this definition was in need of a fundamental overhaul.²²⁰ Discussions culminated in the Final Report of Action 7 of the OECD BEPS Action Plan, aimed at expanding the dependent agent concept to include *commissionnaire* arrangements and similar strategies.²²¹

146

For some time, it remained uncertain whether states would unilaterally embrace the results of the OECD BEPS Action Plan.²²² To address this uncertainty, the OECD drafted a Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting (MLI).²²³ Art. 12 MLI relates specifically to dependent agent permanent establishments. Switzerland has signed the MLI but has restricted its application to Swiss DTAs a limited number of countries (fourteen to date), and has made a reservation to the effect that Art. 12 is not to be applied to any of them in its entirety.²²⁴ Nevertheless, the MLI and BEPS Action 7 may have an impact on multinational enterprises in other jurisdictions. The following sections will discuss the most important aspects of dependent agent permanent establishments in general. The proposed

147

²²⁰ The OECD has been discussing this since its 2011 report; see OECD, *Interpretation and Application of Article 5 (Permanent Establishment) of the OECD Model Tax Convention*, Paris October 2011; EISENBEISS, p. 491.

²²¹ The first point of Action 7 addressed dependent agent permanent establishments; see OECD, *Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7/2015 Final Report*, Paris October 2015, p. 15.

²²² KOFLER/SCHMIDT/SIMONEK, p. 487.

²²³ <http://www.oecd.org/tax/treaties/multilateral-convention-to-implement-tax-treaty-related-measures-to-prevent-BEPS.pdf> (last viewed July 2, 2020). It only covers OECD BEPS Actions 2, 6, 7, and 14.

²²⁴ BEPS MLI Position Switzerland, June 7, 2017, <http://www.oecd.org/tax/treaties/beps-ml-position-switzerland.pdf> (last viewed July 2, 2020), p. 9. In principle, this position may be subject to change until the deposit of the instrument of ratification of the MLI; see OECD, *Signatories and Parties to the Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting*, June 7, 2017, <http://www.oecd.org/tax/treaties/beps-ml-signatories-and-parties.pdf> (last viewed July 2, 2020).

modifications of Art. 5(5) and (6) MOECD in relation to *commissionnaire* arrangements and similar strategies will be explored separately.

B) Person

- 148 According to Art. 5(5) MOECD, an agent must be a “person,” which should be understood as covering both individuals and companies.²²⁵ The latter term should be understood as referring not only to companies in the traditional sense but also to any other entity that is treated as a body corporate for tax purposes (Art. 3(1)(b) MOECD). The term therefore seems to encompass all bodies to which tax law—and corporate taxes in particular—may apply, even if they are not tax subjects *stricto sensu*.²²⁶
- 149 Moreover, the “person” is required to be legally distinct from the taxpayer in relation to whom the person has the status of a dependent agent permanent establishment.²²⁷ Partners are not agents of their partnerships, even when they perform their own activities through the partnership in the source jurisdiction. The same goes for other kinds of transparent entities.²²⁸ By contrast, employees are eligible for

²²⁵ OECD COMMENTARY, Art. 5, para. 83; see also Art. 3(1)(a) MOECD.

²²⁶ SKAAR 2000, p. 192; BARSONY, p. 136. VOGELSSANG, p. 202; contra: BÉNARD/BERDOZ/BOURTOURAUULT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 131 (restricting the notion of person to either individuals or corporations with legal personality).

²²⁷ REIMER 2016, Part 2, paras. 322 f.; WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 197.

²²⁸ WIDMER 2003, p. 109.

dependent agent permanent establishment status,²²⁹ whether they be the employees of the taxpayer or the agent.²³⁰

For a taxpayer in a certain jurisdiction A to have a dependent agent permanent establishment in a source jurisdiction S, the agent does not need to be resident or otherwise liable to taxation in S.²³¹ As clearly stated in Art. 5(5) MOECD, the agent only needs to be “acting on behalf of an enterprise and ha[ve] ... in a Contracting State an authority to conclude contracts in the name of the enterprise” (pre-BEPS wording). This means that, theoretically, an individual located in jurisdiction B may be able to create a dependent agent permanent establishment in the source jurisdiction S for the aforementioned taxpayer located in jurisdiction A, even though neither the taxpayer nor the agent is physically present in the source jurisdiction S.

150

C) Authority to Conclude Contracts in the Name of the Enterprise

1) Literal Meaning of Pre-BEPS Art. 5(5) MOECD

Art. 5(5) MOECD (pre-BEPS) demands, in addition, that the eligible person have the authority to conclude contracts in the name of the enterprise. Taking the wording itself as the point of departure, this would mean that the authority vested in the person (hereinafter the “agent”) is sufficient to legally bind the taxpayer (hereinafter the “principal”).²³² Thus, only direct representation arrangements, such

151

²²⁹ See OECD COMMENTARY, Art. 5, para. 83.

²³⁰ See VOGELANG, p. 254; BÉNARD/BERDOZ/BOURTOURALT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 133, with further references on foreign case law.

²³¹ OECD COMMENTARY, Art. 5, para. 83; WIDMER 2003, pp. 108 f.; WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 205; GÖRL, in: VOGEL/LEHNER, Art. 5, para. 124.

²³² VOGELANG, p. 219.

as are described in Art. 32(1) CO,²³³ meet this requirement. A *contrario*, should agents conclude contracts in their own name, they would fall outside the scope of Art. 5(5) MOECD because the principal is only indirectly obligated towards the customer through an internal contract between the agent and the principal (Art. 32(3) CO). Also, if a contract is merely negotiated and not formally concluded by the agent (but by the principal instead), this does not satisfy the wording of the rule.²³⁴

152 This formal approach stems from a civil law perspective on international taxation.²³⁵ Apparently, common law countries generally do not struggle with the issue of having to distinguish between direct and indirect legally binding relations, as an agent always legally binds the principal provided the agent appears authorized to do so in the eyes of the customer.²³⁶

153 The drawback of such formal requirements in a rule is that they can easily be exploited for purposes contrary to the original intention of the rule maker.²³⁷ This requirement of contracting authority is no exception. If the requirement were interpreted more openly, by treating *commissionnaire* arrangements and similar schemes in the same way as the economically equivalent dependent agent permanent establishment, this would help to make the requirement less easily exploitable.

²³³ Swiss Federal Act on the Amendment of the Swiss Civil Code (Part Five: The Code of Obligations) of March 30, 1911 (RS 220).

²³⁴ This view is based on a literal and historical interpretation of the wording of Art. 5(5) and (6) MOECD, as demonstrated by VOGELSANG, pp. 218 f.; see also BÉNARD/BERDOZ/BOURTOURAUULT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 142.

²³⁵ AVERY JONES/WARD, p. 160.

²³⁶ *Ibid.*, p. 158. As one would expect, prior to March 31, 1994 the United Kingdom had included a reservation in the then OECD COMMENTARY, Art. 5, para. 45, stating that it was unimportant in whose name the contract was concluded.

²³⁷ Of course, the advantage is that it provides legal certainty; see PLEUSIER, p. 152.

2) “Commissionnaire” Arrangements and Similar Schemes

A review of Art. 5(5) MOECD was prompted by a series of case patterns in which agents were incentivized to circumvent its formal nature. They concluded contracts in their own name in order to evade the requirement that the contracts must be concluded in the name of the principal,²³⁸ even though often unknown to the customer. For the sale of goods, the legal title passed directly from the principal to the customer, thereby avoiding the need for the commissionnaire to declare sales income on that title.²³⁹ In the present author’s view, where the principal agrees to perform a service for a customer or to transfer legal title to intangible goods, the strategy operates in the same way as for the sale of goods.²⁴⁰ This legal construct is generally called a “*commissionnaire* arrangement.”²⁴¹

154

This strategy works only in civil law countries, as taxation in those countries—unlike common law countries—depends on the person in whose name the contract is concluded. In common law countries, the same result is achieved by explicitly stating in the contract that the principal is not legally bound by it (thereby contractually constructing the same legal relationship as in civil law indirect representation).²⁴²

155

However, there is another way of attaining the same objective, and that is through transfer pricing. If—in contrast to the previous strategy—the agent actually acquires ownership of the goods or property before they are transferred to the customer, that agent is

156

²³⁸ OECD, *Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7/2015 Final Report*, Paris October 2015, p. 15 (para. 6).

²³⁹ EISENBEISS, pp. 483 f.

²⁴⁰ See the proposed Art. 6(5)(b) and (c) MOECD (post-BEPS), as cited in OECD, *Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7/2015 Final Report*, Paris October 2015, p. 16; KOFLER/SCHMIDT/SIMONEK, p. 486.

²⁴¹ EISENBEISS, p. 486.

²⁴² *Ibid.*

required to declare income earned from the sale of the goods or the property. In an effort to reduce local taxable income, contractual arrangements can be made with the principal to offset sales income against artificially increased prices for the sales from the principal to the agent or other payments to the principal such as license fees and interest. This can be artificially justified by allocating functions, assets, and risks to the principal, who can afford a higher profit share, according to the rules of transfer pricing. Hence, this kind of agent (commonly called a “limited-” or “low-risk” distributor²⁴³) is capable of reproducing the same international allocation of taxable profit as the *commissionnaire* arrangement described above.

157 Alternatively, in an attempt to evade the requirement that contracts must be *concluded* by the agent, multinational enterprises started tasking agents with the entire process of negotiating contracts with customers but reserved the formal conclusion of the contracts for the taxpayer rather than the agent. This is considered a scheme similar to the *commissionnaire* arrangement as it serves the same purpose of avoiding dependent agent permanent establishment status.²⁴⁴

3) *BEPS Action 7*

158 The OECD considered the *commissionnaire* arrangement and similar structures to be a critical form of base erosion and profit shifting and addressed the problem in Action 7 of the OECD/G20 BEPS Action Plan.²⁴⁵ It proposed a change of wording in Art. 5(5) and (6) MOECD and in the OECD COMMENTARY, Art. 5. The newly worded Art. 5(5) MOECD reads as below.²⁴⁶

²⁴³ OECD COMMENTARY, Art. 5, para. 96; EISENBEISS, p. 487.

²⁴⁴ OECD, *Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7/2015 Final Report*, Paris October 2015, p. 15 (para. 7).

²⁴⁵ OECD, *Action Plan on Base Erosion and Profit Shifting*, Paris July 2013, p. 19.

²⁴⁶ OECD, *Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7/2015 Final Report*, Paris October 2015, p. 16.

“5. Notwithstanding the provisions of paragraphs 1 and 2 but subject to the provisions of paragraph 6, where a person is acting in a Contracting State on behalf of an enterprise and, in doing so, habitually concludes contracts, or habitually plays the principal role leading to the conclusion of contracts that are routinely concluded without material modification by the enterprise, and these contracts are a) in the name of the enterprise, or b) for the transfer of the ownership of, or for the granting of the right to use, property owned by that enterprise or that the enterprise has the right to use, or c) for the provision of services by that enterprise, that enterprise shall be deemed to have a permanent establishment in that State in respect of any activities which that person undertakes for the enterprise, unless the activities of such person are limited to those mentioned in paragraph 4 which, if exercised through a fixed place of business (other than a fixed place of business to which paragraph 4.1 would apply), would not make this fixed place of business a permanent establishment under the provisions of that paragraph.”

159

This provision addresses *commissionnaire* arrangements through the words “or habitually play the principal role leading to the conclusion of contracts that are routinely concluded without material modification by the enterprise.” This wording is intended to express an alternative requirement to that embodied in the words “habitually concludes contracts,” which originally was the sole requirement. Further, the requirement that the contracts be concluded in the name of the principal is one of three alternative conditions, the other two, as stated in (b) and (c), being that even if the contract is not concluded in the name of the principal, it is still an eligible contract if it leads to the transfer of ownership or rights of use over property or the provision of services directly between the principal and the customer.²⁴⁷

160

²⁴⁷ See OECD COMMENTARY, Art. 5, para. 94.

- 161 According to the relevant part of the revised OECD COMMENTARY (i.e., Art. 5, para. 88), these changes are aimed at situations where the contract “directly results” from the “substantive activities” of the agent in the source jurisdiction. For instance, the agent plays a “principal role” when he acts as the sales force securing contracts with customers, solicits and receives orders, and delivers the ordered goods, while the principal simply rubber stamps the transaction. On the other hand, the agent does not play a “principal role” when he merely advertises and markets the principal’s products, provided the advertising does not directly result in the conclusion of contracts.
- 162 The use of the singular form in “principal role” implies that only one side can play this role—the agent *or* the principal.²⁴⁸ In the present author’s opinion, this seems to suggest that the agent is the predominant player in the sales force function compared to the principal. This interpretation is consistent with the wording that follows in Art. 5(5) MOECD: “routinely concluded without material modification by the enterprise.”²⁴⁹ The term “routinely” would need to be interpreted as implying ongoing activities that occur repeatedly and not just occasionally or in isolated cases.²⁵⁰
- 163 More guidance on the meaning the OECD intended to give to the principal role requirement can be derived from earlier drafts of the amendment. The original draft presented several options, two of which (options B and D) directly presage the principal role requirement in their use of the words “concludes contracts or negotiates the material elements of contracts.”²⁵¹ On the basis of the comments received on that first draft, the OECD concluded that these

²⁴⁸ REIMER 2016, Part 2, para. 366.

²⁴⁹ *Ibid.*, para. 368.

²⁵⁰ *Ibid.*, para. 367, thereby implicitly referencing the terms used in the OECD COMMENTARY, Art. 5, para. 83, last sentence.

²⁵¹ OECD, *Public Discussion Draft/BEPS Action 7: Preventing the Artificial Avoidance of PE Status*, October 31, 2014, pp. 11 f.

options were unclear and that they failed to cover standardized contracting.²⁵² Commentators and the OECD working party generally supported option B and felt that there was simply a need to clarify the meaning of the newly introduced terms in the OECD COMMENTARY.²⁵³ In the present author's view, this means that an agent will fulfill the principal role requirement whenever he negotiates material elements of a contract. It would also entail that the use of standardized contracts should not influence the outcome of the *principal role* test, as the OECD clearly intended to cover such contracts and none of the comments received expressly sought to exclude them.

When the agent is a low-risk distributor,²⁵⁴ however, he will not fall under the principal role requirement and will therefore not constitute a permanent establishment.²⁵⁵ That would be the case where the distributor concludes contracts on his own behalf and obtains legal title to the goods to be sold, or performs services or arranges for services to be performed for the customer.²⁵⁶ There may be times when the risk distribution between a principal and the principal's

164

²⁵² OECD, *Revised discussion draft/BEPS Action 7: Preventing the Artificial Avoidance of PE Status*, May 15, 2015, p. 11.

²⁵³ *Ibid.*, p. 12.

²⁵⁴ In OECD, *Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7/2015 Final Report*, Paris October 2015, pp. 15 f., the OECD defines a "low-risk distributor arrangement" only in the following terms: "In these arrangements, sales generated by a local sales workforce are attributed to a resident taxpayer, which is not the case in the situations that the changes to Art. 5(5) and (6) are intended to address. Given this difference, BEPS concerns related to low-risk distributor arrangements are best addressed through the work on Action 9 (Risks and Capital) of the BEPS Action Plan."

²⁵⁵ See OECD COMMENTARY, Art. 5, para. 96. In SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 8 concernant la répartition fiscale internationale des sociétés principales*, December 18, 2001, p. 1, the Swiss tax authority takes the opposite view, treating low-risk distributors as dependent agent permanent establishments, in the same way as *commissionnaire* arrangements. There is no distinction between the two (WIDMER 2009, p. 640). The tax authority has not made an official statement on what impact BEPS Action 7 and the new OECD COMMENTARY, Art. 5, will have on this assessment.

²⁵⁶ OECD COMMENTARY, Art. 5, para. 96.

subsidiary distributor is manipulated, thereby influencing the taxable profit earned by the distributor in a way that is not congruent with the profit distribution that would occur between unrelated parties. However, this has nothing to do with the definition of a permanent establishment and is instead a transfer pricing issue.²⁵⁷

165 Above all else, the principal role requirement should be interpreted in keeping with the object and purpose of Art. 5(5) MOECD.²⁵⁸ The changes to Art. 5(5) MOECD were clearly aimed at replacing the formal requirement of having authority to conclude contracts in the name of the principal with another requirement more in line with economic reality. In particular, *commissionnaire* arrangements and similar schemes were recognized as constituting permanent establishments.²⁵⁹ Whether this necessitated a change in the wording of the MOECD and the OECD COMMENTARY depends on how Art. 5(5) and (6) MOECD are actually integrated into DTAs and how they are interpreted in practice.

4) *Economic Interpretation of the Pre-BEPS Art. 5(5) MOECD*

166 In Germany, Austria, and Switzerland (three civil law countries), Art. 5(5) MOECD's authority requirement is not interpreted in a formal way. In other words, contracts do not have to be made through direct representation or in the name of the principal, provided that the agent

²⁵⁷ OECD, *Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7/2015 Final Report*, Paris October 2015, p. 16. Interestingly, several Swiss DTAs see this as an indication of the agent's dependent status (SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 145). If BEPS Action 7 is adopted, it will no longer make sense for them to do so.

²⁵⁸ See OECD COMMENTARY, Art. 5, para. 94 (post-BEPS).

²⁵⁹ REIMER 2016, Part 2, para. 369; see BENDLINGER 2015, p. 5.

acts on behalf of the principal.²⁶⁰ The Spanish *Dell* case (Spain being another civil law country) came to the same finding,²⁶¹ in line with previous Spanish court decisions in *Roche Vitamins Europe SA*²⁶² and *Borax Europe Ltd.*²⁶³ Also, the pre-BEPS OECD COMMENTARY, Art. 5, para. 32.1, acknowledged that the authority requirement is fulfilled even if the agent concludes contracts that are not expressly in the name of the principal and even if it is not the agent who formally finalizes the contract, provided that the principal's involvement consists simply in routine approval of the transactions.²⁶⁴

²⁶⁰ KOFLER/SCHMIDT/SIMONEK, p. 477. In Switzerland, the federal tax authority seems to have adopted this position (SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 24 de l'Administration fédérale des contributions concernant l'imposition des sociétés étrangères qui entretiennent en Suisse des établissements stables*, July 1, 1960, ASA 1960 (vol. 28) p. 498; SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 8 concernant la répartition fiscale internationale des sociétés principales*, December 18, 2001, p. 1). In the main, scholarly writing is in favor of an economic interpretation (see KOFLER/SCHMIDT/SIMONEK, p. 477). Some DTAs expressly provide for alternatives to the authority requirement, such as Art. 5(5)(ii) and (iii) of the DTA with India and Art. 5(6)(b) of the DTA with Australia (which, in the present author's opinion, could be used as an *a contrario* argument in favor of a literal reading of the DTAs in question, as the parties to these DTAs knowingly chose expressly whether or not to include the authority requirement).

²⁶¹ Decision of the Spanish Tribunal Económico-Administrativo Central of March 15, 2012, affirmed by the Spanish Audiencia Nacional, Sala de lo Contencioso-Administrativo, June 8, 2015, appeal no. 182/2012, in turn affirmed by the Spanish Tribunal Supremo, Sala de lo Contencioso, June 20, 2016, appeal no. 2555/2015.

²⁶² Decision of the Administrativo Tribunal Supremo, Sala de lo Contencioso, Sección 2, January 12, 2012, appeal no. 1626/2008.

²⁶³ Decision of the Administrativo Tribunal Supremo, Sala de lo Contencioso, Sección 2, June 18, 2014, appeal no. 1933/2011.

²⁶⁴ Similarly: OECD COMMENTARY, Art. 5, para. 33 (pre-BEPS). In favor of this interpretation of the OECD COMMENTARY, Art. 5, para. 32.1 (pre-BEPS): KOFLER/SCHMIDT/SIMONEK, p. 475; SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 118; BÉNARD/BERDOZ/BOURTOURAUULT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 173 (criticizing the Swiss position as contrary to the French position on the matter and thinking, without further explanation, that the OECD consensus in 2014 considered the French legalistic approach to be correct, which turned out to be wrong); HILTY, Art. 5, p. 39 (specifying

- 167 Hence, the OECD's change of wording may simply codify a preexisting opinion held in numerous tax jurisdictions around the world without having any novel normative effects.²⁶⁵ However, there would not appear to be widespread international consensus on this, as the introduction of rules relating to *commissionnaire* arrangements was originally triggered by domestic case law in several countries that adhered to the formal interpretation of the authority requirement. The *Zimmer*²⁶⁶ and *Iota*²⁶⁷ cases in France and the *Dell* case²⁶⁸ in Norway had upheld a formal interpretation of Art. 5(5) MOECD, denying the existence of a permanent establishment in the presence of *commissionnaire* arrangements owing to the lack of formal authority to conclude contracts. With regard to the digital economy, the Indian *eBay* case came to the same conclusion, thereby denying the tax liability of a Swiss principal.²⁶⁹
- 168 Furthermore, there is a risk that the wording of Art. 5(5) MOECD post-BEPS may leave more room for interpretation than is necessary when addressing the issues relating to *commissionnaire* arrangements and similar schemes discussed above. Whether or not this is true is not a

that it would also require that the agent had the authority to negotiate the contracts in detail); ATHANAS 1993a, p. 219. Against this interpretation: WIDMER 2009, p. 640; WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 201a, with additional references (describing this paragraph as having a retroactive effect *contra legem*). The present author concludes that the majority view in Switzerland is in favor of interpreting DTAs in this way, in keeping with the wording of the OECD COMMENTARY.

²⁶⁵ See BAL 2016, p. 577.

²⁶⁶ Decision of the French Conseil d'État of March 31, 2010, no. 304715 and 308525.

²⁶⁷ Decision of the French Conseil d'État of October 6, 2010, no. 307680.

²⁶⁸ Decision of the Norwegian Høyesterett of December 2, 2011, HR-2011-2245-A, case no. 2011/755.

²⁶⁹ Decision of the Indian Tax Appellate Tribunal Mumbai "L" Bench of September 21, 2012, ITA No. 6784/M/2010 and ITA No. 7046/M/2010. Interestingly, while the MLI will be applied to the DTA between India and Switzerland, Art. 12 MLI regarding BEPS Action 7, which would reverse the outcome of this decision, is explicitly excluded; see BEPS MLI Position Switzerland, June 7, 2017, <http://www.oecd.org/tax/treaties/beps-mli-position-switzerland.pdf> (last viewed July 2, 2020), p. 9.

question central to this thesis, but it will be addressed insofar as it has a bearing on cloud computing.²⁷⁰

5) *Summary*

The authority to conclude contracts in the name of the enterprise is a necessary requirement to qualify as a dependent agent permanent establishment. This requirement can be interpreted in various ways. In Switzerland, an economic interpretation prevails: an agent has the necessary authority provided he acts on behalf of the principal, regardless of whether he does so through direct representation in the civil law sense.

169

D) *Exclusion of Independent Agents*

1) *Introduction*

Art. 5(5) MOECD requires that, to qualify as a permanent establishment of the principal, an agent must be “other than an agent of an independent status to whom paragraph 6 applies.” Art. 5(6) MOECD further states that the enterprise shall not be deemed to have a permanent establishment merely by carrying on its business in a certain jurisdiction through an agent with independent status if such agent is acting in the ordinary course of his business.

170

This means that, first, it is necessary to determine whether the agent is independent and, next, whether he is acting in the ordinary course of his business.²⁷¹ The following sections discuss these two tests separately and summarize the slight changes made to this rule in OECD BEPS Action 7.

171

²⁷⁰ See *infra* para. 727.

²⁷¹ OECD COMMENTARY, Art. 5, para. 102 (pre-BEPS para. 37 in addition used to make reference to the two aspects of legal and economic independence); VOGELSANG, p. 241.

2) *Independence of the Agent*

172 An agent cannot be considered as independent if the obligations he has towards the principal exceed a certain threshold.²⁷² These obligations relate to the principal having significant control over the manner in which the agent works (i.e., quality),²⁷³ rather than limitations on the scale of his business activities (i.e., quantity).²⁷⁴ Specifically, if the agent lacks autonomy in respect of working times, place of work, and negotiations with customers, these obligations exceed the threshold and the agent cannot be considered independent.²⁷⁵ If the agent receives detailed instructions, has no overall control, and assumes no entrepreneurial risk, he will not be considered independent.²⁷⁶ The agent bears no entrepreneurial risk when the remuneration from the principal is based on the agent's costs.²⁷⁷ By definition, employees are not independent of their employers as they receive detailed instructions, etc.²⁷⁸ *A contrario*, if the principal relies on the agent's special skill and knowledge²⁷⁹ and

²⁷² OECD COMMENTARY, Art. 5, para. 104.

²⁷³ *Ibid.*, para. 106.

²⁷⁴ *Ibid.*, para. 107.

²⁷⁵ REIMER 2016, Part 2, para. 346.

²⁷⁶ OECD COMMENTARY, Art. 5, para. 104; HILTY, Art. 5, p. 38; BÉNARD/BERDOZ/BOURTOURAUULT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 134.

²⁷⁷ That is, "cost plus" remuneration; BÉNARD/BERDOZ/BOURTOURAUULT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 137; contra: decision of the German Bundesfinanzhof of September 14, 1994, I R 116/93, BStBl. II 1995, 238, para. 3(b), in effect based on a distinct, literal interpretation of the word "independent." This decision is criticized by WASSERMAYER, in: WASSERMAYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 232, as there were several indications of dependence, notably cost-based remuneration.

²⁷⁸ REIMER 2016, Part 2, para. 348; VOGELSANG, p. 254.

²⁷⁹ OECD COMMENTARY, Art. 5, para. 106.

the agent is remunerated on a profit or turnover basis,²⁸⁰ that might be an indication of independence.

Art. 5(6) MOECD requires the agent to be independent not only economically but also legally.²⁸¹ The legal independence criterion is most relevant to the relationship between a parent company and its subsidiary. The control that a parent company has over its subsidiary does not in itself establish the legal dependency of the subsidiary as an agent of the parent principal (Art. 5(7) MOECD).²⁸² In fact, a subsidiary may even fall under the exclusion of Art. 5(6) MOECD.²⁸³

If an agent acts on behalf of several principals, none of whom is predominant, and they do not act in concert to control the agent, this is an indication that the agent is not dependent on any one principal.²⁸⁴ Conversely, if the agent's activity consists in acting on behalf of a single principal, that is an important indication of dependency in relation to that principal.²⁸⁵ However, it alone will not determine whether an agent is independent, as this will depend also on the other criteria mentioned above. Consequently, it is necessary

²⁸⁰ REIMER 2016, Part 2, para. 347.

²⁸¹ OECD COMMENTARY, Art. 5, para. 105 (more explicitly in para. 37 pre-BEPS). VOGELANG, p. 253, remarks that the distinction between legal and economic independence is not very clear, while admitting that it is not particularly relevant. BEPS Action 7 basically removes that distinction (EISENBEISS, p. 489, referring to the OECD COMMENTARY, Art. 5, para. 37 pre-BEPS).

²⁸² Decision of the Swiss cantonal Zurich Verwaltungsgericht of June 1, 2016, SB.2015.00089, recital 4.4.1.

²⁸³ OECD COMMENTARY, Art. 5, para. 105.

²⁸⁴ For this and the following sentence: *ibid.*, para. 109.

²⁸⁵ BÉNARD/BERDOZ/BOURTOURAU, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 136. The Swiss DTAs with Armenia, Azerbaijan, Egypt, India, Indonesia, Ivory Coast, Jamaica, Kuwait, Mongolia, Pakistan, Sri Lanka, Trinidad and Tobago, and Vietnam are based on the United Nations model tax convention and use this indication as a legal fiction (SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 145).

to assess the independence of an agent in relation to each principal separately.²⁸⁶

3) *Acting in the Ordinary Course of the Agent's Business*

175 The independent agent exception becomes operative only if the agent is acting in the ordinary course of his own business (Art. 5(6) MOECD). If, however, an independent agent is acting on behalf of a principal in a particular instance (like a dependent agent), rather than in the ordinary course of his own business, this would create a permanent establishment for the principal in that particular instance, even though the agent continues to be independent of that principal in general.²⁸⁷ Each activity of the independent agent should be inspected separately to determine whether, in a particular instance, the agent is acting in the ordinary course of his business or on behalf of the principal.²⁸⁸ For this analysis, the independent agent's business is defined as that customarily carried on by an independent agent in a particular trade.²⁸⁹

²⁸⁶ VOGELSANG, p. 252.

²⁸⁷ OECD COMMENTARY, Art. 5, para. 110; WIDMER 2003, p. 125; however, BÉNARD/BERDOZ/BOURTOURAUULT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 166, consider that the agent loses his independence altogether in that case.

²⁸⁸ OECD COMMENTARY, Art. 5, para. 110, however also introducing a new exception for certain intermediation activities in certain business sectors that was not part of the original final BEPS report on Action 7; VOGELSANG, p. 263; REIMER 2016, Part 2, para. 350.

²⁸⁹ OECD COMMENTARY, Art. 5, para. 38.8 (pre-BEPS), whereas the post-BEPS OECD COMMENTARY no longer contains this reference; VOGELSANG, p. 263; WIDMER 2003, p. 124. A minority opinion (such as AVERY JONES/WARD, pp. 173 f., with several references to international case law; SKAAR 1991, p. 521) requires the objective standard of the agent's trade to be measured against the subjective standard of the agent's own activities.

4) *BEPS Action 7*

In an attempt to “strengthen the requirement of ‘independence’” against the artificial avoidance of permanent establishment status through *commissionnaire* arrangements and the like,²⁹⁰ the OECD proposed new wording for Art. 5(6) MOECD, as follows: “a) Paragraph 5 shall not apply where the person acting in a Contracting State on behalf of an enterprise of the other Contracting State carries on business in the first-mentioned State as an independent agent and acts for the enterprise in the ordinary course of that business. Where, however, a person acts exclusively or almost exclusively on behalf of one or more enterprises to which it is closely related, that person shall not be considered to be an independent agent within the meaning of this paragraph with respect to any such enterprise.”²⁹¹

176

In a previous draft, “closely related” bore a meaning akin to “associated enterprises” in Art. 9(1) MOECD.²⁹² However, the OECD came to the opinion that post-BEPS the term needed to have a narrower meaning²⁹³ and added an elaborate legal definition of the term in the new wording of Art. 5(6) MOECD: “b) For the purposes of this Article, a person is closely related to an enterprise if, based on all the relevant facts and circumstances, one has control of the other or both are under the control of the same persons or enterprises. In any case, a person shall be considered to be closely related to an enterprise if one possesses directly or indirectly more than 50 per cent of the beneficial interest in the other (or, in the case of a

177

²⁹⁰ OECD, *Public Discussion Draft/BEPS Action 7: Preventing the Artificial Avoidance of PE Status*, October 31, 2014, pp. 11 f. EISENBEISS, p. 489, believes that BEPS Action 7 has made the concept of independence even less clear than it was before.

²⁹¹ OECD, *Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7/2015 Final Report*, Paris October 2015, p. 16.

²⁹² OECD, *Public Discussion Draft/BEPS Action 7: Preventing the Artificial Avoidance of PE Status*, October 31, 2014, p. 12.

²⁹³ OECD, *Revised discussion draft/BEPS Action 7: Preventing the Artificial Avoidance of PE Status*, May 15, 2015, pp. 4 f.

company, more than 50 per cent of the aggregate vote and value of the company's shares or of the beneficial equity interest in the company) or if another person possesses directly or indirectly more than 50 per cent of the beneficial interest (or, in the case of a company, more than 50 per cent of the aggregate vote and value of the company's shares or of the beneficial equity interest in the company) in the person and the enterprise."

178 The idea that an agent's acting almost exclusively on behalf of a single principal was an indication of dependence had already been expressed in the OECD COMMENTARY²⁹⁴ and in scholarly literature,²⁹⁵ however, BEPS Action 7 is alluding to a slightly different idea.²⁹⁶ What is emphasized in this addition to the common interpretation of Art. 5(6) MOECD is that the principal (or principals) may be closely related to the agent. In this case, Art. 5(6) MOECD post-BEPS would act as an exception to the exclusion of independent agents, thereby positively expanding the permanent establishment's scope of application.

179 In the present author's opinion, instead of "strengthening" the dependence requirement, the changes on this matter in BEPS Action 7 merely add what could be considered an alternative to the current dependence requirement. The resulting extension in scope affects only certain agents acting on behalf of "closely related enterprises" in relation to which they would otherwise be considered independent. Of course, that would make sense where nonfulfillment of the dependence requirement is due to a lack of proof of actual dependence. In all other situations, the inferred dependence would be completely fictional.

²⁹⁴ See OECD COMMENTARY, Art. 5, para. 38.6 (pre-BEPS), or para. 109 (post-BEPS) respectively.

²⁹⁵ See *supra* para. 174.

²⁹⁶ See PLEIJSIER, p. 152, who believes it was the same idea, based on the previous drafts of BEPS Action 7.

5) *Summary*

An agent can constitute a permanent establishment of the principal if he has certain qualities. In particular, an agent must be dependent on the principal. If he is generally independent, he can nonetheless constitute a permanent establishment of the principal if he acts on behalf of the principal in a particular instance. BEPS Action 7 did not clarify this criterion. Instead, it added a third possibility.

180

E) *Habitual Exercise*

Art. 5(5) MOECD, in both the old and the revised versions, demands the actions of the agent to be “habitual.” In the literature, this test is often seen as equivalent to the duration requirement in the general definition of permanent establishment.²⁹⁷ Therefore, the “habitual” requirement will be met when the agent’s activity cannot be considered as merely temporary, that is, when it is more than occasional and is performed in more than just isolated cases.²⁹⁸ Whether the frequency of the conclusion of contracts qualifies as more than occasional will be assessed in the light of the nature of the contracts and the principal’s business.²⁹⁹ In Switzerland, the

181

²⁹⁷ REIMER 2016, Part 2, para. 334 (referring to the “permanence test”).

²⁹⁸ OECD COMMENTARY, Art. 5, para. 33.1 (pre-BEPS), or para. 98 (post-BEPS) respectively; BÉNARD/BERDOZ/BOURTOURAUULT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 156; REIMER 2016, Part 2, para. 334. Several authors advocate, as an additional requirement, a minimum time threshold of six or twelve months: AVI-YONAH/XU, p. 222 (?); REIMER 2016, Part 2, para. 336; VOGELANG, pp. 232 f.; SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 126; contra: SKAAR 2000, p. 194.

²⁹⁹ OECD COMMENTARY, Art. 5, para. 98; VOGELANG, p. 229.

“habitual” requirement is interpreted as meaning that the activity should be regular and permanent.³⁰⁰

182 The activity targeted by the “habitual” requirement should be understood to refer to “acting on behalf of the enterprise” (Art. 5(5) MOECD, now “playing the principal role” post-BEPS) in the source jurisdiction (“in a Contracting State,” Art. 5(5) MOECD). As observed in the context of Art. 5(1) MOECD’s fixation test, duration usually implies some sort of geographical fixation.³⁰¹ The conclusion of a contract would need somehow to be attributable to a source jurisdiction’s territory, such as through the presence of customers in that country. In the present author’s opinion, an agent’s ongoing contracting activity that does not remain within the confines of a jurisdiction’s borders for long, but rather moves from one country to another, would not fulfill the “habitual” requirement of Art. 5(5) MOECD, at least in situations where a formal interpretation demands the conclusion of contracts.³⁰²

³⁰⁰ SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, paras. 125 and 127, expect repeated and regular exercise (in German: “*wiederholt und regelmässig*”); ATHANAS 1993a, p. 219, postulates that the exercise of the authority should be regular and long-term (in German: “*regelmässig und auf Dauer*”); LUDWIG, p. 11, requires it to be permanent and regular (in German: “*ständig tätig ist und regelmässig Geschäfte abschliesst*”). Similarly, but not in relation to Switzerland, SKAAR 2000, p. 194.

³⁰¹ VOGELSANG, p. 206; SCHAFFNER 2013b, p. 642; REIMER 2016, Part 2, paras. 332 and 333; and SKAAR 2000, p. 193, suggest that some sort of physical presence is required “in the State at the time when the decisive decisions are being made.” Other authors believe the agent should be physically present in the source jurisdiction as well, e.g., WASSERMAYER, in: WASSERMAYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 195 (“*Aufenthalt*”). The present writer contends, however, that the requirement of a physical presence in the traditional sense of the word would be contrary to the literal and teleological meaning of Art. 5(5) MOECD (similarly: VOGELSANG, p. 231, with more references).

³⁰² As postulated by VOGELSANG, p. 230; similarly: SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 126.

F) *Preparatory or Auxiliary Activities Exception*

Any activities that are preparatory or auxiliary within the meaning of Art. 5(4) MOECD have no bearing on the characterization of a place of business as a dependent agent permanent establishment (see Art. 5(5) MOECD: “unless the activities of such person are limited to those mentioned in paragraph 4”).³⁰³ An agent who performs only preparatory or auxiliary activities for a principal does not constitute a permanent establishment of that principal.³⁰⁴ Such is the case, for instance, when the agent’s only activity on behalf of the principal lies in making acquisitions (see Art. 5(4)(d) MOECD: “for the purpose of purchasing goods”).³⁰⁵

183

G) *Conclusion on Dependent Agent Permanent Establishments*

Basically, a person can constitute a dependent agent permanent establishment if he habitually exercises the authority to conclude contracts on behalf of an enterprise in a certain source jurisdiction and can be considered dependent on the taxpaying principal. Economically equivalent structures that do not meet the formal legal requirements may also constitute permanent establishments, at least from a Swiss perspective. OECD BEPS Action 7 endorses this position.

184

³⁰³ OECD COMMENTARY, Art. 5, para. 75. The Swiss Federal Supreme Court does not seem to apply Art. 5(4) MOECD to the dependent agent permanent establishment as defined in Art. 5(5) MOECD (decision of the Swiss Federal Supreme Court of September 19, 1976, ATF 102 Ib 264, recital 3(c)). However, the convention with Spain that was analyzed in the decision was based on a post-1963 version of the MOECD and at that time the OECD COMMENTARY, Art. 5, did not include the current para. 75.

³⁰⁴ ATHANAS 1993a, p. 218.

³⁰⁵ LUDWIG, p. 11; HILTY, Art. 5, p. 39.

§ IV. Services Permanent Establishment

185 The OECD COMMENTARY offers the option of extending Art. 5 MOECD, as follows:³⁰⁶ “Notwithstanding the provisions of paragraphs 1, 2 and 3, where an enterprise of a Contracting State performs services in the other Contracting State a) through an individual who is present in that other State for a period or periods exceeding in the aggregate 183 days in any twelve month period, and more than 50 per cent of the gross revenues attributable to active business activities of the enterprise during this period or periods are derived from the services performed in that other State through that individual, or b) for a period or periods exceeding in the aggregate 183 days in any twelve month period, and these services are performed for the same project or for connected projects through one or more individuals who are present and performing such services in that other State the activities carried on in that other State in performing these services shall be deemed to be carried on through a permanent establishment of the enterprise situated in that other State, unless these services are limited to those mentioned in paragraph 4 which, if performed through a fixed place of business (other than a fixed place of business to which paragraph 4.1 would apply), would not make this fixed place of business a permanent establishment under the provisions of that paragraph. For the purposes of this paragraph, services performed by an individual on behalf of one enterprise shall not be considered to be performed by another enterprise through that individual unless that other enterprise supervises, directs or controls the manner in which these services are performed by the individual.”

186 Eligible individuals are those through whom customers are provided with the taxpayer’s services.³⁰⁷ Such individuals will typically be

³⁰⁶ OECD COMMENTARY, Art. 5, para. 144.

³⁰⁷ *Ibid.*, para. 151.

employees, dependent agents, or other individuals who receive instructions from the taxpayer.³⁰⁸

§ V. Substantial Equipment Permanent Establishment

Switzerland has concluded several DTAs³⁰⁹ that extend the concept of a permanent establishment by including a reference to substantial equipment. Under the relevant DTA provisions, a permanent establishment is deemed to exist only if, for more than six or twelve months, an enterprise conducts activities relating to the exploration or exploitation of natural resources, or uses or leases substantial equipment.³¹⁰

187

³⁰⁸ *Ibid.*, para. 153.

³⁰⁹ DTAs with Australia, Greece, and New Zealand; in French: *Convention entre la Confédération suisse et l'Australie en vue d'éviter les doubles impositions en matière d'impôts sur le revenu du 30 juillet 2013* (RS 0.672.915.81); *Convention entre la Confédération suisse et la République hellénique en vue d'éviter les doubles impositions en matière d'impôts sur le revenu du 16 juin 1983* (RS 0.672.937.21); *Convention entre la Confédération suisse et la Nouvelle-Zélande en vue d'éviter les doubles impositions en matière d'impôts sur le revenu du 6 juin 1980* (RS 0.672.961.41).

³¹⁰ See the DTAs referred to in the above note 309: Art. 5(5)(b) DTA with New Zealand; Art. 5(4) DTA with Greece; Art. 5(4)(c) DTA with Australia, which has a broader meaning than the previous DTA (see AUSTRALIAN HOUSE OF REPRESENTATIVES, *International Tax Agreements Amendment Bill (No. 1) 2014/Explanatory Memorandum*, July 2014, p. 6). However, the term does not include computer systems; see *infra* para. 427.

§ VI. Swiss Domestic Permanent Establishment

A) *Introduction and Scope of Application*

- 188 The definition of permanent establishments in DTAs restricts the domestic definition of permanent establishment in the laws of the source state. However, a DTA cannot by itself create a taxation right in the source state.³¹¹ This therefore means that for Switzerland to have the right to tax, its internal law must permit such taxation. In other words, Switzerland has the right to acknowledge an international permanent establishment only if it conforms to the definition of a permanent establishment in Swiss domestic law. This is the so-called negative effect of a tax treaty.³¹²
- 189 Absent an applicable DTA, the domestic Swiss definition of permanent establishment will apply without restriction.³¹³ This will be especially relevant when dealing with notorious tax havens, such as the Cayman Islands.³¹⁴ The following sections will therefore elaborate on the domestic Swiss definition of permanent establishment, which currently appears in the Swiss DTC.³¹⁵ It differs slightly from the treaty definition in Art. 5(1) MOECD.³¹⁶

³¹¹ Decision of the Swiss Federal Supreme Court of June 21, 1991, ATF 117 Ib 358, recital 3.

³¹² PASCHOUD/DE VRIES REILINGH, in: NOËL/GIRARDIN, Art. 4, para. 29; OBERSON 2014, para. 138; BÉNARD/BERDOZ/BOURTOURALT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 6; see also SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, paras. 2 and 5.

³¹³ BAUER-BALMELLI/OMLIN, in: ZWEIFEL/ATHANAS, Art. 4, para. 11; ATHANAS 1993b, pp. 421 f.

³¹⁴ See the decision of the Swiss Federal Supreme Court of October 5, 2012, ATF 139 II 78, recital 2.1.

³¹⁵ In French: *Loi fédérale sur l'impôt fédéral direct (LIFD) du 14 décembre 1990* (RS 642.11).

³¹⁶ OBERSON 2014, para. 412.

B) *Basics and Legislative History*

In Switzerland, the concept of a permanent establishment is defined in Arts. 4(2) and 51(2) DTC. The two articles address, respectively, individuals and corporations but are otherwise identical. The law describes a permanent establishment as any fixed place of business in which the business activity of an enterprise or an independent profession is wholly or partially practiced.³¹⁷ The wording of this definition has remained unchanged since the enactment of the DTC on December 14, 1990.

190

Before the introduction of the DTC, federal direct tax was levied in Switzerland in accordance with the decision of the Federal Council concerning the levy of a federal direct tax (hereinafter "DTD"),³¹⁸ Art. 6 of which contained a slightly different definition of a permanent establishment. At least concerning the parts of the definition that remained unchanged, it is widely accepted that the case law on Art. 6 DTD may continue to be a source of guidance under the DTC.

191

Art. 6 DTD was greatly influenced by the definition of permanent establishment coined by the Swiss Federal Supreme Court in its case law regarding the distribution of taxing rights between Swiss cantons.³¹⁹ The documents recording the Swiss domestic legislative process show that Arts. 4(2) and 51(2) DTC were substantially

192

³¹⁷ In French: "*On entend par établissement stable toute installation fixe dans laquelle s'exerce tout ou partie de l'activité d'une entreprise ou d'une personne exerçant une profession libérale.*" In German: "*Als Betriebsstätte gilt eine feste Geschäftseinrichtung, in der die Geschäftstätigkeit eines Unternehmens oder ein freier Beruf ganz oder teilweise ausgeübt wird.*" In Italian: "*Per stabilimento d'impresa s'intende una sede fissa di affari o di lavoro dove si svolge, in tutto o in parte, l'attività di un'impresa o di una libera professione.*"

³¹⁸ In French: *ACF concernant la perception d'un impôt fédéral direct (AIFD) du 9 décembre 1940* (RO 56 2021).

³¹⁹ LOCHER 2001, Art. 4, para. 44; ATHANAS 1993a, p. 208; MASSHARDT, Art. 6, para. 2; contra: WIDMER 2003, p. 100 stating, without further references, that the Swiss federal definition of permanent establishment derives from Art. 5(1)-(3) MOECD as far as its structure and wording are concerned.

colored by Art. 6 DTD,³²⁰ which in turn was based on the intercantonal definition of a permanent establishment. Therefore, as the intercantonal definition of permanent establishment and the related case law remain potentially relevant,³²¹ a Swiss judge might turn to the detailed intercantonal rules whenever the federal and treaty definitions of a permanent establishment do not provide sufficient guidance.³²² Despite this relationship, some scholars remain convinced that the Swiss Federal Supreme Court's case law on the prohibition of intercantonal double taxation has no direct relevance to international cases.³²³

193 Most importantly, intercantonal law can be of help in determining the status of automated machines. Such machines have been eligible for intercantonal permanent establishment status in Switzerland since a 1903 case concerning a vending machine.³²⁴ Consequently, an enterprise may have a permanent establishment at the location of an automated machine, provided the enterprise not only sets it up, but

³²⁰ FF 1983 III 156.

³²¹ See SCHMID/ORELL, para. 43.

³²² Decision of the Swiss Federal Supreme Court of March 23, 2018, StE 2018 A 31.1. No. 13, recital 2.4.5, insisting on the need to take into account the special intentions and purposes of the intercantonal definition; SCHMID/ORELL, para. 43; WIDMER 2009, p. 633; OBERSON 2001b, p. 694; similarly: BÉNARD/BERDOZ/BOURTERAULT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 15.

³²³ RICHNER/FREI/KAUFMANN/MEUTER 2016, Art. 4, para. 21; VOGELSSANG, pp. 299 f.; LOCHER 2001, Art. 4, para. 44; see also MASSHARDT, Art. 6, para. 2, pointing out that Art. 6 DTD should not be interpreted in accordance with intercantonal case law while acknowledging that Art. 6 DTD is equivalent to the intercantonal definition of permanent establishment. Contra, believing that intercantonal law, or Art. 6 DTD, plays a role in the interpretation of the federal law definition of dependent agent: KOFLER/SCHMIDT/SIMONEK, p. 473; OESTERHELT/SCHREIBER, in: ZWEIFEL/BEUSCH, Art. 51, para. 51.

³²⁴ Decision of the Swiss Federal Supreme Court of March 25, 1903, ATF 29 I 8, recitals 2 f. Gaming and vending machines are also mentioned as automatic equipment constituting permanent establishments in OECD COMMENTARY, Art. 5, para. 41, since 1977.

also exploits and maintains it on its own behalf.³²⁵ This may seem surprising given that Art. 6 DTD (and, by extension, the intercantonal definition) used the word “in” instead of “through which”³²⁶ when describing the relationship between the activity and the place of business. That said, intercantonal law uses “in” and “through which” interchangeably in its definition.³²⁷ This might suggest that, in Switzerland, the use of the word “in” in any definition of a permanent establishment should not be thought to restrict its interpretation.

In conclusion, the definition of a permanent establishment in Arts. 4(2) and 51(2) DTC may not be entirely settled in its details.³²⁸ The Swiss definition nonetheless incorporates the three basic conditions for a permanent establishment: place of business, fixation, and business activity.³²⁹

194

C) Comparison with the MOECD General Definition

There can be no doubt that Art. 5(1) MOECD has a strong influence on Arts. 4(2) and 51(2) DTC. The wording of Arts. 4(2) and 51(2) DTC is almost identical to that of Art. 5(1) MOECD.³³⁰ There is therefore

195

³²⁵ LOCHER 2001, Art. 4, para. 31.

³²⁶ A potential difference between “in” and “through which” may conceivably have an impact on the physical absence of personnel and automated equipment, as observed *supra* paras. 111 f.

³²⁷ VOGELSANG, pp. 357 f., with many references to intercantonal case law.

³²⁸ WIDMER 2009, pp. 631 f.

³²⁹ DE VRIES REILINGH 2010, p. 579; see also OBERSON 2001b, pp. 694 f.

³³⁰ PASCHOUD/DE VRIES REILINGH, in: NOËL/GIRARDIN, Art. 4, para. 32; OESTERHELT/SCHREIBER, in: ZWEIFEL/BEUSCH, Art. 51, para. 17; ATHANAS 1993a, pp. 210 f.; more detailed: DE VRIES REILINGH 2011, para. 361. VOGELSANG, p. 299, says that, while there is no written proof that the legislator was actually inspired by Art. 5(1) MOECD, the similarities are sufficient to think so; contra: MEUTER, p. 20 and OBERSON 2001b, p. 691, stating that Switzerland was involved in the OECD negotiations concerning

every reason to think that they can be interpreted similarly.³³¹ While the many similarities between these definitions of permanent establishment do not call for special mention, it is important not to overlook the differences between the two norms and their potential effects on the present analysis.³³²

196 Where the MOECD uses “through which,” the DTC still uses “in which” (in French: “*dans laquelle*”; in German: “*in der*”; in Italian, possibly less clear: “*dove*”). While this could be mistaken for an adherence to the older versions of the MOECD, it is actually a remnant of Art. 6 DTD

the server permanent establishment and intends to follow the OECD recommendations; see also the decision of the Canton of Lucerne administrative tribunal (VG LU) of August 28, 2000, LGVE 2000 II No. 25, recital 3. However, it may be argued that the decision concerned only the construction site permanent establishment and not the general definition covering the server permanent establishment.

³³¹ Decision of the Swiss Federal Supreme Court of March 23, 2018, StE 2018 A 31.1. No. 13, recital 2.4; VOGELSSANG, p. 299; WIDMER 2005, pp. 98 f.; see also ATHANAS 1993a, pp. 210 f.; PASCHOUD/DE VRIES REILINGH, in: NOËL/GIRARDIN, Art. 4, para. 32, stating that the OECD COMMENTARY, Art. 5, necessarily applies to the interpretation of Art. 4(2) DTC, first sentence.

³³² According to LOCHER 2001, Art. 51, para. 12, these differences are often wrongfully neglected. The fact that the qualitative and quantitative substantiality requirement is no longer explicitly mentioned in the definition of Art. 4(2) and 51(2) DTC, as it was in the previous legislation, has been interpreted as a deliberate act by the legislator, meaning that this is no longer a necessity for a Swiss permanent establishment (PASCHOUD/DE VRIES REILINGH, in: NOËL/GIRARDIN, Art. 4, para. 34; OBERSON 2014, para. 448; ATHANAS/GIGLIO, in: ZWEIFEL/ATHANAS, Art. 51, para. 36; LOCHER 2001, Art. 4, paras. 44 and 48 f.). Furthermore, in Arts. 4(2) and 51(2) DTC the legislator has omitted to include a list of negative examples for preparatory or auxiliary activities, as in Art. 5(4) MOECD; see LOCHER 2001, Art. 4, para. 27. It remains controversial whether preparatory or auxiliary activities are still excluded from the business activity test as interpreted in accordance with Art. 5(1) MOECD; see OBERSON/HULL, p. 108. Against the preparatory or auxiliary activities exception: BÉNARD/BERDOZ/BOURTERAULT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 11; DANON 2014, p. 366; DANON 2013, p. 436; AGNER/JUNG/STEINMANN/DIGERONIMO, Art. 4, para. 5 and Art. 51, para. 6; see also OBERSON 2001b, p. 694 and ATHANAS 1993a, p. 215. In favor of the exception: CADOSCH, pp. 94 f.; LOCHER 2001, Art. 4, para. 43. Finally, there is no minimum duration for permanent establishments (DE VRIES REILINGH, p. 579), which may also restrict their applicability. LOCHER 2005, p. 276, note 39, says that the Swiss treaty law definition of permanent establishment contains no minimum duration either, except in the DTA with Austria.

and its origins lie in the Swiss legal tradition. Be that as it may, the difference between “in” and “through which” is generally considered not to be of any legal consequence as far as Swiss tradition is concerned³³³ (nor in the context of the OECD³³⁴). This may in part be explained by the tendency to interpret the Swiss federal definition broadly.³³⁵

A further reflection of this tendency is the attribution of a subcontractor’s activities to the principal taxpayer where there is a close relationship between the subcontractor and the principal (so-called extended attribution).³³⁶ This would presuppose that the subcontractor is in a position similar to that of an organ of the principal.³³⁷

197

D) Comparison with a Dependent Agent Permanent Establishment

The tendency towards broad interpretation meets its limits when it comes to the Swiss domestic law conception of a dependent agent permanent establishment.³³⁸ Swiss law does not recognize a dependent agent permanent establishment (as in Art. 5(5) and (6) MOECD) without a fixed place of business.³³⁹ Swiss federal law

198

³³³ See *supra* para. 193.

³³⁴ See *supra* para. 112.

³³⁵ LOCHER 2001, Art. 5, paras. 24 and 27; concerning the resulting “boomerang-effect”, see CADOSCH, p. 94.

³³⁶ MEILL, p. 483. This is different from the Swiss interpretation of Art. 5(1) MOECD; see *supra* para. 122.

³³⁷ WIDMER 2005, p. 103, with references.

³³⁸ OESTERHELT/SCHREIBER, in: ZWEIFEL/BEUSCH, Art. 51, para. 18.

³³⁹ PASCHOUD/GANI, in: NOËL/GIRARDIN, Art. 51, para. 20; OESTERHELT/SCHREIBER, in: ZWEIFEL/BEUSCH, Art. 51, para. 42; SCHMID/ORELL, para. 73; OBERSON 2014, para. 202; BÉNARD/BERDOZ/BOURTERAULT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, paras. 10 f.;

differs because it originates from Swiss legal tradition and is not an imitation of Art. 5(5) MOECD.³⁴⁰ Unlike the MOECD, there is no formal definition of a dependent agent permanent establishment in the DTC. Instead, there is simply a list of examples containing “permanent representatives” in Arts. 4(2) and 51(2) DTC.³⁴¹ In scholarly writing, the debate is not yet settled as to whether they always automatically qualify as permanent establishments³⁴² or whether they must also meet the requirements of the abstract definition to qualify as such.³⁴³

199 Like Art. 5(5) MOECD, the DTC requires that the permanent representative be dependent on the principal³⁴⁴ (in order to establish what in the context of Art. 5(1) MOECD would be called “functional

WIDMER 2003, pp. 101 f.; ATHANAS 1993a, p. 209; contra: CADOSCH, p. 95, based on his reading of SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 14 de l'Administration fédérale des contributions concernant l'imposition des sociétés suisses qui exercent leur activité commerciale principalement à l'étranger*, June 29, 1959, ASA 1960 (vol. 28) p.44. Receptive to the possibility of reconciling the two opinions: AGNER/JUNG/STEINMANN/DIGERONIMO, Art. 51, para. 5, who consider that the fixed place of business may belong to the agent instead of the principal, thereby fulfilling the requirement “indirectly.” However, they mistakenly base their argument on an interpretation of Art. 5(5) MOECD instead of the Swiss legal tradition.

³⁴⁰ OESTERHELT/SCHREIBER, in: ZWEIFEL/BEUSCH, Art. 5, para. 42; VOGELSANG, p. 321; WIDMER 2003, p. 101. Contra: CADOSCH, p. 95, who, without considering OECD materials, believes that documents from the Swiss federal tax administration reflecting the Swiss legal tradition indicate that no fixed place of business is required.

³⁴¹ In French: *représentations permanentes*; in German: *ständige Vertretungen*; in Italian: *rappresentanze permanenti*—which show that the term comes from Swiss legal tradition rather than the MOECD (VOGELSANG, p. 324).

³⁴² RICHNER/FREI/KAUFMANN/MEUTER 2016, Art. 4, para. 18; DE VRIES REILINGH 2010, p. 579; LOCHER 2001, Art. 4, para. 27.

³⁴³ WIDMER 2003, pp. 101 f.; ATHANAS 1993a, p. 210; in-between: VOGELSANG, p. 321.

³⁴⁴ Still referring to Art. 6 DTD: SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 14 de l'Administration fédérale des contributions concernant l'imposition des sociétés suisses qui exercent leur activité commerciale principalement à l'étranger*, June 29, 1959, ASA 1960 (vol. 28) p. 46; SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 24 de l'Administration fédérale des contributions concernant l'imposition des sociétés étrangères qui entretiennent en Suisse des établissements stables*, June 1, 1960, ASA 1960 (vol. 28) p. 497; ATHANAS 1993a, p. 209; VOGELSANG, p. 326.

integration"). Generally, a person dependent on the principal in a manner similar to the relationship between employees and their employers will meet the dependence requirement.³⁴⁵ Indicators pointing to dependence include low entrepreneurial risk and steady remuneration; receiving instructions regarding activity, personnel recruitment and offices; and the formal authority to conclude contracts in the name of the principal.³⁴⁶ However, permanent establishment status may nonetheless be acquired even if such formal authority is lacking.³⁴⁷ For instance, a permanent establishment may be deemed to exist where the representative has only one principal, who is his employer.³⁴⁸ The same can be said of a representative who is employed by and in the service of the taxpayer only, or a representative who operates a delivery facility owned by the taxpayer and regularly follows the taxpayer's instructions. On the other hand, representatives who conclude contracts in their own name (such as commissionaires, low-risk distributors,³⁴⁹ and fiduciaries³⁵⁰) and subsidiaries can constitute permanent

³⁴⁵ VOGELSANG, pp. 326 f.

³⁴⁶ KOFLER/SCHMIDT/SIMONEK, p. 473; VOGELSANG, pp. 327 f.; decision of the Swiss Federal Supreme Court of July 1, 2011, StE 2011 A 24.24.45 No. 1, recital 4.2, with references and additional possible indicators in recitals 4.4.1. f.

³⁴⁷ KOFLER/SCHMIDT/SIMONEK, p. 473; OESTERHELT/SCHREIBER, in: ZWEIFEL/BEUSCH, Art. 51, para. 51.

³⁴⁸ For these examples: SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 24 de l'Administration fédérale des contributions concernant l'imposition des sociétés étrangères qui entretiennent en Suisse des établissements stables*, July 1, 1960, ASA 1960 (vol. 28) p. 497; LOCHER 2001, Art. 4, paras. 39 f. The delivery facility is referred to using similar words in certain Swiss DTAs; see, e.g., Art. 5(5)(ii) DTA with India, Art. 5(5)(b) DTA with Pakistan, Art. 5(4)(b) DTA with Indonesia, Art. 5(4)(b) DTA with the Philippines, Art. 5(5)(b) DTA with Jamaica, and Art. 5(5)(b) DTA with Vietnam.

³⁴⁹ For more details on these two terms, see *supra* paras. 154 and 156.

³⁵⁰ Decision of the Swiss Federal Supreme Court of February 5, 1982, ATF 108 Ib 44; decision of the Swiss Federal Supreme Court of December 21, 1979, in: LOCHER/MEIER/VON SIEBENTHAL/KOLB, B 5.2, No. 11; decision of the Swiss cantonal Verwaltungsgericht des Kantons Zürich of August 30, 1978, SR 24/1978, in:

establishments.³⁵¹ It is not so much how the representative appears to customers but rather the internal relationship between the principal and the representative that determines whether or not there is dependency.³⁵²

200 Obviously, it can be assumed that the wording “permanent representative” indicates that a permanent establishment of that kind would need to be permanent in some sense. Although there is disagreement over what that requirement means in interpretations of Art. 5(5) MOECD, Swiss scholars agree that permanence is in fact required for Art. 5(5) MOECD,³⁵³ and it is unlikely they would think otherwise of Arts. 4(2) and 51(2) DTC, given their wording.

E) Summary

201 The Swiss domestic conception of a permanent establishment developed in the microcosm of the relations between the Swiss cantons and in the tradition of over a century of Swiss Federal Supreme Court case law. There is a tendency to interpret the permanent establishment concept broadly, as seen in relation to automatons and the meaning of the words “in” and “through which.” A comparison with the permanent establishment concept described in Art. 5(1) MOECD reveals a number of differences. For instance,

LOCHER/MEIER/VON SIEBENTHAL/KOLB, B 5.2, No. 10; LOCHER 2001, Art. 4, para. 38; VOGELSSANG, p. 329.

³⁵¹ SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 8 concernant la répartition fiscale internationale des sociétés principales*, December 18, 2001, p. 1, contradicting—at least as far as the outbound relationship is concerned—the previous SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 24 de l'Administration fédérale des contributions concernant l'imposition des sociétés étrangères qui entretiennent en Suisse des établissements stables*, July 1, 1960, ASA 1960 (vol. 28) p. 497; see also WIDMER 2009, p. 640. A different position is taken under intercantonal law (decision of the Swiss Federal Supreme Court of July 1, 2011, StE 2011 A 24.24.45 No. 1, recital 4.2).

³⁵² Decision of the Swiss Federal Supreme Court of July 1, 2011, StE 2011, A 24.24.45 No. 1, recital 4.6.

³⁵³ See *supra* note 127.

certain conditions must be fulfilled in order for the activities performed by a subcontractor to be attributed to the principal. The dependent agent permanent establishment referred to in Art. 5(5) and (6) MOECD is loosely matched in Swiss domestic law by the somewhat vague concept of “permanent representative,” which in its turn yields a more nuanced understanding of the dependence criterion.

§ VII. Conclusion on Permanent Establishments

This section has presented the most important elements in some of the definitions of permanent establishment that are relevant to Switzerland. There are numerous definitions, differing in their scope of application, which interact with each other in different ways. Some definitions should be seen as alternatives (e.g., a dependent agent permanent establishment is an alternative to the general definition of permanent establishment), while others are cumulative (e.g., the Swiss domestic definition and the corresponding treaty definition). Consequently, it is important to differentiate clearly between these definitions when applying them.

202

Section II Treaty Characterization

§ I. Introduction

The allocation of taxing rights among jurisdictions depends on the characterization of the cross-border transaction in question. The right to tax can be conferred on the source jurisdiction in full or in part. Furthermore, some DTA provisions may give the source jurisdiction the right to withhold a certain amount of tax from payments for transactions, depending on how they characterize such payments. For instance, this can be the case with Arts. 10 (dividend), 11 (interest), and 12 (royalties, fees for technical services, etc.) MOECD. Of these three income categories, only dividends and certain forms of interest (Art. 4(1) of the Anticipated Tax Law³⁵⁴) give rise to withholding tax in Switzerland. Other jurisdictions, however, collect taxes on the other categories of income, too.

203

If a DTA authorizes the withholding of taxes, double taxation persists. It must be resolved by applying Art. 23 MOECD. For dividends, interest, and royalties, Switzerland, like many other countries, grants relief in the form of a tax credit, which reduces the amount of tax payable in Switzerland by the Swiss recipient of such payments from abroad (see Art. 2(1) of the Federal Council's Lump-Sum Tax Credit Regulation³⁵⁵). In Switzerland, the amount of the reduction is determined pursuant to the DTA provision that permits the withholding tax.³⁵⁶ In principle, it depends on the amount of source tax borne by the Swiss recipient. Different provisions may provide for different withholding tax rates. Thus, how a transaction is

204

³⁵⁴ In French: *Loi fédérale sur l'impôt anticipé (LIA) du 13 octobre 1965* (RS 642.21).

³⁵⁵ In French: *Ordonnance relative à l'imputation forfaitaire d'impôt du 22 août 1967* (RS 672.201).

³⁵⁶ BINGGELI, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 23 A-23 B, para. 124.

characterized will have a bearing on the removal of double taxation through tax credits.

205 It is often the case that contracts cover several transactions. In order to characterize the transactions correctly, mixed contracts must be either divided up into the different transactions or, if that is not possible, characterized according to the predominant transaction.³⁵⁷ This general rule applies to all of the transactions discussed below.

206 This section will discuss Arts. 6 (income from immovable property), 7 (business profits), 12 (royalties, fees for technical services, transfer of know-how, etc.), and 13 (capital gains) MOECD, as well as Art. 12A UN Model (technical services), focusing on the scope of each provision. Given that the scope of some provisions is defined in relation to that of others, the order in which they are presented is explained by the author's wish to minimize forward cross-referencing.

§ II. Income from Immovable Property

A) General Features

207 This section will consider transactions that generate rent or sales income from immovable property in one state for a resident of another state. Such income may be taxed in the jurisdiction where the immovable property is situated (see Art. 6(1) MOECD concerning rent and Art. 13(1) MOECD concerning sales³⁵⁸). This rule also applies to the immovable property of an enterprise (Art. 6(4) MOECD). Double taxation is resolved by the residence jurisdiction through the use of the tax credit or tax exemption methods.³⁵⁹ Swiss domestic law and

³⁵⁷ OECD COMMENTARY, Art. 12, paras. 17 and 11.6. Specifically on cloud transactions: BAL 2014, p. 516.

³⁵⁸ OECD COMMENTARY, Art. 13, para. 22.

³⁵⁹ OBERSON 2014, para. 401.

all Swiss treaties use the exemption method (see Art. 52(1) DTC and the treaty provision equivalent to Art. 23A MOECD).³⁶⁰

Leaving aside capital gains income, the allocation of taxation rights is applicable to *any* form or kind of income derived from the direct use, letting, or any other kind of usage of immovable property (Art. 6(3) MOECD).³⁶¹ In other words, the form or kind of income does not determine the scope of application of Art. 6 MOECD, which therefore depends primarily on the definition of immovable property. 208

B) Immovable Property

“Immovable property” (in French: *biens immobiliers*) is in principle defined according to the law of the state in which the immovable property is situated (Art. 6(2) MOECD). “Law” here should be understood as covering not just the jurisdiction’s tax law, but all legal fields, including civil law.³⁶² In the event of conflict between different applicable norms, the tax law definition will be authoritative, which may in turn refer back to civil law.³⁶³ 209

The term “immovable property” appears in Swiss domestic tax law in Art. 21(1) DTC.³⁶⁴ This provision is generally interpreted as referring to Art. 655(2) Swiss Civil Code,³⁶⁵ which, among other things, 210

³⁶⁰ PETER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 6, para. 8; OBERSON 2014, para. 407.

³⁶¹ OBERSON 2014, paras. 405 f.

³⁶² WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 6, para. 32; REIMER, in: VOGEL/LEHNER, Art. 6, para. 68; FALTIN, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 6, para. 57.

³⁶³ WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 6, para. 53; REIMER, in: VOGEL/LEHNER, Art. 6, para. 67.

³⁶⁴ REIMER, in: VOGEL/LEHNER, Art. 6, para. 73.

³⁶⁵ In French: *Code civil suisse du 10 décembre 1907* (RS 210). Regarding interpretation: ZWAHLEN/LISSI, in: ZWEIFEL/BEUSCH, Art. 21, para. 3; LOCHER 2001, Art. 21, para. 2. However, the term defined in Art. 655(2) Swiss Civil Code has a wider

mentions a parcel of land as an example of immovable property. Such land extends to the buildings solidly fixed to it (Art. 667(2) Swiss Civil Code).³⁶⁶

211 The term “immovable property” is also used in case decisions on the prohibition of intercantonal double taxation. Given its similarity to international tax law,³⁶⁷ intercantonal case law is sometimes regarded as being particularly pertinent to the definition of immovable property in Art. 6 MOECD.³⁶⁸ Besides referencing Art. 655 Swiss Civil Code, this case law adds “accessories” (Art. 644 Swiss Civil Code) and “constituent parts” (Art. 642 Swiss Civil Code) to the interpretation in tax law of the term referred to in Art. 655(2) Swiss Civil Code.³⁶⁹

212 “Constituent parts” (in French: *partie intégrante*; in German: *Bestandteil*; in Italian: *parte costitutiva*) are defined in Art. 642(2) Swiss Civil Code as anything which, according to local custom, is held to be an essential part of an object and which cannot be detached from it without destroying, damaging, or altering it.³⁷⁰ An alteration necessarily entails a loss of value consequent upon the

meaning than what is commonly understood as immovable property, as it includes certain rights related to immovable property (LAIM, p. 119).

³⁶⁶ MARCHAND, in: PICHONNAZ/FOËX/PIOTET, Art. 667, para. 20; STREBEL/LAIM, in: HONSELL/VOGT/GEISER, Art. 655, paras. 8 and 11 f., where they mention that in certain circumstances the “*Baurecht*” (the object of which may be a building) is treated analogously. The same is true of German law: WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 6, para. 35.

³⁶⁷ Similar view: WIDMER 2009, p. 633; OBERSON 2001b, p. 694; SCHMID/ORELL, para. 43; similarly, BÉNARD/BERDOZ/BOURTERAULT, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 5, para. 15. Opposed to this view: RICHNER/FREI/KAUFMANN/MEUTER 2016, Art. 4, para. 21; VOGELSANG, pp. 299 f.; LOCHER 2001, Art. 4, para. 44.

³⁶⁸ REIMER, in: VOGEL/LEHNER, Art. 6, para. 73.

³⁶⁹ Supreme Court decision of January 27, 2000, 2P. 126/1998, recital 3(a)(aa). A building or a constituent part thereof can also be an accessory if the relevant conditions are fulfilled (FOËX, in: PICHONNAZ/FOËX/PIOTET, Arts. 644–645, para. 5).

³⁷⁰ Decision of the Swiss Federal Supreme Court decision of October 9, 1980, ATF 106 II 333, recital 5.

detachment.³⁷¹ The Swiss Federal Supreme Court has ruled that local custom is taken into account only in the event of doubt.³⁷²

“Accessories” (in French: *accessoires*; in German: *Zugehör*; in Italian: *accessori*) are defined in Art. 644 Swiss Civil Code. They are movable objects which, according to local custom or the clear will of the owner of the main object, permanently facilitate the exploitation, use, or preservation of the main object and are of an auxiliary nature by virtue of having been joined, adapted, or otherwise connected to it. It is generally assumed that machines are accessories (see Art. 805(2) Swiss Civil Code), if local custom does not disprove that assumption.³⁷³ The connection between the accessory and the main object must, in any event, be durable and the accessory should not be intended simply for consumption by the possessor of the main object (Art. 645 Swiss Civil Code).³⁷⁴

213

C) Accessories to Immovable Property

In addition to providing a general definition of immovable property, Art. 6(2) MOECD also includes a list of examples (“property accessory to immovable property, livestock and equipment used in agriculture and forestry, rights to which the provisions of general law respecting landed property apply, usufruct,” etc.). According to the wording of the treaty, the meaning of immovable property includes these examples in any case.

214

³⁷¹ *Ibid.*, recital 6(c). DOMEJ/SCHMIDT, in: BÜCHLER/JAKOB, Art. 642, para. 8, argue for an exception to the Supreme Court’s opinion, which would exclude serial construction parts that can be detached without damaging the main object and are easily replaceable; see also STREBEL/LAIM, in: HONSELL/VOGT/GEISER, Art. 655, para. 16.

³⁷² Decisions of the Swiss Federal Supreme Court decision of October 9, 1980, ATF 106 II 333, recital 6(c).

³⁷³ WIEGAND, in: HONSELL/VOGT/GEISER, Art. 644, para. 22.

³⁷⁴ FoÈX, in: PICHONNAZ/FoÈX/PIOTET, Arts. 644–645, para. 18.

- 215 It is debated whether these examples should be read with the meaning they have in the state where the property is situated (local interpretation),³⁷⁵ or whether they should be interpreted on the sole basis of the treaty.³⁷⁶ Swiss scholarship seems to take an intermediate stance, accepting reasonable use of the list of examples to correct domestic law.³⁷⁷ Using the law of the state where the property is situated as a starting point for interpretation is acceptable because independent treaty law is not yet sufficiently concrete.³⁷⁸
- 216 The list of examples has particular significance with respect to accessories. It includes the expression “property accessory to immovable property” (in French: *les accessoires*). Swiss legal tradition generally considers this to be a reference to the Swiss civil law term “accessories,” as defined in Art. 644(2) Swiss Civil Code (see explanations *supra* para. 213).³⁷⁹ It can therefore be concluded that, as the local interpretation and the treaty-based interpretation both lead to the same result—namely, a reference to the Swiss Civil Code—the debate over which interpretation should be preferred is largely moot.

D) ICS Equipment

- 217 This section concerns industrial, commercial, and scientific equipment (“ICS equipment”). The expression refers here to tangible

³⁷⁵ This view is defended by REIMER, in: VOGEL/LEHNER, Art. 6, para. 76.

³⁷⁶ This view is defended by WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 6, para. 53.

³⁷⁷ FALTIN, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 6, paras. 54 and 61.

³⁷⁸ WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 6, para. 53.

³⁷⁹ REIMER, in: VOGEL/LEHNER, Art. 6, para. 78; OBERSON 2014, para. 403; FALTIN, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 6, para. 63. By contrast, PETER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 6, para. 39, considers that exclusively constituent parts, as defined in Art. 642(2) Swiss Civil Code, should qualify as “property accessory to immovable property” according to Art. 6(2) MOECD.

property that serves as an accessory in an industrial, commercial, or scientific process, the products of which are marketed to non-consumers.³⁸⁰ It is conceivable that certain industrial, commercial, or scientific equipment may also be immovable property or an accessory to immovable property.

Payments received for the use of, or the right to use, industrial, commercial, or scientific equipment should generally qualify as business profits under Art. 7 MOECD.³⁸¹ In contrast, some Swiss DTAs, relying on an earlier version of the MOECD, still apply Art. 12 MOECD to income of this kind.³⁸² The older version also contains an exception. If personnel are involved in operating, servicing, inspecting, and maintaining the ICS equipment under the auspices of the lessor, then the income from renting the equipment will constitute business profits within the meaning of Art. 7 MOECD.³⁸³ In any event, such income represents an exception to Art. 6 MOECD, which is not applicable to income of this kind.³⁸⁴

218

E) Summary

Income from immovable property or accessories thereto may be taxed in the jurisdiction where that property is situated (Art. 6(1) MOECD). Under Swiss law, it includes income from the sale or lease of buildings, constituent parts thereof, and accessories thereto. Payment for the use of ICS equipment is an exception.

219

³⁸⁰ OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(18)-12.

³⁸¹ *Ibid.*, p. R(2)-3.

³⁸² MÜLLER/LINDER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 12, para. 91.

³⁸³ OECD COMMENTARY, Art. 5, para. 36; for a definition of “personnel,” see *supra* para. 116.

³⁸⁴ WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 6, para. 10.

§ III. Royalties

A) General Features

- 220 Art. 12(1) MOECD states that royalties (in French: *redevances*) arising in a source jurisdiction are taxable only in the jurisdiction where the beneficial owner of the royalties resides. It should be pointed out, however, that this rule is often broken in Swiss double taxation treaties. As of January 1, 2020, fifty-nine out of ninety-four Swiss DTAs allowed the source jurisdiction to deduct withholding tax from the gross amount of the royalties at a rate of between 3 percent and 15 percent of such gross amount (see also *supra* para. 203).³⁸⁵
- 221 Unlike other jurisdictions, Switzerland withholds no tax on royalties paid from Swiss sources to foreign beneficiaries.³⁸⁶ However, under certain conditions, Switzerland will grant a tax credit, in accordance with the applicable tax treaty, for any foreign source taxation of royalties.³⁸⁷ The amount of the tax credit will depend (among other things) on the residual source tax under the applicable tax treaty.³⁸⁸ Therefore, the interpretation of Art. 12 MOECD has some relevance here as well.

³⁸⁵ See SECRÉTARIAT D'ÉTAT AUX QUESTIONS FINANCIÈRES INTERNATIONALES SFI (Switzerland), *Limitations conventionnelles des impôts étrangers (État: 1er janvier 2020)*, <https://www.estv.admin.ch/dam/estv/fr/dokumente/intsteuerrecht/themen/auslaendische-quellensteuern-pro-land/dba-begrenzungen-2020.pdf.download.pdf/DBA-Begrenzungen-2020-f.pdf> (last viewed July 2, 2020).

³⁸⁶ OBERSON 2014, para. 574; HESS, p. 542.

³⁸⁷ MÜLLER/LINDER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 12, para. 50.

³⁸⁸ OBERSON 2014, para. 711.

B) Definitions

1) Royalties

According to Art. 12(2) MOECD, “royalties” are “payments of any kind received as consideration for the use of, or the right to use, any copyright of literary, artistic or scientific work including cinematograph films, any patent, trade mark, design or model, plan, secret formula or process, or for information concerning industrial, commercial or scientific experience.” They include, in particular, indemnities paid to compensate for the infringement of such rights.³⁸⁹ The words “for the use of or the right to use” distinguish such payments from those made for the transfer of the right, which would constitute a capital gain.³⁹⁰ *A contrario*, Art. 12 MOECD targets only transfers of partial rights, unlike Art. 13 MOECD (capital gains).³⁹¹ The definition of “royalties” is therefore provided at treaty level.

222

The expression “payments of any kind” must be interpreted in a broad sense.³⁹² Parties to a license contract may define the payment as fixed or variable,³⁹³ and as recurring or as a lump sum.³⁹⁴ As a consequence, the application of Art. 12 MOECD depends primarily on the nature of the rights that the user acquires.³⁹⁵ The following

223

³⁸⁹ OECD COMMENTARY, Art. 12, para. 8; however, they do not include default interest on indemnification for damages arising from the infringement of such a right (MALHERBE/MARAIA/TRAVERSA, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 12, para. 37).

³⁹⁰ OECD COMMENTARY, Art. 12, para. 8.2.

³⁹¹ See WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 12, paras. 65 and 87 f.; see OECD COMMENTARY, Art. 12, para. 13.

³⁹² OECD COMMENTARY, Art. 12, para. 8.3.

³⁹³ See MÜLLER/LINDER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 12, para. 62.

³⁹⁴ OECD COMMENTARY, Art. 12, para. 8.2; MALHERBE/MARAIA/TRAVERSA, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 12, para. 36; COCKFIELD/HELLERSTEIN/MILLAR/WAERZEGGERS, p. 158.

³⁹⁵ OECD COMMENTARY, Art. 12, para. 12.2.

analysis will focus on the expressions “copyright” and “information concerning industrial, commercial or scientific experience.”

2) *Copyright*

224 The expression “copyright of literary, artistic or scientific work” has spawned some controversies as to whether copyrights protecting other kinds of work (i.e., not literary, artistic, or scientific) are covered by this definition.³⁹⁶ This was of particular importance where DTAs attached different tax consequences to different types of copyright.³⁹⁷ However, a pragmatic approach would be to regard the list of different types of copyright as merely illustrative.³⁹⁸

225 Therefore, the term “copyright” is not further specified in DTAs based on Art. 12(2) MOECD.³⁹⁹ Provided that the applicable DTA contains a provision incorporating Art. 3(2) MOECD, the term must be interpreted in accordance with the law of the jurisdiction applying the DTA.⁴⁰⁰ In Switzerland, Art. 2 CopA in principle determines what qualifies as a copyright-protected work.

3) *Know-How*

226 Apart from copyright royalties, Art. 12(2) MOECD also targets payments for “information concerning industrial, commercial or scientific experience.” It thereby refers to the concept of know-how,⁴⁰¹ meaning “undivulged technical information that is necessary for the

³⁹⁶ Regarding software: MALHERBE/MARAIA/TRAVERSA, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 12, para. 50.

³⁹⁷ GARCÍA HEREDIA, p. 228, with references to international case law.

³⁹⁸ See *ibid.*, p. 227.

³⁹⁹ MÜLLER/LINDER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 12, para. 61.

⁴⁰⁰ MALHERBE/MARAIA/TRAVERSA, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 12, para. 50; WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 61.

⁴⁰¹ OECD COMMENTARY, Art. 12, para. 11.

industrial reproduction of a product or process, directly and under the same conditions; inasmuch as it is derived from experience, know-how represents what a manufacturer cannot know from mere examination of the product and mere knowledge of the progress of technique."⁴⁰² It denotes information that has not been patented but would enjoy the protection afforded to trade secrets.⁴⁰³ Furthermore, it is implicit in the definition of the term that it covers only the transfer of preexisting—not newly generated, ad hoc—information.⁴⁰⁴

The OECD COMMENTARY provides a list of criteria for distinguishing the provision of know-how (subject to Art. 12 MOECD) from the provision of services (subject to Art. 7 MOECD).⁴⁰⁵ For instance, a provider of information may incur costs for the salaries of employees engaged in research, design, testing, drawing, and other associated activities. Such costs would indicate the provision of a service.⁴⁰⁶ Similarly, payment for the opinion of an engineer, an advocate, or an accountant is regarded as remuneration for a service rather than for the transfer of know-how,⁴⁰⁷ even though such specialists certainly use their preexisting know-how to draw up such opinions. This approach is in line with the general rules for mixed contracts (see *supra* para. 205), as the fee is paid for the opinion applying preexisting know-how to a specific case, and therefore implicitly containing new information, rather than the mere reproduction of preexisting knowledge.

227

⁴⁰² OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(18)-6.

⁴⁰³ OECD COMMENTARY, Art. 12, para. 11.5.

⁴⁰⁴ *Ibid.*, paras. 11 and 11.3.

⁴⁰⁵ See *ibid.*, paras. 11.3 f.; OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, pp. R(18)-7 f.

⁴⁰⁶ OECD COMMENTARY, Art. 12, para. 11.3.

⁴⁰⁷ *Ibid.*, para. 11.4.

C) Summary

228 According to a large number of Swiss DTAs, royalties may be subject to taxation in the source jurisdiction. The scope of application of such source taxation depends on the definition of the right giving rise to royalties. Copyrights, for instance, are defined according to the law of the jurisdiction applying the treaty in each case. The transfer of know-how (i.e., preexisting knowledge) can also give rise to royalties.

§ IV. Capital Gains

229 In principle, Art. 13 MOECD targets any revenue resulting from the alienation of property. Examples of alienation include “capital gains resulting from the sale or exchange of property and also from a partial alienation, the expropriation, the transfer to a company in exchange for stock, the sale of a right.”⁴⁰⁸ The form of the consideration given in return cannot alter a transaction’s characterization as an alienation.⁴⁰⁹ If the applicable treaty offers no guidance as to what constitutes a capital gain, how it is calculated, and when it occurs, the answers will need to be sought in the law of the jurisdiction applying the treaty.⁴¹⁰

230 The aim of Art. 13 MOECD is to allocate the right to tax capital gains to the jurisdiction that had the right to tax the alienated object and the

⁴⁰⁸ Ibid., Art. 13, para. 5.

⁴⁰⁹ Ibid., Art. 12, para. 16.

⁴¹⁰ DANON/FALTIN, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 13, para. 4.

income therefrom.⁴¹¹ As a result, capital gains are generally taxable at the alienator's place of residence (Art. 13(5) MOECD).⁴¹²

There are exceptions to this rule, however. For instance, capital gains resulting from the alienation of immovable property are allocated in accordance with Art. 6 MOECD (Art. 13(1) MOECD). This generally includes capital gains resulting from the alienation of shares in real estate entities, whose value will depend primarily on that of the immovable property (Art. 13(4) MOECD).⁴¹³ A capital gain attributable to a permanent establishment is allocated in accordance with the rules set forth in Art. 7 MOECD (Art. 13(2) MOECD).⁴¹⁴ Domestic Swiss tax law allocates these types of income in the same way.⁴¹⁵

231

§ V. Technical Services

A) General Features

The current Swiss DTAs with Argentina, Brazil, Colombia, Ghana, India, Pakistan, and Trinidad and Tobago deviate from the MOECD by explicitly referring to "fees for technical services" (or similar

232

⁴¹¹ OECD COMMENTARY, Art. 13, para. 4; see WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 13, para. 7, who questions whether there is any reason for Art. 13 MOECD as a separate provision if it simply reproduces the other allocation rules. Its similarity to the other provisions justifies keeping this section short.

⁴¹² Furthermore, see Art. 13(3) MOECD in connection with Art. 4(3) MOECD; see also OBERSON 2014, para. 500.

⁴¹³ OECD COMMENTARY, Art. 13, para. 28.3.

⁴¹⁴ *Ibid.*, para. 73.

⁴¹⁵ OBERSON 2014, para. 586. Swiss DTAs generally exempt capital gains taxable in a source jurisdiction under the provision equivalent to Art. 23A MOECD; see RIEDWEG/SUTER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 13, paras. 134 and 261.

language) as a separate category of income.⁴¹⁶ This kind of income is usually subject to withholding tax. It can be seen as an exception to the taxation of regular services under Art. 7 MOECD and as an extension to the taxation of the transfer of know-how under Art. 12 MOECD.

233 Examples of technical services include engineering, construction, installation (or supervision thereof), and implementation of facilities, as well as the training of staff.⁴¹⁷ However, there is no generally agreed definition of “technical services.”⁴¹⁸ Indeed, defining the term is a well-known problem that has defied longstanding attempts to resolve it.⁴¹⁹ Swiss DTAs do not provide a true definition either. Therefore, some interpretation is necessary to understand the term.

⁴¹⁶ Art. 12(1), (2), (4), and (5) of the *Convention entre la Confédération suisse et la République de l'Inde en vue d'éviter les doubles impositions en matière d'impôts sur le revenu conclue le 2 novembre 1994* (RS 0.672.942.31); Art. 13(1) and (3) of the *Convention entre la Confédération suisse et la République islamique du Pakistan en vue d'éviter la double imposition en matière d'impôts sur le revenu conclue le 19 juillet 2005* (RS 0.672.962.31); Art. 12(3) of the *Convention entre la Confédération suisse et la République de Colombie en vue d'éviter les doubles impositions en matière d'impôts sur le revenu et sur la fortune conclue le 26 octobre 2007* (RS 0.672.926.31); Art. 12(2)(c) of the *Convention entre la Confédération suisse et la République argentine en vue d'éviter les doubles impositions en matière d'impôts sur le revenu et sur la fortune conclue le 20 mars 2014* (RS 0.672.915.41); Art. 12(4) of the *Convention entre la Confédération suisse et la République du Ghana en vue d'éviter les doubles impositions en matière d'impôts sur le revenu, sur la fortune et sur les gains en capital conclue le 23 juillet 2008* (RS 0.672.936.31); Arts. 7(7) and 13(3) of the *Convention entre la Suisse et la Trinité-et-Tobago en vue d'éviter les doubles impositions en matière d'impôts sur le revenu conclue le 1er février 1973* (RS 0.672.975.41); Art. 13 of the *Convention entre la Confédération suisse et la République fédérative du Brésil en vue d'éviter les doubles impositions en matière d'impôts sur le revenu et de prévenir la fraude et l'évasion fiscales du ...* (RS ...) (this treaty was signed on May 3, 2018).

⁴¹⁷ KRAUSE 1991, p. 36.

⁴¹⁸ UNITED NATIONS, COMMITTEE OF EXPERTS ON INTERNATIONAL COOPERATION IN TAX MATTERS, *Taxation of Fees for Technical and Other Services under the United Nations Model Convention*, E/C.18/2012/4, August 2, 2012, p. 3; KRAUSE 1991, p. 35.

⁴¹⁹ UNITED NATIONS, COMMITTEE OF EXPERTS ON INTERNATIONAL COOPERATION IN TAX MATTERS, *Note on the Taxation of Services under the United Nations Model Tax Convention*, E/C.18/2010/CRP.7, October 11, 2010, p. 28.

One interesting question is how technical services can be differentiated from the transfer of know-how (on the latter, see *supra* paras. 226 f.). This is relevant to ascertaining whether a given reference to technical services can extend the scope of application of the Art. 12 MOECD withholding tax regime. It goes without saying that, when supplying their services, service providers convey a certain amount of know-how (and use even protected or protectable rights to use intellectual property) to their clients. However, this does not generally amount to what treaties define as a transfer of know-how (see *supra* para. 227). Here, it is possible to apply the mixed contract principle (see *supra* para. 205). The transfer of know-how cannot be separated from the provision of certain services. Further, the provision of the services rather than the transfer of know-how is the predominant part of such a service contract. Hence, the transaction must be characterized as a form of provision of services.⁴²⁰ In other words, the provider of technical services uses the know-how himself for the provision of the service, whereas the transferor of know-how does not.⁴²¹ Rendering technical services is essentially different from transferring know-how. Consequently, the inclusion of a technical services clause in a DTA is indeed capable of extending the Art. 12 MOECD withholding tax regime.

234

More important to the present analysis is the distinction between technical and other kinds of services. This distinction determines whether a withholding tax regime is applicable at all in a particular case. Guidance on interpreting the modifier “technical” can be found in various sources. The OECD and the UN have both proposed definitions that may have a direct impact on the interpretation of this word as it appears in particular DTAs. Furthermore, the source jurisdiction’s interpretation (to which, in most cases, the concept of

235

⁴²⁰ OECD COMMENTARY, Art. 12, para. 11.6. The OECD COMMENTARY, Art. 12, paras. 11 f., sets forth criteria for distinguishing between the transfer of know-how and the provision of services.

⁴²¹ THALMANN, P. 750, proposing this and an additional criterion.

technical services owes its origins) may be decisive, even for the granting of tax credits by the jurisdiction of residence. These three sources (MOECD, UN Model, and the domestic law of source jurisdictions) will be discussed in turn in the following sections.

B) MOECD

236 The MOECD does not contain any reference to a specific category of income from “technical services.” Nonetheless, the OECD has recognized the importance of this concept and provides the following guidance for its application in DTAs, even though they may deviate from the MOECD in this regard.

237 According to the OECD, the expression generally denotes services that derive their technical nature from the use of special skills or knowledge related to a technical field, such as applied sciences or craftsmanship (as opposed to the arts or human sciences).⁴²² The OECD has moreover indicated that use of a technological means of delivery does not automatically make the service delivered technical.⁴²³

C) UN Model

238 As an alternative to the MOECD, the UN Model Double Taxation Convention (hereinafter “UN Model”) contains a new provision on the taxation of technical services, which makes technical services subject to a withholding tax regime (Art. 12A UN Model). This provision was a reaction to the inclusion by several developing countries of idiosyncratic provisions in their DTAs.

⁴²² OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(18)-15.

⁴²³ Ibid.

The UN Model recognizes that the technical nature of a service must be precisely defined. The accompanying commentary defines “technical” as involving the “application of specialized knowledge, skill or expertise with respect to a particular art, science, profession or occupation. Therefore, fees received for services provided by regulated professions such as law, accounting, architecture, medicine, engineering and dentistry would be fees for technical services.”⁴²⁴ It also provides several examples illustrating the nature of technical services.⁴²⁵ 239

Further, the UN COMMENTARY explicitly excludes recourse to the domestic law of the applying jurisdiction for purposes of interpreting the term⁴²⁶ (as would be possible pursuant to DTA provisions incorporating Art. 3(2) MOECD/UN Model when there is no relevant definition in the DTA in question). 240

D) Law of the Source Jurisdiction

Occasionally, the OECD and UN guidance will prove an insufficient aid to interpretation. In such situations, Art. 3(2) MOECD allows the interpreter of the law to make reference to the law of the source jurisdiction as a fallback. For the purpose of eliminating double taxation, the jurisdiction of residence is in principle bound by the interpretation made on the basis of the law of the source jurisdiction.⁴²⁷ In Switzerland, this rule is followed in all cases, except when a change of law in the source jurisdiction subsequent to the 241

⁴²⁴ UN COMMENTARY, Art. 12A, para. 64.

⁴²⁵ *Ibid.*, paras. 87 f.

⁴²⁶ *Ibid.*, para. 68.

⁴²⁷ OECD COMMENTARY, Arts. 23 A and 23 B, para. 32.3; SIMONEK, in: ZWEIFEL/BEUSCH/MATTEOTTI, Arts. 23 A-23 B, para. 19; SALOM, in: DANON/GUTMANN/OBERSON/PISTONE, introduction to Art. 23 A-23 B, para. 41.

conclusion of the DTA gives rise to a conflict of qualification between the two parties to the treaty.⁴²⁸

242 Reference to the law of the source state is justified by the fact that the concept of technical services existed long before the OECD or UN started to publish guidance on it.⁴²⁹ The only possible reason for the use of the term in DTAs before then is that one of the contracting states intended to refer to its domestic law. Although the Swiss Federal Supreme Court has ruled in favor of taking account of guidance published after the conclusion of a DTA, this opinion is not shared by legal scholarship.⁴³⁰ Notwithstanding differences of opinion on the fundamentals of interpreting DTAs, the origin of the concept cannot be ignored.

E) Summary

243 As has been observed, “technical services” is an expression that appears in several DTAs despite the lack of a common definition. Divergent domestic tax laws have made it difficult to define. In cases where the OECD and UN guidance on the matter is not sufficient, Switzerland will generally grant tax credits pursuant to the interpretation of the term under the law of the source jurisdiction.

§ VI. Business Profits

244 Art. 7(1) MOECD provides that all profits of an enterprise shall be taxable only in the state where the enterprise is resident, except for those profits attributable to a permanent establishment in another

⁴²⁸ Ibid., para. 45.

⁴²⁹ The OECD guidance dates from 2001. Prior to that, however, the term appeared in an early version of the 1994 Swiss DTA with India, for example.

⁴³⁰ OBERSON 2014, para. 119, referencing the decision of the Swiss Federal Supreme Court of April 4, 2006, 2A.416/2005, recital 3.4.5.

state. In other words, if there is no permanent establishment, all taxable profit is concentrated in the state of residence.

Art. 7 MOECD is the fallback rule for the allocation of business profits that do not fall within the scope of any other allocation rule (see Art. 7(4) MOECD).⁴³¹ Contracting parties are free to modify the definition of profit in their DTA.⁴³² If they do not do so, “profits” (in French: *bénéfices*) will be interpreted broadly as covering all income derived from carrying on an enterprise.⁴³³ 245

A concrete example of business profits within the meaning of Art. 7 MOECD is income from the provision of services that is not subject to any other rule of allocation.⁴³⁴ Special kinds of services may be subject to allocation rules other than those of Art. 7 MOECD. Besides technical services discussed in a previous section (see *supra* paras. 232 f.), other kinds of income may sometimes arise from the provision of special services such as transportation (subject to Art. 8 MOECD), independent personal services (subject to Art. 14 MOECD in its pre-2010 version), dependent personal services (subject to Art. 15 MOECD), management services (subject to Art. 16 MOECD), services provided by entertainers and sportspersons (subject to Art. 17 MOECD), government services (subject to Art. 19 MOECD), education 246

⁴³¹ See also OECD COMMENTARY, Art. 7, para. 72.

⁴³² *Ibid.*, para. 75.

⁴³³ *Ibid.*, para. 71.

⁴³⁴ CASTELON, P. 167; MAISTO, PP. 43 f.; see KRAUSE 1991, P. 36. However, some Swiss DTAs—namely, Art. 13(3) of the *Convention entre la Confédération suisse et la République d'Indonésie en vue d'éviter les doubles impositions en matière d'impôts sur le revenu conclue le 29 août 1988* (RS 0.672.942.71), Art. 13(3) of the *Convention entre la Confédération suisse et la Jamaïque en vue d'éviter les doubles impositions en matière d'impôts sur le revenu conclue le 6 décembre 1994* (RS 0.672.945.81) and Art. 13(3) of the *Convention entre la Confédération suisse et la République démocratique socialiste de Sri Lanka en vue d'éviter les doubles impositions en matière d'impôts sur le revenu et sur la fortune conclue le 11 janvier 1983* (RS 0.672.971.21)—make income from all services subject to withholding tax, apparently including fees for technical services. It should be noted that all these allocation rules also require the physical presence of personnel in the source country.

and training (subject to Art. 20 MOECD), and nonbusiness services (subject to Art. 21 MOECD).⁴³⁵ It is possible to deduce from the scope of these various provisions which services remain within the scope of Art. 7 MOECD.

247 Furthermore, various sources can be relied upon to give a positive meaning to the content of Art. 7 MOECD. The OECD defines a contract for the provision of services as one “in which one of the parties undertakes to use the customary skills of his calling to execute work himself for the other party.”⁴³⁶ Income from the provision of services is also defined by contrasting it with income derived from the acquisition of property.⁴³⁷ However, as the meaning of services does not in itself determine the scope of Art. 7 MOECD, any definitions have little normative weight when interpreting the MOECD and DTAs. Their use is above all practical: they illustrate the scope of Art. 7 MOECD and thereby help to reduce the level of abstraction.

§ VII. Summary of Treaty Characterization

248 The above analysis discussed several possible characterizations. Income from immovable property and accessories thereto is generally taxed at the property’s location. A partial right to tax may be

⁴³⁵ See ARNOLD, BRIAN, *Note on the Taxation of Services under the United Nations Model Tax Convention*, in: UNITED NATIONS, COMMITTEE OF EXPERTS ON INTERNATIONAL COOPERATION IN TAX MATTERS, *E/C.18/2010/CRP.7*, October 11, 2010, pp. 4 f., referring to the equivalent articles in the UN Model.

⁴³⁶ OECD COMMENTARY, Art. 12, para. 11.2.

⁴³⁷ See OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, pp. R(18)-14 f. Similarly, Swiss VAT law defines services negatively by opposition to the provision of goods; see CAN, p. 675. For more potential definitions, see ZHU, YANSHENG, *Proposed Changes to the UN Model Tax Convention Dealing with the Cyber-Based Services*, in: UNITED NATIONS, COMMITTEE OF EXPERTS ON INTERNATIONAL COOPERATION IN TAX MATTERS, *E/C.18/2014/CRP.9*, September 30, 2014, pp. 2 f.

attributed to the source jurisdiction for royalties and technical services. Capital gains and business profits are fallback characterizations, generally attributing the right to tax to the taxpayer's state of residence, except in the case of a permanent establishment.

In sum, not until a transaction has been characterized will it be possible to know which jurisdiction is entitled to tax income deriving from it or the provisions applicable to it. For instance, the transfer of a partial right to use a copyright would be governed by Art. 12 MOECD, whereas the transfer of the full copyright would lie outside the scope of Art. 12 MOECD and be governed by Art. 13 MOECD. The former hypothetical may (depending on their equivalent in the applicable DTA) grant the source jurisdiction a partial right to tax, while the latter would exclude such a right.

249

Section III Transfer Pricing

§ I. Introduction

Groups of enterprises that carry on their business in several states are subject to many different tax systems.⁴³⁸ The enterprises comprising a group commonly enter into transactions⁴³⁹ between themselves, such as the sale of property, transfer of intangibles, provision of services, or granting of loans. A transfer price is the price at which an enterprise transfers goods or provides services to an associated enterprise,⁴⁴⁰ that is, one belonging to the same group of enterprises. Transfer pricing is the discipline that studies the price of such transactions.

250

In international tax law, transfer prices are important because they can have a direct impact on the overall tax costs of a multinational group. Provided each member of the group is considered as an independent tax subject,⁴⁴¹ the group's overall tax can decrease due to a tax rate differential between states. For instance,⁴⁴² an enterprise in state A sells its products to unrelated customers in a third state C for 100. If the tax rate is 40 percent in that state, the profit after tax of that enterprise amounts to 60. In a different scenario, the

251

⁴³⁸ For this and the following sentence: OBERSON 2014, para. 863.

⁴³⁹ The term "transaction" is described in international tax law transfer pricing as "the consequence or expression of the commercial or financial relations between parties" (OECD TPG, para. 1.42). It is important to distinguish this from the meaning the term has in computing, where "transaction processing" is "the execution of a program that performs an administrative function by accessing a shared database, usually on behalf of an on-line user." (BERNSTEIN/NEWCOMER, p. 2).

⁴⁴⁰ OECD TPG, Preface, para. 11. The structure of this section III is based on MARAIA, pp. 15–25, with some additions and updates.

⁴⁴¹ In Switzerland, each member of the group is generally considered a separate tax subject and therefore taxed on its individual taxable income (see *infra* para. 282).

⁴⁴² This example is from OBERSON 2014, para. 863.

enterprise in state A has a subsidiary in state B that handles the last part of the production process. The parent company sells the half-made product to the subsidiary for 50 and the subsidiary sells it to the unrelated customers for 100 at market prices. If the tax rate in state B is only 20 percent, the group's overall profit after tax increases to 70 ($= 100 - 50 * 0.4 - (100 - 50) * 0.2$), that is, by 10 compared to the first scenario involving taxation in only one state.

252 Tax considerations may cause the members of a group to set transfer prices differently from those applied to unassociated enterprises in order to reduce overall tax costs even further.⁴⁴³ This could be achieved by lowering one member's profit from intragroup transactions to the benefit of another member subject to lesser tax rates.

253 Conscious of the risk of transfer pricing manipulation, most tax jurisdictions have legislation that enables them to correct transfer prices.⁴⁴⁴ Art. 9(1) MOECD allows jurisdictions to increase the taxable profit of an associated enterprise.⁴⁴⁵ This adjustment is possible regardless of whether or not there was an intention to avoid taxes.⁴⁴⁶ Art. 9(2) MOECD stipulates that the other jurisdiction should reverse its initial taxation to the adjusted amount of profit. This reversal prevents double taxation of the adjusted amount of taxable profit in the hands of the jurisdiction to which the profit in question flows.⁴⁴⁷ This other jurisdiction is required to reverse the taxation only if it

⁴⁴³ Transfer prices are usually influenced by considerations unrelated to tax (OECD TPG, paras. 1.2 and 1.5).

⁴⁴⁴ MARAIA, p. 16.

⁴⁴⁵ For this and the following sentence, see also OECD TPG, paras. 1.6 f.

⁴⁴⁶ See *ibid.*, para. 1.2.

⁴⁴⁷ MARAIA, p. 16.

considers that the profit adjustment by the first jurisdiction is justified and the amount of the adjustment is correct.⁴⁴⁸

This is a reversal of the *taxation* (i.e., a fictional adjustment of the tax basis); it does not (yet) involve the actual reversal of the adjusted *transaction*. To prevent taxation of the transaction reversal between enterprises, a special so-called secondary adjustment would be necessary, which is not discussed in Art. 9 MOECD.⁴⁴⁹ 254

As a logical consequence of the negative effect of DTAs,⁴⁵⁰ the initial adjustment can create a right to tax only on the basis of domestic legislation.⁴⁵¹ Switzerland has inserted Art. 9(1) MOECD in all DTAs in some form or another.⁴⁵² Although Art. 9(2) MOECD is not included in many DTAs, Switzerland can grant a corresponding adjustment based on a so-called mutual agreement procedure with the adjusting jurisdiction or based on internal law.⁴⁵³ Secondary adjustments are generally not accorded.⁴⁵⁴ 255

§ II. Associated Enterprises

According to Art. 9(1) MOECD, parent and subsidiary companies and companies under common control are deemed to be associated.⁴⁵⁵ Art. 9(1) MOECD applies regardless of whether the control is direct or 256

⁴⁴⁸ OECD COMMENTARY, Art. 9, para. 6.

⁴⁴⁹ *Ibid.*, para. 8.

⁴⁵⁰ See *supra* para. 188.

⁴⁵¹ OBERSON 2014, paras. 865 and 906.

⁴⁵² EISENRING, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 9, para. 3.

⁴⁵³ Among many others: EISENRING, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 9, para. 91; OBERSON 2014, para. 906. Swiss unilateral rules are discussed further below, see *infra* paras. 281 f.

⁴⁵⁴ OBERSON 2014, para. 916.

⁴⁵⁵ OECD COMMENTARY, Art. 9, para. 1.

indirect (i.e., with additional intermediary subsidiaries), and irrespective of the form it takes (e.g., through management, capital, or some other means). The law of each jurisdiction applying Art. 9 MOECD can fix the eligible forms of control.⁴⁵⁶ In any event, a head office and a permanent establishment are not associated enterprises and are therefore not directly subject to Art. 9, but to Art. 7 MOECD instead, the second paragraph of which refers back to Art. 9 MOECD.⁴⁵⁷

§ III. Arm's Length Principle

257 The adjustment authorized in Art. 9(1) MOECD must comply with the so-called arm's length principle. This means that transfer prices between associated parties can be adjusted only to match the prices that would have been applied between independent parties.⁴⁵⁸

258 It is in the interest of associated enterprises to comply with the arm's length principle in their intragroup transactions from the outset, so as to avoid retroactive adjustments. They are invited to use the OECD methodology provided for this purpose. One of the most influential instruments of guidance in this regard is the *OECD Transfer Pricing Guidelines*⁴⁵⁹ (hereinafter "OECD TPG").

⁴⁵⁶ WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 9, para. 41; MARAIA, P. 18.

⁴⁵⁷ WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 9, para. 23; EISENRING, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 9, para. 5. This relationship is explained further below; see *infra* para. 286.

⁴⁵⁸ OECD TPG, paras. 1.6 f.

⁴⁵⁹ OECD, *OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations*, Paris July 2017.

Generally, when determining the arm's length price, the focus is always on a specific transaction⁴⁶⁰ (referred to as controlled transaction).⁴⁶¹ The first step⁴⁶² consists in subjecting the transaction, including the economic factors surrounding it, and its parties to a thorough functional analysis. This involves inspecting the functions, assets, and risks of each of the parties.⁴⁶³ The second step is to establish a set of data on comparable uncontrolled transactions (based on a so-called comparability analysis⁴⁶⁴). In the light of the characteristics of the well-defined transaction (i.e., the delineated transaction) and the available data about comparable transactions, an appropriate transfer pricing method is selected.⁴⁶⁵ Finally, a test is carried out to check that the controlled transaction conforms to the arm's length price bandwidth when applying the chosen transfer pricing method.⁴⁶⁶

⁴⁶⁰ In some cases, it may be necessary to combine several transactions or to divide one transaction into several subtransactions (OECD TPG, paras. 3.9 f.).

⁴⁶¹ See OECD TPG, para. 3.8.

⁴⁶² The OECD proposes a more detailed description, in nine steps, of the process to determine the arm's length range of the transaction price; see OECD TPG, para. 3.4.

⁴⁶³ OECD TPG Glossary, p. 29.

⁴⁶⁴ OECD TPG, paras. 1.33 f.

⁴⁶⁵ For a list of criteria for making the selection, see *ibid.*, paras. 2.1 f. Special cases may require the application of a combination of several transfer pricing methods; see *ibid.*, para. 2.11.

⁴⁶⁶ *Ibid.*, para. 2.1.

§ IV. Comparability Analysis

- 260 Central to the application of the arm's length principle is a comparability analysis.⁴⁶⁷ According to OECD terminology,⁴⁶⁸ this involves comparing transactions between associated enterprises (i.e., controlled transactions) with comparable transactions between enterprises that are not associated with each other (i.e., uncontrolled transactions).⁴⁶⁹
- 261 The aspects of the transactions upon which the comparison focuses are: the contractual terms of the transaction (including any party conduct that may deviate from them⁴⁷⁰); the functions, assets, and risks involved in the transaction; the characteristics of the property transferred or the services provided; the economic circumstances of the parties and the market; and the business strategies pursued by the parties.⁴⁷¹
- 262 A comparability analysis typically involves locating available sources of information on potentially comparable uncontrolled transactions (so-called comparables).⁴⁷² This is one of the more significant challenges in applying the arm's length principle.⁴⁷³ Comparables can be internal (i.e., concerning transactions between the taxpayer and an unassociated party) or external (i.e., concerning transactions between two unassociated third parties).⁴⁷⁴ If no sufficiently

⁴⁶⁷ *Ibid.*, para. 1.6.

⁴⁶⁸ There is a similar understanding of "comparability" in US regulations; see US Treas. Reg. para. 1.482-1(d)(1).

⁴⁶⁹ OECD TPG, para. 1.33; OECD TPG Glossary, p. 31.

⁴⁷⁰ OECD TPG, para. 1.46.

⁴⁷¹ *Ibid.*, para. 1.36.

⁴⁷² *Ibid.*, para. 3.4.

⁴⁷³ MARAIA, p. 20; in more detail, see BAUMHOFF/LIEBCHEN, paras. 3.130 f.

⁴⁷⁴ OECD TPG, para. 3.24.

comparable internal comparables are found, the comparability analysis can alternatively rely on external comparables that are either publicly available or to be found in specialized commercial databases.⁴⁷⁵

§ V. Transfer Pricing Methods

A) Introduction

Which comparables are selected and how they are used depends on the transfer pricing method employed. There are five recognized OECD transfer pricing methods: the comparable uncontrolled price method (or CUP method), the resale price method (or resale-minus method), the cost-plus method, the transactional net margin method (or TNMM), and the transactional profit split method.⁴⁷⁶ However, the recommendations of the OECD do not exclude the use of any other methods⁴⁷⁷ that may prove to be more appropriate than the OECD methods. For a better focus, the following analysis will leave aside the resale-minus method and concentrate on the other four.⁴⁷⁸

263

According to the general principles, the selection process should take into account the respective strengths and weaknesses of each method, the nature of the controlled transaction, the availability of

264

⁴⁷⁵ *Ibid.*, para. 3.32.

⁴⁷⁶ The OECD explains each of these methods in its *Transfer Pricing Guidelines* (CUP: OECD TPG, paras. 2.13 f.; resale-minus: *ibid.*, para. 2.27 f.; cost-plus: *ibid.*, para. 2.45 f.; transactional net margin method: *ibid.*, para. 2.64; profit split: *ibid.*, para. 2.114). In addition, the OECD allows the use of any "other methods" which, in certain circumstances, may be better suited to determining the arm's length price (*ibid.*, para. 2.9).

⁴⁷⁷ *Ibid.*, para. 2.9.

⁴⁷⁸ The reasons for this choice are explained below; see *infra* paras. 540 f.

reliable information, and the degree of comparability of the available data on comparable transactions.⁴⁷⁹

B) Comparable Uncontrolled Price Method

265 Of all the OECD methods, the CUP method is the simplest in design. A price is at arm's length if it is placed between the highest and the lowest prices of other comparable uncontrolled transactions in the open market.⁴⁸⁰ This method should be used only if one of two conditions is met: either none of the differences between the transactions being compared materially affects the price; or reasonably accurate adjustments can be made to eliminate the material effects of such differences.⁴⁸¹ The challenges in applying this method lie in the difficulty of finding enough and sufficiently comparable data given the relevant comparability factors.

C) Cost-Plus Method

266 The cost-plus method compares the markup on controlled and comparable uncontrolled transactions, expressed as a certain percentage of the cost base.⁴⁸² Unlike the CUP method, the cost-plus method requires only the circumstances influencing the markup to be comparable.⁴⁸³ This means that the cost base in particular needs to be comparable.⁴⁸⁴ As services generally have a similar cost base in which labor costs are predominant, the cost-plus method is on the

⁴⁷⁹ OECD TPG, para. 2.2.

⁴⁸⁰ See OECD TPG, para. 2.14.

⁴⁸¹ *Ibid.*, para. 2.15.

⁴⁸² OECD TPG, para. 2.46.

⁴⁸³ Alternatively, it need only be comparable with reasonable adjustments (*ibid.*, para. 2.41).

⁴⁸⁴ *Ibid.*, para. 2.50.

whole the best suited to most kinds of services.⁴⁸⁵ In general, a wider range of data may be considered relatively comparable than when using the CUP method. The challenges of the cost-plus method lie in the difficulty of establishing the cost base and the appropriate markup on that cost base.⁴⁸⁶

The components of the cost base that need to be taken into account are the direct and indirect costs incurred by the service provider.⁴⁸⁷ Direct costs are those arising out of the production of a product or service, such as the costs of raw materials, while indirect costs are those that are closely related to the production process and may be common to several products or services (e.g., the costs of a repair department that services equipment used to produce different products).⁴⁸⁸ These cost categories are to be distinguished from the operating expenses of the enterprise as a whole, such as supervisory, general, and administrative expenditures, which do not form part of the cost base when using the cost-plus method.⁴⁸⁹ The question of whether to evaluate the costs *ex ante* or *ex post* (historical vs. planned costs) must be decided on economic grounds.⁴⁹⁰

Low value-adding intragroup services (LVIS) may optionally be subject to special rules.⁴⁹¹ LVIS are defined as services performed by one or more members of a multinational group on behalf of one or

⁴⁸⁵ OECD TPG, para. 2.45; HANKEN, p. 202.

⁴⁸⁶ HANKEN, p. 183.

⁴⁸⁷ See OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, in: OECD Tax Policy Studies, No. 10, Paris May 2005, p. 28.

⁴⁸⁸ OECD TPG, para. 2.53.

⁴⁸⁹ *Ibid.*, para. 2.54. BAUMHOFF, para. 5.49, considers this distinction ultimately to be arbitrary.

⁴⁹⁰ OECD TPG, para. 2.55, promoting historical costs, and *ibid.*, para. 3.69.

⁴⁹¹ Switzerland has opted for this approach; see *Switzerland Transfer Pricing Country Profile, Updated October 2017*, <http://www.oecd.org/tax/transfer-pricing/transfer-pricing-country-profile-switzerland.pdf> (last viewed July 2, 2020), p. 4.

more other group members.⁴⁹² They are supportive in nature. In other words, they do not form part of the core business of the group. Nor do they involve the use or creation of unique and valuable intangibles.⁴⁹³ Also, they must not entail the assumption or control of substantial or significant risk by the service provider. For services that qualify as LVIS, a taxpayer can choose to apply a simplified cost-plus method to find the arm's length price.⁴⁹⁴ In short, once the sum of all the costs related to the service has been divided among the different service providers using an appropriate allocation key, the profits are calculated by adding a markup of 5 percent to the resulting cost base.⁴⁹⁵

D) Transactional Net Margin Method

269 The transactional net margin method is a transactional profit method that should be used only when the traditional methods described above (such as the CUP and cost-plus method) prove unreliable in a particular case.⁴⁹⁶ It has the advantage of being a one-sided method, meaning that only one of the two parties to the transaction (the so-called tested party) is inspected.⁴⁹⁷ The tested party should be the less complex party, preferably the party that does not own any intangibles involved in the transaction.⁴⁹⁸ Like the cost-plus

⁴⁹² OECD TPG, para. 7.45.

⁴⁹³ Unique and valuable intangibles are those: "(i) that are not comparable intangibles used or available to parties to potentially comparable transactions, and (ii) whose use in business operations ... is expected to yield greater future economic benefits than would be expected in the absence of the intangible" (ibid., para. 6.17).

⁴⁹⁴ Ibid., para. 7.52.

⁴⁹⁵ Ibid., paras. 7.56 f.

⁴⁹⁶ Ibid., para. 2.3.

⁴⁹⁷ Ibid., para. 2.69.

⁴⁹⁸ Ibid., paras. 3.18 f.

method,⁴⁹⁹ the transactional net margin method basically consists of two steps: the attribution of an arm's length profit to the tested party, followed by the attribution of the residual profit to the other party.⁵⁰⁰

Compared to the CUP method, the transactional net margin method supposedly has a wider range of eligible comparables.⁵⁰¹ Instead of comparing the profits themselves, it aims to compare only the net profit indicators⁵⁰² of the controlled transactions with those of comparable uncontrolled transactions.⁵⁰³ A net profit indicator is intended to quantify the profitability of a transaction. It is defined as the ratio of the transaction's net profit over a denominator such as sales, costs, or operating assets linked to the transaction.⁵⁰⁴

The transactional net margin method also has a wider range of eligible comparables than the cost-plus method. In particular, it is less affected by differences between comparables than the cost-plus method, especially those relating to the functions performed. The reason for this is that the transactional net margin method is based on the net profit (i.e., gross profit⁵⁰⁵ less operational expenses).⁵⁰⁶ The uncertain and often arbitrary categorization of costs as operational expenses and direct/indirect costs, as used to calculate the cost base in the cost-plus method, has no impact on the net profit.

⁴⁹⁹ *Ibid.*, para. 2.64.

⁵⁰⁰ MARAIA, p. 225.

⁵⁰¹ OECD TPG, para. 2.68.

⁵⁰² US regulations use the term "profit level indicator" (PLI) to refer to the same concept; see US Treas. Reg. § 1.482-5(b)(4). The same term is used as a paraphrase for the OECD texts by GREINERT, para. 5.104 f.

⁵⁰³ OECD TPG, para. 2.64.

⁵⁰⁴ The OECD further allows the use of other net profit indicators, too, such as a Berry ratio (*ibid.*, paras. 2.105 f.).

⁵⁰⁵ This corresponds to the markups computed after direct and indirect production costs, as under the cost-plus method (*ibid.*, para. 2.54).

⁵⁰⁶ *Ibid.*, para. 2.54.

270

271

Therefore, differences in the cost structure of different kinds of business functions will be of no consequence when using the transactional net margin method.⁵⁰⁷

272 To determine the set of comparable data, on the other hand, it is necessary to take account of the so-called comparability factors that can influence the calculation of the net profit indicator, for example: the threat of new entrants in the market; the competitive position of the tested party; the efficiency of management and individual strategies; the threat of substitute products; varying cost structures (e.g., as reflected in the age of plant and equipment); differences in the cost of capital (e.g., self-financing vs. borrowing); and the age and size of the enterprise.⁵⁰⁸

273 As the transactional net margin method is a transactional method, these comparability factors should preferably be used on single transactions rather than groups of transactions. However, especially when relying on external comparables, the available data will often not be sufficiently detailed to show single transactions. Third-party commercial records generally contain only company-wide information. If there is insufficient data available on single transactions, the OECD allows grouped analysis of comparable transactions or even company-wide data.⁵⁰⁹

274 It is therefore necessary to establish comparability for the net profit as well as the adopted denominator (sales, costs, or operating assets).⁵¹⁰ While sales are an appropriate denominator for

⁵⁰⁷ GREINERT, para. 5.94.

⁵⁰⁸ See OECD TPG, para. 2.77.

⁵⁰⁹ *Ibid.*, para. 2.109. OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, Paris December 2005, p. 60, considers this a problem specific to electronic commerce and its integrated business models. In the present writer's view, it is not a particularity of cloud computing, as higher degrees of integration have come to exist in all industries.

⁵¹⁰ OECD TPG, para. 2.92.

distribution activities and full costs for services, operating assets may be an appropriate denominator for capital-intensive activities such as certain kinds of manufacturing or utilities.⁵¹¹

When using costs as the denominator, the transactional net margin method includes the operating expenses in the full cost base.⁵¹² When using assets as the denominator, tangible as well as intangible assets qualify, provided they are linked to the transaction in question.⁵¹³

275

E) Transactional Profit Split Method

The transactional profit split method lends itself to three situations in particular: both parties make unique and valuable contributions to the transaction (such as unique and valuable intangibles), for which there are no reliable comparables and which represent the key source of the economic benefits of the operation;⁵¹⁴ the transaction in question arises from a highly integrated business operation (i.e., each contribution cannot be reliably evaluated in isolation);⁵¹⁵ or there is an uncommon distribution of risk (either by shared assumption of separated risks or separate assumption of closely related risks).⁵¹⁶ The mere lack of comparables is not a sufficient reason to use the transactional profit split method.⁵¹⁷ Conversely, the availability of

276

⁵¹¹ Ibid., para. 2.93.

⁵¹² GREINERT, para. 5.106.

⁵¹³ Ibid., para. 2.103; GREINERT, para. 5.107.

⁵¹⁴ OECD TPG, para. 2.130 (this and the following references concerning the transactional profit split method refer to the numbering in OECD, *Revised Guidance on the Application of the Transactional Profit Split Method*, Paris June 2018).

⁵¹⁵ OECD TPG, paras. 2.133 f.

⁵¹⁶ Ibid., paras. 2.139 f.

⁵¹⁷ Ibid., para. 2.128.

reliable comparables is an indication that this method may not be the most appropriate.⁵¹⁸

277 The method basically operates by first totaling the profits generated through a certain transaction (or group of transactions⁵¹⁹) and then splitting the resulting total profit among the parties to the transaction according to the relative value of each of their contributions to the success of the transaction.⁵²⁰ Optionally, before the profits are split, they can be used to remunerate certain parties for their routine functions as a preliminary step, using any of the other methods (so-called residual analyses or residual profit split).⁵²¹

278 When splitting the total profits according to the parties' respective contributions, it is preferable to evaluate their contributions by comparing them directly to comparable uncontrolled transactions⁵²² (as in the CUP method). However, a lack of data on comparable uncontrolled transactions—which is the main reason why the transactional profit split method is used in the first place⁵²³—may

⁵¹⁸ *Ibid.*, para. 2.143.

⁵¹⁹ Here, the OECD allows transactions to be grouped in the same way as under the transactional net profit margin method (see *supra* para. 273) if the resulting segmentation improves the comparability of the data on uncontrolled transactions (OECD TPG, para. 2.157; GREINERT, para. 5.123).

⁵²⁰ OECD TPG, para. 2.150 (“contribution analysis”); for more detail, see MARAIA, pp. 230 f. and GRAF, pp. 241 f.

⁵²¹ OECD TPG, para. 2.152; “In a residual profit split, however, routine functions are not equated with low economic returns. Such functions are those for which market benchmarks are more readily available for determining compensation. For example, the reward for the possession of capital that supports the risks deriving from global trading transactions may be accurately remunerated by reference to market benchmarks and thus may be classified as “routine” even though the market benchmarks may yield a high economic return.” (OECD, *2010 Report on the Attribution of Profits to Permanent Establishments*, Paris July 22, 2010, p. 143). *A contrario* this means that, outside of the context of the residual profit split, routine functions are actually equated with low economic returns, see also *infra* note 839.

⁵²² *Ibid.*, para. 2.167.

⁵²³ See OECD TPG, para. 2.123.

make it necessary to employ other means of evaluation. Instead of directly estimating the value of a party's contribution to the profit, the appropriate allocation key can simulate the distribution of the arm's length contributions by referring to factors indicating the nature and extent of that contribution. An allocation key can be based on tangible or intangible assets, relative spending costs, R&D costs, marketing expenses, sales, headcounts, number of servers, amount of data, floor area, etc.⁵²⁴ For instance, when an allocation key is based on the number of servers, it will be assumed that the greater the investment in servers, the higher the arm's length contribution to the transaction.

An allocation key should be used only if there is a strong correlation between it and the creation of value within the controlled transaction.⁵²⁵ If more than one allocation key have such a high degree of correlation, they may all be used in combination and weighted in accordance with their relative importance in value creation.⁵²⁶ Here, there will be a need for value creation analysis to justify the selection of the appropriate allocation keys and their relative weight.⁵²⁷

279

F) Summary on Transfer Pricing Methods

The OECD has proposed five different transfer pricing methods. They each address different kinds of comparables (e.g., cost-plus addresses cost base and markup) and each has its own advantages and disadvantages. The choice of a particular method needs to be based on a thorough understanding of the available comparables and the delineated transaction resulting from the comparability analysis.

280

⁵²⁴ Ibid., para. 2.135.

⁵²⁵ GREINERT, para. 5.134, referring to the pre-BEPS OECD TPG, paras. 2.136 and 2.138, largely equivalent to the current OECD TPG, paras. 2.179 and 2.181.

⁵²⁶ OECD TPG, para. 2.170.

⁵²⁷ GREINERT, para. 5.133; see also OECD TPG, para. 2.173.

§ VI. Swiss Legal Basis for Initial Adjustment

A) Introduction

281 Despite not being explicitly mentioned in Swiss tax laws for corporate income tax purposes, the arm's length principle is widely recognized in Switzerland.⁵²⁸ Apart from a small number of unilateral rules⁵²⁹ that are not relevant to the subject of the present thesis, Swiss tax authorities generally apply the OECD TPG to determine the arm's length price in each case.⁵³⁰ Although little discussed, practitioners generally agree that the modifications to the OECD TPG following BEPS Action 8-10 are applicable immediately, to the extent allowed by the law.⁵³¹

B) Commercial Accounts

282 Members of a group of enterprises, such as a subsidiary and its parent, are formally constituted as legal entities and are (generally)

⁵²⁸ OBERSON 2014, para. 904.

⁵²⁹ RASCHLE/BORRIELLO/HÄMMERLE, p. 110.

⁵³⁰ See SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 4 de l'Administration fédérale des contributions concernant l'imposition des sociétés de services*, March 19, 2004, <https://www.estv.admin.ch/dam/estv/fr/dokumente/bundessteuer/kreisschreiben/2004/1-004-DV-2004.pdf.download.pdf/1-004-DV-2004-f.pdf> (last viewed July 2, 2020). These guidelines are used not only in international cases but also in intercantonal cases; see ZUCKSCHWERDT/MEUTER, p. 7. The Swiss Federal Supreme Court is not bound by the OECD TPG, but can use them as an interpretive tool (decision of February 13, 2017, ATF 143 II 185, recital 4.1). A decision of the Zurich tax appeals tribunal (Steuerrekursgericht) of October 30, 2013, DB.2013.16, ST.2013.16, recital 3(e), confirmed the applicability of the OECD TPG. The reason is the lack of any significant national regulation regarding transfer pricing, cf. WILD, p. 212.

⁵³¹ EISENRING/REGLI, p. 759; HABERMACHER, HANS RUDOLF/STOCKER, RAOUL, *Switzerland: How Switzerland intends to implement BEPS*, *International Tax Review*, October 29, 2015, <http://www.internationaltaxreview.com/Article/3501683/Switzerland-How-Switzerland-intends-to-implement-BEPS.html> (last viewed July 2, 2020).

accepted as distinct tax subjects in Swiss tax law (Art. 49(1)(a) and (3) DTC).⁵³² As such, they normally have a duty to keep commercial accounts (Art. 957(1)(2) CO). In contrast to other states that require separate tax accounting,⁵³³ Switzerland uses the profit resulting from commercial accounts as the basis for taxation.⁵³⁴ In principle, commercial accounts need only conform to Swiss commercial accounting rules (i.e., Arts. 957 f. and 663 f. CO⁵³⁵).

Swiss commercial accounting rules are generally drafted with the rights of creditors uppermost. This is achieved by evaluating elements in commercial accounts conservatively (the so-called principle of prudence; see Art. 960(2) CO). This goal may sometimes be to the disadvantage of taxation, the aim of which is to impose charges that are in keeping with each taxpayer's actual economic capacity to contribute (see Art. 127(2) Cst.⁵³⁶).⁵³⁷

283

C) Corrective Rules and Adjustments

Where there is a conflict between the interests protected under commercial laws and those protected under tax laws, Switzerland has special corrective rules allowing its tax authorities to deviate from the results of commercial accounting for tax purposes.⁵³⁸

284

⁵³² OBERSON 2012, paras. 9/1 f.; in particular, OESTERHELT/SCHREIBER, in: ZWEIFEL/BEUSCH, Art. 49, paras. 42 f., concerning foreign legal entities.

⁵³³ For instance, the United States: KRUMWIEDE/WITNER, p. 37.

⁵³⁴ OBERSON 2012, para. 10/1.

⁵³⁵ *Ibid.*, para. 10/3.

⁵³⁶ *Constitution fédérale de la Confédération suisse du 18 avril 1999* (RS 101) (=Federal Constitution of the Swiss Confederation).

⁵³⁷ OBERSON 2012, para. 10/5.

⁵³⁸ *Ibid.*, paras. 10/5 f.

285 These rules are generally interpreted as including a Swiss equivalent of the internationally accepted arm's length principle.⁵³⁹ If a company deviates from the arm's length price when remunerating transactions between a company and its shareholders (or closely linked persons⁵⁴⁰), that deviation may be recharacterized as an act in money's worth (in French: *prestation appréciable en argent*; in German: *geldwerte Leistung*; in Italian: *prestazione valutabile in denaro*) or an informal capital contribution (in French: *apport en capital dissimulé*; in German: *verdeckte Kapitaleinlage*; in Italian: *apporti dissimulati di capitale*), with the consequence that the profits distributed over and above the arm's length price are reintegrated into the taxable net income of the distributing entity by means of an initial adjustment.

D) Connection with Profit Attribution to Permanent Establishments

286 In principle, Art. 9 MOECD with the corresponding transfer pricing regulation is applicable only to associated *enterprises* (Art. 9(1) MOECD). A permanent establishment does not qualify as an enterprise within the meaning of Art. 9 MOECD because it is devoid of legal personality.⁵⁴¹ When contracting, a permanent establishment has the same identity as the enterprise to which it belongs, so it naturally cannot conclude transactions with the rest of the enterprise as a transaction necessarily involves at least two parties.⁵⁴² The

⁵³⁹ OBERSON 2014, para. 904.

⁵⁴⁰ However, a double taxation agreement incorporating Art. 9 MOECD can limit the applicability of a transfer pricing adjustment to shareholders, as explained by STOCKER/STUDER, p. 387.

⁵⁴¹ WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 9, para. 23.

⁵⁴² For a definition of the term "transaction," see *supra* note 439. The correct term in this context would be "dealings" (OECD, *2010 Report on the Attribution of Profits to Permanent Establishments*, Paris July 22, 2010, p. 20). For simplification, the term "transaction" will continue to cover both meanings.

importance of the OECD TPG for the attribution of profits to permanent establishments is more indirect.

Originally, profits were attributed to permanent establishments according to two distinct methods, which the OECD referred to as “indirect” and “direct.”⁵⁴³ The former can be characterized as a method that apportions the global profit of an entire enterprise among its different parts according to a distribution key.⁵⁴⁴ The latter creates the legal fiction of a permanent establishment as a separate and independent enterprise and attributes the profit that an independent entity would have made to it (see Art. 7(2) MOECD). However, on July 22, 2010 the OECD removed the legal basis for the indirect method from the MOECD (the former Art. 7(4) MOECD),⁵⁴⁵ leaving only the direct method for integration into new DTAs on the basis of the current Art. 7 MOECD.⁵⁴⁶

287

The current wording of Art. 7(2) MOECD reflects the approach developed in a special OECD report⁵⁴⁷ dating from 2010.⁵⁴⁸ This report proposes a two-step procedure for the implementation of the direct method. The first step involves hypothesizing the permanent establishment as a separate and independent enterprise (so-called separate entity approach).⁵⁴⁹ This is done by attributing the corresponding part of the enterprise’s assets, risks, and free capital

288

⁵⁴³ OBERSON 2014, para. 454.

⁵⁴⁴ For more detail, see BRÜLISAUER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 7, paras. 370 f.; JAMES, PP. 341 f. (referring to the indirect method as the “apportionment method”).

⁵⁴⁵ See OECD, *2010 Report on the Attribution of Profits to Permanent Establishments*, Paris July 22, 2010, p. 12.

⁵⁴⁶ OBERSON 2014, para. 487; in more detail: OBERSON 2002, P. 69.

⁵⁴⁷ OECD, *2010 Report on the Attribution of Profits to Permanent Establishments*, Paris July 22, 2010.

⁵⁴⁸ OECD COMMENTARY, Art. 7, para. 19.

⁵⁴⁹ OECD, *2010 Report on the Attribution of Profits to Permanent Establishments*, Paris July 22, 2010, pp. 14 f.

to it by means of a functional analysis (analogous to that used in transfer pricing). The second step consists in scrutinizing the internal dealings between the permanent establishment and other parts of the enterprise and potentially adjusting them to match an arm's length price.⁵⁵⁰ The same OECD TPG are used to interpret the arm's length principle as when analyzing transactions between associated enterprises.⁵⁵¹ In other words, the transfer pricing regulations explained above are applicable, by analogy, to the relationship between permanent establishments and the head office within an enterprise.⁵⁵²

§ VII. Summary of Transfer Pricing

289 If associated enterprises arrange prices among themselves in a way that is inconsistent with the arm's length principle, tax administrations can adjust the prices using Art. 9(1) MOECD. Thus, transactions between associated enterprises will be compared to transactions between unassociated enterprises. The comparability analysis specifies which transactions are comparable, while the transfer pricing method used will help to ascertain whether the prices are within arm's length range. The OECD TPG are the main source of guidance in this matter. By analogy, they are also applied to the attribution of profits to permanent establishments.

⁵⁵⁰ *Ibid.*, pp. 20 f.

⁵⁵¹ OECD COMMENTARY, Art. 7, para. 16. This is true of Switzerland, at least as far as all inbound permanent establishments are concerned (decision of the Swiss Federal Supreme Court of November 28, 2005, 2P.140/2005, recital 5.3; OBERSON 2014, paras. 481 and 487). "Inbound" permanent establishments are those belonging to a corporation resident in a foreign country; "outbound" permanent establishments are those in a foreign country that belong to corporations resident in Switzerland.

⁵⁵² OECD COMMENTARY, Art. 7, para. 16; WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 9, para. 23.

Swiss law has special rules on initial and corresponding adjustments. Commercial accounts are the starting point for quantifying the profit taxable in Switzerland. Where the necessary conditions are met, the Swiss tax administration will apply corrective rules and adjustments.

290

Section IV Summary of the Relevant Rules

The three preceding sections explained the rules of international taxation that are the primary focus of the present thesis. They relate to permanent establishments, treaty characterization, and transfer pricing. These concepts are the building blocks on which the determination of the taxable base of any multinational enterprise or group of enterprises is founded and they therefore constitute a useful point of departure for the following analysis.

291

Besides introducing each of the general concepts, the foregoing explanations also selected those aspects of them that are of particular interest to the application of the rules to the subject of the present thesis. Thus, they form the second step in the classic three-step methodology for legal studies, which starts with the facts, followed by the general features of the applicable legal rules, and finally subsumes the facts under the rules. The first two steps having now been completed, the next chapter can proceed to the subsumption.

292

Chapter 4: Application to Cloud Computing

Section I Permanent Establishment

§ I. General Definition of Permanent Establishment

A) Introduction

The criteria used to define a permanent establishment are difficult to apply to ICT-based business.⁵⁵³ Swiss scholars have been consistently wary of overly broad interpretations of the definition of permanent establishment under treaty law, especially in the context of e-commerce.⁵⁵⁴ This contrasts with their interpretive approach to the definition of permanent establishment under Swiss domestic law. Some have categorically denied that a server can be a permanent establishment. According to LOCHER⁵⁵⁵ in 2001, a server cannot constitute a permanent establishment, as it does not have the required attributes to pass the business activity test.⁵⁵⁶ According to RICHNER/FREI/KAUFMANN/MEUTER, this was still the predominant opinion as recently as 2009.⁵⁵⁷

293

⁵⁵³ See OBERSON 2001a, p. 97; HINNEKENS 1999, *passim*.

⁵⁵⁴ OBERSON 2001b, p. 697; MARTI/WECHNER-ROTH, p. 348.

⁵⁵⁵ LOCHER 2001, Art. 4, para. 43.

⁵⁵⁶ Equally CADOSCH, p. 136; *contra*: SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 11.

⁵⁵⁷ RICHNER/FREI/KAUFMANN/MEUTER 2016, according to Art. 4, para. 29 of the 2009 edition, although the updated 2016 edition considers the predominant opinion in

294 This is probably due to certain risks that the concept of a server permanent establishment may be thought to bring with it. The above-mentioned authors highlight the following potential problems:⁵⁵⁸ the principles of practicality and equal treatment may be jeopardized as there is a real risk of double taxation between the many countries that may be involved in e-commerce; the meager attributable profit would not justify the administrative cost; considerable legal insecurity would result; and the difficulties in localizing digital processes would be “insurmountable.” The risk of unacceptable tax avoidance is also mentioned,⁵⁵⁹ though it should be considered small given the low amounts of attributable profits involved.⁵⁶⁰

295 Of course, e-commerce and ICT are now not as new and unpredictable as they were in the days of the dot-com bubble. Today, as will be shown, there is no longer any reason to believe that a server can never constitute a permanent establishment.⁵⁶¹ The significance of this observation is all the greater in a global economy that is increasingly integrating cloud computing into everyday business processes.

296 Distancing himself from the aforementioned fears, the present writer observes that permanent establishments have always been easy to create, if intended,⁵⁶² and that this is not a reason for treating servers

scholarship to be in line with the OECD approach and accepts servers as permanent establishments. It should be noted, however, that, apart from the BEPS Action 1 on the digital economy, the OECD did not make any significant statements on the server permanent establishment between 2009 and 2016. The paragraphs on the server permanent establishment were added to the official OECD COMMENTARY in 2003.

⁵⁵⁸ MARTI/WECHNER-ROTH, p. 348; see also DÜRR/RUMO, p. 399.

⁵⁵⁹ OBERSON 2001a, p. 93.

⁵⁶⁰ LÜTHI, p. 126.

⁵⁶¹ See SCHMID/ORELL, para. 68, stating that neither the Swiss Federal Supreme Court nor the tax authorities have as yet (publicly) taken a position on this question.

⁵⁶² OECD, *Issues Arising under Article 5 (Permanent Establishment) of the Model Tax Convention*, November 7, 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(19)-15, stating

differently from any other kind of place of business. Furthermore, servers are far less mobile than many other undisputed permanent establishments, as they are in most cases installed within a data center and would be far less profitable if this were not the case. From a technical point of view, the localization of data is definitely not “insurmountable,” as it is considered a key compliance duty in many other legal disciplines such as data protection, contracts, and criminal law. Finally, although the attribution of profits to servers may yield little profit compared to that attributable to important functions performed by people, the size of the investments in server infrastructure required of cloud providers, compared to personnel costs, likely shifts more profits to the permanent establishments. The various factors that need to be taken into account when deciding whether profits are to be attributed to a permanent establishment or a subsidiary⁵⁶³ and how the calculation of such profits may be adjusted⁵⁶⁴ will be discussed later.

It is inconsistent with the approach taken by the OECD to allege that a server is never a permanent establishment. Such an allegation merely increases legal uncertainty and the risk of double- or non-taxation, which is unjustly portrayed as being inherent in server permanent establishments. 297

All jurisdictions have a duty to minimize double- and non-taxation by studying market practices and technological phenomena and by seeking a consensus on the permanent establishment question. The following analysis will address the unanswered legal questions with a view to reducing the suspected legal uncertainty. 298

This section I of chapter 4 answers the following research question: Is the existence of a permanent establishment in cloud computing 299

that “it is very easy for a taxpayer to ensure that a permanent establishment exists if that is the result desired.”

⁵⁶³ See *infra* paras. 519 f.

⁵⁶⁴ See *infra* para. 837.

possible? The analysis will lead to the conclusion that the provider of cloud services who possesses the required hardware (cloud provider) will constitute a permanent establishment at the location of the hardware, whereas, in all probability, customers and users will not.

300 In order to give a comprehensive description of how the permanent establishment concept is to be applied to cloud computing, the classical legal subsumption method will be used. The different permanent establishment definitions discussed in chapter 3, section I, will be applied to the cloud computing fact patterns described in chapter 2, section II, in the same order. In particular, the analysis will continue the distinction between cloud customer and cloud provider introduced in the two case studies presented in that section.

B) Case Study A: Cloud Provider

1) Introduction

301 The case of the cloud provider X Corp. is relatively straightforward. The data center described therein resembles a factory in both its physical construction and its purpose. Hence, it fits easily into the classic permanent establishment definition dating from the industrial age (see Art. 5(2)(d) MOECD: “The term ‘permanent establishment’ includes especially: ... d) a factory;...”). However, it could be questioned whether cloud computing activity performed at such data centers constitutes active business or merely the passive renting-out of servers. As was shown previously, an activity that consists merely in leasing property does not give rise to a permanent establishment for the owner and lessor of the property.

302 The standard case will be analyzed through the lens of each of the three basic tests for determining the existence of a permanent establishment according to Art. 5(1) MOECD. The possibility of excluding certain of these activities as preparatory or auxiliary will be discussed separately.

2) *Place of Business Test*

In this case study, the place of business test requires a tangible place of business that is at the disposal of X Corp. A data center, which is essentially a building or a part thereof that contains physical servers, is clearly tangible and therefore constitutes an eligible place of business. 303

There may be other possible candidates that meet the tangibility requirement, such as cables, routers, switches, hubs, repeaters, etc.⁵⁶⁵ Most of these are inside the data center, but some connect data centers to external physical cable networks. These, however, lie outside the focus of this analysis.⁵⁶⁶ 304

In principle, a client computer is also tangible and—at first glance—would appear to be eligible as a place of business. However, client computers cannot constitute separate permanent establishments for cloud providers and customers,⁵⁶⁷ because they fail to meet either the 305

⁵⁶⁵ See OBERSON 2001b, p. 695.

⁵⁶⁶ OBERSON 2001a, p. 100, explains that in most cases these structures would not qualify as permanent establishments, as they are not instrumental, but merely auxiliary, to the essential and significant activity. For more detail, see PORTNER 1998, p. 555.

⁵⁶⁷ Two famous Indian cases have nonetheless confirmed the existence of permanent establishments at the place of the client computer. In *Amadeus Global Travel Distribution S.A. v. Deputy Commissioner of Income-tax, Non-resident Circle* [2007] 113 TTJ 767 (Del) (November 30, 2007), the New Delhi Bench B of the Income Tax Appellate Tribunal held that a Spanish company had a permanent establishment within the computers of a customer on which a software program handling travel reservations for the Spanish company was installed. The computers had been preconfigured and provided by the Spanish company. This was deemed a sufficient right of use to meet the permanent establishment threshold. In *Galileo International Inc. v. Deputy Commissioner of Income-tax, Non-resident Circle* [2008] 19 SOT 257 (Del) (November 30, 2007), the same tribunal ruled likewise in a very similar case. More recently, the idea of a tax nexus on client computers reappeared in the decision of the United States Supreme Court of June 21, 2018, *South Dakota v. Wayfair, Inc.*, 585 U.S. (2018); see especially p. 15.

business activity test⁵⁶⁸ or the right-of-use requirement.⁵⁶⁹ Of course, the image of the cloud application on the monitor of a client computer is not tangible and therefore cannot constitute a place of business.⁵⁷⁰ For the sake of clarity, the following analysis will also leave aside this question of whether client computers can constitute permanent establishments.

306 The general right-of-use requirement can be applied to the situation of X Corp. This is because a data center is a physical building with machinery, resembling a factory, and as such is the classic example of a permanent establishment (see Art. 5(2)(d) MOECD). A cloud provider (of IaaS) typically owns or leases data centers or the physical IT infrastructure within them. The right-of-use requirement is

⁵⁶⁸ COCKFIELD/HELLERSTEIN/MILLAR/WAERZEGGERS, pp. 119 f., ask whether “telecommunications infrastructure” could be treated as a permanent establishment (like a server) of the enterprises that use it (even indirectly). They dismiss the idea on the grounds that cabling can only constitute an irrelevant auxiliary activity most of the time. Yet, on what technological grounds is this different from a server and what is the criterion to distinguish between servers and telecommunications infrastructure? The present author suggests that legislators would be well advised to avoid technological distinctions; see *infra* para. 585.

⁵⁶⁹ DÜRR/RUMO, p. 398; MARTI/WECHNER-ROTH, p. 346; OBERSON 2001a, p. 98, albeit mentioning the possibility of a portable computer being considered a place of business; KÄBISCH, pp. 13 f., discussing all these physical elements.

⁵⁷⁰ OBERSON 2001b, p. 695, endorsing the Swiss Federal Tax Administration’s opinion, which probably refers to an interface. This opinion can be traced back to the decision of the United States Supreme Court of May 26, 1992, *Quill Corp. v. North Dakota*, 504 U.S. 298 (1992), which in turn was based on a previous decision of the United States Supreme Court of May 8, 1967, *National Bellas Hess, Inc. v. Department of Revenue of Illinois*, 386 U.S. 753 (1967). This American sales tax case established that a state was not allowed to inhibit the trade of residents of another state merely on the grounds that the trade was performed by means of mail or common carrier. In the context of e-commerce, *Quill* has meanwhile been overruled by the decision of the United States Supreme Court of June 21, 2018, *South Dakota v. Wayfair, Inc.*, 585 U.S. (2018); see especially p. 15. In the present author’s view, further justification is needed before applying this argument in the field of international trade.

generally fulfilled without further question.⁵⁷¹ In conclusion, X Corp.'s data center in Switzerland satisfies the place of business test.

3) *Fixation Test*

In general, a physical server in a given geographical place satisfies the location test.⁵⁷² The server will usually be part of a larger structure within a data center, allowing the provider to achieve cost savings through economies of scale.⁵⁷³ During normal operations, the server is connected to a power source, a cable network, a cooling system, etc. In view of the above, relocation is something companies rarely contemplate.⁵⁷⁴ As a necessary "symbiosis" between a specialized form of building and the physical servers within it, a data center therefore fulfills the geographical fixation requirement.

Furthermore, it goes without saying that a cloud provider that operates a data center in a building meets the duration test. Even if the actual business activity is limited and purely temporary, the considerable capital investment involved in acquiring a data center clearly demonstrates an intention to exploit the data center in a permanent way.⁵⁷⁵ Therefore, X Corp.'s data center in Switzerland clearly satisfies the fixation test.

⁵⁷¹ HAASE, para. 35.

⁵⁷² REIMER 2016, Part 2, para. 473.

⁵⁷³ For instance, see *supra* para. 52.

⁵⁷⁴ Such as in OBERSON 2001a, p. 99, who is obviously referring to a single server or perhaps even a software server on a portable computer; see also CADOSCH, p. 124.

⁵⁷⁵ The construction of data centers (or parts thereof) requires special knowledge and often involves the cloud provider mandating specialized building service providers. It may well be that such services cause the providers thereof to be characterized as construction permanent establishments under Art. 5(3) MOECD, provided that they exceed the twelve-month duration threshold (or the minimum duration specified in the applicable DTA); see also *infra* para. 458 concerning treaty characterization.

4) *Business Activity Test*

a) Introduction

309 To satisfy the business activity test, X Corp. must carry on an essential and significant activity at its place of business. Further, X Corp.'s activity would need to exceed the mere renting-out of equipment. Lastly, the business activity test will not be met unless the activity is unquestionably linked to X Corp.

b) General Features

310 X Corp.'s activity at the data center easily meets the definition of business. The contracts for the provision of cloud services are concluded electronically using the physical servers in the data center, and billing occurs through the same automatic process. The activity of keeping a software program at the disposal of customers can sometimes be considered the main part of an Internet service contract.⁵⁷⁶

311 The activity in question here is clearly the performance of professional services. Although involving property (computing infrastructure), the activities of the cloud provider at the data center go beyond the mere holding of property, as they include the maintaining and operating of the data center, as well as making managerial decisions concerning it. The activity is (in part) performed through a machine (the server infrastructure), which constitutes an eligible form of "business" activity. Therefore, the activities performed by X Corp. at the data center clearly satisfy the general requirements of the business activity test.

c) Functional Integration ("through which")

312 Industrial, commercial, or scientific equipment (hereinafter "ICS equipment") is a particular category of property which the OECD

⁵⁷⁶ DÜRR/RUMO, p. 400.

COMMENTARY, Art. 5, deals with at para. 36. ICS equipment specifically includes “computers.”⁵⁷⁷ As with any kind of property, the mere letting of ICS equipment in a source country without a fixed place of business will generally be unlikely to constitute a permanent establishment. Only if the ICS equipment is accompanied by the personnel needed to operate, service, inspect, and maintain it will the lessor achieve permanent establishment status.⁵⁷⁸

The cloud provider’s activity could be mistaken for a special kind of letting or renting-out of computers. If that characterization were accurate, the servers would function as objects rather than instruments of the business and there would be no permanent establishment. This view may have been confirmed in a German case (decision of the German Bundesfinanzhof, First Senate, of June 5, 2002, I R 86/01). The Bundesfinanzhof held that there was no permanent establishment in the case of an enterprise A, which let an outbound server in Switzerland to a third party B, when only B operated the server. No personnel of either A or B were in Switzerland. The Bundesfinanzhof questioned that A’s activity was sufficiently active to be considered a business at all. According to the OECD COMMENTARY, Art. 5, para. 41, personnel would need to be involved in more than just setting up the servers and renting them out.

Unlike A in the above German case, X Corp. is more active and provides additional services. X Corp. has personnel at the data centers who operate, inspect, and maintain the facility. In practice,

⁵⁷⁷ OECD, *The Taxation of Income Derived from the Leasing of ICS Equipment*, Paris September 1983, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(2)-3; OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(18)-12.

⁵⁷⁸ These are also the conditions under which the attributable profit can be characterized as business profits subject to Art. 7 MOECD in the first place, see *supra* para. 218.

data center personnel are used for tasks such as:⁵⁷⁹ evaluation, acquisition, installation, and replacement of hardware equipment; conception, construction, and management of data centers; conception, management, and maintenance of the network; as well as surveillance and security. Under the rules relating to ICS equipment (see *supra* para. 312), it appears defensible to say that the activity of X Corp. goes beyond the mere letting of ICS equipment in that it includes – to use the language from the context of the ICS equipment rules – operating, servicing, inspecting, and maintaining the servers. Therefore, the servers are not only the *objects* but also the *instruments* of the business and fulfill the functional integration requirement.

315 Furthermore, the contracts made with the cloud customers do not refer to physical servers (as did the web hosting contracts of the 1990s) but to the provision of virtual servers. If a web hosting contract does not qualify as the mere renting-out of equipment, then *a fortiori* this is even less so in the case of a cloud contract.

316 In conclusion, X Corp.’s activity involves more than simply renting out equipment, meaning that it satisfies the functional integration requirement.⁵⁸⁰

d) Attribution of Activity (“of an enterprise”)

317 As discussed in the previous section, data centers have teams of people on site to deal with basic maintenance. Even in the age of robots, core staffing still requires a number of data center operators, a SAN architect, some network architects or administrators, support

⁵⁷⁹ AMAZON WEB SERVICES, whitepaper, *The Economics of the AWS cloud vs. Owned IT Infrastructure*, December 7, 2009, <https://d0.awsstatic.com/whitepapers/the-economics-of-the-aws-cloud-vs-owned-it-infrastructure.pdf> (last viewed July 2, 2020).

⁵⁸⁰ The question on the bearings of the restrictive interpretation of “in” and “through which” explained *supra* para. 112, will be addressed with regard to the exclusion of preparatory or auxiliary activities (see *infra* para. 330 f.) as it is itself in essence a concept that excludes certain activities from the scope of the business activity test.

technicians, application developers, and communication engineers,⁵⁸¹ as well as security personnel, a data center manager, a facilities manager, housekeeping personnel,⁵⁸² etc.

According to case study A, X Corp. has twenty employees working on site. This is certainly sufficient to attribute the activity at the data center to X Corp.⁵⁸³ In addition, the activity performed by the system administrators who control the infrastructure remotely from the United States is also attributable to the Swiss permanent establishment of X Corp. (see *supra* para. 110). 318

e) Conclusion on the Business Activity Test

X Corp.X Corp.The activity of X Corp. is not limited to passively renting out computers; it is an active business. Further, X Corp. performs these activities using its own personnel on and off site. Therefore, the activities can be entirely attributed to X Corp. 319

In conclusion, the activity of X Corp. at the data center in Switzerland clearly satisfies the business activity test. 320

5) *Exception of Preparatory or Auxiliary Activities*

a) Introduction

It is immediately obvious that the data center in Switzerland is crucial to X Corp.'s business operations. Naturally, infrastructure investments are an important factor of competition in the cloud 321

⁵⁸¹ BIGELOW, STEPHEN J., *How to approach IT staffing in today's data center*, May 2010, <http://searchdatacenter.techtarget.com/tip/How-to-approach-IT-staffing-in-todays-data-center> (last viewed July 2, 2020).

⁵⁸² HESS, KEN, *The 5 People You Meet in the Data Center*, December 16, 2010, <http://www.serverwatch.com/trends/article.php/3917471/The-5-People-You-Meet-in-the-Data-Center.htm> (last viewed July 2, 2020).

⁵⁸³ See CADOSCH, p. 136, stating that the Swiss tax authorities did not tax unlocalized and unstaffed single servers in 2001.

market.⁵⁸⁴ Nevertheless, it is necessary to test how likely it is for X Corp. to benefit from an exception under Art. 5(4) MOECD.

322 In other words, one can determine whether an example from the list of negative examples is applicable and whether, according to the general criterion, the activity will be deemed to be preparatory or auxiliary in relation to the core business of X Corp.

b) Lists of Examples

323 The examples in Art. 5(4)(a)–(d) MOECD concern goods or merchandise, or information. The only physical objects in this case study that could be considered as goods or merchandise are the items constituting the IT infrastructure deployed at X Corp.’s data center in Switzerland, such as servers, routers, switches, and cables. However, use of these items for business purposes exceeds the uses contemplated in the list of negative examples, as it concerns business with third parties.⁵⁸⁵

324 A place of business does not constitute a permanent establishment (Art. 5(4)(d) MOECD) if it is used merely for the collection of information, regardless of its electronic form (e.g., information or metadata on user behavior gathered at the data center). Besides being a necessary and useful preliminary step in balancing workloads between the different components of the infrastructure, data gathering can also be used for product development. The collection of information on the use of X Corp.’s servers is, of course, not the sole purpose of those servers, so the scope of the exemption for collecting information is exceeded.

325 In sum, none of the items in the list of negative examples in Art. 5(4)(a)–(d) MOECD applies in the case at hand. Thus, the

⁵⁸⁴ STEPHENS, RACHEL, *Infrastructure Investments by Cloud Service Providers*, June 16, 2016, <http://redmonk.com/rstephens/2016/06/16/infrastructure-investments-by-cloud-service-providers/> (last viewed July 2, 2020).

⁵⁸⁵ HESS, p. 541.

question of whether the general criterion is capable of overriding the application of these examples is immaterial to the analysis and can be left unexamined.⁵⁸⁶

Besides these potentially compulsory exemptions based on Art. 5(4)(a)–(d) MOECD, the OECD COMMENTARY provides a few additional examples of activities that in 2003 were considered to be of a preparatory or auxiliary nature.⁵⁸⁷ These examples include “providing a communications link—much like a telephone line—between suppliers and customers, advertising of goods or services, relaying information through a mirror server for security and efficiency purposes, gathering market data for the enterprise and supplying information.”

326

The services provided by X Corp. in case study A may be roughly categorized under the rather broad heading of “providing a communications link,” although comparing this to a telephone line is an inadequate analogy when it comes to a cloud service.⁵⁸⁸ Further, the use of mirror servers has become almost a standard feature of any IaaS.⁵⁸⁹

327

⁵⁸⁶ See *supra* note 194.

⁵⁸⁷ OECD COMMENTARY, Art. 5, para. 128 was added to the OECD COMMENTARY on January 28, 2003.

⁵⁸⁸ It should be added that telephone technology has evolved since para. 128 was added to the OECD COMMENTARY. At the time of writing, the administration of a telephone network is beginning to strongly resemble any other IT service involving the use of data centers, to say nothing of the growing proportion of telephone calls made through the Internet (so-called voice-over-IP or VoIP).

⁵⁸⁹ For an illustration of what was meant by “mirror servers,” see PINKERNELL 1999, note 11: “Um Engpässe bei der Übertragung großer Datenmengen zu umgehen, bieten Softwarehersteller wie z. B. Microsoft und Netscape verschiedene Server an, von denen der Download erfolgen kann (“Mirror Sites”). Der Kunde wird dann aufgefordert, eine in seiner Nähe liegende Downloadmöglichkeit zu nutzen; er kann aber auch einen Hochgeschwindigkeitsserver in den USA auswählen.” The parallel in the context of IaaS would be when the cloud provider uses specific physical servers solely for the purpose of hosting copies of the customers’ virtual servers. A virtual server can be

328 In any case, these supplementary examples are secondary to the general criterion discussed in the next section and serve only to characterize activities of taxpayers whose use of IT infrastructure is auxiliary.⁵⁹⁰ By contrast, it is doubtful whether they are applicable to IT suppliers, such as cloud providers. Even the use of mirror servers may in certain cases be considered to constitute at least part of the core business of a cloud provider.

c) General Criterion

329 In case study A, X Corp.'s core business should be characterized as the provision of infrastructure-heavy cloud services by means of a strategically located network of data centers. As the Swiss data center is used within this network, it appears safe to say that X Corp. performs part of its core business at the data center in Switzerland. Furthermore, these services are performed directly for the benefit of third parties and employ a significant portion of the enterprise's assets.⁵⁹¹ At first glance, the exception of Art. 5(4)(e) MOECD should not apply to the activity performed at the data center in Switzerland.

330 However, this general criterion of Art. 5(4) MOECD is applicable only to the activity which the business activity test identifies as an eligible business activity attributable to the contemplated taxpayer. If the more restrictive interpretation of functional integration is used,

easily copied, which is often done when using autoscaling for load balancing. In Amazon EC2, mirror servers in different physical locations must be created manually by the customer. As the cloud provider is contractually bound to ensure the agreed accessibility of these copies, extensive use of physical servers hosting only mirror copies of other virtual servers is necessary. The provider may also offer recovery of accidentally terminated virtual servers, so there may well be some storage dedicated to that service, similar to mirroring; in general, see also MAZUR 2015, p. 43; SINEWE/FRASE 2011, p. 2201.

⁵⁹⁰ OECD COMMENTARY, Art. 5, para. 129.

⁵⁹¹ Assuming the assets are not outsourced to a subsidiary for real estate or to a data center investment company, which is often the case in practice (see the 10-K forms of Google, Microsoft, IBM, etc.; see also Swisscom annual shareholder reports). In the case of X Corp., a single enterprise owns and manages everything.

according to which remote-controlled activity is not considered as being performed “through” the permanent establishment,⁵⁹² then only the activity performed “in” the data center may be analyzed through the lens of Art. 5(4) MOECD.

On the basis of the latter interpretation, only the activity of the data center staff would qualify (i.e., evaluation, acquisition, installation, and replacement of hardware equipment; conception, construction, and management of data centers; conception, management, and maintenance of the network; and surveillance and security). These activities seem farther removed from the core business of X Corp. as described above, although they could still be considered as “part of” the core business of the enterprise. However, the strategic decisions regarding technology, much of the software development, and the sales activity performed at X Corp.’s head office in the United States are more likely to be characterized as significant and essential. This restrictive interpretation would cause these activities to be disregarded as “absent” from the jurisdiction in which the data center is located. It may then become arguable whether a data center has a merely auxiliary role in a business model based on data centers. As a result, cloud providers would tend to escape any source taxation.

In the present writer’s view, this would be clearly contrary to the general spirit of the MOECD,⁵⁹³ especially in light of the recent efforts to stem base erosion and profit shifting within multinational enterprises.⁵⁹⁴ Therefore, it is preferable to adopt the broad interpretation of “through,” which would allow taxation to be more oriented towards substance. A cloud provider such as X Corp. would generally invest a considerable portion of its assets at the location of the data center.

⁵⁹² See *supra* para. 112.

⁵⁹³ See *supra* para. 113.

⁵⁹⁴ OECD, *Action Plan on Base Erosion and Profit Shifting*, Paris July 2013.

d) Conclusion on the Exception of Activities

333 It has become clear that the list of negative examples in Art. 5(4)(a)–
(d) MOECD is not applicable to X Corp. The additional examples
provided in the OECD COMMENTARY are similarly inapplicable. Whether
or not X Corp. qualifies for permanent establishment status depends
solely on the general criterion in Art. 5(4)(e) MOECD: Is the activity at
the place of business preparatory or auxiliary?

334 If interpreted broadly, the activities performed “through” the place of
business are clearly part of the core business of X Corp. and lead to
a permanent establishment at the location of the Swiss data center.
Interpreting them narrowly, meaning that the contemplated activities
are limited to those performed by the personnel physically present
“in” the data center, would put that assessment at risk. However, a
narrow interpretation would be contrary to the obvious intentions of
the OECD. Therefore, X Corp. has a permanent establishment in
Switzerland by virtue of operating a data center there.⁵⁹⁵

6) Conclusion on Case Study A: Cloud Provider

335 In case study A, X Corp. has a permanent establishment at the
location of the data center in Switzerland. This is consistent with the
fact that most of the productively invested capital⁵⁹⁶ of the enterprise
is concentrated in its data centers.

⁵⁹⁵ Those authors who have expressed their opinion on the taxation of cloud providers would unanimously agree with this result: BAL 2012, p. 336; BAL 2014, p. 519; TAPPE, p. 873; PINKERNELL 2012a, p. 333; BOSS/IGLESIAS, p. 111; LLINAS/GOENKA/DUKMEDJIAN/WISNER, p. 5; HEINSEN/VOß, p. 589; SINEWE/FRASE 2014, p. 269; more nuanced: MAZUR 2015, pp. 43 f.; in a very similar basic case study: SCORNOS, p. 5.

⁵⁹⁶ See *supra* para. 54.

C) Case Study B: Cloud Customer

1) Introduction

The OECD's efforts to develop ideas on the taxation of e-commerce were mostly fueled by the wish to find out whether international taxation is affected by modern ICT use. Initially, this question appeared to have been settled in the era of the dot-com bubble. However, new technologies and trends have cast doubts on these decisions. 336

The following section assesses in detail the situation of a fairly common type of cloud customer.⁵⁹⁷ As before, the case study will follow a tripartite structure in line with the definition of permanent establishment in Art. 5(1) MOECD. 337

2) Place of Business Test

a) Introduction

To satisfy the place of business test, Y Corp. must have a tangible place of business at its disposal. This will necessitate a more thorough analysis of right of use than in case study A. 338

b) Tangible Nature of the Place of Business

Only a tangible physical object qualifies as a place of business. Therefore, software is excluded. However, the physical equipment on which software runs is tangible and can constitute a permanent 339

⁵⁹⁷ The customer in case study B uses the so-called IaaS service model of cloud computing. Such cloud users constitute a minority category compared to the number of SaaS users. This does not mean that IaaS has little economic impact. While the number of users of SaaS may likely be greater in relation to IaaS users, the number of IaaS users may still be great in the absolute. Furthermore, the transaction volume of a single IaaS user is usually much greater than that of a SaaS user and has, therefore, a more intense impact on the users' behavior regarding tax. That is also the reason why it was chosen for the case study.

establishment.⁵⁹⁸ This means that, in the context of ICT, a physical server can constitute a permanent establishment, whereas a website, domain name, or IP address cannot.⁵⁹⁹ Thus, in the ensuing analysis, only server hardware qualifies as a place of business.⁶⁰⁰

340 The tangibility criterion remains effective in the era of cloud computing. It not only excludes websites from the permanent establishment definition but any kind of software, including virtual servers and clouds. In physical terms, a software program is a pattern of movements of electrons within the hardware, forming a set of instructions (programs) to process input.⁶⁰¹ As such, software can only be an activity and not a tangible object. Nonetheless, the processing of software always has a geographical location, such as the place where the physical server that executes the calculations is located. (For a discussion on whether the activity passes the business activity test, see *infra* paras. 377 f.)

341 A data center, which represents the infrastructure for a cloud service, is clearly an eligible place of business. To determine whether it is the place of business for the cloud provider's or the customer's permanent establishment, an evaluation of right of use is necessary.

⁵⁹⁸ HAASE, para. 31; SKAAR 1991, p. 122; MARTI/WECHNER-ROTH, p. 347, explaining that computer hardware alone can only constitute a place of business, but cannot constitute a permanent establishment without software, which constitutes the business activity. The hardware is the instrument of the activity (see functional integration, *supra* paras. 312 f.).

⁵⁹⁹ OECD COMMENTARY, Art. 5, para. 125; OECD 2001, p. 92; SCHAFFNER 2013a, p. 123. SCHREIBER/HONOLD/JAUN, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 5, para. 11.

⁶⁰⁰ OECD COMMENTARY, Art. 5, para. 127; OECD, *Taxation and Electronic Commerce: Implementing the Ottawa Taxation Framework Conditions*, Paris 2001, p. 93; SCHAFFNER 2013a, p. 100.

⁶⁰¹ For a definition of "software," see *supra* note 3.

c) Right of Use (“at disposal”)

i) Introduction

The general rule concerning right of use attributes disposal over the place of business to whoever owns or rents a facility or installation or “otherwise” disposes of it.⁶⁰² This implies that “disposal” has a wide meaning and a cloud customer, as described in case study B, could easily meet those requirements. 342

However, recognizing the need for a case-by-case approach,⁶⁰³ the OECD introduced a chapter in the OECD COMMENTARY, Art. 5, paras. 41.1 f. (paras. 122 f. in the post-BEPS OECD COMMENTARY), addressing the issue of electronic commerce as it existed in the year 2000.⁶⁰⁴ The following section will elaborate upon this official statement of the OECD’s position. 343

ii) Right of Use in the Context of E-commerce

As previously explained, only physical equipment such as a server can constitute a place of business. This is not the case, however, with software that runs on top of a server or a website that is hosted on it.⁶⁰⁵ When a 1990s webserver was hosting a website, only the hosting company was considered as having the server at its disposal, because it “operated” the server.⁶⁰⁶ The enterprise to which the website belonged did not have it at its disposal. Whenever one and the same enterprise operated both the website and the server, the 344

⁶⁰² OECD COMMENTARY, Art. 5, para. 10.

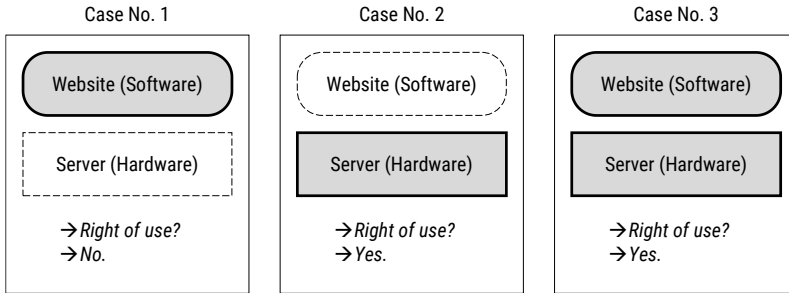
⁶⁰³ See OECD, *Interpretation and Application of Article 5 (Permanent Establishment) of the OECD Model Tax Convention*, Paris October 2012, p. 5: the meaning of the right-of-use requirement is “inherently related to the nature of the business.”

⁶⁰⁴ OECD COMMENTARY, Art. 5, paras. 122 f. For a discussion of these rules, see *infra* paras. 601 f.

⁶⁰⁵ OECD COMMENTARY, Art. 5, para. 123.

⁶⁰⁶ For this and the next two sentences: *ibid.*, para. 124.

right-of-use requirement was fulfilled. Therefore, there are three conceivable situations, which may be depicted as follows:⁶⁰⁷



345 In case no. 1, the taxpayer operates a website within the territory of a source country. A particular situation could be imagined in which client computers located in that source country access a website hosted on a webserver in another country. In this situation, the operator of the website has no right of use over those client computers. By extension, this means that the place thereby connected with the website will not be attributed to its operator as a place of business for tax purposes.

346 The OECD COMMENTARY expressly mentions another situation illustrative of case no. 1, in which there is a simple hosting contract between the taxpayer and an ISP and the website is hosted on a webserver on the ISP's premises within the source country.⁶⁰⁸ In neither of these situations does the operator of the website satisfy

⁶⁰⁷ The objects in the boxes framed by a thick continuous line are operated by the taxpayer, whereas those framed by a dotted line are operated by someone else. The box with rounded corners represents the software level (i.e., the website) and that with angular corners the hardware level (i.e., the physical server or the client computer). The three outer boxes, each labeled with a case number, represent different hypothetical configurations in one and the same country or in different countries.

⁶⁰⁸ For example, the Taxation Determination TD 2005/2 of the Australian Taxation Office held that the sale of trading stock through a website hosted by an ISP does not qualify as a permanent establishment.

the place of business test.⁶⁰⁹ However, if the hosting contract is replaced with a renting contract (i.e., the physical server itself is the object of a rental agreement), the result would correspond to case no. 3, where right of use can be affirmed.⁶¹⁰

In case no. 2, the taxpayer operates a physical server within the territory of the source country. The taxpayer fulfills the right-of-use requirement. This remains the case even when the server is the only object at the disposal of the enterprise in question and even if it is located within a third party's premises.⁶¹¹

In case no. 3, the taxpayer operates both the server and a website. In this case, the taxpayer has right of use. Therefore, the server counts as a place of business for its operator.

iii) Critical Appraisal

In the literature, the OECD COMMENTARY's use of the words "website" and "server" has been expanded to cover, respectively, any kind of software (thereby including virtual servers)⁶¹² and any kind of hardware (thereby still referring to physical servers).⁶¹³ Thus, the special rules on e-commerce confirm that a permanent establishment can exist only if the taxpayer has control over a *physical* server. Further, they clearly state that a common web hosting agreement is (typically) not sufficient to obtain right of use over the physical server.⁶¹⁴ However, the general right-of-use requirement states that it is immaterial whether the server is owned, rented, or otherwise at the

⁶⁰⁹ OECD COMMENTARY, Art. 5, para. 124. (explicitly referring to the lack of "physical presence").

⁶¹⁰ MEUTER, p. 10.

⁶¹¹ REIMER 2016, Part 2, paras. 477 and 480; VOGELSSANG, p. 291.

⁶¹² COCKFIELD/HELLERSTEIN/MILLER/WAERZEGGERS, p. 119.

⁶¹³ REIMER 2016, Part 2, para. 472; COCKFIELD/HELLERSTEIN/MILLER/WAERZEGGERS, pp. 119 f.; CADOSCH, pp. 259 f.

⁶¹⁴ OECD COMMENTARY, Art. 5, para. 124.

disposal of the enterprise.⁶¹⁵ The question is how to distinguish between a “hosting arrangement”⁶¹⁶ and “rented or otherwise at disposal,”⁶¹⁷ after first ascertaining whether both conditions can be fulfilled at the same time and whether the distinction between them has legal consequences for cloud computing.

350 Luckily, there are various ways of differentiating between the two concepts. A hosting arrangement is a service contract and therefore does not amount to sufficient right of use.⁶¹⁸ Only a lease or renting contract can be considered as sufficient.⁶¹⁹ Hence, the existence of a permanent establishment depends on the distinction between these types of contract. Unlike German law, Swiss law does not consider a contract relating to disposal over hardware capacities (as in case study A) as a leasing or rental agreement.⁶²⁰ Thus, Swiss law would allow a rental contract (leading to the existence of a right of use) to be distinguished from a web hosting contract (excluding the existence of a right of use). However, a right of use could potentially still exist based on the expression “otherwise at disposal.”

351 To determine whether the two terms are mutually exclusive (i.e., not overlapping), it is necessary to compare their meanings. The OECD explains that, in the e-commerce context, a person may have a sufficient right of use if that person “owns (or leases) *and operates*

⁶¹⁵ Ibid., para. 10.

⁶¹⁶ Ibid., para. 124.

⁶¹⁷ See DOERNBERG/HINNEKENS/HELLERSTEIN/LI, p. 211.

⁶¹⁸ MEUTER, p. 10.

⁶¹⁹ DÜRR/RUMO, p. 398, pursuing a similar idea, suggest that renting only part of the storage and computing resources of a server may not amount to right of use, whereas renting the entire server certainly does.

⁶²⁰ IMHOF, pp. 101 f.; contra, without further explanation: BOSS/IGLESIAS, p. 110.

the server” (OECD Commentary, Art. 5, para. 124).⁶²¹ At first glance, the only difference between a web hosting arrangement and the leasing and operating of a server lies in the taxpayer being required to *operate* the server. According to the OECD definition of personnel, the operating activity of the hosting provider can sometimes be performed under the instructions of the taxpayer and can be attributed to the latter.⁶²² Such a situation therefore removes any remaining differences between the two cases. A cloud customer may therefore satisfy both criteria, leading simultaneously to opposite legal consequences. In other words, a contradiction arises in which it appears that the taxpayer has a web hosting arrangement (ergo *no* permanent establishment) *and* leases and operates the physical

⁶²¹ This seems in line with the general OECD guidance regarding automated equipment in the OECD COMMENTARY, Art. 5, para. 41, which states that only a machine operated by an enterprise for its own account can constitute a permanent establishment. Also, it accords with the OECD opinion that it is not possible for a telecommunications operator to establish a sufficient right of use through a roaming agreement (OECD COMMENTARY, Art. 5, para. 38), presumably because each party operates only its own telecommunications network and not that of the other party to the roaming agreement. Of course, this could be a coincidence, but the similarities between cloud computing and telecommunications services make it a welcome parallel. Merely operating and maintaining ICS equipment under the supervision of the lessee (see *supra* paras. 312 f.) would not be sufficient to constitute an entrepreneurial activity capable of satisfying the business activity test. By contrast, if the personnel have wider responsibilities and can operate, service, inspect, and maintain the equipment under the responsibility of the lessor, the activity may pass the test. This is established in the OECD COMMENTARY, Art. 5, para. 36. Consequently, characterizing the activity as “operating” a piece of ICS equipment, such as a computer or server, is irrelevant for the purposes of the business activity test.

⁶²² See OECD COMMENTARY, Art. 5, para. 39. The Swiss interpretation of Art. 5 MOECD differs in that the activity of the hosting (cloud) provider would never be attributable to the (cloud) customer; see LUDWIG, p. 10; SCHELLING, p. 218; contra: OBERSON/PIAGET, p. 369, specifying that the personnel may be hired from a third party. See also OECD COMMENTARY, Art. 5, para. 41, indicating that a permanent establishment at the location of automated equipment may exist only for the enterprise that operates it, even if such operation takes place by means of a dependent agent.

server (ergo permanent establishment). It would be impossible to establish whether the customer has a sufficient right of use.⁶²³

352 In sum, it is uncertain whether the terms “hosting arrangement” and “rented or otherwise at disposal” are distinct in every single case. When the terms overlap, it is possible that the rules provided by the OECD lead to conflicting results. However, it can be assumed that the OECD wished to provide rules for a wide range of phenomena not caught within the overlap.

iv) Application to Cloud Computing

353 While this thesis provides an opportunity to discuss the OECD’s guidance on e-commerce in more detail, its main aim is to elaborate on the effects it has for cloud computing. For that reason, the following considerations will be based on the assumption that it is in general possible to distinguish between the two expressions (“hosting arrangement” and “rented or otherwise at disposal”) and will focus on the possibility of distinguishing between them in the context of cloud computing.

354 In the case of the cloud customer, the application of the general right-of-use requirement is not specific enough to lead to any definitive conclusion. So, are the special rules for e-commerce⁶²⁴ decisive for the cloud customer’s case? Given that the special rules are primarily focused on hardware, whereas cloud computing is focused on software, the results could be surprising.

355 As already observed, Swiss law is able to distinguish between a web hosting agreement on the one hand and a rental contract on the other hand. According to OECD guidance, these represent different levels of right of use. One question that can be asked is, where on the

⁶²³ HAASE, para. 35, concludes from this observation alone that IaaS generally leads to permanent establishment status for the cloud customer. As will become apparent from the following statements, the present author is able to refute that argument.

⁶²⁴ See *supra* paras. 345 f.

spectrum between these two levels of right of use should a cloud contract be placed? If this question is not helpful in delineating right of use in cloud computing contracts, it may instead be relevant to categorizing them as web hosting or “otherwise at disposal” (i.e., in the language of the special guidance on e-commerce, the “operating” of a server). Cloud computing is a situation where the cloud customer has extensive rights in relation to the operation of the servers in various respects and could thus fall into the gray area of the OECD special guidance on e-commerce described above. In the case of Y Corp., there are two possible answers to the question of right of use, which will be discussed in the following two sections.

v) Possible Answer No. 1: Cloud Customers Have a Right of Use over the Physical Server

A website administrator may not have had sufficient control over the hardware to pass the right-of-use requirement in the 1990s.⁶²⁵ However, as PINTO already pointed out in 2002, there is a big difference between having a web hosting contract and controlling a virtual server.⁶²⁶ Control over a virtual server entails far more control over the underlying physical servers than an old-fashioned web hosting contract. PINTO was suggesting that, when using virtual servers, the customer might have a right to use the physical server that is enough to constitute a place of business.⁶²⁷

356

⁶²⁵ Contra: PORTNER 2001, p. 556 (“without a doubt”), provided the server was exclusively dedicated to one customer.

⁶²⁶ PINTO, p. 107.

⁶²⁷ Same conclusion: LLINAS/GOENKA/DUKMEDJIAN/WISNER, p. 5; HAASE, para. 35; REIMER 2016, Part 2, para. 480 (in para. 481 REIMER seems to mix the right-of-use requirement with the exception of preparatory and auxiliary activities; however, the paragraph concerns only webshops); OHLING, LINDA, *Besteuerung der digitalen Wirtschaft/Das Betriebsstättenkonzept nach §§ 12, 13 AO und Art. 5 OECD-MA im virtualisierten Handel*, master’s thesis, Johannes Gutenberg-Universität Mainz, Summer 2016, https://www.blogs.uni-mainz.de/glk/files/2018/08/Ohling_Linda.pdf (last viewed July 2, 2020), p. 37.

357 This view is based on the belief that a software program is always executed on hardware and that execution of the software implies a minimal degree of control over the hardware (i.e., the amount necessary to execute the software program).⁶²⁸ Cloud computing is organized around the *passive* provision of resources, meaning that the cloud customer has a lot more control over the hardware than in the web hosting of the 1990s.⁶²⁹ Specifically, the cloud customer may even have complete control over the geographical locations of the physical servers executing the calculations.⁶³⁰ Arguably, this is the highest degree of control that can reasonably be expected from a cost-efficient business.⁶³¹ Also it might be the most important form of control for the field of international tax law in general and the permanent establishment concept in particular that both intend to attach legal consequences primarily to the geographical distribution of a business.

358 Regardless, there is an even more radical opinion pointing in this direction. In many countries, mere use satisfies the right-of-use requirement, and Switzerland may well be one of them.⁶³² In those countries, any kind of website could constitute a permanent establishment on the host server. From a rulemaking perspective, it is possible that an abstract definition of right of use is not feasible, given the unpredictability of technological advances. Therefore, it could be argued that the mere use of a physical server through the often intentional act of operating software of any kind on it would constitute a sufficient right of use to satisfy the permanent

⁶²⁸ Same argument: IMHOF, pp. 28, 44, and 59; SCHUPPERT, paras. 21 and 44.

⁶²⁹ HON/MILLARD, p. 29.

⁶³⁰ See *infra* para. 650.

⁶³¹ Given the goal of economic efficiency that informs the activity of any enterprise, obtaining a higher degree of control than is necessary amounts to an unjustified expense. Cloud computing is specifically designed to allow for more efficient use of computing resources.

⁶³² See *supra* para. 88.

establishment definition. If the right-of-use requirement is interpreted this way, it might not even be necessary to verify whether the software operation involves a particularly intensive control over the hardware, such as is often the case in IaaS cloud computing.

vi) Possible Answer No. 2: Cloud Customers Have No Right of Use over the Physical Server

However, the perception of a cloud as constituting a permanent establishment on its host server would be contrary to the spirit of the special rules on e-commerce, whose purpose is to prevent the owner of a website from having a permanent establishment in a country. Requiring mere factual use would make the right-of-use requirement redundant, which is clearly not the intention of the OECD.⁶³³ Indeed, according to the OECD COMMENTARY, Art. 5, para. 11, the mere *digital* presence of an enterprise in a country should not amount to sufficient right of use.⁶³⁴

359

The web hosting contracts of the 1990s expressly conferred rights over hardware. Their references to hardware parts were far more direct than current descriptions of control over virtual servers.⁶³⁵ The customer who uses cloud computing no longer has rights over concrete hardware but over abstract, virtual servers at the level of software.⁶³⁶ Therefore, a cloud customer is even less likely to have a

360

⁶³³ See *supra* para. 86

⁶³⁴ That is precisely what Action 1 of the OECD BEPS program has called into question; see OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 16 and 100 f. Regrettably, however, the OECD did not explicitly link this concern to the right-of-use requirement for permanent establishments.

⁶³⁵ See SCHUPPERT, paras. 3 f., especially para. 5 on limitations upon contractual rights of control over the hardware.

⁶³⁶ BAL 2012, p. 336, saying that it depends on whether physical equipment or only storage capacity is rented.

permanent establishment at the location of the physical servers than a mere website owner.

361 This was confirmed by the Danish Skatterådet, which held that right of use required that customers have the same degree of control over the physical servers as if they owned or operated them (e.g., by having physical access to them and directly instructing maintenance personnel).⁶³⁷ The customer's staff had complete control over the website and the rest of the software level hosted on the servers. They were able to control, reboot, and modify the servers by remote access. A small group of the customer's employees was even given physical access to the data center from time to time, escorted by the subsidiary's personnel. However, none of these forms of control was sufficient.⁶³⁸ The Skatterådet expressly confirmed that these remote access rights of the customer were equivalent to the rights of cloud computing customers.⁶³⁹

362 This would also appear to be the opinion of the Canada Revenue Agency in its ruling no. 2012-0432141R3 E of January, 1 2012. The question it addressed was whether a US enterprise had a permanent establishment at the place of a data center in Canada owned (or leased) by a subsidiary expressly founded for this purpose, which was also responsible for installation, operation, maintenance, and repair. The US parent used the data center for website and data hosting for an arm's length fee, operating the software remotely. The Canada Revenue Agency ruled that the US enterprise did not constitute a

⁶³⁷ Decision of the Danish Skatterådet of March 15, 2016, SKM 2016, 188 SR, with further references to Danish case law regarding online gaming. Online gaming can also be a special form of SaaS known as "cloud gaming."

⁶³⁸ Ibid.

⁶³⁹ Ibid.; decision of the Danish Skatterådet of May 26, 2015, SKM 2015, 369 SR. However, the court did not explain whether it was referring to all or only some of the various online services marketed under cloud computing. As explained repeatedly in this thesis, there is a considerable difference between SaaS and IaaS and even between different forms of IaaS. Given the decision's focus on access to servers, the present author suspects that the Skatterådet was referring to IaaS.

permanent establishment, without explaining how it came to this conclusion.⁶⁴⁰

Overall, this answer no. 2 is in line with the opinion of many authors who consider cloud customers to have no control whatsoever over hardware.⁶⁴¹ The uncertainty in the results of this analysis show, however, that whether or not there generally is any control over hardware would need to be assessed very carefully in each case. In the experience of the present author, technology is very diverse in this regard. Tax advisers and authorities with comparatively little technological understanding would probably welcome this answer no. 2 in order to avoid further categorizations based on technological criteria. It would also match the more restrictive interpretation of the treaty-level permanent establishment widely championed in Switzerland.

363

⁶⁴⁰ SPRAGUE, pp. 291 f., however, considers it to be “consistent with a proper interpretation of the OECD commentary,” while conceding that “some have suggested that the commentary is not entirely clear on the point.” As SPRAGUE points out, it was unclear whether the OECD’s guidance implied that if the company operating the hardware was affiliated to the customer, a permanent establishment was possible. In the present author’s view, the ruling is not conclusive in this regard. Nevertheless, it could be interpreted as an application of the restrictive view that an independent agent’s activity must be treated separately from the principal’s activity, the subsidiary being the independent agent in this Canadian case. Additional example: decision of the Swedish Skatterättsnämnden of June 12, 2013, ruling no. 125-11/D. Contrasting examples: decision of the Italian Agenzia delle Entrate, Direzione Centrale Normativa e Contenzioso of May 28, 2007, ruling no. 119; decision of the European Court of Justice of October 16, 2014, C-605/12, concerning *Welmory* (although the case concerns European VAT).

⁶⁴¹ Without further detail on their opinions, as the authors do not elaborate on the question: HON/MILLARD, p. 28; KRAUZE, p. 139; HELLERSTEIN, p. 11; correspondingly: PINKERNELL 2014, p. 95; TAPPE, p. 873; BENDLINGER 2016, p. 142; BAL/OFFERMANN, p. 330 (mentioning, as an exception, a customer who has the benefit of a “Leasing-agreement”); see also DÜRR/RUMO, p. 398; MARTI/WECHNER-ROTH, p. 346, with very loose wording. KJÆRGAARD, p. 415, seems to reach a similar conclusion, based on the Decision of the Danish Skatterådet of March 15, 2016, SKM 2016, 188 SR.

d) Conclusion on the Place of Business Test

364 For Y Corp., the only eligible place of business in Switzerland that fulfills the tangibility requirement is X Corp.'s data center. However, this can be a place of business for Y Corp. only if Y Corp. has a right of use over it. The rules are not entirely clear, but it seems likely that Y Corp. would lack sufficient right of use over X Corp.'s physical servers. Therefore, Y Corp. could not have a permanent establishment in Switzerland. In view of the uncertainty inherent in the right-of-use requirement, the following sections will discuss the other permanent establishment tests, too.

3) *Fixation Test*

a) Introduction

365 As explained above, a virtual machine is not considered a place of business per se,⁶⁴² but rather a business activity. The place of business, by contrast, is represented by physical servers, upon which, at a certain point in time, the business activity of the customer is performed. The fixation test applies as much to the place of business as to the business activity. It has to apply to both physical and virtual servers.

366 Despite the increasing frequency of legal⁶⁴³ limitations on international data storage and transfer, many cloud providers have in the past refused to give users any technical control or legal rights over, or even any information on, the whereabouts of their data.⁶⁴⁴ This reluctance to meet market demands is most probably explained

⁶⁴² See *supra* para. 340.

⁶⁴³ There may also be nonlegal reasons for a customer wishing to place data storage and processing in a certain location. As geographical distance has a direct effect on communication latency between servers, communication speed is crucial to certain uses of servers, such as automated trading systems, online computer games, and Internet telephone services (see BEDNER, P. 49).

⁶⁴⁴ HON/MILLARD/WALDEN, p. 86.

by the higher cost of building and maintaining data centers in Europe and the United States compared to other regions of the world and the unwanted limitations on efficient use of the physical infrastructure.⁶⁴⁵ These cost and efficiency gains probably account for Y Corp.'s lack of interest in the whereabouts of the cloud in the standard case.

b) Execution of Virtual Servers Shared Between Different Items of Physical Infrastructure

From a technical point of view, a cloud of virtual servers can be executed on different physical servers simultaneously and consecutively. These two phenomena need to be analyzed separately. 367

When a cloud of virtual servers representing a single business activity is split up into different components and each component is executed on a different physical server in a different location, this does not present an immediate problem for the fixation test (Art. 5(1) MOECD allows an essential activity to be "partly" carried on through the place of business). Each component of the cloud of virtual servers may remain geographically fixed for a certain amount of time. Equally, the physical servers on which the cloud is executed remain immobile. However, influences may be brought to bear on the application of the business activity test to this fact, as will be seen later.⁶⁴⁶ 368

Whenever the execution of a virtual machine is subsequently shifted from one physical server to another, this could be interpreted as a cessation of the business activity in question.⁶⁴⁷ Nowadays, a physical server is usually part of a data center. A shift from one physical server to another physical server within the same data center 369

⁶⁴⁵ *Ibid.*, p. 87.

⁶⁴⁶ See *infra* paras. 647 f.

⁶⁴⁷ MARTI/WECHNER-ROTH, pp. 345 f. This is only true if the receiving server is not located in the same server farm, data center, or country. One might expect that virtualization software could "hold the door open" for the business activity to come back at any point without counting it as an interruption. However, the present text leaves aside this (probably more unlikely) line of argument for reasons of structure.

should not amount to a cessation of activity.⁶⁴⁸ On the other hand, a shift from one data center to another data center must still be considered a cessation of activity. On such occasion, it will be necessary to assess the significance of such interruptions of the business activity.

c) Interruptions

370 As mentioned earlier, insignificant interruptions are not an obstacle to characterization as a permanent establishment. Cloud computing will inevitably encounter a certain number of insignificant interruptions. If a physical server is executing a certain customer's cloud (or part of it) and at some point there is an interruption, it is likely that the same physical server will repeat the operation. The reason for shifting physical resources may be to bring about a temporary change in performance load or to replace physical infrastructure. Another reason may be to overcome technical defects.⁶⁴⁹

371 In addition to these insignificant interruptions, there may be more significant ones, during which the cloud is not only shifted to another infrastructure, but completely unavailable to the cloud customer for a certain amount of time. The question then is, how long must the interruption be to affect the duration test? In other words, how is "significance" defined in the cloud computing business?

372 Some argue that the duration test is to be judged by standards reflecting the nature of the business in each case.⁶⁵⁰ The significance of interruptions is in any event of great importance in the cloud computing business. A service-level agreement (SLA) contains a

⁶⁴⁸ Movement within the place of business has no legal consequences; see *supra* para. 98.

⁶⁴⁹ REIMER 2016, Part 2, para. 79, considers them to be of no significance.

⁶⁵⁰ LARKING, p. 269.

precise definition of what constitutes an interruption for the cloud customer.⁶⁵¹

It would seem sensible to compare the common understanding of what constitutes a significant interruption with this existing framework of thought. Of course, interruptions that under the terms of the contract lead to the cancellation of the service relationship must certainly be considered sufficiently significant for the duration test. Smaller interruptions might be less important to the cloud customer but still significant enough for the duration test. In the present author's opinion, the standards set forth in each SLA are a perfectly adequate benchmark for determining the significance of interruptions.

373

In sum, if an interruption in the cloud service is "significant" within the meaning of the SLA, it makes sense to consider it significant under the duration test as well.

374

d) Conclusion on the Fixation Test

The business activity of cloud customers is located wherever the virtual servers they control are hosted. Cloud computing makes it possible for a certain business activity being processed on a cloud of virtual servers to be executed on different physical servers simultaneously or consecutively. In the latter case, this means that even though the physical servers used are fixed, the business activity represented by the virtual servers is not fixed. Occasionally, a business activity on a server might also be interrupted in a manner significant to the fixation test.

375

Y Corp. is not aware of the location of the virtual or physical servers. Accordingly, the business activity represented by the virtual servers is probably executed at different locations simultaneously or consecutively. Swiss tax authorities would need evidence of a virtual server existing on a physical server in Switzerland over a sufficiently

376

⁶⁵¹ See *supra* para. 45.

long period of time for it to constitute a permanent establishment. The physical location of a virtual server is recorded on the hosting physical server and can be looked up by the tax authority, the customer, and possibly also by the provider.

4) *Business Activity Test*

a) Introduction

377 In the present case study, Y Corp. will constitute a permanent establishment only if it performs an essential and significant activity through the supposed place of business at the data center in Switzerland. In order to be essential and significant, the activity needs to correspond to Y Corp.'s core business, namely the streaming of videos. The activity can also represent only a part of the core business.

378 In any event, the business activity must undoubtedly be attributable to Y Corp. Given that Y Corp. has no employees physically on the premises, the question arises as to whether the activity can be performed through the permanent establishment via remote control, automated equipment, or subcontractors.

b) General Features of the Business Activity

379 Does the cloud customer (at least partly) perform a *business* at the supposed place of business? Naturally, the answer to that question depends entirely on whether or not it is the customer's intention to use the cloud for business purposes.⁶⁵² There is no question about the fundamental nature of the business corporation Y Corp. However, business has a particular, more restrictive definition in the context of the permanent establishment concept, as has been discussed previously in this thesis in the exposition of the applicable legal

⁶⁵² With respect to an online shop ("e-tailer"), see OECD COMMENTARY, Art. 5, para. 130; see also REIMER 2016, Part 2, para. 481.

rules.⁶⁵³ This is an opportunity to discuss whether the use of some forms of cloud computing, such as IaaS, inherently involve activities related to the definition of business that is of interest here.

Some forms of cloud computing are used mainly by software developers to support the basic functions of their businesses. An example is PaaS directly marketed to software developers.⁶⁵⁴ An enterprise that offers cloud services would likely prefer to build the necessary infrastructure on top of another cloud layer.⁶⁵⁵ If that is the case, the present author considers that a business-motivated activity is not only conceivable, but likely.⁶⁵⁶ Concretely, business functions may comprise the electronic conclusion of contracts with customers, payments, and deliveries of digitized products.⁶⁵⁷

Y Corp. uses the cloud service for carrying on its business of providing Internet video streaming. This includes the electronic conclusion of contracts with customers, payments, and the delivery of digitized products, namely videos. The following analysis should be read as applying to all of these aspects of the business activity.

c) Functional Integration (“through which”)

If the activity performed at the fixed place of business is merely passive, such as the renting-out of the property, the activity is not

⁶⁵³ See *supra* para. 105 f.

⁶⁵⁴ PaaS is designed for software developers, whereas IaaS requires some technical know-how as well (for a definition of these terms, see *supra* paras. 7 f.). Of course, some software developers may want to use these tools for leisure, but it seems safe to assume that most of them are used for business purposes.

⁶⁵⁵ A degree of elasticity (i.e., a certain ability to grow easily in volume) is needed for some applications offered through Internet, such as Microsoft Office 365, Evernote, iCloud, AWS Elastic Beanstalk, Heroku, Google App Engine, and Protogrid.

⁶⁵⁶ With respect to *Netflix* (see *supra* note 10), a strong case can be made in favor of assuming that the core business of streaming films and television is performed through Amazon’s virtual infrastructure.

⁶⁵⁷ OECD COMMENTARY, Art. 5, para. 130; OBERSON 2014, para. 429; MEUTER, p. 17; LÜTHI, p. 125; contra: CADOSCH, pp. 126 f.

performed “through” the place of business, rather the place becomes the object of the activity and thereby fails the functional integration requirement. Furthermore, income from such passive activity would likely lie outside the meaning of the word “business” in Art. 3(1)(h) MOECD if it is not linked to some sort of supplementary service or activity relating to the administration of the property.

383 In the case of Y Corp., it is certain that the video content provided through the servers represents copyrighted or copyright-licensed material. As intangible intellectual property, the videos are licensed to the customers of Y Corp. for consumption. However, the business of Y Corp. goes beyond the mere renting-out of intellectual property; to a large extent, it also involves the design and development of user interfaces and the optimization of software processes. The technical process through which the content is made available cannot be regarded as “passive.” Furthermore, the stock of content licenses needs to be continually renewed and administered. Even if only part of these supplementary services of Y Corp. are performed at the servers, they allow the part of the activity actually performed there to be considered as sufficiently active to qualify as “business” and “functional integration.”

d) Attribution of Activity (“of an enterprise”)

384 The DTA between Y Corp.’s jurisdiction of residence (United States) and Switzerland uses the word “through” rather than “in.”⁶⁵⁸ Therefore, there can be no doubt that Y Corp.’s personnel can perform activities “through” the permanent establishment by using remote control and automation.⁶⁵⁹

⁶⁵⁸ *Convention entre la Confédération suisse et les Etats-Unis d’Amérique en vue d’éviter les doubles impositions en matière d’impôts sur le revenu du 2 octobre 1996* (RS 0.672.933.61).

⁶⁵⁹ See *supra* paras. 110 f.

However, Y Corp. has no personnel on site at the data center in Switzerland. Moreover, as it is the activity of a subcontractor, X Corp.'s activity at the data center cannot be attributed to Y Corp.⁶⁶⁰ Only automated and remote-controlled activity performed by Y Corp.'s own personnel can be attributed to Y Corp. 385

e) Conclusion on the Business Activity Test

According to the opinions put forward in this thesis, Y Corp.'s business operations are performed remotely by its own personnel and by automated equipment in Switzerland. Hence, these activities are attributable to Y Corp. as business activities and thus eligible for the constitution of a permanent establishment. However, under the Swiss interpretation, the activity performed by X Corp. as a subcontractor cannot be attributable to Y Corp. 386

In conclusion, Y Corp.'s activity performed through the data center in Switzerland fulfills the business activity test in Art. 5(1) MOECD. 387

5) *Exception of Preparatory or Auxiliary Activities*

a) Introduction

The characterization of Y Corp. as a permanent establishment is conditional upon the activities attributable to it not being merely preparatory or auxiliary. The list of negative examples will again prove to be irrelevant. It will be helpful to analyze the application of the general criterion from the perspective of comparative law. 388

b) Lists of Examples

Y Corp. has neither legal nor economic ownership of any physical or tangible objects located at the data center. Electronic "goods" are intangible data and do not fall within the definitions of goods or 389

⁶⁶⁰ See *supra* para. 122.

merchandise.⁶⁶¹ Furthermore, the activity of Y Corp. includes more than the mere collecting of that data and extends to the “selling” and “delivering” of the data. Hence, none of the items in the list of negative examples in Art. 5(4)(a)–(d) MOECD is applicable to the activity of Y Corp.

390 As regards the additional examples in the OECD COMMENTARY, Art. 5, para. 128 (communication, advertising, mirroring, market data, supplying information), those most likely to be applicable are supplying information and advertising, as well as the occasional use of virtual mirror servers. However, Y Corp.’s activity is not limited to these activities and, even if one of these examples would apply, the permanent establishment status would ultimately be contingent upon the application of the general criterion in Art. 5(4)(f) MOECD. Whether it is capable of excluding the Swiss data center from permanent establishment status for Y Corp. is the subject of the following section.

c) General Criterion

391 Given the restrictive Swiss interpretation of permanent establishment at treaty level, the requirements for the business activity test are especially stringent.⁶⁶² However, if a business’s principal functions are all performed on the cloud, the business activity on the server is likely to be essential and significant.

392 In the case of Y Corp., the core business of streaming videos is highly dependent on the virtual servers used for the provision of these videos. Therefore, Y Corp.’s use of the virtual servers at the data center in Switzerland can be considered a part of the core business

⁶⁶¹ VOGELSANG, p. 175 (referring to other similar views), points out that there is no reason to treat electronically stored data and physically stored data differently. The OECD contemplated introducing this clarification into the OECD COMMENTARY (OECD, *Interpretation and Application of Article 5 (Permanent Establishment) of the OECD Model Tax Convention*, Paris October 2012, pp. 28 f.).

⁶⁶² ROBINSON/WEIGEND, p. 379.

of the enterprise. Even the particularly high Swiss standards for this test are clearly fulfilled, as the video streaming is ordered, delivered, and paid for by using these virtual servers.

From the perspective of comparative law, the Australian Tax Office's ruling no. 79967 of March 18, 2008, describes the case of a taxpayer who offered an online service to subscribers to a website. A server located outside Australia was used for contracting, payment, and storage of subscriber data. The local Australian server simply mirrored⁶⁶³ the service's content for Australian subscribers who wished to download it from there. However, subscribers were free to choose other servers if they preferred. The Australian servers were placed in the staffed colocation⁶⁶⁴ data center of an unrelated enterprise. The Australian Tax Office noted that "the interaction between the website content and the user is the actual service that is being provided and is therefore an essential and significant part of the activity of the business as a whole" and that "the services performed through the servers are also not so remote from the actual realisation of profits that it is difficult to allocate any profit to the fixed place of business." The taxpayer thus had a permanent establishment at the location of the mirror server.

393

d) Anti-avoidance Rules

In the case described in the preceding paragraph, the Australian Tax Office assessed a tiny fraction of the taxpayer's core business as a business activity "wholly or *partly* carried on" (Art. 5(1) MOECD, emphasis added). This interpretation does not leave much room for tax avoidance through artificial fragmentation, as many such artificial

394

⁶⁶³ See OECD COMMENTARY, Art. 5, para. 128, third bullet point: "relaying information through a mirror server for security and efficiency purposes" is typically considered a preparatory or auxiliary business activity, ruling out permanent establishment status.

⁶⁶⁴ For a more detailed discussion of the concept of a colocation service, see *infra* para. 477.

fragments of activity could be targeted as activities being “partly carried on” in the taxing jurisdiction.

395 In the present author’s opinion, the view that the use of mirror servers is essential and significant for businesses relying heavily on mirror servers or subsequent technology of the same kind would likely find support in Switzerland. However, it is unlikely that Switzerland would adopt a similar interpretation of “partly” to Australia in the case described above, as Switzerland prefers a restrictive interpretation of the permanent establishment definition in treaties.⁶⁶⁵

396 A somewhat artificial division of activities is innate to cloud computing. For example, the so-called service-oriented architecture is a way of organizing software applications and infrastructure into a set of interacting services.⁶⁶⁶ It allows any activity to be divided into multiple small parts that may be executed at different physical locations. This rather traditional software architecture can apply to cloud computing as well.⁶⁶⁷

397 If this kind of service-oriented architecture falls under the antifragmentation rule,⁶⁶⁸ it would increase the likelihood of permanent establishment status. If the entire activity of an enterprise in Switzerland surpasses the essential activity threshold, it will meet the business activity test. However, if the cloud of virtual servers is executed in different countries at the same time, the antifragmentation rule would have no effect because it covers only intrajurisdictional fragmentation. Contrary to popular belief, it is in fact possible to identify the precise geographical location where a

⁶⁶⁵ LUDWIG, p. 6.

⁶⁶⁶ PAPAZOGLU, p. 3.

⁶⁶⁷ TSAI/SUN/BALASOORIYA, p. 686.

⁶⁶⁸ The old, antifragmentation rule and the new rule have the same effect. Moreover, the extension to groups (instead of a single enterprise; see *supra* paras. 135 f.) does not seem very relevant to cloud computing.

certain calculation has taken place within a network of computers. The issue is therefore simply one of burden of proof.

e) Conclusion on the Exception of Activities

For utmost clarity, Y Corp. would need to disclose precisely which calculations are performed at the data center in Switzerland. If ordering, delivery, and payment are performed through the servers in the Swiss data center (through automated means), there is no reason to believe that the activity could be merely auxiliary. The items on the OECD list of negative examples do not suggest otherwise. In case study B, Y Corp.'s operations in Switzerland are an essential and significant activity.

398

6) Conclusion on Case Study B: Cloud Customer

In case study B, Y Corp. does not constitute a permanent establishment at the location of the data center in Switzerland.

399

This is due to the lack of fixation of the virtual servers, which may be shifted between different jurisdictions before the minimum length of time during which a permanent establishment must exist has elapsed. Further, it is unlikely that there will be sufficient right of use over the data center. Finally, if the DTA between Switzerland and the United States had used the word "in" rather than "through which," it is debatable whether remote access by Y Corp.'s personnel to the virtual servers executed on the infrastructure of the Swiss data center could be considered as taking place "through" it.⁶⁶⁹ If this were considered not to be the case, then Y Corp. would have no attributable business activity at the place of business. However, the DTA in question uses the expression "through which," so the question does not arise.

400

⁶⁶⁹ See *supra* para. 384.

D) Conclusion on the Application of the General Definition

401 According to Art. 5(1) MOECD, a provider of cloud services has a permanent establishment at the locations of data centers. The customer of cloud services does not constitute a permanent establishment. The main reason for this is that the cloud is distributed between several locations and does not fulfill the fixation test.

§ II. Dependent Agent Permanent Establishment

A) Introduction

402 As has been shown in the preceding analysis, a cloud provider generally meets the permanent establishment test under the general definition in Art. 5(1) MOECD. There is therefore little point in applying the tests for other kinds of permanent establishment to case study A.⁶⁷⁰ By contrast, the cloud customer will most likely not constitute a permanent establishment through its use of cloud computing under the general definition in Art. 5(1) MOECD. Therefore, the following section will confine itself to an analysis of case study B, the cloud customer.

B) Person

403 An unprejudiced analysis of the normative content of the original meaning of “person” reveals that there is no reason to believe that

⁶⁷⁰ See OECD COMMENTARY, Art. 5, para. 100 (on the subsidiarity of the dependent agent permanent establishment) and para. 146 (on the services permanent establishment).

any piece of software or website is intrinsically excluded from it.⁶⁷¹ Software that performs all relevant, substantial, and significant business functions (as demanded by Art. 5(4)(f) MOECD) can largely be considered as economically equivalent to humans or human telemarketers.⁶⁷² The postulation that only humans are eligible persons would require the tax administration to trace a certain software's activity back to its human programmer, which would be a cumbersome and useless exercise with no normative sense.⁶⁷³ Besides, there is general agreement over the need to adopt a "very wide" interpretation of the word "person."⁶⁷⁴

At first glance, this would mean that, as a specific form of software, virtual servers would be covered by this wide interpretation as well. In rare cases, however, they might cease to fulfill the requirement of being a different person from the entrepreneur using them. If the entrepreneur is part of a partnership or another entity without legal personality, the virtual server used to interact with customers in the source jurisdiction may be the mere instrument of the entrepreneur's own activity there. In that case, there would be no eligible person constituting an agent for the dependent agent permanent

404

⁶⁷¹ OBERSON 2019, p. 54, considers the application of the term "person" to robots; SWEET, p. 1981 ("seemingly") reveals, in an unprejudiced application of the "person" requirement to software, that there is no certainty in the definition of "person" and that FORST 1997, p. 1468, arguing the opposite, based his understanding of "person" on the assumption that a permanent establishment necessitates personnel. This contrasts with the OECD's more recent affirmation that personnel are not required for any kind of permanent establishment (OECD COMMENTARY, Art. 5, para. 127, since January 23, 2003). Consequently, FORST's argument seems to have become indefensible.

⁶⁷² SCHAEFER, p. 131.

⁶⁷³ It becomes appropriate to distinguish between human beings and the means of communication only when the geographical location of the human being is relevant. That is not the case with Art. 5(5) MOECD; see *supra* para. 150.

⁶⁷⁴ OECD COMMENTARY, Art. 3, para. 2; WIDMER 2003, p. 108; REIMER, Part 2, para. 312; however, the Swiss-German DTA is narrower in its scope, explicitly excluding partnerships from the definition of "person"; see HÄCK, in: FLICK/WASSERMEYER/KEMPERMANN, Art. 5, para. 87.

establishment. By contrast, when the taxpayer is a company, neither human nor (by extension) machine activity in the source state could be considered identical to the taxpayer, as any human employee acting for the company is a legally different person and therefore a potential agent.⁶⁷⁵

405 Most authors are opposed to the idea of a website or a software program being an eligible person for the dependent agent permanent establishment.⁶⁷⁶ The OECD COMMENTARY clearly states that a “website” is not itself a “person” as defined in Art. 3(1)(b) MOECD.⁶⁷⁷ As explained earlier, there is merit in interpreting the OECD rules concerning websites as being applicable to any kind of software, including virtual servers.⁶⁷⁸ By that measure, a virtual server could never be considered an eligible person.

406 Be that as it may for virtual servers, there is no apparent reason (besides a literal interpretation of the word “person” on grounds of contemporaneity⁶⁷⁹) to exclude a priori physical servers from the definition of person.⁶⁸⁰ Alternatively, individuals, such as the

⁶⁷⁵ Interestingly, this also means that it becomes irrelevant whether the machine is treated as a person in its own right or merely an extension of the activity performed by the human being who uses the machine.

⁶⁷⁶ OBERSON 2001a, p. 102; CADOSCH, p. 134, based on a restrictive interpretation of “person”; LÜTHI, p. 125; SKAAR 2000, pp. 192 f.; HINNEKENS 1999, p. 7; SPRAGUE/HERSEY, p. 341; BUCHANAN, p. 2138; OWENS, p. 1846, contending that the order is accepted by a human being communicating through the website rather than by the website itself, which seems debatable if the possibility of a website accepting an order through some sort of automation and standardized contracting is taken seriously. SCORNOS, p. 4 (“personnel”), seemingly and without further explanation implies that, contrary to the OECD COMMENTARY, Art. 5, para. 83 and Art. 3(1)(a) MOECD, only individuals count as “person” in this context.

⁶⁷⁷ OECD COMMENTARY, Art. 5, para. 131.

⁶⁷⁸ See *supra* para. 349.

⁶⁷⁹ SWEET, p. 1980.

⁶⁸⁰ Contra: SKAAR 2000, pp. 192 f., where the underlying assumption is that “person” implies legal personality and that servers are not entities for legal purposes. The

personnel operating the data center, could be considered as eligible persons. Another eligible person would be a cloud provider, if organized as a company.⁶⁸¹ The location of the cloud provider would be immaterial (whether at the location of the head office or one of the permanent establishments), as long as there is an activity in the source jurisdiction where the existence of the dependent agent permanent establishment of the contemplated taxpayer is assessed.

The consequence for case study B is that, in all probability, the personnel and the physical servers in the data center in Switzerland would both qualify as eligible persons constituting a dependent agent permanent establishment of Y Corp. Similarly, the cloud provider X Corp. would qualify as a person, no matter which location (Switzerland or the United States) is considered decisive.

407

C) Authority to Conclude Contracts in the Name of the Enterprise

1) Literal Meaning of Pre-BEPS Art. 5(5) MOECD

Neither X Corp. in the United States nor its constituents at the Switzerland data center would fulfill the formal requirements under Swiss law of direct representation (Art. 32(1) CO) and the actual

408

present author notes that automated systems are factually able to act legally on behalf of legal entities such as corporations or individuals. As will be seen below, however, the question is moot in this context as it is immaterial whether the machine represents the corporation or the employee that programs the machine. The question could become relevant when automated machines learn to program themselves and no individual employee can be considered responsible for any of their actions. Also contra: CADOSCH, p. 131; PORTNER 1998, p. 555; SPRAGUE/HERSEY, p. 341, on a *de lege ferenda* basis.

⁶⁸¹ See OECD COMMENTARY, Art. 5, para. 131, stating that an Internet service provider does not satisfy the requirements of a dependent agent permanent establishment because it normally lacks the authority to conclude contracts. *A contrario*, it could be assumed that the problem is not that the Internet service provider is not a “person” within the meaning of Art. 5(5) MOECD.

conclusion of contracts. Therefore, Switzerland could not consider them as dependent agent permanent establishments of Y Corp.

409 Whether they would fulfill the *authority* requirement in other jurisdictions that do not demand direct representation (i.e., common law jurisdictions) is another question. However, they would most likely not fulfill the requirement of actually concluding contracts either. Furthermore, X Corp. would need to be considered dependent on Y Corp. (see *infra* paras. 416 f.) in order to constitute a dependent agent permanent establishment.

2) *BEPS Action 7*

410 As explained earlier,⁶⁸² Art. 5(5) MOECD post-BEPS introduces an alternative to the authority requirement, namely, that the agent must habitually play the principal role leading to the conclusion of contracts that are routinely concluded without material modification by the enterprise. Although the exact meaning of this new “principal role” requirement has yet to be confirmed by tax jurisdictions and substantiated in case law, it invites some speculation with regard to cloud computing. For instance, would the new requirements actually extend the scope of application of the dependent agent permanent establishment in the case of cloud computing compared to the economic interpretation of the pre-BEPS Art. 5(5) MOECD in Switzerland?

411 It is clear that X Corp. is not part of any *commissionnaire* arrangement or similar scheme in the traditional sense of the word. BEPS Action 7 could unintentionally affect X Corp.’s tax liability, even though BEPS Action 1 (“Addressing the tax challenges of the digital economy”)

⁶⁸² See *supra* para. 160.

deferred reforms in the international taxation of the digital economy (including cloud computing⁶⁸³), partly to BEPS Action 7.⁶⁸⁴

As Y Corp. provides video streaming services to consumers, it can be assumed that the contracts with consumers are highly standardized and the provision of the video streaming highly automated. On the one hand, Y Corp.'s personnel draft standardized contracts in the jurisdiction where Y Corp. is resident. The fact that Y Corp. advertises and concludes contracts for its video streaming services directly using the virtual servers hosted at X Corp.'s data center could be understood broadly as implying that the "negotiations" for these contracts actually take place at the location of these virtual servers. The fact that Y Corp. uses the virtual servers hosted at X Corp.'s data center for the offering and contracting of video streaming services may make the data center the location of something equivalent to "negotiations." The fact that maintenance is a necessity for the physical servers hosting these "negotiations" may even give X Corp.'s personnel a certain role in the negotiations. However, they would have only a secondary role, the principal role being attributable to Y Corp.

412

On the other hand, most contracts (after being written) will probably never be processed by a human being, as the customer is able to order, request, and pay for the service by communicating directly with the software and the servers at the Swiss data center. As with a vending machine, human intervention will be required only for purposes not directly related to the customers, such as the setting-up of the servers, the programming of the software, the acquisition of video material, maintenance, and repair. The activities performed by the servers and the software at the Swiss data center could therefore be described as playing the "principal role leading to the conclusion

413

⁶⁸³ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 103 (with regard to nexus) and 143 (more generally).

⁶⁸⁴ *Ibid.*, pp. 87 f. In view of the challenges that have actually arisen in the digital economy, the present author considers it regrettable that BEPS Action 1 did not have a greater and more manifest impact on the other Actions.

of contracts,” (Art. 5(5) MOECD, post-BEPS) as nobody other than the servers is actually involved in the conclusion of contracts.⁶⁸⁵ The way in which the new requirement was drafted⁶⁸⁶ shows that it would be wrong to think that the standardized nature of these contracts diminishes the importance of the agent’s principal role.

414 In conclusion, it makes sense that X Corp. or its constituents in Switzerland could fulfill the new “principal role” requirement introduced by BEPS Action 7.⁶⁸⁷ In this regard, BEPS Action 7 may actually increase the scope of the dependent agent permanent establishment beyond what is targeted by an economic interpretation of the pre-BEPS Art. 5(5) MOECD. While the OECD’s main intention was to target *commissionnaire* arrangements and similar schemes, BEPS Action 7 may indeed extend the permanent establishment concept farther than was originally intended.

3) *Economic Interpretation of Current Art. 5(5) MOECD*

415 X Corp.’s situation cannot be considered as the economic equivalent of a dependent agent according to the formal interpretation of pre-BEPS Art. 5(5) MOECD. X Corp. does not represent Y Corp. in relation

⁶⁸⁵ DÜRR/RUMO, p. 398, stated in 1999 that an Internet service provider (hereinafter “ISP”) contributes to the conclusion of contracts between website owners and their customers. In their view, there are two reasons why an ISP cannot be characterized as a dependent agent: an ISP does not receive instructions from the website owner (i.e., independence) and does not conclude contracts on behalf of the website owner (i.e., authority, according to the literal meaning of Art. 5(5) MOECD). Similarly: SPRAGUE/HERSEY, pp. 340 f. (recommending amendments to the OECD texts in this regard).

⁶⁸⁶ See *supra* para. 163.

⁶⁸⁷ KJÆRSGAARD, p. 416, reaches the same conclusion based on a different fictional case study. In the present author’s view, that case may be common, but not specific to cloud computing as a technology or business model. An enterprise in any economic sector could have local sales representatives that fulfill the “principal role” requirement.

to Y Corp.'s customers, whether directly or indirectly,⁶⁸⁸ as it does not conclude contracts on behalf of Y Corp. X Corp. does not negotiate material elements of these contracts either. Nor does it seem to be a case of tax avoidance through deliberate circumvention of the formalistic requirement. Therefore, it is unlikely that jurisdictions such as Switzerland would consider that X Corp. satisfies the authority requirement, even according to an economic interpretation of pre-BEPS Art. 5(5) MOECD.⁶⁸⁹

D) Exclusion of Independent Agents

There are factors indicating that X Corp. is independent of Y Corp. and that the former acts in the ordinary course of its business.⁶⁹⁰ X Corp. has autonomy with respect to working times, place of work, and how it negotiates with customers; it does not receive instructions, as would an employee; and it bears the entire entrepreneurial risk of the business of IaaS provision. Further, Y Corp. relies on X Corp.'s special skill and knowledge. Although loosely based on costs,⁶⁹¹ X Corp.'s remuneration is comparable to the prices charged by any other IaaS provider. X Corp. is both legally and economically independent of Y Corp. It may be that Y Corp. is X Corp.'s only or most important customer, but that alone would not be enough to create a situation of economic dependency. Finally, in providing IaaS to

416

⁶⁸⁸ SKAAR 2000, p. 193.

⁶⁸⁹ The OECD COMMENTARY, Art. 5, para. 131, bluntly states (notwithstanding the statements made at para. 32.1 pre-BEPS) that an Internet service provider (or ISP) does not have the authority to conclude contracts in the name of the taxpayer and will not usually conclude such contracts except in very unusual circumstances.

⁶⁹⁰ According to the OECD, an Internet service provider (or ISP) would usually constitute an independent agent acting in the ordinary course of their own business (OECD COMMENTARY, Art. 5, para. 131).

⁶⁹¹ See *infra* paras. 546 f.

Y Corp., X Corp. is acting in the ordinary course of its own (and any other IaaS provider's) business.

417 SKAAR used to believe that it is "obvious" that a server is dependent on the enterprise that conducts the website activity on it, as the server operates only when the enterprise so wishes.⁶⁹² However, the present author believes the opposite to be the case. Nowadays, cloud computing is such that different customers' clouds can be executed on the same physical server, which necessarily means that the physical server does not operate according to the wishes of a single customer. Even at the time SKAAR refers to, a physical server in most cases hosted several websites simultaneously and could be used by the web host for other tasks if a customer no longer required the server. Furthermore, a physical server's dependency vis-à-vis the customer is the same as that of the host itself, just as a host's employees have the same relationship of dependence vis-à-vis customers as does their employer.⁶⁹³ Consequently, it is only necessary to assess X Corp.'s dependence in relation to Y Corp.

418 As far as the alternative requirements in BEPS Action 7 are concerned, it is clear that X Corp. and Y Corp. are not "closely related" in case study B, as their relationship does not correspond to the definition provided in post-BEPS Art. 5(6)(b) MOECD. Neither of them controls more than 50 percent of the aggregate vote and value of the shares of the other. It is also not the case that both are under a third person's control.

419 In conclusion, X Corp. meets the requirements for the exclusion of independent agent status under Art. 5(6) MOECD, both pre-BEPS and

⁶⁹² SKAAR 2000, p. 193.

⁶⁹³ That is true, provided they act in the ordinary course of their business. See also VOGELSANG, p. 254, stating that the question of whether an employee of enterprise A is dependent on another enterprise B is decided in light of the extent to which enterprise A is dependent upon enterprise B.

post-BEPS. As such, X Corp. cannot constitute a dependent agent permanent establishment of Y Corp.

E) *Habitual Exercise*

Under the formal interpretation of the pre-BEPS Art. 5(5) MOECD, the activity tested for habitualness is the conclusion of contracts.⁶⁹⁴ When a global sales strategy involves making a website available on the World Wide Web and this leads to the conclusion of only a few sporadic contracts in each source jurisdiction, the “habitual” requirement would probably not be easily met in any one jurisdiction.⁶⁹⁵

By contrast, in the light of post-BEPS Art. 5(5) MOECD, or giving an economic interpretation to the meaning of the pre-BEPS Art. 5(5) MOECD, the *habitual* requirement would pertain to any activity that constitutes the principal role leading to the conclusion of contracts (i.e., the preponderant sales force function). This means that the economic interpretation of pre-BEPS Art. 5(5) MOECD or its post-BEPS wording extends the range of eligible activities that may fulfill the requirement of “habitual,” increasing the likelihood that it will be fulfilled. When all the significant and essential business activities are performed through a website (i.e., offer of standardized contracts, orders, deliveries, and payments for digital products and services), it can reasonably be regarded as (at least) an element of the principal role leading to the conclusion of contracts. Given that the website is always available on the server, the activity it represents can be considered as regular, permanent, and thus “habitual,” playing the principal role leading to the conclusion of contracts. An agent making a website available on a non-temporary basis in a source jurisdiction

⁶⁹⁴ SKAAR 2000, p. 194.

⁶⁹⁵ Contra: *ibid.*, p. 194, based on the *explicit* assumption that contracts are concluded frequently and the *implicit* assumption that this always happens within the same jurisdiction.

(even in the context of a global sales strategy) would probably satisfy the “habitual” requirement, provided all the other requirements of Art. 5(5) MOECD are fulfilled, namely the exclusion of preparatory or auxiliary activities, as discussed in the next section.

F) *Exception of Preparatory or Auxiliary Activities*

422 The question then becomes whether the activity performed by X Corp. at the Swiss data center is preparatory or auxiliary in relation to Y Corp.’s core business. The question may be answered in the same way as it was when discussed in relation to the general definition of permanent establishment in Art. 5(1) MOECD (see *supra* para. 321).

423 As previously mentioned, the result of such an analysis is debatable and there are equally convincing arguments in favor of and against assigning an auxiliary character to IaaS as part of a consolidated business. If that were the only relevant requirement of dependent agent permanent establishment status, Y Corp. would be well advised to ask the tax authorities for a preliminary assessment (ruling). However, it is not the only relevant requirement.

G) *Conclusion on the Application of the Dependent Agent Permanent Establishment*

424 From the explanations above it can be inferred that neither X Corp. nor its constituent parts at the Swiss data center (personnel or physical servers) are eligible dependent agents constituting permanent establishments of Y Corp.⁶⁹⁶ The main reason for this is that X Corp. satisfies the criteria that would place it outside the definition of a dependent agent permanent establishment in Art. 5(6) MOECD (pre- and post-BEPS), namely, there is no dependence.

⁶⁹⁶ Arriving at the same conclusion: CADOSCH, p. 134; OBERSON/PIAGET, p. 371.

Furthermore, X Corp. does probably not satisfy the requirements of authority and habitualness under the pre-BEPS Art. 5(5) MOECD. Whether the exclusion of Art. 5(4) MOECD has any bearing on the dependent agent permanent establishment status of Y Corp. can remain an open question. BEPS Action 7 may have a critical, but unintended, impact on the outcome of this analysis with regard to the requirements of authority and habitualness. However, BEPS Action 7 does not change the assessment that X Corp. should be considered independent of Y Corp. The final conclusion is that X Corp. does not constitute a dependent agent permanent establishment for Y Corp.

425

§ III. Services Permanent Establishment

It would be fitting if cloud computing, which is defined by how *anything* can be delivered as a service (so-called XaaS), could constitute some form of services permanent establishment. However, this is clearly not possible: there is no “individual” who is able to perform services on behalf of Y Corp. in Switzerland, as Y Corp.’s services are being delivered electronically. Therefore, the services permanent establishment is inapplicable in this case.

426

§ IV. Substantial Equipment Permanent Establishment

Given the size of certain kinds of computers, one might think that they constitute “substantial equipment.”⁶⁹⁷ However, this is generally not the case,⁶⁹⁸ as most computer systems are not used for the exploration or exploitation of natural resources, which is an essential

427

⁶⁹⁷ PINTO, pp. 104 f., with references to international case law.

⁶⁹⁸ For Australia, see Interpretive Decision of the Australian Taxation Office of December 22, 2006, ATO ID 2006/337, <http://law.ato.gov.au/atolaw/view.htm?docid=AID/AID2006337/00001> (last viewed July 2, 2020).

component of the definition. When they are used in that way, it can be assumed that they are part of a larger machine, installation, or equipment that would correspond to the definition of “substantial equipment” on its own. Consequently, Y Corp. in case study B does not qualify as a substantial equipment permanent establishment, as it has no connection at all with the business of exploiting natural resources.⁶⁹⁹

§ V. Swiss Domestic Permanent Establishment

A) Introduction

428 The following section applies the definition of permanent establishment under Swiss federal law to case studies A and B. Given the many similarities with Art. 5(1) MOECD, the following explanations will focus on differences that are relevant to the analyzed case studies. If the result is the same as when Art. 5(1) MOECD is applied, the same reasoning can be utilized.

429 As the concept of a permanent establishment is generally interpreted more broadly under Swiss federal law than under treaty law, it would be natural to expect the end result to deviate. However, the differences between the definitions of permanent establishment under Swiss federal law and treaty law are not of sufficient significance to alter the end result, meaning that X Corp. continues to

⁶⁹⁹ Nevertheless, there have been numerous reports of cloud computing providers using their ICT capabilities to engage with the oil industry, for instance, MICHELLE KUNG, *How Deep Imaging is Using Cloud Computing to Boost Oil and Gas Production Performance*, <https://aws.amazon.com/blogs/startups/how-deep-imaging-uses-cloud-computing-to-optimize-oil-and-gas-production/> (last viewed July 2, 2020). It will be interesting to observe how technological tax law definitions such as the substantial equipment permanent establishment will be used when cloud computing and extraction technologies further converge. Due to its specificity and orientation towards foreign domestic law, this subject is beyond the scope of analysis of the present thesis.

have a permanent establishment in the Swiss data center and Y Corp. does not.

In the two cases under consideration, X Corp. and Y Corp. are subject only to Art. 51(2) DTC, and not Art. 4(2) DTC. They are both corporations and not individuals. Art. 4(2) DTC will therefore be left aside in the following discussion. However, the conclusions developed remain equally valid for independent individual taxation under Art. 4(2) DTC.

430

B) Case Study A: Cloud Provider

1) Introduction

As in the earlier application of Art. 5(1) MOECD, the basic structure of the permanent establishment concept will be followed when discussing the application of Art. 51(2) DTC to case study A. It comprises the following elements: the place of business test, the fixation test, and the business activity test.

431

2) Place of Business Test

A server can constitute a place of business.⁷⁰⁰ This accords with the Swiss Federal Supreme Court's tradition of accepting different types of equipment, such as high- and low-tension lines, transformers, water pipelines, vending machines, railways, and railway stations as places of business for the purposes of an intercantonal permanent establishment.⁷⁰¹

432

Further, it is beyond doubt that an entire building containing servers and personnel is a place of business. As this is the situation in case

433

⁷⁰⁰ OBERSON 2001b, p. 695; CADOSCH, pp. 123 f.

⁷⁰¹ OBERSON 2001b, p. 694; contra: BAUMGARTNER, p. 18, criticizing the likening of servers to other machines.

study A, the cloud provider X Corp. unquestionably has a place of business according to Art. 51(2) DTC.

3) *Fixation Test*

434 Swiss federal law requires the fixation of the place of business to be non-temporary. X Corp. has fitted out a building with expensive, non-mobile equipment. X Corp.'s presence in that building is uninterrupted and it is X Corp.'s intention to remain in Switzerland for an undetermined length of time, serving an unspecified number of customers. X Corp. is even more likely to fulfill the fixation test on the basis of Art. 51(2) DTC than on the basis of Art. 5(1) MOECD.

4) *Business Activity Test and Exception of Preparatory or Auxiliary Activities*

435 In general, the business activity test is broader under Swiss federal law than under treaty law.⁷⁰² This means that X Corp. is more likely to pass it. However, there is no point in discussing this test if it is assumed that any activity is sufficient, given the controversy over whether preparatory or auxiliary activities are excluded from the business activity test in Switzerland.⁷⁰³ Therefore, if there are excluded preparatory or auxiliary activities, the question of distinguishing them from significant and essential activities becomes relevant.

436 The mere transfer of data through servers, data lines, and routers without any processing should not constitute a permanent establishment.⁷⁰⁴ Therefore, a physical server that is used only to deposit copies of data (a so-called mirror server) does not perform an

⁷⁰² See *supra* para. 196.

⁷⁰³ See *supra* note 332.

⁷⁰⁴ OBERSON 2002, p. 68; OBERSON 2001b, p. 695. OBERSON/HULL, p. 110; OBERSON/PIAGET, p. 370, affirming the relativity of the business activity test in Swiss domestic law as well.

essential and significant activity.⁷⁰⁵ Equally, when a server is just rented and activated, but not actually used for business, it does not constitute a valid business activity.⁷⁰⁶

Under Swiss law, the ability to conclude contracts through a permanent establishment is considered particularly important.⁷⁰⁷ The Swiss Federal Supreme Court confirmed this in 1976. It held that a banking liaison bureau in Switzerland, which merely collected information and informed potential customers, did not constitute a permanent establishment owing to the fact that it lacked the capacity to conclude contracts.⁷⁰⁸ Indeed, a server executes an essential and significant activity only if it is used for the conclusion of contracts, or for payments for and delivery of the electronic service.⁷⁰⁹

The cloud service performed by X Corp. is ordered, paid for, and delivered via the servers in the Swiss data center. Therefore, the activity in question is undoubtedly a part of the core business.

5) *Conclusion on Case Study A: Cloud Provider*

The application of Art. 51(2) DTC to case study A reveals that X Corp. has a permanent establishment at the location of the Swiss data center. This corresponds to the results reached upon applying Art. 5(1) MOECD to the same facts.

⁷⁰⁵ LEHMANN, p. 6, predicting OECD COMMENTARY, Art. 5, para. 128.

⁷⁰⁶ DÜRR/RUMO, p. 398.

⁷⁰⁷ See SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 24 de l'Administration fédérale des contributions concernant l'imposition des sociétés étrangères qui entretiennent en Suisse des établissements stables*, June 1, 1960, ASA 1960 (vol. 28) p. 497.

⁷⁰⁸ Decision of the Swiss Federal Supreme Court of September 19, 1976, ATF 102 Ib 264, recital 3(b); see OBERSON 2001b, p. 695, stating that this decision concerning the treaty definition according to Art. 5(1) MOECD can also be used to interpret Art. 51(2) DTC.

⁷⁰⁹ OBERSON 2001b, p. 696.

C) Case Study B: Cloud Customer

1) Introduction

440 As above, the discussion below will follow the same structure as that
of the permanent establishment concept, focusing on the place of
business test, the fixation test, and the business activity test. The
application of Art. 51(2) DTC to the case of Y Corp. is not expected to
differ greatly from the application of Art. 5(1) MOECD, as the main
challenge of this application is the right-of-use requirement and the
Swiss federal definition of permanent establishment basically aligns
with the MOECD standard in this regard.

2) Place of Business Test

441 As when applying Art. 5(1) MOECD, the eligible place of business is
represented by the data center in Switzerland. The doubts concerning
the existence of a sufficient right of use over the data center are
identical as well.

442 Indeed, the general tendency to interpret the permanent
establishment concept more widely under Swiss federal law than
under treaty law could, at first glance, tip the balance towards a lower
threshold for sufficient right of use (as in answer no. 1, see *supra*
paras. 356 f.). However, this view is not in line with the prevailing
opinion.⁷¹⁰

443 In conclusion, Y Corp. is very unlikely to pass the place of business
test due to a lack of right of use over the physical servers in
Switzerland.

444 Is it possible to consider X Corp. as Y Corp.'s permanent
representative, thus changing the analysis?⁷¹¹ As has been

⁷¹⁰ See VOGELANG, p. 294; see also OBERSON 2001a, p. 93; MARTI/WECHNER-ROTH, p. 348; DÜRR/RUMO, p. 399.

⁷¹¹ See *supra* paras. 198 f.

established with regard to Art. 5(5) and (6) MOECD, X Corp. is independent of Y Corp.⁷¹² Therefore, the facilities of X Corp. are not directly used for Y Corp.'s business and cannot be attributed to Y Corp.

3) *Fixation Test*

Nonfulfillment of the required minimum duration makes it even less likely that the cloud customer would satisfy the fixation test. The presence of virtual servers within a certain data center may or may not be temporary. If Y Corp. is unaware of the virtual servers' exact location, the fixation test is most likely not fulfilled, as there is no contractual obligation preventing the cloud provider from shifting the calculation load among different data centers in different physical locations as efficiently as possible.

For the purposes of a permanent representative permanent establishment, on the other hand, X Corp.'s data center could be considered as being "permanent."

4) *Business Activity Test and Exception of Preparatory or Auxiliary Activities*

Switzerland's broad interpretation of the business activity test makes it easier to satisfy the test. However, there is little doubt in this case study that Y Corp. performs its core business through the virtual servers.

The activity performed by the automated servers⁷¹³ and the personnel controlling the virtual servers from a remote location can be considered part of the business activity performed through the data center in Switzerland. This is true so long as the personnel are involved in setting up, operating, monitoring, and maintaining the

⁷¹² See *supra* para. 419.

⁷¹³ Concerning automated equipment: LOCHER 2001, Art. 4, para. 31.

servers, and the servers are operated on the enterprise's own account.⁷¹⁴

449 In conclusion, Y Corp. is likely to satisfy the business activity test, as its personnel are involved in operating the cloud from a remote location in a sufficiently substantial manner.⁷¹⁵

5) *Conclusion on Case Study B: Cloud Customer*

450 Y Corp. does not constitute a permanent establishment according to Art. 51(2) DTC. This is due to a lack of right of use over the data center in Switzerland and the fact that X Corp. is not sufficiently dependent on Y Corp. to qualify as a permanent representative. As such, this result is identical to the application of Art. 5(1) and (5) MOECD and largely due to the same reasons. Art. 51(2) DTC has a few peculiarities, but they do not influence the result.

D) *Conclusion on the Application of the Swiss Domestic Permanent Establishment*

451 For both the cloud provider X Corp. and the cloud customer Y Corp., the application of Art. 51(2) DTC does not lead to a different result from the application of Art. 5(1) MOECD. The differences between the Swiss federal law and treaty law definitions of permanent establishment have only reinforced the previous assessment.

452 Therefore, there is no risk that a taxation right under Swiss federal law might be extinguished by a narrower DTA definition of permanent establishment. Further, the negative effect of treaty law would not lead to situations where a taxation right granted to Switzerland through a treaty is not enforceable due to there being no legal right of taxation under national law. Swiss federal and treaty definitions of

⁷¹⁴ RICHNER/FREI/KAUFMANN/MEUTER 2016, Art. 4, para. 28.

⁷¹⁵ Contra: CADOSCH, p. 127, based on an *objective* instead of a relative standard for the business activity test.

permanent establishment are superimposable in the context of cloud computing.

§ VI. Conclusion on the Cloud Computing Permanent Establishment

At the beginning of this analysis, the author's aim was to answer the question of whether it is possible to constitute a permanent establishment through cloud computing. To this end, two case studies were proposed, one concerning a cloud provider and the other a cloud customer. Of the various definitions of permanent establishment that were analyzed, the general definition of permanent establishment according to Art. 5(1) MOECD offered the greatest insight. 453

In most cases, a cloud provider has a permanent establishment at the location of the data center. A cloud customer, on the other hand, lacks the necessary right of use over the data center for that. Indeed, the emergence of cloud computing has not led to any changes in the application of the concept of permanent establishment to modern ICT use. 454

This result may surprise readers who would have expected a different outcome from a different fact basis. One might expect that the cloud customer would have a permanent establishment at the location of the data center, at least under certain circumstances. 455

As this is not the case, it is possible to reach the meaningful conclusion that this interpretation will *not* lead to the creation of thousands of new permanent establishments all over the world. Instead, it invites reflection on the most basic principles of international taxation. Of course, the question arises as to whether the result is congruent with overarching principles of taxation (see *infra* para. 570). This is why a modification of the normative text will be discussed later in the thesis (see *infra* para. 904). 456

Section II Treaty Characterization

§ I. Introduction

The OECD has expressed great interest in how cloud computing transactions are characterized under treaty law.⁷¹⁶ Such characterization can have an impact on whether Switzerland has to grant a tax credit for foreign taxation rights.⁷¹⁷ Hence, treaty characterization is highly relevant to the Swiss perspective on the taxation of cloud computing. It should be mentioned that Switzerland does not levy special withholding taxes on electronic commerce transactions.⁷¹⁸

457

Therefore, the research question this section will address is, how are cloud computing transactions characterized in treaties? The following analysis will generally focus on the cloud-specific transactions⁷¹⁹ identified in cells c-2 and c-3 of the taxonomy of cloud computing transactions introduced earlier (see *supra* para. 25), namely IaaS, PaaS, and SaaS. However, it will also cover certain other transactions in the taxonomy, where useful in anticipating and correcting certain misassumptions. For instance, although there will be no analysis of income from construction services—even though cell a-1 of the taxonomy may include highly specialized construction services for cloud computing data centers—it will be necessary to

458

⁷¹⁶ OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, p. 139; OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 104 f.

⁷¹⁷ See OBERSON 2001b, p. 700.

⁷¹⁸ *Ibid.*, p. 699.

⁷¹⁹ This expression is defined in the introductory chapters; see *supra* para. 28.

discuss the rental of servers (also covered by cell c-1), which, as the OECD has noted,⁷²⁰ is often confused with IaaS.

459 In order to answer the research question, the allocation rules in Arts. 6–21 MOECD will be applied to the different categories of transactions described in the taxonomy of cloud computing transactions. The kinds of income concerned are business profits (Art. 7 MOECD), royalties (Art. 12 MOECD), and capital gains (Art. 13 MOECD).⁷²¹ Furthermore, the OECD has considered that certain software-based transactions may qualify as so-called technical services under Art. 12A of the UN Model.⁷²² Finally, the OECD has a special interest in the rental of ICS equipment.⁷²³ When considering servers in data centers as ICS equipment, the rule relating to income from immovable property (Art. 6 MOECD) may be applicable, in addition to the other aforementioned rules.

460 The main discovery will be that the qualification conflict that used to appear between Art. 7 (business profits) and Art. 12 (royalties) MOECD regarding transactions involving software has virtually disappeared in the context of cloud computing.

⁷²⁰ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 105.

⁷²¹ These are the basic articles relevant to the international taxation of software; see OECD, *The Tax Treatment of Software*, Paris July 1992, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(10)-9 (para. 34). Concerning cloud computing in particular, the OECD seems to confine itself to cloud transactions as services (as in Art. 7 MOECD), rental of server disk space on ICS equipment (as in Art. 12 MOECD), or technical services (as in the equivalent of Art. 12A UN Model in customized DTAs) (OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 104 f.).

⁷²² OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(18)-15.

⁷²³ See *supra* paras. 217 f.

§ II. Income from Immovable Property

A) Transactions

In the context of cloud computing, any transactions referring to the renting, leasing, or sale of immovable property may come within the scope of Art. 6 MOECD. The most obvious are those relating to the sale or lease of a physical data center building or parts thereof (cells b-1 and c-1 of the taxonomy of cloud computing transactions; see *supra* para. 25).

The question may arise as to whether, in special cases, the physical servers within a specialized data center building are constituent parts or accessories of the immovable property. If they are, income from renting such servers would come within the scope of Art. 6 MOECD.⁷²⁴ Transactions of this kind are represented in cell c-1 of the taxonomy of cloud computing transactions.⁷²⁵

Where, however, the income-generating contract granting the user rights is limited to the software level of the servers (i.e., virtual servers, software applications, etc.), Art. 6 MOECD should generally not apply. This is primarily because only physical objects can qualify as immovable property, constituent parts, or accessories.⁷²⁶

In this context, an additional argument similar to that exposed in relation to permanent establishments could be made,⁷²⁷ namely, that a web hosting or cloud computing contract could theoretically grant substantially the same rights to the user as to someone renting the

⁷²⁴ See REIMER, in: VOGEL/LEHNER, Art. 6, para. 80, in whose view machines functionally connected to the building are part of the immovable property.

⁷²⁵ See *supra* para. 25.

⁷²⁶ REIMER, in: VOGEL/LEHNER, Art. 6, para. 83; PETER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 6, para. 38.

⁷²⁷ For a detailed analysis of these arguments, see *supra* para. 356.

physical server.⁷²⁸ However, for the sake of consistency, sufficient right of use should be deemed inexistent here, too.⁷²⁹ If the income connected to the immovable property derives mainly from its association with other goods or services, the resulting income as a whole cannot qualify as income from immovable property.⁷³⁰ For example, income from renting out a room in a hotel qualifies (if it cannot reasonably be divided into different forms of income) as business profit (Art. 7 MOECD) and not as income from immovable property (Art. 6 MOECD).⁷³¹ This is because the services and other goods connected to that income outweigh the value of the letting of the room, even though the room undeniably represents immovable property. An analogy can be made with a cloud computing service contract providing for the rental of a part of the software layer of a server rather than a physical server (cells c-2, c-3, and c-4). In these cases, the provision of cloud maintenance services and the right to use the copyrighted software will frequently outweigh the value of the right of use over the physical server.

465 Therefore, the following sections will concentrate on the implications of a transaction relating to the lease of a physical server within a data center (cell c-1). More specifically, the discussion will focus on the few cases in which the data center provider does not offer any ancillary services (such as maintenance, management, supply of electricity and cooling) that outweigh the rental character of the indivisible transaction.

⁷²⁸ This question is also discussed by BAL 2014, p. 519.

⁷²⁹ Ibid., reaching the same conclusion; the opposite view appears to be taken by PETER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 6, para. 59, who considers factual use ("*tatsächliche Nutzung*") to be sufficient for the application of Art. 6 MOECD.

⁷³⁰ REIMER, in: VOGEL/LEHNER, Art. 6, para. 149; FALTIN, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 6, para. 11.

⁷³¹ WASSERMAYER, in: WASSERMAYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 6, para. 21; REIMER, in: VOGEL/LEHNER, Art. 6, para. 150, referencing this example.

B) Data Center as Immovable Property

Clearly, the sale or rent of an entire building (with or without the corresponding parcel of land) for use as a data center will generate income from immovable property. The same goes for a building in which only certain rooms or parts of rooms (such as server cages) are leased or sold. Below, consideration will be given to the characterization of the equipment in the data center (i.e., physical servers, cabling, routers, switches, server racks, cooling system, emergency generators, etc.) as constituent parts or accessories.

466

C) Server as a Constituent Part

The Swiss Federal Supreme Court has considered that a machine is likely to be a constituent part of a building under certain conditions.⁷³² For instance, the building will need to be a large technical compound that has been constructed for a specific kind of business. Further, the constituent part should not be transferable without specialized personnel using special tools. Finally, it must be impossible to operate the machine elsewhere without further measures.

467

A data center can be seen as a technical compound. The transfer of a server situated within it will in many cases necessitate special tools and specialized personnel. The servers used in data centers are machines specialized for a particular purpose. For instance, blade servers are designed for use only in compatible server racks (called “chassis”⁷³³). These characteristics seem to indicate that servers may at first glance qualify as constituent parts of a data center.

468

⁷³² Decision of the Swiss Federal Supreme Court of October 9, 1980, ATF 106 II 333, recital 6(b). This view is opposed by STREBEL/LAIM, in: HONSELL/VOGT/GEISER, Art. 655, para. 16.

⁷³³ See POSEY, BRIEN M., *Server Hardware Explained (Part 1)*, August 9, 2011, www.windowsnetworking.com/articles-tutorials/common/Server-Hardware-Explained-Part1.html (last viewed July 2, 2020).

469 When a server is unscrewed from its place in the data center's racks or chassis, the server is, of course, no longer functional. However, that is not to say that the data center (the main object) is damaged. The continuous functioning of a data center may necessitate frequent replacement of the servers within it. According to a recent estimate, at least 25–30 percent of the assets (i.e., including servers, racks, cabling, etc.) in a data center are replaced each year.⁷³⁴ Nor can it generally be said that the unscrewing of a server necessarily diminishes the value of the data center. Even the removal of all servers would not necessarily compromise a data center, as its purpose may not just be to host the data center operator's own servers but also to offer so-called housing space for third-party servers.⁷³⁵

470 It is therefore unlikely that a server could be a constituent part of the data center within the meaning of Art. 642(2) Swiss Civil Code.⁷³⁶ The same reasoning can be applied for most other technical equipment in a data center. Only in the case of heavy machinery fully and permanently connected to the building would a case-by-case analysis be necessary.⁷³⁷ Examples of such machinery are large emergency

⁷³⁴ HARRIS, P. 606. Specifically and in more detail on servers: SVERDLIK, YEVGENIY, *When is the Best Time to Retire a Server?/Aging hardware costs more than many IT managers may think*, Data Center Knowledge, November 12, 2015, <http://www.datacenterknowledge.com/archives/2015/11/12/when-is-the-best-time-to-retire-a-server> (last viewed July 2, 2020).

⁷³⁵ It should be noted that Swiss legal tradition, unlike German and Austrian law, does not permit the acquisition of real property rights (in French: *droits réels*) in collections of objects as a whole (in French: *ensemble de biens*; in German: *Sachgesamtheit*) (SUTTER-SOMM/GRIEDER/LÖTSCHER/SCHRANK/VON AARBURG, pp. 18 f.). In addition, it is unrealistic to imagine that all the servers might be removed at once. Therefore, this hypothetical should not be relevant under Swiss law.

⁷³⁶ In a different context, the German Bundesfinanzhof in its decision of November 25, 1999, III R 77/97, recital 23 f., came to a similar conclusion concerning a data center cabling system.

⁷³⁷ In Swiss case law, electrical wiring (decision of the Swiss Federal Supreme Court of March 24, 1938, ATF 64 II 83, recital 2) and a central heating system (decision of

generators and cooling pipe systems that are essential to the operation of modern cloud computing data centers.

D) Server as an Accessory

A server in a data center is used for the exploitation of the data center. The data center is the main object for the purposes of Art. 644(2) Swiss Civil Code, whose exploitation or operation may be facilitated by the server. As soon as the server is installed in a rack or chassis and connected to the cabling and cooling system, it can also be seen as joined or otherwise attached to the data center.

471

Local custom in the canton of Geneva assumes that installations or machinery permanently used for the operation of factories or similar compounds are accessories (see Art. 120(2)(d) of the Geneva law implementing the Swiss Civil Code⁷³⁸). In Zurich, there is a similar local custom, which expressly mentions, as examples, spinning and weaving looms, knitting machines, grinding stones, spindles, and the associated equipment and tools (para. 136 of the Zurich law implementing the Swiss Civil Code⁷³⁹). These local customs and the fact that a server is regarded as a machine bear out the above assessment of a server as an accessory.

472

the Swiss Federal Supreme Court of September 26, 1918, ATF 44 II 391, recital 2) have been held to be constituent parts, but not an electrical compound with accumulator (decision of the Swiss Federal Supreme Court of March 24, 1938, ATF 64 II 83, recital 2). However, given the specific circumstances of these cases and the technological developments that have taken place since, it is debatable whether these leading decisions still have authority.

⁷³⁸ *Loi d'application du code civil suisse et d'autres lois fédérales en matière civile (LaCC) du 11 octobre 2012* (E 1 05).

⁷³⁹ *Einführungsgesetz zum Schweizerischen Zivilgesetzbuch (EG ZGB) vom 2. April 1911* (230).

- 473 Given that a server can be expected to need replacing within approximately three years of it being acquired,⁷⁴⁰ there is reason to question whether an individual server's connection to a data center is truly durable. It is quite probable that in the future a server's lifespan will be even less than three years. There comes a point when the expected lifespan of an asset is so short that it ceases to be an asset and becomes part of the stock of goods for consumption. However, so long as servers continue to be listed as assets in inventories and financial statements, they should probably not be recategorized as consumable production material.
- 474 For these reasons, a server installed in a data center can be considered an accessory to the data center (having regard to Art. 644 Swiss Civil Code).

E) Server as ICS Equipment

- 475 Tangible computer equipment (such as a physical server, routers, switches, and cables) qualifies as so-called ICS equipment.⁷⁴¹ Whether a given payment is for the rental of a computer (subject to Arts. 12 or 6 MOECD, respectively⁷⁴²) or for services involving the use of computers (subject to Art. 7 MOECD; see *infra* paras. 510 f.) will depend on whether it is made "for the use of, or the right to use" such equipment. The OECD has compiled a nonexclusive list of factors that distinguish income generated by ICS equipment from regular

⁷⁴⁰ See *supra* para. 469. Replacement may be necessary for many reasons, such as a technological upgrade or a rearrangement of the data center, or simply the end of the server's lifetime as an asset.

⁷⁴¹ OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(18)-12.

⁷⁴² Art. 12 MOECD would be applicable if the leasing of ICS equipment is not yet subject to Art. 7 MOECD (see *supra* para. 218).

business profits.⁷⁴³ Since 1992, both kinds of revenue have been taxed pursuant to Art. 7 MOECD, which has limited the likelihood of conflicts between DTAs based on different versions of the MOECD. However, the OECD has not declared whether income from ICS equipment can constitute an exception to Art. 6 MOECD.⁷⁴⁴

The OECD has in the past characterized two particular transactions as services (subject to Art. 7 MOECD), namely “application service provider transactions” and “data warehousing transactions.”⁷⁴⁵ The former was described as the provision of services based on self-owned software and hardware equipment, the latter as the storage of customer data on self-owned hardware equipment. In both cases, the

476

⁷⁴³ OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(18)-13. These factors should also be seen in the context of the state of technology at that time. The ability to share computing resources with unrelated parties may have become a less convincing indicator, as this is what the current expressions “crowd computing” or “cloud computing” signify, superseding the former term “time-sharing,” which lost its importance at around the time of the report’s release.

⁷⁴⁴ Affirming that the rules on income from ICS equipment apply only to income that lies outside the scope of Art. 6 MOECD: UNITED NATIONS, COMMITTEE OF EXPERTS ON INTERNATIONAL COOPERATION IN TAX MATTERS, *Possible Amendments to the Commentary on Article 12 (Royalties) (Note by the Coordinator, Ms. Pragya Saksena)*, E/C.18/2016/CRP.8, October 5, 2016, p. 9. However, this opinion seems to contradict the OECD COMMENTARY, Art. 12, para. 9.1, which mentions “cables for the transmission of electrical power or communications ... or pipelines” as examples of immovable property (see OECD COMMENTARY, Art. 5, para. 64).

⁷⁴⁵ For this and the following statements: OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(18)-13. India reached the opposite conclusion on services of the first kind: decision of the Indian Authority for Advance Rulings (Income Tax) New Delhi of January 22, 2007, AAR No. 688 of 2006, 208 CTR 184 f., concerning Cargo Community Network. It is worth noting that this case concerned the mere use of an Internet portal that happened to be hosted on a server owned and operated by the provider and located in a foreign jurisdiction. It did not discuss the possibility of applying the equivalent of Art. 6 MOECD. Art. 12(3) of the current Swiss DTA with India still expressly mentions the leasing of ICS equipment as being subject to Indian rules on withholding tax.

customers have no possession or control over the physical computers used for the service, even though they may be able to access them remotely. These descriptions are largely analogous to contemporary forms of cloud computing.

477 Today, a data center is a highly secured building.⁷⁴⁶ Although uncommon, it is conceivable that a customer might be entitled to physically and freely access a certain server or piece of equipment within a so-called colocation data center. Of course, this would be possible only if the customer is the sole user of the equipment.⁷⁴⁷ However, that would be rare in cloud computing. This means that it would be more usual for hosting services to be characterized as a service subject to Art. 7 MOECD, which would exclude the characterization of the related consideration as being subject to Art. 6 MOECD.

⁷⁴⁶ For example, access to Amazon Web Services' data centers is highly controlled (security staff, video surveillance, intrusion detection system, special authorization and authentication for staff access, visitors continually escorted, etc.); see AMAZON WEB SERVICES, *Amazon Web Services: Overview of Security Processes*, March 2020, <https://d0.awsstatic.com/whitepapers/aws-security-whitepaper.pdf> (last viewed July 2, 2020), p. 8. See also AMAZON WEB SERVICES, *AWS GovCloud (US-West) Region Compared to Standard AWS Regions*, <http://docs.aws.amazon.com/govcloud-us/latest/UserGuide/govcloud-differences.html> (last viewed July 2, 2020).

⁷⁴⁷ See, for example, KJÆRSGAARD, p. 406, seeming to equate all income from an IaaS private cloud deployed on the premises of the customer to the income from the right to use ICS equipment. Although, this example is theoretically possible, the present author considers it highly unusual, as this would involve the rental of servers from a provider on the premises of a data center of the customer. A company that runs their own data center normally buys hardware rather than renting it. Even so, the present author would qualify the service of administering the virtualization layer of the virtual servers in the suggested situation, if it was provided by a third party, as a service subject to Art. 7 MOECD in its own right and independent of the right to use the ICS equipment. The ICS equipment rule would not be applicable due to the exception of personnel being involved in operating, servicing, inspecting, and maintaining the ICS equipment under the auspices of the lessor (see *supra* para. 218).

F) Conclusion

In general, the income from the rent or sale of data centers in Switzerland or parts thereof is taxed in Switzerland. Art. 6 MOECD is applicable to these kinds of transactions. By contrast, income from renting parts of the software layer of a server does not qualify as income from immovable property.⁷⁴⁸ The question is to determine where the dividing line lies between Arts. 6 and 7 MOECD on a spectrum that runs from income derived from the leasing of a data center itself, at one end, to income derived from the leasing of software remotely related to a data center, at the other.

478

A colocation service involving the renting-out of a single server or a group of servers within a provider's data center should be taxed according to Art. 7 MOECD.⁷⁴⁹ However, the recipient of the service could conceivably have sufficient possession of and control over a dedicated server to allow payment for its use to be treated as renting. In this case, the rental must be completely separate from any maintenance or management services offered by the provider of the data center space. Accordingly, and provided all other conditions are fulfilled, this kind of income can be taxed under Art. 6 MOECD at the Swiss location of the server.

479

⁷⁴⁸ Reaching the same conclusion in relation to German law on the basis of a different rationale: PINKERNELL 2012a, pp. 331 f.

⁷⁴⁹ It is doubtful whether that situation would lead to a permanent establishment, see *supra* para. 312. Thus, Art. 7 MOECD would allow taxation only in the jurisdiction where the taxpayer is resident.

§ III. Royalties

A) Copyright

1) Introduction in the Context of E-Commerce

480 Transactions involving ICT have already been characterized in the past. Most notably, the OECD ruled on the treaty characterization of transactions in the context of e-commerce in 2001.⁷⁵⁰ Its report further indicates how the interpretation of Art. 12 MOECD in the OECD COMMENTARY applies to software.⁷⁵¹ In particular, it has been made clear that Art. 12 MOECD actually targets the transfer of software rights,⁷⁵² even where it refers only to “copyright of literary, artistic or scientific work” without expressly mentioning software.⁷⁵³

⁷⁵⁰ OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(18)-2, see pp. R(18)-23 f.

⁷⁵¹ Ibid.

⁷⁵² OECD COMMENTARY, Art. 12, para. 12.2; CADOSCH, p. 157. The OECD guidance is based on the assumption that the acquirer must copy the software in order to be able to use it. However, the development of cloud computing and the growing popularity of the provision of software as a service (cell c-3 of the table; see *supra* para. 25) shows that this is no longer the case, which gives cause to question the applicability of the OECD guidance on cloud computing (HEINSEN/VOB, p. 587).

⁷⁵³ MALHERBE/MARAIA/TRAVERSA, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 12, para. 50; GARCÍA HEREDIA, pp. 227 f. Such wording, which can still be found in some Swiss DTAs, ignores the recommendations of the OECD COMMENTARY, Art. 12, para. 13.1.

In Switzerland, computer programs are protected by copyright under Art. 2(3) CopA.⁷⁵⁴ They qualify as literary works.⁷⁵⁵ The expression “computer program” has been interpreted in a broad and dynamic manner as denoting a sequence of commands that the computer executes to solve a task or even a purely formal task description.⁷⁵⁶ The protection covers both the human- and the machine-readable expressions of that program as a sequence of signs.⁷⁵⁷ However, HTML codes, which are commonly used to format websites on the World Wide Web, seem to be an exception.⁷⁵⁸ Apart from programs, electronic data (whether discretely or collectively) may become copyright-protected per se, provided they fulfill the applicable conditions under copyright law.⁷⁵⁹ Swiss copyright protection

⁷⁵⁴ The Swiss DTAs with Argentina (*Convention entre la Confédération suisse et la République argentine en vue d'éviter les doubles impositions en matière d'impôts sur le revenu et sur la fortune du 20 mars 2014*, RS 0.672.915.41), Israel (*Convention entre la Confédération suisse et l'Etat d'Israël en vue d'éviter les doubles impositions en matière d'impôts sur le revenu et sur la fortune du 2 juillet 2003*, RS 0.672.944.91), Russia (*Convention entre la Confédération suisse et la Fédération de Russie en vue d'éviter les doubles impositions en matière d'impôts sur le revenu et sur la fortune du 15 novembre 1995*, RS 0.672.966.51), and Singapore (*Convention entre la Confédération Suisse et le République de Singapour en vue d'éviter les doubles impositions en matière d'impôt sur le revenu du 24 février 2011*, RS 0.672.968.91) expressly mention software as a source of income from royalties in their respective provisions incorporating Art. 12 MOECD.

⁷⁵⁵ STRAUB, pp. 295 f.; CHERPILLOD, in: MÜLLER/OERTLI, Art. 2, para. 64; RAUBER, p. 124, indicating that this used to be controversial.

⁷⁵⁶ *Message concernant une loi fédérale sur le droit d'auteur et les droits voisins (loi sur le droit d'auteur, LDA), une loi fédérale sur la protection des topographies de circuits intégrés (loi sur les topographies, LTo) ainsi qu'un arrêté fédéral concernant diverses conventions internationales dans le domaine du droit d'auteur et des droits voisins du 19 juin 1989*, FF 1989 III 465 f., pp. 507 f.

⁷⁵⁷ WIDMER 1993, p. 251; STRAUB, 297; see also RAUBER, p. 127.

⁷⁵⁸ WEBER/VOLZ, p. 258; DILL, 1521; apparently, this view is based on German case law, such as the decision of the German Oberlandsgericht Rostock of June 27, 2007, GRUR-RR 2008, recital 1 f., and the decision of the German Finanzgericht Köln of October 30, 2014, 15 K 3326/11, recital 54. The present author agrees in principle with the critique expressed by ASSMUS/KEPPELER/AMANN, note 16.

⁷⁵⁹ STRAUB, p. 298.

includes, among other things, the right to be named as the author of the material and to publish, use, reproduce, distribute, license, publicly display, and modify such material.⁷⁶⁰

482 The OECD COMMENTARY specifies that Art. 12 MOECD covers, in particular, payment for the acquisition of rights to use the software program in a manner which, without the licensing of such rights, would constitute a copyright infringement (e.g., the right to reproduce, distribute, modify, or publicly display the software code).⁷⁶¹ Moreover, if the licensing is the only transaction in the contract, the licensee is in many cases a software program license distributor, who is considered as exploiting the license only on behalf of the licensor, thereby avoiding the application of Art. 12 MOECD.⁷⁶²

483 If, on the one hand, the transferee were granted the right to copy the software for the sole purpose of using or distributing it within the business, this would not be a sufficient right to implicate Art. 12 MOECD.⁷⁶³ If the transferee acquires no access to the underlying code

⁷⁶⁰ WIDMER 1993, pp. 258 f.

⁷⁶¹ OECD COMMENTARY, Art. 12, para. 13.1, by analogy with para. 8; Art. 12(3)(b) of the Swiss DTA with Canada explicitly attributes income from software licenses to the residence jurisdiction (*Convention entre la Suisse et le Canada en vue d'éviter les doubles impositions en matière d'impôts sur le revenu et sur la fortune du 5 mai 1997*, RS 0.672.923.21). This rule is expressly mentioned in para. 6 of the *Protocole additionnel* to the Swiss DTA with Portugal (*Convention entre la Suisse et le Portugal en vue d'éviter les doubles impositions en matière d'impôts sur le revenu et sur la fortune du 26 septembre 1974*, RS 0.672.965.41).

⁷⁶² OECD COMMENTARY, Art. 12, para. 14.4, according to which this would even be the case, if the software is subject to minor customization for the purposes of its installation. However, the German regulations give an example of a distributor subject to withholding taxation in BUNDESZENTRALAMT FÜR STEUERN, *Beschränkte Steuerpflicht und Steuerabzug bei grenzüberschreitender Überlassung von Software und Datenbanken*, GZ IV C 5 – S 2300/12/10003 :004, October 27, 2017, para. 7 (p. 4).

⁷⁶³ *Ibid.*, paras. 14 and 14.2. This would not constitute a copyright infringement under Swiss law; see, e.g., BERANEK ZANON/DE LA CRUZ BÖHRINGER, pp. 677 f. Para. 6 of the *Protocole additionnel* to the Swiss DTA with Portugal expressly confines this rule to standard software (as opposed to customized software). According to the relevant

(e.g., for distribution or modification⁷⁶⁴), the consideration for the software cannot be regarded as a royalty.⁷⁶⁵

If, on the other hand, the transferee is granted the entirety of the copyrights, thereby depriving the former copyright owners of all their rights, the transaction amounts to a sale of copyright ownership.⁷⁶⁶ The income generated therefrom qualifies as capital gain and falls within the scope of Art. 13 MOECD.⁷⁶⁷

484

2) *Cloud Computing Transactions at Issue*

The above-discussed principles that have been developed in the context of e-commerce should also be applied to cloud computing. Cloud computing may involve the partial transfer of copyright in entire software (represented in cell c-4 of the taxonomy of cloud computing transactions; see *supra* para. 25). However, such a transaction is more likely to occur between the subunits of a cloud provider⁷⁶⁸ than between the providers and their customers. In principle, cloud-specific transactions (cells c-2 and c-3) do not necessitate the

485

OECD COMMENTARY observations and reservations, this view should also apply in Greece, Mexico, the Slovak Republic, and Spain (OECD COMMENTARY, Art. 12, paras. 28, 30, 31, and 34). However, a majority of the UN Committee of Experts on International Cooperation in Tax Matters agrees with this opinion (UNITED NATIONS, COMMITTEE OF EXPERTS ON INTERNATIONAL COOPERATION IN TAX MATTERS, *Software Payments as Royalties under Article 12, E/C.18/2017/CRP.25*, October 5, 2017, p. 5).

⁷⁶⁴ CADOSCH, p. 158.

⁷⁶⁵ PÖLLATH/LOHBECK, in: VOGEL/LEHNER, Art. 12, para. 64a.

⁷⁶⁶ This rule can be deduced from the OECD COMMENTARY, Art. 12, para. 8.1; it is also explicitly mentioned in para. 6 of the *Protocole additionnel* to the Swiss DTA with Portugal.

⁷⁶⁷ OBERSON 2014, para. 568; CADOSCH, pp. 158 f.; UNITED NATIONS, COMMITTEE OF EXPERTS ON INTERNATIONAL COOPERATION IN TAX MATTERS, *Software Payments as Royalties under Article 12, E/C.18/2017/CRP.25*, October 5, 2017, p. 6.

⁷⁶⁸ In the US *Amazon* case, for instance, a substantial portion of the copyright was licensed from the United States to a Luxembourg subsidiary; see the decision of the US Tax Court of March 23, 2017, *Amazon.com, Inc. & Subsidiaries v. Commissioner of Internal Revenue*, 148 T.C. No. 8, Docket No. 31197-12, p. 24.

transfer of the software code.⁷⁶⁹ This sets cloud computing apart from the e-commerce of the 1990s and early 2000s, which has a number of implications.

486 In many cases, a cloud service (cell c-2 or c-3) may be accessed only by means of an Internet browser, as with any other website. Such website would often act as an interface for the user. In this process, the Internet server of the provider would transmit the output of the main cloud-based software executed on the server, generally in the form of a mix of HTML, CSS, and JavaScript.⁷⁷⁰ JavaScript may in turn make reference to libraries or frameworks of prefabricated pieces of code, such as jQuery.⁷⁷¹ The actual execution of the transferred code usually occurs on the client computer. As HTML codes are generally not copyright-protected due to their (alleged) simplicity,⁷⁷² only copyright in any other parts of this kind of website would be eligible

⁷⁶⁹ See the definitions of cloud computing service models, such as SaaS: “The capability provided to the consumer is to use the provider’s applications running on a cloud infrastructure ... The consumer does not manage or control the underlying cloud infrastructure” (MELL, PETER/GRANCE, TIMOTHY, *The NIST Definition of Cloud Computing*, NIST Special Publication 800-145, n.p. 2011, p. 2). Other authors go further and deny any other interest of the cloud customer in the property rights over the software code (e.g., FULLER/REYNOLDS, p. 26). In the present writer’s view, this is an oversimplification but, as it will be shown, further differentiation leads to the same conclusion.

⁷⁷⁰ Hypertext markup language (HTML) is a commonly used code system (similar to a programming language) that allows web developers to determine the main visual structure of a website (see KRAUSE 2016, pp. 39 f.). A cascading style sheet (CSS) is a code system that lists all of the web developer’s formatting decisions (such as colors, fonts, or block sizes), which the HTML code may reference (*ibid.*, pp. 65 f.). JavaScript is a programming language that makes websites interactive (see FLANAGAN, p. 1 f.).

⁷⁷¹ *jQuery* is a collection of JavaScript (see *supra* note 770) code sequences that can be referenced by web developers in a website’s code in order to save development time. jQuery is available free of charge under an open-source license (the MIT License) that allows for commercial use. For more information, see JQUERY FOUNDATION, *License*, <https://jquery.org/license/> (last viewed July 2, 2020), with further references.

⁷⁷² See *supra* para. 481.

for transfer (including copyright in prefabricated pieces of code in the jQuery references).⁷⁷³

In practice, this basic view of cloud computing contrasts with its many manifestations. Where the cloud service is deployed not just on the Internet browser of the client computer, this may entail the transfer of additional works that are subject to copyright. Sometimes, the cloud provider deploys parts of the essentially cloud-based application software on the client computer to avoid delays in communication between client and server (this would essentially correspond to cell c-3 of the taxonomy of cloud computing transactions; see *supra* para. 25). Further, it may be that the client computer operates special software (a so-called local client) to display the application's user interface on the client computer (cell c-3). It could even be the main purpose of the software to provide a particular copyright in a digital product (e.g., a video streaming service) or electronic data (e.g., online document databases) (cell c-3).⁷⁷⁴

487

However, the user of the cloud computing service will in most cases not further reproduce, distribute, modify, or publicly display the works subject to copyright. The main reason for acquiring these works is to use them operationally in connection with the main software (cell c-3) or infrastructure service (cell c-2) performed on the servers of the cloud provider. Even if these works are subject to copyright, the

488

⁷⁷³ For different examples, see GLAUS, ALEXANDER/HAJEK, BJÖRN/HILBER, MARC/KLODT, KRISTIAN/REINTZSCH, DIRK/RIFFER, CLAUDIA/SÄDTLER, STEPHAN/WICKER, MAGDA, *Arbeitspapier/Lizenzierungsbedarf beim Cloud Computing*, https://www.trusted-cloud.de/sites/default/files/arbpap_2_lizensierungsbedarf.pdf (last viewed July 2, 2020), pp. 7 f.

⁷⁷⁴ For a more detailed description of the technological processes involved, see BERANEK ZANON/DE LA CRUZ BÖHRINGER, p. 672.

exception of self-use (i.e., distribution within the user's own business) would apply.⁷⁷⁵

3) *Distinction from Software Code Transmission*

489 By contrast, some authors argue that the lack of any transfer of software in cloud computing should have no effect on how a transaction is characterized under treaty law. Rather, the method of delivery should be immaterial to such characterization.⁷⁷⁶ Thereby, these authors imply that SaaS deployment is merely a form of software delivery.

490 This opinion seems to overlook the fact that SaaS generally does not involve the transfer of the software code. In the present writer's view, the above-mentioned authors underestimate the importance of the fact that transferring the software code is effectively a *conditio sine qua non* for any meaningful transfer of the copyright as described in Art. 12 MOECD (this is best explained in the well-known commentary by VOGEL/LEHNER⁷⁷⁷).⁷⁷⁸ Technically, it is not possible to reproduce,

⁷⁷⁵ See *supra* para. 483. In Switzerland, this exception is made in Art. 19(1)(c) CopA. The same principle applies within the German withholding tax regime, as explicitly stated in BUNDESZENTRALAMT FÜR STEUERN, *Beschränkte Steuerpflicht und Steuerabzug bei grenzüberschreitender Überlassung von Software und Datenbanken*, GZ IV C 5 – S 2300/12/10003 :004, October 27, 2017, para. 12 f. (p. 5 f.).

⁷⁷⁶ BAL 2014, p. 517; HEINSEN/VOß, p. 586. Both refer to the OECD COMMENTARY, Art. 12, para. 14.1, which only says that it is inconsequential whether the software is transferred through a "computer disk containing a copy of the program" or "via modem connection." It should be noted that both of these alternatives imply the transfer of the software code.

⁷⁷⁷ PÖLLATH/LOHBECK, in: VOGEL/LEHNER, Art. 12, para. 64a, explicitly referring to the "Quellcode" (source code).

⁷⁷⁸ The German withholding tax regulations in their negative examples explicitly mention the fact that no download of the software occurs: BUNDESZENTRALAMT FÜR STEUERN, *Beschränkte Steuerpflicht und Steuerabzug bei grenzüberschreitender Überlassung von Software und Datenbanken*, GZ IV C 5 – S 2300/12/10003 :004, October 27, 2017, para. 28 f. (p. 10 f.).

distribute, modify,⁷⁷⁹ or publicly display the code without actually having it. It would seem inappropriate to assume that someone could be granted the right to reproduce, etc. without having the opportunity to do so.

Thus, where a contract does not explicitly provide for the transfer of a copyright, it must be interpreted as meaning that it does not entail any transfer of copyright or part thereof to the customer. It is of course possible, in theory, that a cloud provider could develop⁷⁸⁰ and deploy SaaS for a given customer and the customer could acquire the software copyright or a substantial license⁷⁸¹ from the provider, all without ever actually acquiring the software code. However, such an arrangement would generally need to be detailed explicitly in the contract in order to have any legal force.⁷⁸² If the contract cannot be challenged on the grounds of the parties' actual conduct, then such a contract may give rise to royalties that qualify as income.

In most cases, however, it is likely that the cloud computing contract will not specify the status of the software copyright. One reason for this is that cloud computing is in itself a technological impediment to copyright infringement, as no infringement can happen without the transfer of the code. Therefore, it can be assumed that the cloud-based deployment of software without the transfer of the code will

⁷⁷⁹ Modification of the software code is in most cases dependent on the so-called source code (i.e., the uncompiled and therefore human-readable code in a specific programming language) being available. This code is usually obtained from the (original) developer of the software. The human-readable *source* code is to be distinguished from the machine-readable *compiled* code, which consists merely of a chain of ones and zeros.

⁷⁸⁰ In principle, a person who develops software can acquire copyright in the software code.

⁷⁸¹ The term "substantial" implies that the license must go beyond mere use of the software; in other words, it must include the right to reproduce, distribute, modify, or publicly display the software code; see *supra* para. 483.

⁷⁸² For this and the following sentence: SINEWE/FRASE 2014, p. 293, reaching the same conclusion, while also recommending that the contract should expressly mention that the license is for mere business use.

generally not entail the transfer of any rights to reproduce, etc. Only the code itself is the copyright-protected object, not the image of the software interface appearing on the cloud user's device. Therefore, "distribution" of the software-based service via the cloud is not equivalent to distribution of the software code.⁷⁸³

4) *Conclusion*

493 In sum, the cloud service fees for application software (cell c-3) or infrastructure software (cell c-2) should generally not be subject to Art. 12 MOECD.⁷⁸⁴

B) *Know-How*

494 The question of whether, by using cloud computing services, the user pays royalties for the "information concerning industrial, commercial or scientific experience," or know-how, is quite another matter. Here, a transfer of the code is not required. For example, a programmer may supply information about the ideas and principles underlying the program, such as logic, algorithms or programming languages or techniques that cannot be copyrighted.⁷⁸⁵

⁷⁸³ Same conclusion: OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, pp. R(18)-26 f., relating to "application hosting"; PINKERNELL 2012a, pp. 331 f.; ACKERMANN, p. 263.

⁷⁸⁴ Similarly: KJÆRGAARD, p. 399; GÓMEZ REQUENA, p. 413, referring to the decision of the Spanish Dirección General de Tributos of July 1, 2015, No. V2039-15 (concerning SaaS); PINKERNELL 2014, p. 80; SINEWE/FRASE 2014, p. 293; BAL 2014, p. 518; HEINSEN/VOß, p. 586; HAASE, para. 41, arguing similarly in relation to source taxation under German domestic law; OBERSON 2001b, p. 700, regarding electronic commerce transactions in general. Concerning the German withholding tax regime: BUNDESZENTRALAMT FÜR STEUERN, *Beschränkte Steuerpflicht und Steuerabzug bei grenzüberschreitender Überlassung von Software und Datenbanken*, GZ IV C 5 – S 2300/12/10003 :004, October 27, 2017, para. 31 (p. 11).

⁷⁸⁵ OECD COMMENTARY, Art. 12, para. 14.3. Such transactions are unusual (OECD COMMENTARY, Art. 12, para. 13).

An essential characteristic of cloud-specific transactions (cells c-2 and c-3; e.g., as described *supra* para. 9) is that they involve constant transfers of large amounts of electronic signals⁷⁸⁶ (i.e., information) between the provider and the user. However, according to the general understanding of know-how, such information comes within the scope of Art. 12 MOECD only if it can be considered as preexistent.⁷⁸⁷ Conversely, if the information was expressly generated in order to fulfill the contract, that information does not match the presently discussed description of know-how. In the case of application SaaS (cell c-3), the user generally receives the output from the software, as calculated by the provider's servers *ad hoc*. This kind of information should qualify as newly created precisely to fulfill a certain service contract. Generally, therefore, the output from software provided as a service will not in itself qualify as the transfer of know-how.⁷⁸⁸

495

Furthermore, Art. 12 MOECD requires that the know-how should not already be known to the customer⁷⁸⁹—in other words, that there should be an actual transfer.⁷⁹⁰ Where the service consists of data storage (cell c-3),⁷⁹¹ the preexisting information will already have

496

⁷⁸⁶ Of course, this also includes the transfer of information through light, by means of optical fiber cables, and any other kind of computer communication.

⁷⁸⁷ OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(18)-8.

⁷⁸⁸ SINEWE/FRASE 2014, p. 293, reaching the same conclusion.

⁷⁸⁹ This is implicit in the purpose of the definition of know-how; see *supra* para. 495.

⁷⁹⁰ Explicitly referring to the "transfer" requirement: PÖLLATH/LOHBECK, in: VOGEL/LEHNER, Art. 12, para. 72. In the present writer's view, the term "transfer" in this context implies that the transferee does not possess the transferred object before the transfer.

⁷⁹¹ Sometimes, the concept of IaaS is mistakenly understood as a synonym for "online data storage services" (special caution is advised when reading, for example, BAL 2014, p. 519, or KJÆRSGAARD, pp. 403 f.; also GÓMEZ REQUENA, p. 417, appears to read such an understanding into the article by HEINSEN/VOß, who correctly refer to the possibility of hosting an SaaS cloud on an IaaS cloud). However, online data storage

been in the user's possession when the user uploaded the information to the cloud. This information is not provided by the cloud provider, it is only stored. Only where the cloud service consists precisely in providing access to a know-how database provided by the cloud providers themselves could the transfer of such know-how be subject to royalties.⁷⁹²

497 In the case of IaaS (cell c-2), the information in question consists of electronic signals that are sent not only to the customers of the service but also to any other user who happens to access the virtual server. These electronic signals do not represent preexisting information supplied by the provider of the virtual server; rather, they represent a connection between the customer of the service and any third-party users accessing that virtual server. Besides, the OECD has already characterized technical support services as services within the scope of Art. 7 MOECD, which excludes the application of Art. 12 MOECD.⁷⁹³

C) Conclusion

498 Art. 12 MOECD is not applicable to the cloud-specific transactions represented in cells c-2 and c-3 in the taxonomy of cloud computing

services are in many cases a typical form of SaaS, not IaaS. A (virtual or physical) server is not merely a data storage facility. Examples of public SaaS clouds offering data storage are Dropbox, Google Docs, and Microsoft 365. BUNDESZENTRALAMT FÜR STEUERN, *Beschränkte Steuerpflicht und Steuerabzug bei grenzüberschreitender Überlassung von Software und Datenbanken*, GZ IV C 5 – S 2300/12/10003 :004, October 27, 2017, para. 25 (p. 9), indicates that the German withholding tax regime does generally not apply to storage-as-a-service.

⁷⁹² Regarding the German withholding tax regime: BUNDESZENTRALAMT FÜR STEUERN, *Beschränkte Steuerpflicht und Steuerabzug bei grenzüberschreitender Überlassung von Software und Datenbanken*, GZ IV C 5 – S 2300/12/10003 :004, October 27, 2017, para. 37 (p. 13), with an example of a database providing financial market data that does not qualify as know-how and is therefore not subject to withholding taxation.

⁷⁹³ OECD COMMENTARY, Art. 12, para. 11.4; reaching the same result: BAL 2014, p. 519.

transactions proposed in this thesis (see *supra* para. 25).⁷⁹⁴ Rather, it could be applied to transactions involving the licensing of the software copyright only if the code is transferred to the licensee (cell c-4). Some application software cloud services, such as film streaming services (see the above case study B, *supra* paras. 16 f.) involve the provision of copyrighted material electronically. However, the transfer of the copyrighted material (cell c-4) should be characterized separately from the provision of the application software cloud service (cell c-3).⁷⁹⁵ If it is part of a mixed contract including services or the alienation of hardware, the transaction will be characterized according to the predominant part of the contract, be it the service (Art. 7 MOECD) or the alienation (Art. 13 MOECD).⁷⁹⁶

Although continuous transfers of electronic signals between providers and customers are characteristic of cloud-specific transactions (cell c-2 and c-3), they must not be considered as transfers of know-how triggering the application of Art. 12 MOECD. In conclusion, there is little room to apply Art. 12 MOECD to transactions involving cloud computing.

499

§ IV. Capital Gains

The alienation of physical servers, routers, cables, and the like, as well as data centers or parts thereof, is targeted by Art. 13 MOECD (cell a-1 in the taxonomy of cloud computing transactions; see *supra* para. 25).⁷⁹⁷ Furthermore, the alienation of full copyrights in

500

⁷⁹⁴ Similarly: HEINSEN/VOß, p. 588; SINEWE/FRASE 2014, p. 293.

⁷⁹⁵ OECD COMMENTARY, Art. 12, para. 17.2. The streaming of films for users' personal enjoyment requires no copyright license and is therefore outside the scope of Art. 12 (OECD COMMENTARY, Art. 12, para. 17.3).

⁷⁹⁶ See *supra* para. 205; OBERSON 2014, para. 568.

⁷⁹⁷ See REIMER, in: VOGEL/LEHNER, Art. 13, para. 75.

software⁷⁹⁸ or any data, digital products, or content databases⁷⁹⁹ (corresponding to cells b-2 and b-3 referring to b-4)—as distinct from only partial rights⁸⁰⁰—is covered, too. These cloud computing transactions are therefore not targeted by Art. 12 MOECD.⁸⁰¹

501 Accordingly, if a company residing in Switzerland sells any ICT material characterized as movable property, it will be taxed in Switzerland. If that company develops (custom or standard) software and sells the copyrights in it, it will be taxed in Switzerland as well. However, if that company invests in a foreign start-up by transferring copyrights to it in exchange for stock, it will not be taxed in Switzerland, because Swiss tax law provides no basis for such taxation.⁸⁰²

502 If a company sells immovable property, such as a data center or parts thereof, located in Switzerland, capital gains arising therefrom will generally be taxed in Switzerland. If a data center is owned by a qualifying real estate company, the sale of shares in that company may trigger the application of capital gains tax to the sales gain.⁸⁰³ If

⁷⁹⁸ OECD COMMENTARY, Art. 12, para. 16.

⁷⁹⁹ *Ibid.*, para. 17.3.

⁸⁰⁰ WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 12, para. 65.

⁸⁰¹ HAASE, para. 43.

⁸⁰² As the transferred object with its untaxed latent reserves leaves the territory under Swiss tax sovereignty, not all the cumulative conditions for Art. 61(1)(d) DTC are fulfilled (GLAUSER/OBERSON, in: NOËL/GIRARDIN, Art. 61, para. 14, with further references). While this could be seen as a case of so-called systematic realization (i.e., a reason for taxing hidden reserves), there is no explicit legal basis for taxation either. The final sentence of Art. 58(1)(c) DTC, in particular, is not applicable according to its literal meaning (DANON, in: NOËL/GIRARDIN, Arts. 57–58, paras. 85 f., with more references, including to dissenting opinions).

⁸⁰³ There are two reasons that mitigate this risk of taxation. Firstly, the question of whether Swiss domestic law assigns limited liability to foreign corporate entities with real estate subsidiaries is still controversial (DE MITRI, pp. 564 f.). If the answer is no, the DTA is not sufficient to create tax liability in Switzerland (see OECD COMMENTARY, Art. 13, para. 3) and can result in double non-taxation (RIEDWEG/SUTER, in:

a data center (or parts thereof) on Swiss soil is sold to, or traded for shares, in a foreign subsidiary, taxation may be deferred under Swiss domestic law, provided that all the conditions of Art. 61(1)(d) DTC are fulfilled.⁸⁰⁴

§ V. Technical Services

A) OECD and UN Model

According to the OECD, the fact that technology is used for the delivery of the service does not change the nature of the service. In particular, it does not make the service “technical.”⁸⁰⁵ If one is of the minority opinion that cloud computing is merely a means of delivering a specific service (see *supra* paras. 489 f.), then cloud computing should not in itself increase the likelihood of a cloud service being characterized as technical. The UN Model proposes an essentially equivalent definition (see *supra* paras. 238 f.).

503

As cloud computing is often combined with specific services (such as the provision of virtual servers, or the provision of software or data), the service supplied via cloud computing should determine whether the cloud computing transaction as a whole can be

504

ZWEIFEL/BEUSCH/MATTEOTTI, Art. 13, para. 229). Secondly, a company’s characterization as a real estate company requires (among other things, see DANON/FALTIN, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 13, paras. 19 f.) the company’s main purpose to be merely the holding of real estate, as opposed to an operational activity (decision of the Swiss Federal Supreme Court of January 21, 2010, 2C_641/2009, recital 5.1; RIEDWEG/SUTER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 13, para. 59, but stating in para. 241 that such requirement does not exist at treaty level; DE MITRI, p. 567). Accordingly, this risk should basically exist only in cases where the holding of real estate and the operational business activity of a cloud provider are divided between separate subsidiaries; see *supra* paras. 64 f.

⁸⁰⁴ See GLAUSER/OBERSON, in: NOËL/GIRARDIN, Art. 61, para. 14.

⁸⁰⁵ OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(18)-15.

characterized as technical. The OECD has ruled that the provision of software or data is not a technical service.⁸⁰⁶ The explanation for this is that only the creation of the software or data requires special skill or knowledge, whereas (allegedly) no skill or knowledge is necessary merely to subsequently make the software or data available. According to this view, most cloud computing services (cell c-3 and some kinds of services represented in cell c-2 of the taxonomy of cloud computing transactions; see *supra* para. 25) should not qualify as technical services, because they merely make software and data available. By contrast, where the cloud computing service includes the provision of software development services or educational services (e.g., e-learning platforms), it may well qualify as a technical service.

505 One of the examples provided in the UN COMMENTARY concerns a company in the business of offering access to databases, for which it collects, organizes, and maintains their contents.⁸⁰⁷ In the taxonomy of cloud computing transactions, cell c-3 would cover this kind of SaaS. Such a company does not provide technical services, because the skill and knowledge is used only to create the databases but not thereafter when the databases are made accessible to the customers. By contrast, if such a company applies its knowledge and skill to create customized databases for each individual client, the service of making such databases available to the client would actually be part of the service, requiring the use of knowledge and skill, which would make it a technical service.

506 In conclusion, both the OECD and the UN⁸⁰⁸ seem to indicate that most cloud-specific services represented in cells c-2 (and some kinds of

⁸⁰⁶ For this and the following sentence: *ibid.*, p. R(18)-16.

⁸⁰⁷ The following statements in this paragraph are based on the UN COMMENTARY, Art. 12A, paras. 90 f. (Example 3).

⁸⁰⁸ Contra: OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, p. 140, referring to the decision of the Brazilian Receita Federal of

transactions represented in cell c-3) should generally not qualify as technical services. An exception could be made in the rare cases where the cloud computing service is mixed with a predominant software development service component. The OECD has characterized software development and maintenance (represented in cells a-2 and a-3 of the taxonomy) as technical services.⁸⁰⁹

In addition, the OECD has held (based on the same reasons) that where a provider offers space on its server to host web sites, this would not constitute a technical service.⁸¹⁰ When referring to hosting, the OECD does not differentiate between physical and virtual servers. Therefore, it would seem that the OECD considers IaaS *not* to be a technical service.

Finally, support services delivered over a computer network do not qualify as technical services according to the OECD, as they do not necessitate special skill or knowledge compared to that required for the provision of technical advice and consulting services.⁸¹¹ Therefore, support services delivered in connection with cloud computing (represented in cells a-2 and a-3) or by means of a cloud computing service (cells c-2 and c-3) should not constitute technical services either.⁸¹²

March 29, 2017, Solução de Consulta COSIT No. 191, which does not refer to the UN Model (as it was published later on May 18, 2018). The reference is not helpful for the OECD's interpretation of the UN Model in this instance.

⁸⁰⁹ OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, pp. R(18)-15 and 29, respectively. This seems consistent with the view that contract research could qualify as a technical service as well; see PÖLLATH/LOHBECK, in: VOGEL/LEHNER, Art. 12, paras. 83 f.

⁸¹⁰ OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, pp. R(18)-28 f.

⁸¹¹ *Ibid.*, p. R(18)-30.

⁸¹² BAL 2014, p. 519, seems to question this outcome.

B) Law of the Source Jurisdiction

509 As explained earlier (see *supra* para. 232), only a limited number of jurisdictions have concluded DTAs with Switzerland that include a clause on technical services. They are Argentina,⁸¹³ Brazil,⁸¹⁴ Colombia,⁸¹⁵ Ghana, India,⁸¹⁶ Pakistan, and Trinidad and Tobago. According to the available reports,⁸¹⁷ none of these jurisdictions have unequivocal rules in their domestic laws on the characterization of

⁸¹³ RIGONI, p. 17, regarding “technical assistance.”

⁸¹⁴ FORMENTI/TROUW, pp. 22 f., offering one of the most well-developed positions, next to India. However, see also PISCITELLI/CANEN, *passim*, concerning the remaining uncertainties.

⁸¹⁵ Decision of the Colombian Dirección de Impuestos y Aduanas Nacionales of September 17, 2015, *oficio* 027059, *Diario Oficial*, September 19, 2015, <https://cijuf.org.co/normatividad/oficio/2015/oficio-27059.html> (last viewed July 2, 2020), p. 49670, characterizing cloud computing services generally as technical services subject to withholding tax.

⁸¹⁶ CHYTHANYA/NAYAK, p. 25; see “Application Hosting” (royalty), “Web site hosting” (royalty), “Data warehousing” (royalty), “Electronic access to professional advice” (fees for technical services), “Streamed (real time) web based broadcasting” (business profits), “Subscription to a web site allowing the download of digital products” (royalty), etc., in: COMMITTEE ON TAXATION OF E-COMMERCE, *E-commerce and taxation report*, 2001, Annexure 2, http://www.rashminsanghvi.com/downloads/taxation/international-taxation/bpo_taxation_in_india/Annexure_2-Treaty_characterisation_of_e-commerce_payments-TAG_report_and_Indian_position.pdf (last viewed July 2, 2020). It should moreover be noted that income subject to the Indian equalization levy is exempt from regular income taxation (Section 10, clause 50 of the 1961 Indian Income Tax Act), so as to reduce legal uncertainty with regard to income treaty characterization; see also COMMITTEE ON TAXATION OF E-COMMERCE, *Proposal for Equalization Levy on Specified Transactions*, February 2016, <http://www.incometaxindia.gov.in/news/report-of-committee-on-taxation-of-e-commerce-feb-2016.pdf> (last viewed July 2, 2020), p. 5, p. 89. See also the decision of the Authority for Advance Rulings (Income Tax) New Delhi of November 6, 2006, *IMT Labs (India) Pvt. Ltd. v. Commissioner of Income Tax IV*, Delhi, AAR No. 676 of 2005, which, applying the India-United States DTA, considered that a certain kind of cloud computing service was remunerated through a “fee for included services” as in Art. 12(4) India-United States DTA, which is generally modeled on the MOECD. It is conceivable that India would apply the same interpretation to Art. 12(2) of the DTA concluded with Switzerland.

⁸¹⁷ See *supra* notes 809 f.

cloud computing services for purposes of withholding tax. A detailed analysis of these rules goes beyond the scope of this thesis.

§ VI. Business Profits

A) General Considerations

It is not surprising that cloud-specific transactions⁸¹⁸ come within the scope of Art. 7 MOECD, together with most other kinds of provision of services.⁸¹⁹ After all, they are delivered *as a service*. Further, this is a consequence of the subsidiary role of Art. 7 MOECD. Any transaction that does not involve income from immovable property, royalties, capital gains, or technical services (see *supra* paras. 461 f., 480 f., 500 f., and 503 f.) can—by way of exclusion—only qualify as business profits. 510

Furthermore, the cloud transactions involving maintenance and other accompanying services that may be supplied by specialist third-party companies (all the services in column a of the taxonomy of cloud computing transactions; see *supra* para. 25) are also targeted by Art. 7 MOECD, provided the DTA in question does not contain a clause modeled after Art. 12A UN Model. 511

Contract research, on the other hand, may come within the scope of the *lex specialis* in Art. 12 MOECD, depending on the exact nature of 512

⁸¹⁸ Cells c-2 and c-3 of the taxonomy of cloud computing transactions, *supra* para. 25, referred to variously as SaaS, IaaS, application hosting, application service provisioning (ASP), data warehousing, etc.

⁸¹⁹ The OECD had already characterized many of these kinds of transactions in 2002; see OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, pp. R(18)-26 f. The present author can confirm from experience that these transactions are still commonly used in the cloud computing business. This is also admitted by GÓMEZ REQUENA, pp. 414 f.

the underlying contractual arrangement.⁸²⁰ It is conceivable that all or part of the development of software related to cloud computing could be outsourced to the members of a multinational group or even to third-party contractors. The resulting income could qualify as royalties or technical services.⁸²¹

513 Finally, the pre-July 23, 1992 version of Art. 12(2) MOECD explicitly referred to consideration for the use of ICS equipment. However, this kind of income has since been reassigned to Art. 7 MOECD.⁸²² Whether this would extend to the renting of single servers or racks in an otherwise inaccessible data center—as opposed to renting a physically accessible cage in a data center without obtaining any other ancillary services (cell c-1, analyzed under Art. 6 MOECD, see *supra* para. 475)—is immaterial. In any case, such income qualifies as business profits.

B) Summary

514 Based on the preceding analysis, the subsidiary application of Art. 7 MOECD can best be visualized using the initially developed taxonomy of cloud computing transactions. Every cell without a reference to the aforementioned articles of the MOECD and UN Model will be completed with a reference to Art. 7 MOECD. The following table also serves as a summary of the preceding analyses:

⁸²⁰ WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 12, para. 58.

⁸²¹ As discussed *supra* para. 504.

⁸²² OECD COMMENTARY, Art. 7, para. 76; PÖLLATH/LOHBECK, in: VOGEL/LEHNER, Art. 12, para. 54.

| | | <i>Distinction between broad categories of transactions</i> | | | | |
|--|---|---|--------------------|---|---------------|--|
| | | Ancillary services | Transfer of assets | Transfer of usage rights | | |
| <i>Distinction between objects at different levels of computing</i> | | a | b | c | | |
| | | Physical infrastructure (data center building, physical servers, cables, etc.) | 1 | Art. 12A UN Model / Art. 7 MOECD | Art. 13 MOECD | Data centers: Art. 6 MOECD Physical servers, etc.: Art. 7/12 MOECD |
| | | Infrastructure software (operating systems, virtual servers, virtualization software, networking, load balancing, etc.) | 2 | Art. 12A UN Model / Art. 7 MOECD | See cell b-4 | Art. 7 MOECD |
| | | Application software (accounting software, e-mail, data storage, information databases, development platforms, etc.) | 3 | Art. 12A UN Model / Art. 7 MOECD | See cell b-4 | Art. 7 MOECD |
| Intellectual property rights (copyrights, patents, trademarks, know-how, etc.) | 4 | Art. 12A UN Model / Art. 7 MOECD | Art. 13 MOECD | Art. 12 MOECD | | |

515 The table reveals that Art. 7 MOECD is generally the only viable option for characterizing cloud-specific transactions (i.e., cells c-2 and c-3 of the taxonomy covering IaaS, PaaS, and SaaS). Accordingly, the table answers the above-mentioned⁸²³ research question of how cloud computing transactions are characterized in treaties.

§ VII. Conclusion on Treaty Characterization

516 Clearly, most transactions in the cloud computing business should be characterized as business profits within the meaning of Art. 7 MOECD.⁸²⁴ In particular, cloud-specific transactions (cells c-2 and c-3 of the taxonomy) qualify as business profits. This is because the code is no longer openly conveyed to the user of a cloud service, which is one of the distinguishing features of cloud computing, whereas software transactions in the 1990s commonly transferred codes.

517 All of the rules analyzed above attribute the targeted income first to the taxpayer's country of residence, unless the income is attributable to a permanent establishment.⁸²⁵ As such, differentiation is in principle useful only when the DTA attributes the taxing right at least partially to the source jurisdiction under some of these articles. For instance, it is common for double taxation agreements to depart from the MOECD by providing for withholding taxes on royalties (Art. 12 MOECD).⁸²⁶ By contrast, there are essentially no withholding taxes on

⁸²³ See *supra* para. 458.

⁸²⁴ LLINAS/GOENKA/DUKMEDJIAN/WISNER, p. 5; PINTO, p. 171 (the arguments used by PINTO when calling for a redefinition of source were largely based on the assumption that software codes are transferred, which, as explained *supra* paras. 489 f., is no longer relevant in the context of cloud computing).

⁸²⁵ See Arts. 12(3), 13(2), and 7(1) MOECD, respectively.

⁸²⁶ In 1992, all countries except Switzerland, Norway, and the Netherlands had the unilateral right to tax royalties at source and often departed from the MOECD: OECD, *The Tax Treatment of Software*, Paris July 1992, in: OECD, *Model Tax Convention on*

business profits (Art. 7 MOECD). Thus, a differentiation is not completely inconsequential.

Despite the above ideal interpretation of the MOECD, there are reports of a growing number of jurisdictions taking unilateral measures to broaden the application of their withholding tax regimes.⁸²⁷ There are no similar trends in Switzerland. A change in interpretation or unilaterally in the law of a source jurisdiction should not immediately affect the treaty characterization from the point of view of Switzerland.⁸²⁸

518

Income and on Capital, Full Version (as it read on 21 November 2017), Paris 2019, pp. R(10)-7 (para. 25) and R(10)-8 (para. 31).

⁸²⁷ For instance, OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, pp. 139 f.

⁸²⁸ OECD COMMENTARY, Arts. 23 A and 23 B, para. 81.

Section III Transfer Pricing

§ I. Introduction

Transfer pricing is perceived as the main source of risks regarding taxation.⁸²⁹ Furthermore, transfer pricing adjustment procedures have increased and are subject to new regulations.⁸³⁰ When analyzing new business models, it is essential to take account of their impact on transfer pricing policy. The effects of the increased relevance of intangibles, data, and global value chains on transfer pricing rules are an ongoing concern for the OECD.⁸³¹ 519

It is hardly surprising that cloud computing businesses can be equally affected by these risks. If a transaction between associated enterprises does not conform to the arm's length principle, that transaction may be subject to transfer pricing adjustments (Art. 9(1) MOECD). Such adjustments can be made for cloud-specific transactions (cells c-2 and c-3 in the taxonomy of cloud computing transactions; see *supra* para. 25),⁸³² but also for any of the other transactions in the taxonomy (see, e.g., Art. 12(4) MOECD in relation to cell c-4). 520

The following explanations will be limited to the effects of cloud computing on the application of the OECD TPG. They may have direct consequences for the attribution of profits to permanent establishments within an enterprise.⁸³³ However, the main focus is Art. 9 MOECD. In other words, the following analysis is applicable only 521

⁸²⁹ ROCHA, p. 33, with references to particular country reports.

⁸³⁰ For example, Actions 8–10 of the OECD BEPS program.

⁸³¹ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 145 (para. 373).

⁸³² SINEWE/FRASE 2014, p. 284.

⁸³³ See *supra* paras. 286 f.

to transactions between associated enterprises (i.e., within a multinational group of enterprises).

522 What follows is not a complete comparability analysis, as it does not compare a controlled transaction with an uncontrolled transaction (see the definition of a comparability analysis, *supra* paras. 260 f.). This is due to the theoretical nature of the present text. The following explanations merely seek to describe the general conclusions that would need to be drawn from the types of transactions described. They relate to a comparability analysis insofar as they point out the factors that a comparability analysis of an actual cloud computing transaction would need to take into account in practice.

523 The transactions are ordered according to their respective parties (i.e., centralized cloud provider or decentralized business function within a cloud provider). This corresponds to the two scenarios introduced *supra* paras. 33 f. The explanations given there also indicate the functions, assets, and risks attributable to each of the parties to the transactions.

§ II. Comparability Analysis

A) *Cloud-Specific Transactions with a Centralized Provider*

524 As has been observed, a transaction between a cloud customer and a cloud provider in exchange for consideration is typified by a certain distribution of functions, assets, and risks. The cloud provider fulfills the function of providing the agreed resources (such as virtual servers of a certain quality or software of a certain functionality). The cloud provider is responsible for the necessary assets for the service and ultimately bears the risk for keeping the service functional throughout the agreed timespan. A reflection of this is when the service-level

agreement imposes penalties on the cloud provider for not meeting the availability standard required of the cloud.

While the characteristics of the service (such as the number of CPUs or the amount of RAM and storage space on a *virtual* server) have a direct impact on pricing, the service prices are not directly dependent on the number of *physical* servers (i.e., assets) in use. A larger number of servers indirectly modifies the quality and the price of a service by allowing for greater availability and performance, the scalability of the service, or savings from economies of scale. Valuable software intangibles may lead to high service prices. However, the causality is often reversed, as it is the price at which a service can be sold that has an influence on the valuation of the intangible.⁸³⁴ Therefore, a transfer pricing adjustment merely based on an evaluation of assets may fall victim to circular reasoning and should be avoided.⁸³⁵ Furthermore, it is important to remember that transactions of this kind generally do not involve the transfer, but only the use, of the software intangible.⁸³⁶ In sum, while software intangibles and physical server infrastructure play an important role in cloud computing business, these asset-based factors should not be predominant when determining the arm's length price for a transaction.⁸³⁷

525

⁸³⁴ OECD TPG, para. 6.157.

⁸³⁵ SILVA, *passim*.

⁸³⁶ Arriving at the same conclusion in a similar case: OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, in: OECD *Tax Policy Studies*, No. 10, Paris May 2005, p. 17 (para. 20). See also the argumentation on the applicability of Art. 12 MOECD, *supra* para. 222, which is not binding but offers guidance for the transfer pricing analysis.

⁸³⁷ The number of servers can play a role in the application of the transactional profit split method (OECD TPG, para. 2.141, in the OECD TPG version of 2017). As already mentioned, it should play only a secondary role. In any case, this method would apply only rarely to cloud-specific transactions with a centralized provider; see *infra* para. 557.

526 Finally, it is important to consider that an intragroup *private* cloud service provider has additional advantages compared to a third-party *public* cloud provider. As the provider and the customer are associated with each other under corporate law, the customer will presumably have an opportunity to exercise greater control over several aspects of the cloud, such as its geographical location, its security, the financial stability of the provider, and the confidentiality of the data stored thereon. These additional features will likely justify additional remuneration compared to an uncontrolled transaction with a third-party cloud provider.

B) *Transactions within a Decentralized Cloud Provider*

1) *Between the Software Development and Hardware Operation Teams*

527 In 2005, the OECD proposed an interpretation of the arm's length principle based on a functional analysis of electronic commerce.⁸³⁸ It

⁸³⁸ This was how transfer pricing among associated enterprises was analyzed in OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, Paris December 2005, p. 28, where it was explained at p. 13 that there may be certain differences from the 2001 report on profit attribution to permanent establishments (OECD, *Attribution of Profit to a Permanent Establishment Involved in Electronic Commerce Transactions/A Discussion Paper from the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for the Taxation of Business Profits*, Paris February 2001), if it is assumed that a subsidiary, unlike a permanent establishment, always has personnel. However, that assumption overlooks the fact that not all subsidiaries have on-site personnel. Be that as it may, it is unquestionable that the intention was to define the functional analysis so that it could be applied to both permanent establishments (Art. 7 MOECD) and associated enterprises (Art. 9 MOECD). Therefore, although the following explanations refer to profit attribution to permanent establishments under Art. 7 MOECD, they are equally valid for transfer pricing between associated enterprises under Art. 9 MOECD.

It is another matter whether this interpretation should be directly applicable in Switzerland. This functional analysis of electronic commerce was originally based on

states that a highly automated permanent establishment, such as one or multiple servers with no personnel, can perform only “routine functions”⁸³⁹ and will therefore be attributed a minimal amount of

the authorized OECD approach (AOA) (OECD, *Attribution of Profit to a Permanent Establishment Involved in Electronic Commerce Transactions/A Discussion Paper from the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for the Taxation of Business Profits*, Paris February 2001, p. 6, which refers to a draft “working hypothesis” of what would later become part of OECD, *2010 Report on the Attribution of Profits to Permanent Establishments*, Paris July 22, 2010 (see p. 11 thereof), representing the AOA; see OECD, *Report on the Attribution of Profits to Permanent Establishments*, Paris July 2008, pp. 7 f.). The AOA has not been widely accepted by OECD members (see BRÜLISAUER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 7, para. 32). In 2015, Switzerland had only three DTAs that did not contain the older Art. 7(4) MOECD without the AOA (BRÜLISAUER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 7, para. 374), which limits the applicability of this interpretation of the arm’s length principle in Switzerland. Further, the interpretation refers to, without being part of, the OECD COMMENTARY and the OECD TPG (Art. 9, para. 1), which would both be directly applicable; see SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 4 de l’Administration fédérale des contributions concernant l’imposition des sociétés de services*, March 19, 2004. However, Switzerland considers the above-mentioned 2010 report to be one of the primary sources of interpretation of Art. 7 MOECD (BRÜLISAUER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 7, para. 32) and that report explicitly refers to the report on e-commerce (on p. 26). Given the close connection with Art. 9 MOECD and the lack of any contradictory Swiss source, it does not seem unreasonable to apply the interpretation in Switzerland as well. Even so, the OECD interpretation would not be strictly binding on Swiss authorities with regard to Art. 9 MOECD (EISENRING, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 9, paras. 52 f.).

⁸³⁹ For an illustration of how “routine” could be defined, see the German Transfer Pricing Guidelines in BUNDESAMT FÜR FINANZEN, *Grundsätze für die Prüfung der Einkunftsabgrenzung zwischen nahestehenden Personen mit grenzüberschreitenden Geschäftsbeziehungen in Bezug auf Ermittlungs- und Mitwirkungspflichten, Berichtigungen sowie auf Verständigungs- und EU-Schiedsverfahren (Verwaltungsgrundsätze-Verfahren)*, GZ IV B 4 - S 1341 - 1/05, April 12, 2005, para. 3.4.10.2 a) (pp. 27 f.): “Ein Unternehmen, das lediglich Routinefunktionen ausübt (beispielsweise konzerninterne Dienstleistungen erbringt, die ohne weiteres am Markt auch bei Dritten in Auftrag gegeben werden könnten, oder einfache Vertriebsfunktionen) und nur in geringem Umfang Wirtschaftsgüter einsetzt und nur geringe Risiken trägt, erzielt bei üblichem Geschäftsablauf keine Verluste, sondern regelmäßig geringe aber relativ stabile Gewinne („Unternehmen mit Routinefunktionen“). Dies gilt auch für einen sog. Lohnfertiger oder einen sog. „low risk distributor“, der im Hinblick auf Forderungsausfälle und die Marktentwicklung nur kommissionärsähnliche Risiken trägt.”

profit (on a cost-plus basis).⁸⁴⁰ This is explained by the fact that humans program the server to do basically everything it does. This includes all the business functions it performs (such as the electronic conclusion of contracts with customers, payments, and deliveries of digitized products⁸⁴¹) and the use of software intangibles, hardware, and other assets involved therein.⁸⁴² From this observation, the OECD infers that the profits linked to these functions, assets, and risks are attributable to the humans that steered and programmed the server. Because these humans are geographically located at the head office, the head office is entitled to practically all of that profit.⁸⁴³

528 By contrast, when on-site personnel manage a server, the permanent establishment may be entitled to a larger portion of the profits, as the humans on site are able to perform certain functions, assume some risks, and acquire assets.⁸⁴⁴ When the personnel are even involved in developing intangibles (such as software), they may qualify as the

⁸⁴⁰ OECD, *Attribution of Profit to a Permanent Establishment Involved in Electronic Commerce Transactions/A Discussion Paper from the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for the Taxation of Business Profits*, Paris February 2001, pp. 23 f.; OECD, *2010 Report on the Attribution of Profits to Permanent Establishments*, Paris July 22, 2010, p. 26. It is possible to infer that the contribution made by the hardware operation business function basically corresponds to cell c-2 in the taxonomy of cloud computing transactions (see *supra* para. 25).

⁸⁴¹ See *supra* paras. 377 f.

⁸⁴² The OECD report is rather inconsistent, and has been criticized, in this regard; see OECD, *Comments on Part I (General Considerations) and Part II (Banks) of the Discussion Draft on the Attribution of Profits to Permanent Establishments*, Paris 2001, <http://www.oecd.org/tax/transfer-pricing/commentsreceivedonpartigeneralconsiderationsandpartiibanks/thediscussiondraftontheattributionofprofitstopermanentestablishments.htm> (last viewed July 2, 2020). WASSERMEYER/KAESER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 7, para. 450, argues that at least the server hardware itself should be attributed to the permanent establishment.

⁸⁴³ CATALDI, p. 149, reaches the same conclusion; also, SCORNOS, p. 5.

⁸⁴⁴ OECD, *Attribution of Profit to a Permanent Establishment Involved in Electronic Commerce Transactions/A Discussion Paper from the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for the Taxation of Business Profits*, Paris February 2001, p. 29; KRAUZE, p. 146.

main recipients of the returns from these intangibles (such as royalties).⁸⁴⁵

In other words, the OECD is of the opinion that the greater the automation and remote control at the permanent establishment, the smaller the profits attributable to it (at least in the context of electronic commerce). Hence, automation will result in a concentration of most of the profit at the head office.

529

Translated to cloud computing, this view leads to the conclusion that only the on-site personnel at the data center allow substantial profit to be attributed to the data center.⁸⁴⁶ Under the OECD's interpretation, as soon as the data center evolves to become completely automated (what exactly that means remains an open question) and remote-controlled, no significant profit can be attributed to it.⁸⁴⁷

530

This interpretation of the arm's length principle can be applied to cloud computing subject to a few assumptions: The software development is performed by human beings without any need for remote control of the hardware (see *supra* para. 49). By contrast, the hardware operation team has only a limited number of staff members

531

⁸⁴⁵ OECD, *Attribution of Profit to a Permanent Establishment Involved in Electronic Commerce Transactions/A Discussion Paper from the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for the Taxation of Business Profits*, Paris February 2001, p. 32. More cautiously: GREIL/FEHLING, p. 764, admitting that developers of software should be remunerated accordingly, while at the same time acknowledging that in cloud computing the execution of the software is actually the more important value-generating business activity.

⁸⁴⁶ Similarly: PINKERNELL 2012a, p. 337, regarding subsidiaries exercising nothing more than a hosting activity. He makes his assertion subject to the condition that the subsidiary develops software or delivers services to third parties. The present author would respond that a cloud computing service in most cases involves maintenance of the software (e.g., the application software in SaaS and PaaS clouds and the virtualization software in IaaS clouds), which is tantamount to software development. In the taxonomy of cloud computing transactions (see *supra* para. 25), such transactions are represented in cells c-2 and c-3.

⁸⁴⁷ The present author disagrees with the OECD's interpretation of the arm's length principle with regard to automation and proposes an amendment to it below (see *infra* paras. 837 f.).

on site, who control the hardware mostly from a remote location (see *supra* para. 53). Application of the OECD interpretation thus involves valuating these two teams' activities. The contribution of the software development team (see *supra* paras. 49 f., which might correspond to cells a-2, a-3, and a-4 in the taxonomy of cloud computing transactions, *supra* para. 25) to the entire business operation is generally given a higher value than the contribution of the hardware operation team, which has a lower on-site headcount (see *supra* paras. 52 f., basically corresponding to cells c-1, c-2, and c-3), made in return.

532 Yet an exception is possible, as “[i]t was recognized, however, that this might be different in some cases where high-value assets [e.g., high-end cloud computing data centers] would be used to perform automated functions.”⁸⁴⁸ In that case, pursuant to certain transfer pricing methods, the high value of the assets might cause more profits to be attributed to the server, even if the number of on-site staff is small. This possibility will be considered later.

2) *Between Software Development Team and Intellectual Property Rights Company*

533 An important aspect⁸⁴⁹ of transfer pricing analysis is identifying the parties responsible for the functions, assets, and risks relating to the development, enhancement, maintenance, protection, and exploitation (DEMPE functions) of the intangibles in question.⁸⁵⁰ The software development team certainly performs at least one of these functions.

⁸⁴⁸ OECD, *Are the Current Treaty Rules for Taxing Business Profits Appropriate for E-Commerce? – Final Report of the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for Taxing Business Profits*, Paris June 2004, p. 31.

⁸⁴⁹ OECD TPG, para. 6.34.

⁸⁵⁰ *Ibid.*, para. 6.48.

More specifically, a software development team either creates software intangibles and licenses them to the hardware operating subsidiary that exploits them (cell c-4 of the taxonomy of cloud computing transactions, *supra* para. 25) or provides a kind of R&D service for the subsidiary that creates the software intangible (e.g., the intellectual property rights company; see *supra* para. 62, corresponding to cells a-2 and a-3 of the taxonomy). Whether the software intangible is created by the software development team or by the intellectual property rights company will depend on which enterprise bears all the risks and costs related to the R&D undertaken by the software development team.⁸⁵¹ The software development team's remuneration will depend on this assessment. In most cases, the software development function is the main value driver of a cloud computing business operation and should be remunerated accordingly.⁸⁵²

534

3) *Between Hardware Operation Team and Real Estate Company*

As mentioned earlier, the land and buildings necessary for the business operations of an entire group may be centralized in a subsidiary that serves as a real estate company. It would include the data centers necessary for the performance of the hardware operation function (see *supra* paras. 52 and 64). At first sight, the remuneration should be roughly comparable to rents paid for

535

⁸⁵¹ See *ibid.*, para. 6.80 and Example 14, "Shuyona," at paras. 46 f. in the annex to chapter VI of the OECD TPG, first published in: OECD, *Aligning Transfer Pricing Outcomes with Value Creation, Actions 8–10/2015 Final Reports*, Paris October 2015, pp. 127 f.

⁸⁵² In rare cases, the software development team's time spent developing software is only marginal, with more time and effort being spent on buying standard or customized software from third parties. Yet, even then, customizing and implementing it into the business's own processes requires considerable engineering work with significant implications for the entire business.

buildings on the free market. However, the particular characteristics of a data center have an impact on the level of remuneration.

536 Delineating transactions involving data centers may present several difficulties. First and foremost, the arm's length price for a data center is more than just the sum of real estate costs. A data center is constructed to work as a highly integrated whole including the hardware within it. It is therefore inappropriate to draw a direct comparison with the renting of an ordinary building.

C) *Conclusion on the Comparability Analysis*

537 The above observations concerning the various transactions provide the basis for an approximation of the arm's length remuneration for differentiable cloud computing business functions.

538 Firstly, the transactions between the cloud provider and an outside cloud customer must take into account the special pricing models used to fix remuneration in uncontrolled transactions on the free market, as well as the special redistribution of assets and risks compared to traditional e-commerce transactions in the 1990s.

539 Secondly, there are the transactions that take place within different parts of a decentralized cloud computing provider. The three preceding sections have elaborated on the most notable of these. The OECD has taken a clear position on transactions between the software development and the hardware operation teams by considering that, in principle, the software development team should retain the bulk of the profit. The remuneration of the hardware operation team, on the other hand, would depend primarily on the headcount.

§ III. Choice of Transfer Pricing Method

A) Introduction

Of the methods proposed by the OECD, four seem particularly suited to electronic commerce: the comparable uncontrolled price method, the cost-plus method, the transactional net margin method,⁸⁵³ and the transactional profit split method.⁸⁵⁴ The following sections will explore how each method works and the reasons why they are applicable to cloud computing. By means of a comparability analysis, as described above, it is possible to identify the appropriate transfer pricing method for determining the arm's length price of a cloud computing transaction.

540

B) Comparable Uncontrolled Price Method

As described earlier (see *supra* paras. 39 f.), the prices offered by cloud providers on the open market may appear to offer comparable data for certain controlled transactions. However, as pointed out, they do not reflect all the costs and risks incurred in outsourcing internal IT infrastructure. To the present author, it seems questionable whether accurate adjustments can be made to eliminate the material effects of the opacity of open market prices. Furthermore, when software applications are provided as a service, the price really depends on the value of the software intangible being made available. Given the ever-growing diversity of software functionality and the rapidly changing demand in the market, it is difficult, if not impossible,

541

⁸⁵³ OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, in: OECD Tax Policy Studies, No. 10, Paris May 2005, pp. 27 f.

⁸⁵⁴ PORTNER 2001, p. 94.

to find reliable comparables.⁸⁵⁵ Therefore, the data necessary to perform the CUP method in the case of intragroup cloud services may not be as readily available as one might initially think.⁸⁵⁶

542 Of course, the CUP method is applicable in special circumstances that have no particular relationship with cloud computing. For instance, it may be applied where the same intangibles are offered to both associated and unassociated parties, thereby creating a so-called internal comparable.⁸⁵⁷ However, as they are unconnected to the topic of cloud computing, they do not need to be discussed here.

C) Cost-Plus Method

543 The cost-plus method is often used in relation to services. It is therefore reasonable to check whether it is suitable for *cloud* services, too. Apart from the general difficulties raised by the cost-plus method, applying it to cloud computing poses certain specific challenges.

544 SaaS provision consists of transactions involving intangibles, for which the cost-plus method based on the costs incurred in developing the intangible is generally inappropriate.⁸⁵⁸ The cost-plus method should be applied to transactions involving intangibles only in the rare

⁸⁵⁵ OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, Paris December 2005, p. 61, recognized this as a general problem in electronic commerce. For a detailed account of seven different factors influencing the price of SaaS, see LAATIKAINEN/OJALA, p. 599.

⁸⁵⁶ See also OECD TPG, para. 6.146, stating that the application of the CUP method to intangibles is “difficult or impossible,” the reason being that it is difficult to find two similar intangibles (apart from the case described *ibid.*, para. 6.147).

⁸⁵⁷ For the term: *ibid.*, paras. 3.27 f. Similar circumstances led to the application of the US equivalent of the CUP method to the US *Amazon* case; see the decision of the US Tax Court of March 23, 2017, *Amazon.com, Inc. & Subsidiaries v. Commissioner of Internal Revenue*, 148 T.C. No. 8, Docket No. 31197-12, pp. 90 f.

⁸⁵⁸ OECD TPG, para. 6.142; OBERSON 2014, para. 895, referring explicitly to the “*nouvelles technologies*.”

situations where the intangibles are used in internal business operations (e.g., internal software systems) and are not unique and valuable.⁸⁵⁹ In the SaaS sphere, this would be the case with standard software or particularly simple software applications deployed in a private cloud used for such things as office supply management or human resources. When developed in-house, the cost base for the software intangible would comprise the development costs.

Where standard software bought from a third-party software provider and deployed on standard internal server infrastructure is involved, the cost-plus method could supposedly be applied.⁸⁶⁰ This is often the case with IaaS. Because the standard software used for virtualization is sometimes licensed by a third-party developer,⁸⁶¹ a nonaffiliated party fixes the price of the license, as it would a commodity.

However, the nature of a cloud service is such that, while the cost of a virtual server with particular specifications may be set, costs ultimately correlate with the intensity of the use of these resources (concept of provision of resources *on demand*). The actual cost base is, by nature, difficult to quantify *ex ante* as cloud services are used precisely when usage is most volatile.⁸⁶² This on-demand aspect is characteristic of cloud computing transactions between unrelated parties. Although the OECD has remarked that independent parties

⁸⁵⁹ OECD TPG, para. 6.143; for a definition of unique and valuable intangibles, see para. 6.17.

⁸⁶⁰ Implicitly referring to this case: DITZ, para. 6.682. Some of the most common examples are centrally hosted e-mail services, intranets, and desktop-as-a-service clouds.

⁸⁶¹ Such as VMware and Docker.

⁸⁶² Of course, there are situations in which the *ex ante* calculation of the costs of a cloud service, including predictions about its usage, is indispensable, such as when deciding whether to migrate to the cloud in the first place or when data center administrators have to plan hardware supply. However, these projections are mostly based on a thorough analysis of historical data on user behavior, collected previously during regular operations or in the test phases preceding the operational phase.

would not base their pricing decisions on historical data alone,⁸⁶³ it seems necessary to apply historical data on previous usage to some degree to approximate the usage that has been agreed upon, and hence the resulting production costs for the service.⁸⁶⁴

547 Once the cost base has been calculated, a certain ratio of it must be added as a profit markup, and that markup must conform to the arm's length principle. The arm's length markup should take no account of the cost efficiency of the service provider, as an independent party would probably not accept a higher price that is due to the other party's inefficiency.⁸⁶⁵ Accordingly, comparability adjustments may need to be made to the markup depending on the cost efficiency of the service.⁸⁶⁶ In the cloud computing business, cost efficiency has a lot to do with the efficient use of computing resources. Therefore, it is closely connected to the programming of the software. Consequently, this aspect must be taken into account when evaluating the comparability of a markup.

548 If the cloud services are LVIS, the markup can be set at 5 percent, irrespective of any comparability analysis. However, neither SaaS nor IaaS is very likely to fulfill all the conditions. On the one hand, software applications delivered as a service are often unique and valuable intangibles and, on the other hand, IaaS provision often involves numerous risks related to the operation of a data center (see *supra* paras. 55 f.). In general, software development falls outside the definition of LVIS, unless it is not a group's principal activity.⁸⁶⁷ The OECD mentions several examples, such as information system support and the information systems used in connection with accounting, production, client relations, human resources, etc., and

⁸⁶³ OECD TPG, para. 3.69.

⁸⁶⁴ Similarly: BAUMHOFF, para. 5.62.

⁸⁶⁵ OECD TPG, paras. 2.48 and 2.58.

⁸⁶⁶ BAUMHOFF, paras. 5.53 f.

⁸⁶⁷ OECD TPG, para. 7.47.

particularly support, maintenance, and supervision of IT networks (local area network, wide area network, Internet).⁸⁶⁸ Therefore, the transactions within a decentralized cloud provider (see *supra* paras. 524 f.) would not qualify as LVIS. The application of an elective, simplified method of transfer pricing might be appropriate in situations where a group whose business does not consist in providing cloud services deploys a private cloud for its group members, regardless of whether infrastructure or software is delivered as a service (that would correspond to the situation described *supra* para. 35).

By contrast, the cost-plus method would probably be appropriate for the business functions performed by a real estate company (see *supra* para. 64). The most critical aspect of applying the method to such functions would be the calculation of the markup. It would need to reflect not only an arm's length remuneration for the basic administrative services of a real estate company but also the increased risks involved with high-tech data centers (see *supra* para. 55).

Where the software development team merely performs R&D services for the actual holder of the software intangibles (as described *supra* para. 534), such services may only sometimes be evaluated using the cost-plus method. This would be conditional on the intellectual property rights company (see *supra* paras. 62 f.) not only funding but also controlling the R&D and bearing the risks involved with it.⁸⁶⁹ If the legal owner neither controls nor performs DEMPE functions, the legal owner is not entitled to any ongoing benefit.⁸⁷⁰ However, a merely "modest" markup is never enough.⁸⁷¹ It has to take into account the relative skill and efficiency of the development team, the nature of the

⁸⁶⁸ *Ibid.*, para. 7.49.

⁸⁶⁹ See *ibid.*, paras. 6.55 and 6.65.

⁸⁷⁰ *Ibid.*, para. 6.54.

⁸⁷¹ *Ibid.*, para. 6.79: "in all cases."

549

550

research being undertaken, and other factors contributing to value.⁸⁷² Considering that software is often the main value driver in a cloud computing business, a significant markup should be attributed to the development team in such cases.

D) Transactional Net Margin Method

- 551 Under certain circumstances, the transactional net margin method may be used for SaaS provision. This would be the case where a transaction involves the transfer of rights of use over software intangibles that may prevent the application of any of the traditional transfer pricing methods explained above.
- 552 An example might be cloud-specific transactions involving a centralized provider (as described *supra* para. 35), where recourse to valuable and unique software intangibles makes the cost-plus method inapplicable. The application of the transactional net margin method is possible thanks to the particularity that software copyrights in cloud computing tend to be exclusively held by the intragroup cloud providers, relieving the intragroup cloud customer of the need to invest in assets, incur development costs, or assume risks relating to these software intangibles. The cloud customer is often completely separated from the software intangible used by the cloud provider. From this observation it may be inferred that a customer who acquires SaaS seems to fulfill the conditions to be the tested party in an intangibles transaction under the transactional net margin method.⁸⁷³ To begin with, the cloud customer's arm's length net profit

⁸⁷² Example 14, "Shuyona," at paras. 46 f. in the annex to chapter VI of the OECD TPG, first published in: OECD, *Aligning Transfer Pricing Outcomes with Value Creation, Actions 8–10/2015 Final Reports*, Paris October 2015, pp. 127 f.

⁸⁷³ The conditions are explained in more detail in: MARAIA, p. 226.

is to be determined and then the residual profit can be attributed to the cloud provider.⁸⁷⁴

It has already been explained that software intangibles play a comparatively much smaller role in the context of IaaS than they do in the context of SaaS. Accordingly, the infrastructure cloud provider could sometimes be thought of as the less complex, tested party. However, it may be difficult to find comparable data. Listed large infrastructure cloud providers may be required to make their balance sheets publicly available under stock exchange rules. For most of them, however, the cloud business is not their only activity and it may therefore be difficult to isolate the data relating to the cloud business in particular. Further, the exact amounts invested in data centers are closely guarded secrets, even for listed infrastructure cloud providers.⁸⁷⁵ Smaller cloud providers will probably not publish any balance sheets at all.

Where there is enough available data on comparable businesses or transactions, the question arises as to which denominator should be used for the net profit indicator: sales, costs, or assets? On the one hand, the nature of IaaS provision suggests the use of total assets as a denominator. The necessary investments in data centers are particularly capital-intensive, possibly justifying the use of a net profit indicator based on assets. However, assets should not be used as the only denominator, given their merely indirect effect on pricing (see *supra* para. 525).

⁸⁷⁴ In more general terms: *ibid.*, p. 225.

⁸⁷⁵ STEPHENS, RACHEL, *Infrastructure Investments by Cloud Service Providers*, June 16, 2016, <http://redmonk.com/rstephens/2016/06/16/infrastructure-investments-by-cloud-service-providers/> (last viewed July 2, 2020).

E) Transactional Profit Split Method

555 The transactions that occur between the software development and the hardware operation teams in a decentralized cloud provider group (see *supra* paras. 527 f.) are likely to be too complex for the previously explained transfer pricing methods. The contributions made by the different group members would include at least the development of software, on the one hand, and the deployment of the software in data centers, on the other, along with the corresponding operational services. In this case, both parties make unique and valuable contributions and they interact in a highly integrated manner. Thus, the transactional profit split method may lend itself best to defining the arm's length price.

556 Whether the services provided by the data center can be regarded as routine functions (and be remunerated prior to splitting the total profit according to the optional residual profit method variation; see *supra* para. 277) will depend on the complexity of the service in question, which in turn is likely to depend on the level of integration between the hardware and the core business of cloud computing providers.⁸⁷⁶ There may be group members that develop hardware patents, software copyrights, and know-how in maintaining increasingly complex data centers; this may, in some cases, be the very reason why a cloud customer chooses one cloud provider instead of another. In other words it would constitute a significant value driver.

557 In light of these observations, it is likely that the value chain of some multinational groups whose main business is the provision of cloud services (see *supra* para. 36) will be characterized by the existence of unique and valuable contributions without comparables and a high degree of integration. By contrast, where a group in another business sector has an intragroup cloud provider (see *supra* para. 35), it is questionable whether there will be a high degree of integration, as the

⁸⁷⁶ Similarly: MAZUR 2016, pp. 659 f., considering server infrastructure as a value driver in the context of American tax law and transfer pricing regulations.

customers of the cloud service will simply pay for the use of the cloud, rather than making unique and valuable contributions in return. It is however conceivable that a cloud provider in a different business sector might host an internal group knowledge database to which all group members contribute, thereby increasing the value of the cloud service. Only in such cases could the use of the transactional profit split method be reasonably justified.

One of the main challenges in the application of this method will be the choice of an appropriate allocation key. From a value chain analysis perspective, it will become apparent that almost all cloud providers' businesses are based on the development of software and the provision of data center services.⁸⁷⁷ Most cloud providers lay emphasis on either one or the other,⁸⁷⁸ but the most important cloud providers⁸⁷⁹ rely heavily on both.⁸⁸⁰ An allocation key for the transactional profit split method would therefore combine at least⁸⁸¹ these two factors and weigh the importance of each for the business in question. Consequently, it cannot be denied that hardware investments could cause the transactional profit split method to attribute a substantial part of profits to group members maintaining

558

⁸⁷⁷ MAZUR 2016, p. 662.

⁸⁷⁸ Many SaaS providers engage in software or content development alone and rely on the hardware infrastructure of others (see *supra* note 10). Netflix is an example of a company that uses cloud computing for its core business and concentrates on content development.

⁸⁷⁹ Amazon, Microsoft, Google, Facebook, IBM, Salesforce, etc.

⁸⁸⁰ Other value drivers of increasing importance may include the collection and evaluation of data and the development of higher levels of artificial intelligence through continuous machine learning. For other examples in the digital economy in general, see SEJATI, pp. 262 f., most of which the present author considers as having little direct relevance to cloud computing in particular. However, it is not the purpose of the present thesis to list all possible value drivers that may be used in businesses using cloud computing technology, as these depend on the specific value chain of each business.

⁸⁸¹ For a discussion of the appropriateness of using a sales-based allocation key in cloud computing, see MAZUR 2016, pp. 690 f.

cloud computing data centers.⁸⁸² However, it is important to take into account the indirect nature of the effect of hardware investment on third-party prices, when doing so (as discussed *supra* para. 525).

§ IV. Conclusion on Transfer Pricing

559 There are certain particularities of the cloud computing business that need to be taken into account in a comparability analysis. They vary based on the kind of transaction and the kinds of parties involved in the transaction. In essence, a transaction with a centralized cloud provider is dependent on a particular set of comparability factors. These are different from the comparability factors that need to be taken into account for transactions between different decentralized business units within a cloud provider.

560 Comparability factors include the common pricing system; the distribution of assets, risks, and functions; and the likelihood of valuable and unique contributions. For instance, the OECD's special interpretation of the arm's length principle provides some guidance regarding the attribution of functions between servers and human operators. The resulting overview of the relevant comparability factors enables a global understanding of the scope of eligible comparables and creates a basis for assessing the applicability of the different available transfer pricing methods.

561 As can be seen from the preceding remarks, cloud computing transactions pose unique challenges when applying the arm's length principle. Which of the above-mentioned transfer pricing methods could be applied to the cloud computing business will depend on the

⁸⁸² This result is partly due to the material differences between the cost structure of cloud computing data centers and that of traditional data centers. DITZ, para. 6.682, should not be considered as taking the opposite view, since he refers only to the intragroup cloud provider, as described *supra* para. 35, with regard to which the present author would share the opinion that the cost-plus method, and possibly the transactional net margin method, would need to be applied (see *supra* para. 545).

particular circumstances of a given case. The cost-plus method would mostly be applied to low-complexity intragroup private cloud services (basically standard cloud computing services with standard software). It would also lend itself to centralized real estate administration services and certain R&D (the latter being a business function of great value). Cloud services that involve more complex software applications may require more advanced methods, such as the transactional net margin method (for cloud services based on customized or self-developed software). Finally, the cooperation between software development and hardware operation units is sufficiently integrated to justify the application of the transactional profit split method.

In view of the above, “transfer pricing is not an exact science,”⁸⁸³ and probably even less so when applied to new business models. Each instance in which it is used will raise new and original questions, which cannot be fully explored here given the theoretical nature of the present text.

562

⁸⁸³ OECD TPG, paras. 1.13, 3.55, and 4.8.

Chapter 5: Conclusion De Lege Lata

Part I of the present thesis has explored the consequences of applying the current rules of international taxation to the most common manifestations of the cloud computing business. The results revealed that a cloud provider generally constitutes a permanent establishment at the location of a data center used for the provision of cloud computing services. On the other hand, the cloud provider's customer would generally not have a permanent establishment at that location by virtue of its cloud being hosted there. 563

The various ways in which cloud computing transactions are characterized under treaty law have been analyzed. This was necessary because in some jurisdictions, for instance, such characterization will determine whether source taxes are imposed. That said, income from cloud-specific transactions is predominantly characterized as business profits, as in Art. 7 MOECD. It includes income from SaaS and IaaS. Thus, only the jurisdictions where the taxpayer is resident or has a permanent establishment can tax such income. 564

Finally, the tax base for permanent establishments and subsidiaries is dependent on the effect the specificities of cloud computing have on a comparability analysis. The transactions between a cloud customer and a provider are different from the transactions and dealings between different business locations of a decentralized cloud provider. The previous section ventured to identify which transfer pricing methods best lend themselves to which kinds of cloud computing transactions when conducting a comparability analysis. 565

The present thesis has thus at this stage answered the questions, which jurisdictions have the right to tax which kinds of cloud 566

computing transactions and upon what amount of taxable profit such taxation should be based? The following section will address the problems that arise from these conclusions.

Part II: Are the Current Rules Appropriate?

Chapter 1: Introduction

In the preceding chapters, the concept of a permanent establishment and the basic rules of profit attribution in the cloud computing business were explored. The question now to be addressed is, are the current rules for taxing business profits appropriate for cloud computing?⁸⁸⁴ 567

Given that this question could lead to a modification of the existing rules, it calls for a thorough analysis. If changes are to be introduced, their merit will depend on the purpose they seek to achieve. For instance, the goal could be to make the rule more congruent with certain superior principles. The superior principles can come from the constitution or from rulemaking guidelines issued by the OECD. Alternatively, tax legislation can be made with the intention of producing certain economically measurable effects, such as taxation efficiency or economic welfare. In sum, there are many opinions and systems of good rulemaking that can help in appreciating the quality of an existing rule and identifying which legal rules need to be changed and how.⁸⁸⁵ 568

The OECD has actually achieved an international consensus on which legislative principles should apply to the international taxation of cloud computing. The so-called Ottawa Taxation Framework is a list of five such principles, which most jurisdictions have explicitly accepted.⁸⁸⁶ These principles have since been used on several 569

⁸⁸⁴ The wording of the question is inspired by OECD, *Are the Current Treaty Rules for Taxing Business Profits Appropriate for E-Commerce?/Final Report of the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for Taxing Business Profits*, Paris June 2004.

⁸⁸⁵ See FLÜCKIGER, pp. 239 f. and 630 f., for a more general approach to the role of objectives in legisitics.

⁸⁸⁶ OECD, *Taxation and Electronic Commerce: Implementing the Ottawa Taxation Framework Conditions*, Paris 2001, p. 10.

occasions⁸⁸⁷ in deciding whether the rules of taxation are appropriate for the ICT business, including cloud computing.⁸⁸⁸

570 The Ottawa Taxation Framework contains the following five elements:⁸⁸⁹ (i) effectiveness and fairness (“Taxation should produce the right amount of tax at the right time. The potential for tax evasion and avoidance should be minimised while keeping counter-acting measures proportionate to the risks involved.”); (ii) certainty and simplicity (“The tax rules should be clear and simple to understand so that taxpayers can anticipate the tax consequences in advance of a transaction, including knowing when, where and how the tax is to be accounted.”); (iii) flexibility (“The systems for the taxation should be flexible and dynamic to ensure that they keep pace with technological and commercial developments.”); (iv) neutrality (“Taxation should seek to be neutral and equitable between forms of electronic commerce and between conventional and electronic forms of commerce. Business decisions should be motivated by economic rather than tax considerations. Taxpayers in similar situations carrying out similar transactions should be subject to similar levels of taxation.”); and (v) efficiency (“Compliance costs for taxpayers ... should be minimised as far as possible.”).

571 The following section will present each of the principles in more detail, explaining its applicability and its effects on legislation (see *infra* chapter 2). Using these principles, it will then be possible to assess the extent to which the currently applicable rules of international taxation (identified in the previous Part I) fulfill the

⁸⁸⁷ On previous applications of the Ottawa Taxation Framework, see *infra* paras. 596 f.

⁸⁸⁸ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 20.

⁸⁸⁹ OECD, *Electronic Commerce: Taxation Framework Conditions/A Report by the Committee on Fiscal Affairs as presented to Ministers at the OECD Ministerial Conference, “A Borderless World: Realising the Potential of Electronic Commerce” on 8 October 1998*, p. 4.

requirements of these principles (see *infra* chapter 4). As the question of whether these rules are appropriate will already have been addressed, a separate chapter will need to compare the intermediate results of the present thesis with the results of previous work (see *infra* chapter 3). These steps will then allow a conclusion to be drawn on whether the current rules of international taxation applicable to cloud computing are sufficiently appropriate or need to be changed (see *infra* chapter 5).

Chapter 2: Ottawa Principles of Taxation

Section I Effectiveness and Fairness

Achieving effectiveness and fairness in taxation essentially means that “[t]he potential for tax evasion and avoidance should be minimised,” “unintentional non-taxation [is to be avoided],” and that “practical enforceability of tax rules” is important.⁸⁹⁰ The most well-known attempt to realize these goals is the OECD program against base erosion and profit shifting (BEPS), which was officially grounded in the pursuit of greater effectiveness and fairness in taxation.⁸⁹¹ Through its fifteen actions, it provided a relatively detailed account of various aspects of the former state of international tax law, which, according to the OECD, undermined effectiveness and fairness. Unfortunately, not all accounts were sufficiently detailed to allow those aspects of international tax law that needed changing to be identified with certainty and precision (see *infra* paras. 632 f.).

572

Prior to the OECD BEPS program, various terms and legal descriptions had been used to refer to behavior that undermines the effectiveness of tax regulations, such as tax fraud, tax evasion, tax avoidance, treaty

573

⁸⁹⁰ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 20; this elaborates on the explanation originally presented in: OECD, *Electronic Commerce: Taxation Framework Conditions/A Report by the Committee on Fiscal Affairs as presented to Ministers at the OECD Ministerial Conference, “A Borderless World: Realising the Potential of Electronic Commerce” on 8 October 1998*, p. 4.

⁸⁹¹ See the speech introducing the OECD Action plan to the G20 by OECD Secretary-General ANGEL GURRÍA, *Joint Action for Efficient and Fair Taxation*, Moscow, July 20, 2013, <http://www.oecd.org/about/secretary-general/joint-action-efficient-fair-taxation.htm> (last viewed July 2, 2020); although the title refers to efficiency, the term “effective” is used several times in the body of the text with the meaning that “effectiveness” has in the Ottawa Taxation Framework.

abuse, and unintentional non-taxation. Some kinds of behavior have been explicitly addressed and outlawed (such as the forgery of certain tax return documentation). Others have been targeted by broader rules which can be adapted to individual cases (such as the arm's length principle) and which may go under the name of general anti-avoidance rules. Some of the most general anti-avoidance rules are similar to the Swiss tax evasion theory (in French: *théorie de l'évasion fiscale*; in German: *Steuerungstheorie*; in Italian: *teoria dell'elusione fiscale*). By creating a legal fiction that disregards the outcome of the tax evasion, the theory discourages unusual behavior whenever it would intentionally result in tax savings.⁸⁹² Furthermore, the OECD⁸⁹³ and several legislative bodies⁸⁹⁴—most recently the EU⁸⁹⁵—have considered placing tax advisers under an obligation to disclose “potentially aggressive tax planning.” The expression is not formally defined, because aggressive tax planning tends to take unfair advantage of formal definitions; it is instead identified through “hallmarks.” There are many more examples of efforts to increase the effectiveness of the tax system. Moreover, the law can be fully effective and fair only when enforced equally upon all taxpayers.⁸⁹⁶ Therefore, enforceability should also be an important consideration when designing the law.

⁸⁹² For instance, the decision of the Swiss Federal Supreme Court of August 9, 2005, ATF 131 II 627, recital 5.2; OBERSON 2012, paras. 4/21 f.

⁸⁹³ OECD, *Mandatory Disclosure Rules, Action 12/2015 Final Report*, Paris October 2015, passim.

⁸⁹⁴ For instance, the United Kingdom has had such a program since 2004 (see United Kingdom Finance Act 2004, Part 7, as amended, <http://www.legislation.gov.uk/ukpga/2004/12/part/7>, last viewed July 2, 2020).

⁸⁹⁵ See EUROPEAN COMMISSION, *Proposal for a Council Directive amending Directive 2011/16/EU as regards mandatory automatic exchange of information in the field of taxation in relation to reportable cross-border arrangements, COM(2017) 335 final, 2017/0138 (CNS)*, Brussels June 21, 2016, p. 12.

⁸⁹⁶ For this and the following statement: SEER, p. 8.

In theory, any business conduct that does not correspond to unacceptable tax avoidance as described above should be deemed acceptable tax planning. "Over and over again courts have said that there is nothing sinister in so arranging one's affairs as to keep taxes as low as possible. Everybody does so, rich or poor; and all do right, for nobody owes any public duty to pay more than the law demands."⁸⁹⁷ An example would be a business's faculty to freely choose (at least in principle) its actual tax residence.⁸⁹⁸ The real challenge when assessing the appropriateness of the law from the perspective of effectiveness and fairness is the difficulty of knowing what criteria to apply to distinguish between tax avoidance and acceptable tax planning. Because these criteria change frequently and are subject to constant debate, they must be determined on a case-by-case basis. There is no need to elaborate further on a general definition of tax avoidance in this thesis, as it will confine itself to the specific case of cloud computing (see *infra* para. 643).

⁸⁹⁷ This is a famous citation from a dissenting opinion of US Circuit Judge Learned Hand in the decision of the US Circuit Court of Appeals, Second Circuit, of February 20, 1947, *Commissioner of Internal Revenue v. Newman*, 159 f.2d 848 (2d Cir. 1947), pp. 850 f. For the equivalent in Switzerland, see, e.g., the decision of the Swiss Federal Supreme Court of August 16, 1996, ASA 1997/1998 (vol. 66) p. 414.

⁸⁹⁸ In the EU, see the right of "tax jurisdiction shopping" as conferred by EC Treaty freedoms according to WEBER, p. 258: "Transferring a tax residence or a source of income by exercising the freedom of movement is not as such unjustified tax avoidance as long as the transfer is 'real' (it has substance; it is not artificial)."

Section II Certainty and Simplicity

In March 2017, both the OECD and the European Commission published reports on certainty in taxation. The aim was to address concerns over tax uncertainty apparently aroused by the overhaul of the international taxation system through the G20/OECD BEPS program⁸⁹⁹ and the EU Anti-Tax Avoidance Directive.⁹⁰⁰ The reports postulate that there has indeed been an increase in tax uncertainty⁹⁰¹ and suggest that this uncertainty arises among other things from unexpected taxpayer behavior based on new business models and technologies.⁹⁰² If technological progress causes uncertainty, then it must be countered by reinforcing legal certainty, which the OECD seems eager to do.⁹⁰³

575

Rules are certain and simple if they can be easily understood and thus allow taxpayers to anticipate the tax consequences of their actions.⁹⁰⁴ However, ironically, the definition of legal certainty remains uncertain. Some scholars are opposed to limiting the

576

⁸⁹⁹ OECD, *Tax certainty, IMF/OECD Report for the G20 Finance Ministers*, Paris March 2017, p. 5, updated in: OECD, *Update on Tax Certainty, IMF Report for the G20 Finance Ministers and Central Bank Governors*, Paris July 2018.

⁹⁰⁰ ZANGARI/CAIUMI/HEMMELGARN, p. 6.

⁹⁰¹ *Ibid.*, p. 2.

⁹⁰² With regard to the elements listed as contributing to uncertainty, both reports are practically identical: OECD, *Tax certainty, IMF/OECD Report for the G20 Finance Ministers*, Paris March 2017, pp. 16 f.; ZANGARI/CAIUMI/HEMMELGARN, p. 6.

⁹⁰³ OECD, *Update on Tax Certainty, IMF Report for the G20 Finance Ministers and Central Bank Governors*, Paris July 2018, p. 9.

⁹⁰⁴ OECD, *Electronic Commerce: Taxation Framework Conditions/A Report by the Committee on Fiscal Affairs as presented to Ministers at the OECD Ministerial Conference, "A Borderless World: Realising the Potential of Electronic Commerce" on 8 October 1998*, p. 4. The description in OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 20, does not add anything immediately useful to the present analysis.

concept through a formal definition of the term.⁹⁰⁵ Rather than a single concept, it is the source of a bundle of principles and rights. These include the protection of legitimate expectations,⁹⁰⁶ the principle of nonretroactivity,⁹⁰⁷ the protection of vested rights,⁹⁰⁸ the imposition of procedural time limits,⁹⁰⁹ recourse to an accessible and understandable language,⁹¹⁰ the public availability of administrative

⁹⁰⁵ NOSETTI, p. 33, following the argumentation of VON ARNAULD, p. 103.

⁹⁰⁶ Decision of the Swiss Federal Supreme Court of December 18, 1968, ATF 94 I 513, recital 4(a); decision of the European Court of Justice of May 3, 1978, *Töpfer v. Commission*, C-112/77, recitals 18 f.; decision of the European Court of Justice of November 12, 1981, *Amministrazione delle Finanze dello Stato v. Salumi*, joint cases 212 to 217/80, recital 10.

⁹⁰⁷ Decision of the Swiss Federal Supreme Court of July 25, 2012, 2C_218/2012, recital 3.2; decision of the Swiss Federal Administrative Court of January 8, 2009, E-3246/2006, recital 3.2; decision of the European Court of Justice of January 25, 1979, *Racke v. Hauptzollamt Mainz*, C-98/78, recitals 19 f.; decision of the European Court of Justice of November 12, 1981, *Amministrazione delle Finanze dello Stato v. Salumi*, joint cases 212 to 217/80, recital 10.

⁹⁰⁸ Decision of the Swiss Federal Supreme Court of June 28, 2005, 1P.586/2004, recital 4.5.2.1 with references; decision of the European Court of Justice of October 12, 1978, *Tayeb Belbouab v. Bundesknappschaft*, C-10/78, recitals 7 f.

⁹⁰⁹ RICHNER/FREI/KAUFMANN/MEUTER 2013, § 139, para. 9 (“*Beschleunigungsgebot*”); see the decision of the Swiss Federal Supreme Court of March 21, 2014, ATF 140 II 202, recital 6.3.5 (“*principe de célérité*”); decision of the European Court of Justice of July 6, 1971, *Netherlands v. Commission*, C-59/70, recitals 18 f.

⁹¹⁰ HUBER, p. 17; decision of the European Court of Justice of February 18, 1975, *Farrauto v. Bau-Berufsgenossenschaft*, C-66/74, recital 6; DE CLAUDE, JOSSELINE/GEFFRAY, ÉDOUARD/HOYNCK, STÉPHANE/DAUMAS, VINCENT/CABRERA, LAURENT/BOTTEGHI, DAMIEN, *La sécurité juridique et la complexité du droit*, in: FRENCH CONSEIL D'ÉTAT, *Rapport public 2006*, <http://www.ladocumentationfrancaise.fr/rapports-publics/064000245/index.shtml> (last viewed July 2, 2020), pp. 225–338, pp. 288 f.

and legislative acts of the state,⁹¹¹ among others.⁹¹² Sometimes, the different sources of legal certainty can conflict with each other. For instance, the application of any of these rights can quickly become highly complex, in defiance of the need for understandable language and clarity.⁹¹³ In this respect, the term “simplicity” used in the Ottawa Taxation Framework should be seen not as complementary to, but as already contained in, the term “certainty.”⁹¹⁴ Therefore, the addition of “simplicity” is merely for emphasis.

It is true that simpler (but ultimately incomplete) definitions of the term “certainty” exist. The European Court of Human Rights defined legal certainty as a principle that requires the law to be sufficiently precise for a person to foresee to a reasonable degree what the legal consequences of a certain act are.⁹¹⁵ However, the certainty principle not only provides citizens with the opportunity to plan their future behavior, it also protects existing investments from losing value through subsequent legal recharacterization of the subject matter.⁹¹⁶

577

⁹¹¹ DE BEAUREGARD-BERTHIER, p. 18; see, e.g., *Message relatif à la modification de la loi sur les publications (Passage de la primauté de la version imprimée à la primauté de la version électronique des publications officielles) du 28 août 2013*, FF 2013 6325 f., p. 6332: “Seraient ainsi publiés des documents émanant de l’administration et pouvant présenter un intérêt pour la bonne application du droit, ce qui servirait la sécurité juridique ...”

⁹¹² For a comprehensive and short enumeration of the different aspects of legal certainty, see GOMETZ, pp. 309 f., note 1; DE CLAUSADE, JOSSELINE/GEFFRAY, ÉDOUARD/HOYNCK, STEPHANE/DAUMAS, VINCENT/CABRERA, LAURENT/BOTTEGHI, DAMIEN, *La sécurité juridique et la complexité du droit*, in: FRENCH CONSEIL D’ÉTAT, *Rapport public 2006*, <http://www.ladocumentationfrancaise.fr/rapports-publics/064000245/index.shtml> (last viewed July 2, 2020), pp. 225–338, p. 229.

⁹¹³ BARDIN, p. 80.

⁹¹⁴ See, e.g., *ibid.*, p. 66.

⁹¹⁵ Decision of the European Court of Human Rights of June 8, 2006, *Korchuganova v. Russia*, application no. 75039/01, recital 47; similarly: GAVILLET, para. 591.

⁹¹⁶ See VON ARNAULD, p. 64, using an argument provided by the philosopher DUNS SCOTUS concerning security in general. In tax law in particular, HEY, pp. 103 f. and 185 f., makes a distinction between “*Steuerplanungssicherheit als Dispositionsschutz*” and “*als Anspruch auf Planbarkeit*.”

The European Court of Human Rights made it clear that the quality of legislative drafting should be such that it does not give the executive branch any unjustified leeway in interpreting it.⁹¹⁷ In Switzerland in particular, the principle of legal certainty implies that the law must be consistent, that is, able to be anticipated.⁹¹⁸ In sum, the law needs to be predictable. This view is consistent with the understanding of “certainty” in the Ottawa Taxation Framework⁹¹⁹ and will be used as the starting point for the analysis in the present thesis.

578 The Swiss Federal Supreme Court has explicitly taken the position that the imperative of legal certainty is not absolute.⁹²⁰ The impossibility of absolute legal certainty is not peculiar to the Swiss legal system, but rather a universal tenet of legal theory.⁹²¹ It is possible to achieve legal certainty only to some degree.⁹²² Like any aspect of the future, the outcome of applying a legal norm is predictable only in pArt. Thus, the task ahead is to determine the

⁹¹⁷ Decision of the European Court of Human Rights of July 7, 2011, *Serkov v. Ukraine*, application no. 39766/05, recital 42.

⁹¹⁸ HÄFELIN/MÜLLER/UHLMANN, para. 625.

⁹¹⁹ OECD, *Electronic Commerce: Taxation Framework Conditions/A Report by the Committee on Fiscal Affairs as presented to Ministers at the OECD Ministerial Conference, “A Borderless World: Realising the Potential of Electronic Commerce” on 8 October 1998*, p. 4.

⁹²⁰ In French: *densité normative*; in German *Bestimmtheitsgebot* or *Tatbestandsbestimmtheit*; in Italian: *determinatezza della base legale*; hereinafter, the present author will use the term “predictability”; see also the decision of the Swiss Federal Supreme Court of November 9, 1983, ATF 109 Ia 273, recital 4(d), with references.

⁹²¹ ÁVILA, p. 102; VON ARNAULD, p. 662, coins the description of legal certainty as an “*idée directrice*.”

⁹²² Differing from many other scholars: GOMETZ, pp. 326 f. According to MAXEINER 2007, p. 544, this realization has led to almost complete disregard of the principle of legal certainty in American scholarship. However, such a claim can be relativized by referring to other common law scholars; see, e.g., BRADY, pp. 20 f.; MAXEINER 2008, p. 45, suggesting that American jurists use other terms to refer to what are basically the same requirements.

appropriate *degree* of legal certainty.⁹²³ In seeking to achieve certainty, it is necessary not only to assess the uncertainties caused by the current state of the law, but also to investigate why a higher degree of certainty was not achieved earlier. To this end, consideration will be given to the past work of the OECD on this question.⁹²⁴

The use of anti-avoidance rules as a measure against tax avoidance could possibly justify a lower degree of certainty.⁹²⁵ However, recourse to such rules should be based on sufficient evidence of tax avoidance. This of course presupposes that there is a consensus on the definition of tax avoidance (see *infra* para. 643). In essence, the application of anti-avoidance rules to cases where there is little risk of tax avoidance would not justify a lower degree of certainty. The following analysis will assess the presence of tax avoidance risks from the standpoint of the implementation of the Ottawa Taxation Framework's effectiveness and fairness principle. However, it will consider the meaning of tax avoidance only in the context of cloud computing (see *infra* paras. 643 f.).

579

⁹²³ See ÁVILA, pp. 106 f.

⁹²⁴ See *infra* paras. 596 f.

⁹²⁵ OECD, *Tax certainty, IMF/OECD Report for the G20 Finance Ministers*, Paris March 2017, p. 20.

Section III Flexibility

One of the reasons most frequently mentioned for changing the law is the need to adapt it to new (and often technological) developments.⁹²⁶ It therefore behooves rule makers to attempt to anticipate some of these developments and to include sufficient leeway in laws to allow them to be applied to new subject matter. When, by its very nature, the subject matter in question is forever evolving, as is the case with the digital economy in general, the importance of flexibility is all the greater.

580

The Ottawa Taxation Framework requires that tax systems should be dynamic and flexible. The ultimate goal is to ensure that they continue to meet governments' revenue needs despite advances in technology and new commercial developments influencing the tax base.⁹²⁷ This is a conception Switzerland shares.⁹²⁸ It is commonly used in sovereign credit rating criteria, where it refers to the ability of a sovereign (i.e., a state) to mitigate the effects of economic downturns or other shocks and restore fiscal balance.⁹²⁹ According to sovereign

581

⁹²⁶ Among many others: OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 21; FORSTMOSER, p. 11; JAGMETTI, p. 27; KOHLER, p. 40.

⁹²⁷ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 21, which introduces another non-Ottawa principle, "equity," also primarily concerned with ensuring a certain share of tax revenues for each jurisdiction.

⁹²⁸ In French: *principe d'adaptabilité*; in German: *Grundsatz der Responsivität*; in Italian: *principio di adattabilità* (*Message relatif à la mise à jour formelle du droit fédéral du 22 août 2007*, FF 2007 5789 f., p. 5808).

⁹²⁹ KRAEMER, MORITZ/ESTERS, CHRISTIAN/BRIOZZO, SEBASTIAN/TAN, KIMENG/DE DIANOUS, BERTRAND/MONTMAUR, VALERIE/FEINLAND KATZ, LAURA J./PUCCIA, MARK, *S&P Global Ratings/Sovereign Rating Methodology*, December 18, 2017, <https://www.spratings.com/documents/20184/4432051/Sovereign+Rating+Methodology/5f8c852c-108d-46d2-add1-4c20c3304725> (last viewed July 2, 2020), p. 20, referring to "fiscal flexibility"; similarly: STRINGER, TONY/McCORMACK,

credit rating principles, a tax system that has a broad revenue base achieves a higher flexibility score than a government with a volatile revenue base, heavily reliant on real estate turnover taxes or royalties from the extractive industries, for example.⁹³⁰

582 In other words, the flexibility of a tax system can be tested by comparing the expected tax revenue of a state before and after a significant technological or commercial change. If the tax revenue is lower after the change, this could mean that the tax system does not live up to the flexibility standard in the Ottawa Taxation Framework. Conversely, a tax system that does not require a change in the law to prevent a decrease in tax revenue after such a change can be considered flexible.

583 In Switzerland, flexibility in legislation is achieved through the use of legal terms that are open to interpretation by the authority applying them and provisions that empower without compelling the use of the powers (in French: *formulations potestatives*; in German: *Kann-Vorschriften*; in Italian: *formulazioni potestative*).⁹³¹ If flexibility in the face of technological change is the goal, it is obvious how to achieve that goal: the wording of the law must cover an equally broad tax base before and after the technological change, which is best achieved by generally avoiding references to technology.

584 As an example, WASSERMEYER proposes a technological criterion for determining whether a permanent establishment satisfies the right-

JAMES/PARKER, ED/GAMBLE, PAUL/NAPOLITANO, MICHELE/SHEARMAN, ROB, *Fitch Ratings Global/Sovereign Rating Criteria*, <https://www.fitchratings.com/site/re/10037181> (last viewed July 2, 2020), pp. 20 f., referring to “fiscal financing flexibility.”

⁹³⁰ KRAEMER, MORITZ/ESTERS, CHRISTIAN/BRIOZZO, SEBASTIAN/TAN, KIMENG/DE DIANOUS, BERTRAND/MONTMAUR, VALERIE/FEINLAND KATZ, LAURA J./PUCCIA, MARK, *S&P Global Ratings/Sovereign Rating Methodology*, December 18, 2017, <https://www.spratings.com/documents/20184/4432051/Sovereign+Rating+Methodology/5f8c852c-108d-46d2-add1-4c20c3304725> (last viewed July 2, 2020), p. 20.

⁹³¹ *Message relatif à la mise à jour formelle du droit fédéral du 22 août 2007*, FF 2007 5789 f., p. 5808.

of-use requirement.⁹³² He considers that a fully automated pipeline without on-site personnel should be considered eligible as a permanent establishment. However, he implies that right of use is conditional on there being a higher degree of technical sophistication (“*Automation oder Antriebstechnik*”).⁹³³ For pipelines, that is the case when a pumping station is present in a jurisdiction. This distinction could in many cases be the sole factor determining whether tax liability exists in a given jurisdiction. In the present author’s opinion, this criterion seems too specific to pipelines. The principle of equal treatment would require it to be transposable to other types of technology, such as ICT. Such transposition would appear to give rise to an inordinate degree of tax uncertainty. Furthermore, even if this technological criterion were useful for present-day pipeline technology, technological advances in handling pipeline pressure and content measurements seem to make pipelines susceptible to strategic placement. Drawing this type of distinction leaves crucial questions open. For example, at what point would the sophistication of a pumping station have tax consequences?⁹³⁴ A technological

⁹³² For this and the next two sentences: WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 51: “*Zwar reicht eine automatische oder vollmechanische Tätigkeit in der festen Geschäftseinrichtung aus (vgl. Rz. 10). Jedoch muss die entspr. Automation oder Antriebsmechanik von der inl. festen Geschäftseinrichtung ausgehen. Daran fehlt es, wenn sich nicht auch die Pumpstation im Inl. befindet.*”

⁹³³ By using “*Antriebstechnik*,” WASSERMEYER seems to be implicitly referring to technology theory. However, he does not explain why he chooses just one of a total of eight basic technological functions. According to WOLFFGRAMM, pp. 44 f., a technical system (i.e., what this thesis calls a “machine”) does not necessarily include all of these functions at the same time (see “*Organstruktur technischer Systeme*”). Furthermore, WOLFFGRAMM explains that such functions are basically modular, which means that several distinct parts (i.e., different machines) can work together to perform the required functions of a technical system. In light of this, WASSERMEYER’S choice appears either unclear or arbitrary.

⁹³⁴ There are many kinds of pumping stations. For an example of a fully automated and/or remote-controlled system of pipelines and measuring and pumping stations, see, e.g., “*Sachverhalt*” of the decision of the German Bundesfinanzhof of December

distinction such as that proposed by WASSERMEYER is neither sufficiently general to be able to apply to other technologies nor sufficiently flexible to accommodate future technological advancements.

585 In general, makers of international tax rules should use broad definitions of technology.⁹³⁵ As the buzzword “Internet of things” reminds us,⁹³⁶ in a not-too-distant future it will be possible to turn any object into a kind of programmable or remotely controllable machine. Ignoring this trend would prove detrimental to the flexibility of new rules. Indeed, if possible, rule makers should strive to avoid all references to technology when defining the scope of application of a rule. After all, the intention of the rule maker is to regulate not *technology* but the *behavior* that technology permits. Consequently, the rule maker should connect the legal consequences with the behavior and not the technology. Functional⁹³⁷ or economic⁹³⁸

16, 1987, (X R 12/82) BStBl. 1988 II S. 539, and the decision of the German Bundesfinanzhof of October 30, 1996, (II R 12/92) BStBl. 1997 II S. 12.

⁹³⁵ Rule makers would do well to heed the advice of philosophers and sociologists who have been thinking about the definition and societal meaning of technology for a long time. For a short introduction to the history of the sociology of technology, see GUNDERSON, with references. For a reader-friendly approach to a definition of technology, see JOHNSON, with references. On the systems theory approach used in the present thesis, see ROPOHL.

⁹³⁶ The term is described in OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 42.

⁹³⁷ A *functional* definition is one that focuses on describing how a concept interacts with its environment and how both are separate from each other, rather than describing its inner qualities. It often focuses on the purpose that the concept fulfills; see, e.g., UNIVERSITY OF ROCHESTER, *How to Write a Functional Definition*, <http://tech.rochester.edu/tutorials/how-to-write-functional-definition/> (last viewed July 2, 2020).

⁹³⁸ An *economic* definition is one that focuses on describing a concept by using economic methods, such as numeric thresholds, benchmarks, economic incentives, valuation techniques, models, or market characterizations; see, e.g., HOLLANDER, note 44, with further references.

definitions of that behavior should be fully capable of providing that focus.

The question of course is, how far should flexibility go. Hypothetically, a law of utmost flexibility would simply tax everything, thereby avoiding the risk of losing a share of the tax base altogether. However, such an absurdity shows that flexibility is subject to limits imposed by other principles. For instance, it would not be fair, neutral, or efficient to allow double taxation.⁹³⁹ Also, a law couched in highly general terms would be flexible but unpredictable,⁹⁴⁰ and thus fall short of the certainty and simplicity standard described above.

586

⁹³⁹ For the connection between neutrality and the prohibition of double taxation, see LI, p. 1450, referring to a report by the Canadian government, the original of which is no longer available.

⁹⁴⁰ See MÜLLER/UHLMANN, para. 269.

Section IV Neutrality

As previously noted, the OECD is of the opinion that “[t]axation should seek to be neutral and equitable between forms of electronic commerce and between conventional and electronic forms of commerce. Business decisions should be motivated by economic rather than tax considerations. Taxpayers in similar situations carrying out similar transactions should be subject to similar levels of taxation.”⁹⁴¹ Although ostensibly an affirmation of the comparability of digital and brick-and-mortar businesses, this statement also alludes to the much wider concept of general neutrality and the idea of equal treatment.

587

The concept of equal treatment is widely recognized.⁹⁴² The principle of equality (Art. 8 Cst.) basically means that the law should not discriminate between two subject matters that are essentially the same without proper justification.⁹⁴³ The principle’s omnipresence in rulemaking⁹⁴⁴ can be explained by the fact that it is part of the nature and purpose of law itself.⁹⁴⁵ Thus, it is universally applicable to all law and a basic device in legal reasoning. It is a principle of great importance in the context of taxation (see Art. 127(2) Cst.). For

588

⁹⁴¹ OECD, *Electronic Commerce: Taxation Framework Conditions/A Report by the Committee on Fiscal Affairs as presented to Ministers at the OECD Ministerial Conference, “A Borderless World: Realising the Potential of Electronic Commerce” on 8 October 1998*, p. 4. The description in OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 20 f., does not add anything immediately useful to the present analysis, except that it introduces the new terms “horizontal equity” and “vertical equity” for certain aspects of it. It should be pointed out that the basic idea of equity is already contained in the definition of “neutrality” (“equitable”), particularly in its second sentence.

⁹⁴² For instance, MÜLLER, p. 79.

⁹⁴³ See the decision of the Swiss Federal Supreme Court of October 18, 1996, ATF 122 I 305, recital 6(a); OBERSON 2012, para. 3/21.

⁹⁴⁴ MÜLLER/UHLMANN, para. 272.

⁹⁴⁵ RADBRUCH, p. 107.

instance, it is supposed to limit the impact of taxes on free market competition.⁹⁴⁶ In sum, neutrality is not an optional best practice for rulemaking, but a constitutional standard which any change to tax laws must uphold.⁹⁴⁷

589 Neutrality plays a critical role not only in the application of the law but also in its creation.⁹⁴⁸ Its universality puts it in a special position in relation to the other principles of the Ottawa Taxation Framework. For instance, when a rule maker introduces measures to increase the effectiveness and fairness of taxation, the level of effectiveness and fairness they procure should be the same for both electronic and conventional taxation. In addition, when endeavoring to improve the general tax system, the rule maker should be wary of creating uncertainty for electronic commerce taxation as an unjustified trade-off. The universality of neutrality means that it will be considered more in relation to the other four principles than per se.

⁹⁴⁶ OBERSON 2012, para. 3/53, considering at the same time the connection with the principle of economic liberty in Art. 27 Cst.

⁹⁴⁷ For instance, the Swiss taxation of hypothetical income from immovable property is considered constitutional according to the principle of equality in the decision of the Swiss Federal Supreme Court of December 9, 1986, ATF 112 Ia 240, cited by OBERSON 2017, p. 236, in connection with the possible taxation of robots being equal to the taxation of human workers.

⁹⁴⁸ Decision of the Swiss Federal Supreme Court of September 25, 2009, ATF 136 I 49, recital 5.2; FLÜCKIGER, P. 189.

Section V Efficiency

The OECD explains that efficiency generally refers to the optimal allocation of the means of production.⁹⁴⁹ It states that “[a] tax system is considered efficient if, for any given amount of revenue to be raised, it distorts behavior as little as possible.”⁹⁵⁰ Analyzing the efficiency of a tax rule means comparing the costs and benefits of the rule from an economic perspective. The costs include not only those incurred by the tax administration in administering, monitoring, and enforcing the rule,⁹⁵¹ but also (and particularly) those of the taxpayer in complying with the rule.

590

A similar concept exists in Switzerland. The so-called practicality principle is well established in the making⁹⁵² and the interpretation of tax law.⁹⁵³ Unlike the OECD principle of efficiency, the Swiss practicality principle does not directly consider the perspective of taxpayers with regard to their compliance costs. Basically, practicality means that the application of a law should be easy for an administration to handle. Tax law in particular must be interpreted in a manner that enables it to be efficiently applied to a vast number of cases.⁹⁵⁴

591

⁹⁴⁹ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 20.

⁹⁵⁰ BRYN, BERT/PERRET, SARAH/THOMAS, ALASTAIR/O'REILLY, PIERCE, *OECD Taxation Working Papers No. 26: Tax Design for Inclusive Economic Growth*, Paris, 2016, p. 50.

⁹⁵¹ For this and the following sentence: OECD, *Electronic Commerce: Taxation Framework Conditions/A Report by the Committee on Fiscal Affairs as presented to Ministers at the OECD Ministerial Conference, "A Borderless World: Realising the Potential of Electronic Commerce" on 8 October 1998*, p. 4.

⁹⁵² MÜLLER/UHLMANN, para. 289.

⁹⁵³ LOCHER 1995, pp. 190 f.; REICH, § 4, para. 145. See LOCHER 1995, p. 194, considering international tax law to be one of the fields of predilection for the application of the practicality principle.

⁹⁵⁴ REICH, § 4, para. 145. LOCHER 2001, introduction, para. 63.

- 592 Take the example of the Swiss federal tax administration, which, on July 1, 1960, adopted a (then) special, more practical method of attributing the taxable profit of foreign enterprises to local permanent establishments.⁹⁵⁵ This special method had the practical advantage of not relying on the internal accounts of the enterprise when assessing the tax base. These accounts were normally held at the seat of the enterprise in a foreign country, thus beyond the reach of the Swiss tax administration.⁹⁵⁶ This example shows that the territorial limits of a tax administration's power of enforcement are a valid reason for introducing new distinctions –possibly *extra legem* – to ensure the application of the law.⁹⁵⁷ The example also shows that such new distinctions can be introduced even if they lead to a reduction in Switzerland's tax revenue. The smaller the loss of potential tax revenue, the greater the applicability of the practicality principle would appear to be.⁹⁵⁸
- 593 However, efficiency is a principle that generally cannot be applied on its own. Normally, it involves a comparison between two alternatives and the selection of whichever is the more efficient. To that end, the two alternatives must be known, at least as far as their effect on costs and returns is concerned. Unfortunately, however, this is rarely the case in tax law. Often, the information necessary for asserting the greater efficiency of one or other alternative is lacking.

⁹⁵⁵ Decision of the Swiss Federal Supreme Court of November 2, 1973, ASA 1974/1975 (vol. 43) p. 325, recital 4.

⁹⁵⁶ See SWISS FEDERAL TAX ADMINISTRATION, *Circulaire n° 24 de l'Administration fédérale des contributions concernant l'imposition des sociétés étrangères qui entretiennent en Suisse des établissements stables*, June 1, 1960, ASA 1960 (vol. 28) p. 497.

⁹⁵⁷ LOCHER 1995, p. 201. However, the practicality principle is more commonly known to work in favor of schematization (i.e., the opposite of differentiation); in other words, different cases are simplified and treated alike, even though such treatment may be against a literal interpretation of the law (LOCHER 1995, p. 191).

⁹⁵⁸ See LOCHER 1995, pp. 204 f. with two examples.

Section VI Summary

In 1998, the OECD introduced a set of principles for legislation, named the Ottawa Taxation Framework. Therefore, any subsequent legislative recommendations by the OECD, including those regarding cloud computing, have to abide by those principles. Hence, it is necessary to use them as a standard when assessing the appropriateness of the current rules of taxation.

594

There are five principles: (i) effectiveness and fairness, (ii) certainty and simplicity, (iii) flexibility, (iv) neutrality, and (v) efficiency. They embody some of the most fundamental and internationally acknowledged rules of legislation. With few exceptions, Swiss domestic rulemaking generally abides by these principles. Although capable of justifying a change in law on its own, each principle is limited by the others.

595

Chapter 3: Prior Work

Section I Introduction

The OECD originally raised the issue of international taxation of ICT-based business in 1985.⁹⁵⁹ The subject was then taken up in the 1992 report on the tax treatment of software.⁹⁶⁰ Subsequently, a conference devoted to the topic (originally called “e-commerce”) took place in Turku, Finland, on November, 19–20, 1997.⁹⁶¹ Following discussions within the OECD Working Group on Permanent Establishments, the *Clarification on the Application of the Permanent Establishment Definition in E-Commerce: Changes to the Commentary on the Model Tax Convention on Article 5* was issued by the Committee on Fiscal Affairs on December 22, 2000 (hereinafter the “PE Clarification”) and officially added to the OECD COMMENTARY, Art. 5, paras. 42.1–42.10 (today: paras. 122–131), on January 28, 2003.

596

Following an amendment to the permanent establishment rules in the OECD COMMENTARY, which added servers to the list of eligible permanent establishments, the immediate public response was ambiguous. It was uncertain whether the new rules were able to settle the international debate about the taxation of e-commerce and

597

⁹⁵⁹ OECD, *Software: an emerging industry*, Paris 1985, pp. 169 f. (briefly considering VAT and amortization deductions).

⁹⁶⁰ OECD, *Tax Treatment of Software*, in: OECD, *Model Tax Convention: Four Related Studies*, Paris 1992, pp. 65 f., reprinted as OECD, *The Tax Treatment of Software*, Paris July 1992, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, R(10).

⁹⁶¹ See OECD, *The Communications Revolution and Global Commerce: Implications for Tax Policy and Administration*, DAFNE/CFA(97)35/REV2, Turku November 19–21, 1997; OECD, *Dismantling the Barriers to Global Electronic Commerce, Turku (Finland): 19–21 November 1997/Conference Report*, Paris July 1998.

whether they were appropriately drafted to do so. Consequently, the OECD issued two reports: OECD, *Are the Current Treaty Rules for Taxing Business Profits Appropriate for E-Commerce? Final Report of the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for Taxing Business Profits*, Paris June 2004 (hereinafter the “PE Report”), and OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, Paris December 19, 2005 (hereinafter the “TP Report”). The PE Report discusses changes to the permanent establishment concept, while the TP Report can be seen as a sort of continuation on the subject of transfer pricing.

598 After a certain amount of time, the OECD decided to reopen the discussion on the taxation of ICT-based business in 2013 as part of the BEPS Action Plan. It was feared that the digitalization of the economy could provide opportunities for undesirable base erosion and profit shifting,⁹⁶² which is essentially a form of unacceptable tax avoidance.⁹⁶³ From the perspective of the Ottawa Taxation Framework, the renewed evaluation of the taxation of ICT-based business had the aim of focusing on the effectiveness and fairness principle.⁹⁶⁴ BEPS Action 1 specifically referred to cloud computing as an example of “[t]ypical tax planning structures in integrated business models.”⁹⁶⁵

599 All these reports inquired into the appropriateness of the existing taxation rules, that is, whether they were in keeping with the principles set out in the Ottawa Taxation Framework (see *supra* para. 570). As compliance with these principles is also the subject of the present thesis, a comparison of the present findings with those of the OECD

⁹⁶² OECD, *Action Plan on Base Erosion and Profit Shifting*, Paris July 2013, p. 14: “BEPS is a concern in the context of the digital economy.”

⁹⁶³ Regarding the use of the expression “tax avoidance” in this thesis, see *infra* para. 643.

⁹⁶⁴ See *supra* para. 572.

⁹⁶⁵ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 175 f.

will prove useful. It is necessary to check whether these reports draw different conclusions from those presented here. If differences exist, they may be due to (technological and/or commercial) developments in the subject matter or fundamental divergencies.

The OECD and the present analysis come to the same fundamental conclusion that there is insufficient evidence of tax avoidance *through the use of* ICT to warrant changes in the law. The OECD differs, however, from the present thesis in focusing persistently on the effectiveness and fairness principle.

600

Section II Modification of the OECD COMMENTARY

For the purposes of the PE Clarification, the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for the Taxation of Business Profits in the Context of Electronic Commerce was mandated “to examine how the current treaty rules for the taxation of business profits apply in the context of electronic commerce and examine proposals for alternative rules.” Among other things, this meant checking whether the permanent establishment concept should be abandoned altogether (p. 2).⁹⁶⁶ The aim was also to ensure that taxpayers are not put in the position of having a permanent establishment in a jurisdiction without knowing that they have a business presence in that jurisdiction (p. 3), which comes within the broader topic of compliance with the principle of certainty and simplicity (see *supra* paras. 575 f.). The questions to be addressed here are whether the PE Clarification fulfilled the goals it set itself and whether it brought clarification to the taxation of cloud computing.

601

The PE Clarification itself provides a positive answer to the first question, acknowledging that the new rules were based on a broad international consensus (p. 2). Indeed, many questions that had previously been raised in scholarly literature were finally answered. The PE Clarification unequivocally ruled out websites as places of business on account of their intangibility (OECD COMMENTARY, Art. 5, para. 123). It revealed the problem of attribution raised by a server operated by an enterprise other than that which operates the website (para. 124). Further, it made clear that a web hosting contract did not constitute a sufficient right of use on its own (para. 124), and that a

602

⁹⁶⁶ This and the following page numbers refer to the document: OECD, *Clarification on the Application of the Permanent Establishment Definition in E-commerce: Changes to the Commentary on the Model Tax Convention on Article 5*, Paris December 2000.

server could fulfill the fixation test under certain circumstances (para. 42.4). It stated that personnel were not required to be physically on the premises (para. 127) and that an e-tailer had a nonauxiliary business activity at the server only if the “typical functions related to sale” (i.e., conclusion of contracts, processing of payments, and the delivery of products) were performed through it (para. 42.9). Finally, the report stated that neither an Internet service provider nor the website itself constitutes a dependent agent permanent establishment (according to Art. 5(5) MOECD pre-BEPS)⁹⁶⁷ for its customers if it has no authority to conclude contracts (para. 42.10).

603 However, in the present author’s view, the PE Clarification did not deliver full clarity on several points. It restricted the effectiveness of possible new rules through broad exceptions (paras. 42.5 and 42.8); applied well-established definitions to certain aspects of e-commerce in an obvious way (paras. 42.4, 42.5, and 42.10); and opened up new, unexpected questions.⁹⁶⁸ For example, if 1990s web hosting contracts do not grant a sufficient right of use (para. 124), what about hardware-oriented contracts relating to IaaS (see *supra* para. 349)? If personnel are not required to be physically on the premises (para. 127), what alternative factors can help determine the attribution of a business activity to a certain enterprise (see *supra*

⁹⁶⁷ According to OECD, *Draft Contents of the 2017 Update to the OECD Model Tax Convention*, Paris July 2017, p. 105 (para. 131), the ISP generally does not play the principal role leading to the conclusion of contracts in the name of the enterprise either. In the present writer’s view, this is crucial information about both the dependent agent permanent establishment in the digital economy and the general nature of the “principal role” requirement. Given its importance and the fact that it is not obvious at all (as far as the present author is aware, the members of the OECD Task Force on Digital Economy were unofficially discussing precisely the opposite position), it is surprising that it was not discussed in the comments or at any previous point in time; see OECD, *Draft Contents of the 2017 Update to the OECD Model Tax Convention/Comments received on the 11 July 2017 public release*, Paris August 2017.

⁹⁶⁸ Paras. 42.1 and 42.5 seem to have too little normative content to be mentioned here.

paras. 116 f.)? Does remote activity count (see *supra* para. 111)?⁹⁶⁹ By creating these uncertainties, the PE Clarification may have done the opposite of what it intended.

Furthermore, most of the new paragraphs added to the OECD COMMENTARY have proved to be superfluous, as shown by the fact that they are largely irrelevant to the present study on cloud computing taxation. For instance, the reference to a “case-by-case analysis” in the OECD COMMENTARY, Art. 5, para. 42.5, serves no practical purpose. Likewise, the OECD’s examples of auxiliary activity prove to be misleading in the context of cloud computing (see *supra* paras. 327 f.). Part of this irrelevance may be due to the OECD’s focus on single servers (the PE Clarification always refers to “a server” or “the server”, emphasis added). In the age of cloud computing, in which single isolated servers are not competitive enough compared to hosted services in large data centers, the tax status of a single server is not interesting to practitioners. 604

The aforementioned shortcomings should be inspected and lessons drawn for future changes to international taxation rules related to technology. For instance, the OECD could have used more inclusive terms than “website” and “server,” as they were quickly transformed into the more general “software” and “hardware” in scholarly texts.⁹⁷⁰ In addition, it is unhelpful to establish new rules if they are effectively 605

⁹⁶⁹ Clearly, the OECD could have predicted this last question, as para. 124 was supposedly aimed at answering precisely that. At the time, many people were already working from remote locations, not necessarily using computers. The logical ambiguity and incompleteness of the answer given can only be attributed to a lack of international consensus on the question of remote personnel.

⁹⁷⁰ See *supra* para. 349.

thwarted by exceptions.⁹⁷¹ Finally, examples should be used only if they reveal something that is not immediately apparent in a rule.⁹⁷²

⁹⁷¹ For instance, the OECD COMMENTARY, Art. 5, para. 128, gives a list of examples of auxiliary activities in e-commerce, which are then invalidated in the next paragraph. This corresponds to saying something akin to “A is B, except if it is not B,” which constitutes a simple tautology that does not convey any additional meaning. Of course, wording of this kind is often the result of precarious compromises after debates within political decision-making bodies (see FLÜCKIGER, p. 556), such as the OECD.

⁹⁷² For instance, the OECD COMMENTARY, Art. 5, para. 124, purports to provide an example illustrating the interpretation of “at disposal.” However, those words themselves are used in the last sentence of the example. This is akin to saying “A is A,” which again is a tautology.

Section III PE Report

In keeping with the principle of certainty and simplicity (see *supra* paras. 575 f.), the PE Report was interested in raising the level of tax certainty by ensuring that tax rules are easily understandable and help to reduce tax disputes.⁹⁷³ To this end, the PE Report analyzed eleven potential alternatives to the current general definition of permanent establishment. Each of the alternatives was assessed with regard to its compatibility with the entire Ottawa Taxation Framework. 606

For instance, the report put forward the proposal (among others) that the elements in the list of exceptions in Art. 5(4) MOECD should be preparatory or auxiliary (p. 38) (this has been finally realized in BEPS Action 7 and Art. 13 MLI⁹⁷⁴). It also proposed the introduction of a services permanent establishment (pp. 47 f.), which was later taken up in the OECD COMMENTARY.⁹⁷⁵ However, contrary to the report's supposed goals, these modifications do not seem to have any specific impact on cloud computing or its e-commerce predecessors.⁹⁷⁶ 607

That said, there are more dubious proposals in the PE Report. In its approach to the role of personnel for the general definition of permanent establishment, it declared that a server was able to operate without any human intervention, implicitly excluding the 608

⁹⁷³ See OECD, *Are the Current Treaty Rules for Taxing Business Profits Appropriate for E-Commerce?/Final Report of the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for Taxing Business Profits*, Paris June 2004, pp. 19 f. The page numbers in the following paragraphs refer to this document.

⁹⁷⁴ Art. 13 will not be applicable to Swiss DTAs (Swiss position paper, *Confédération suisse/Statut de la liste de réserves et des notifications au moment de la signature*, <https://www.news.admin.ch/news/message/attachments/48551.pdf> (last viewed July 2, 2020), p. 9).

⁹⁷⁵ OECD COMMENTARY, Art. 5, para. 144; for a general explanation of the concept, see *supra* paras. 185 f.

⁹⁷⁶ See *supra* para. 426.

setting-up of the server (p. 30). Thereby, the assumption was made that the activity of setting up a server could be easily distinguished from the phase of operation. This is a distinction that remains as unrealistic today as it was at the time of the report. The maintenance of servers can be a core business activity, especially in IaaS.⁹⁷⁷

609 Alternatively, it was proposed that software activity or activity without personnel be excluded from the definition of permanent establishment (pp. 35 f.). This proposal was based on the idea that the existence of nonelectronic tools is generally disregarded for the assessment of permanent establishment status. Likening servers to tools would suggest that the activities of a server should also be disregarded. However, this is an oversimplification. In contrast to servers, nonelectronic tools and machines (such as hammers, screwdrivers, looms, and steam engines) rarely enable personnel to perform cross-border business activities. The cross-border aspect is what sets different tools apart, rather than their degree of technological sophistication. Therefore, this proposal leads to cross-border business activities by electronic means being denied permanent establishment status a priori. The available texts do not say whether that was the intention. Whether such a position is compatible with the current rules of treaty characterization and the arm's length principle is discussed in more detail *infra* paras. 843 f.

610 The assumption that under the current rules little profit would be attributable to the place of the server without personnel (p. 31) has also proved to be wrong in the context of data centers⁹⁷⁸ (but see p. 31: “[i]t was recognized, however, that this might be different in some cases where high-value assets [e.g., high-end cloud computing data centers] would be used to perform automated functions”). The

⁹⁷⁷ The PE Report even recognizes “application hosting [i.e., a precursor of SaaS], where an enterprise carrying on the business of providing software to other enterprises could be found not to have a permanent establishment, under the proposed rule, where that core business function would be carried on” (p. 37).

⁹⁷⁸ See *supra* para. 558.

proposal also failed to recognize that remote and automated business activity too is important to the attribution of permanent establishment activity and that the location of its execution is more often than not crucial to the business (see p. 37).

These proposals would appear to have been deficient. They were based on an insufficiently thorough analysis of the general definition of permanent establishment, which should have revealed that the right-of-use requirement is the main problem. Further, the report did not consider the coherence of the permanent establishment concept, treaty characterization, and arm's length principle. Finally, the study of the ICT-based business models at that time seems superficial. This is surprising, as the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for Taxing Business Profits which authored the PE Report numbered among its participants representatives of IBM, Hewlett Packard, Microsoft, Delphi, eBay, etc. (p. 75), who must have had the necessary know-how to correct the misassumptions mentioned above.⁹⁷⁹

611

Luckily, these proposals were ultimately rejected—partly due to their lack of flexibility, given that future technology may allow great value creation at the location of the automated equipment (p. 32). Accordingly, the current general definition of permanent establishment was considered sufficiently appropriate and therefore not worth changing (p. 72). An unspoken awareness of the report's deficiencies may have been an additional reason why no further rulemaking was undertaken.

612

⁹⁷⁹ It is less surprising that these e-commerce multinationals should have had a strong grip on international discussions on e-commerce taxation in general. For instance, BOYLE, was "Vice President, Tax and Audit, Microsoft Corporation" at the time he authored the general report in the IFA *Cahiers* on the subject; see SPRAGUE/BOYLE, note **.

Section IV TP Report

The TP Report identifies nine areas in which e-commerce may have an effect on transfer pricing and which deserve further attention. For instance, the regular use of intangibles of uncertain value in ICT-based transactions makes comparability harder to establish (pp. 61 f. and specifically p. 64),⁹⁸⁰ the interconnectedness between ICT-based and regular transactions with respect to their individual worth makes it difficult to put a transfer price on each transaction individually (pp. 60 f.);⁹⁸¹ the granting of relief through corresponding adjustments pursuant to Art. 9(2) MOECD may become more uncertain for ICT-based transactions with unclear geographical links (p. 64); and the increasing number of small businesses acting on the global stage

⁹⁸⁰ The page numbers in this section refer to the following document: OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, Paris December 19, 2005.

⁹⁸¹ In the present author's opinion, the need to price combinations of transactions rather than individual transactions is due not only to the lack of comparables for individual transactions (similarly, KRAUZE, p. 143, giving a PaaS example) but also to the fact that the use of ICT can increase the value of a transaction and at the same time reduce the production costs (on ICT's capacity to reduce costs, see *infra* note 1090). For instance, personal trainers offer their services to individual clients for a certain fee, given that they have to accompany each of their clients individually when running, exercising, etc. Today, some personal trainers have started offering very similar services through a web interface, where clients can upload their exercise data (that may be gathered automatically through a special device worn on the wrist) and have it automatically analyzed by a software program that allows the personal trainer to survey several clients at once. As a result, the per client production cost for that kind of personal training product has dropped. At the same time, the value of the personal trainer's product may have increased, as the software makes it possible to leverage a large amount of health data to tailor exercise recommendations more closely to each client's needs, and the personal training services are available to every client around the clock regardless of the trainer's availability. If such services were performed among associated enterprises, this example might be able to show how difficult it can be to dissociate the software component from such a personal training transaction, just in order to use comparables from regular personal training transactions. In the present author's view, any attempts to make reasonable comparability adjustments would be difficult, if not impossible (which is also acknowledged by the TP Report, pp. 62 f.).

through the Internet may make the use of tax havens more common and generally put a strain on administrative processes and enforcement (pp. 64 f.).

- 614 Based on the previous analyses in this thesis, it can be said that all of these concerns have since actually materialized to some degree in the cloud computing business, although they do not all have an equally strong bearing on cloud computing technology or business models. In particular, the mobility of cloud computing providers has been overestimated.⁹⁸² It may well be that cloud computing has made cloud customers more mobile. However, their taxation has always depended on the location and mobility of their personnel, not of computing infrastructure. Admittedly, there have been tax scandals related to the use of tax havens concerning almost all major cloud computing providers.⁹⁸³

⁹⁸² See *infra* paras. 705 f.

⁹⁸³ According to some observers, the five largest cloud providers in the first quarter of 2018 were Amazon, Microsoft, IBM, Google, and Alibaba (in that order; see SYNERGY RESEARCH GROUP, *Cloud Growth Rate Increased Again in Q1; Amazon Maintains Market Share Dominance*, Reno April 27, 2018, <https://www.srgresearch.com/articles/cloud-growth-rate-increased-again-q1-amazon-maintains-market-share-dominance>, last viewed July 2, 2020).

In particular, Google received a lot of attention when its international tax structure was revealed in a famous article by JESSE DRUCKER in October 2010, calculating that Google paid an overseas effective tax rate of only 2.4 percent (DRUCKER, JESSE, *Google Rate Shows How \$60 Billion Is Lost to Tax Loopholes*, Bloomberg.com, October 21, 2010). PINKERNELL 2012b, p. 369, note 3, considers DRUCKER's article to be the trigger for the entire political debate. The case of Google, an international affair, led to parliamentary investigations in the United Kingdom in November 2012, which also concerned the IT multinational Amazon (UNITED KINGDOM HOUSE OF COMMONS, COMMITTEE OF PUBLIC ACCOUNTS, *HM Revenue & Customs: Annual Report and Accounts 2011–12, Nineteenth Report of Session 2012–13, Report together with formal minutes, oral and written evidence*, HC 716, December 3, 2012, <https://www.publications.parliament.uk/pa/cm201213/cmselect/cmpubacc/716/716.pdf>, last viewed July 2, 2020). At almost the same time, in October 2010, MARTIN SULLIVAN independently published an economic analysis showing that the multinational Microsoft had reduced its effective tax rate from 34 percent in the year 2000 to 25 percent in 2010 through the use of an Irish holding company (SULLIVAN, p. 271). As a consequence,

In a manner similar to the present thesis, the TP Report reached the conclusion that “the communications revolution presents neither fundamentally new nor categorically different problems for transfer pricing” (p. 66). It became clear from the earlier explanations in this thesis that, in cloud computing at least, the greater complexity arises from the particularities of comparable data in cloud transactions, which do not in themselves render transfer pricing methods inapplicable. From that observation, the TP Report concluded that no changes are necessary (p. 67). By contrast, the present thesis does not exclude the possibility that more tax certainty might be called for.⁹⁸⁴

the US Senate organized a hearing concerning Microsoft’s tax affairs in September 2012 (UNITED STATES SENATE, ONE HUNDRED TWELFTH CONGRESS, SECOND SESSION, *Offshore Profit Shifting and the U.S. Tax Code—Part 1 (Microsoft and Hewlett-Packard), Hearing before the Permanent Subcommittee on Investigations of the Committee on Homeland Security and Governmental Affairs*, September 20, 2012, <https://www.gpo.gov/fdsys/pkg/CHRG-112shrg76071/pdf/CHRG-112shrg76071.pdf>, last viewed July 2, 2020). IBM also had tax scandals around that time (e.g., CAMPBELL, PETER, *How IBM manages to pay just 7 per cent tax despite billion pound profits from government deals*, MailOnline, August 18, 2012, <https://www.dailymail.co.uk/news/article-2190130/How-IBM-manages-pay-just-7-cent-tax-despite-billion-pound-profits-government-deals.html>, last viewed July 2, 2020). Nothing is known of Alibaba, a newcomer to the cloud market.

⁹⁸⁴ See *infra* paras. 722 f.

Section V Example in BEPS Action 1

§ I. Problem

The OECD provides a fictional example of BEPS in the context of cloud computing that combines a number of elements.⁹⁸⁵ In the example, a company RCo, active in the business of providing online gaming through the Internet, is resident in jurisdiction R, a country with high tax rates. RCo has a permanent establishment in jurisdiction Y, a country with low tax rates. That permanent establishment provides management services to RCo subsidiaries for a cost-plus markup. The permanent establishment has sufficient personnel to perform these functions on its own. In the example, RCo originally developed all the software intangibles in country R. Then, RCo transfers them to the permanent establishment in Y, where the intangibles qualify for a preferential tax regime. Subsequently, the permanent establishment licenses these intangibles to all subsidiaries for substantial royalty fees.

616

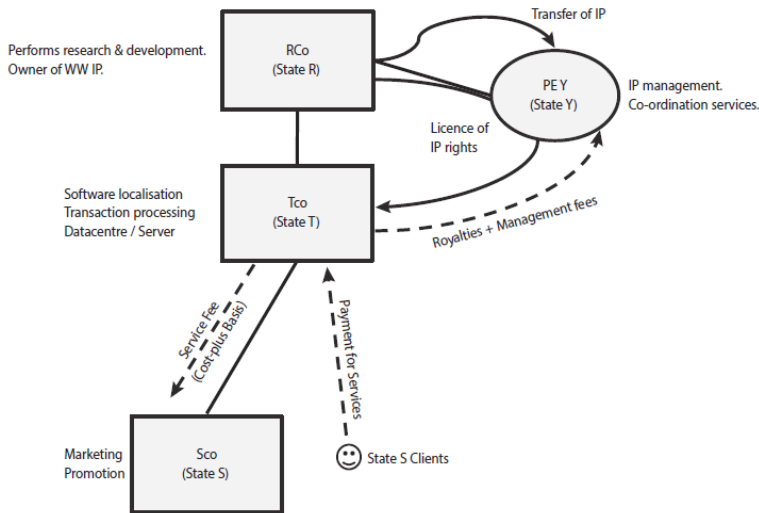
RCo further uses as a regional operating subsidiary a company TCo resident in jurisdiction T, a country with high tax rates. TCo has a substantial staff compared to the rest of the group. It operates the web services supplied to end consumers and the data center in country T. Further, it is the holder of the licenses required for regulated online gaming. TCo concludes contracts with and receives payments from end consumers. For backing up the processed data, TCo acquires mirroring services from third-party providers in third countries.

617

⁹⁸⁵ For the following paraphrase of the case: OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 175 f. (identical to OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2014 Deliverable*, Paris September 2014, pp. 191 f.).

618 TCo has a subsidiary SCo in jurisdiction S, where the end consumers are located. SCo only performs marketing activities. This means that it does not conclude contracts with the end consumers (this activity is performed by TCo). SCo is remunerated by TCo on a cost-plus basis.

619 The following diagram is a schematic representation of the structure described above.⁹⁸⁶



620 According to the OECD, application of the pre-BEPS tax rules would have an undesirable outcome. It would cause most of the profit to be allocated to the permanent establishment in the low-tax jurisdiction Y. In jurisdiction S, SCo would be taxed only on the cost-plus markup it receives from TCo, as the revenue from contracts concluded with end customers would be attributed to TCo in jurisdiction T. However, SCo can deduct from these profits the considerable amount it pays in license royalties to the permanent establishment of RCo in Y. In order to avoid jurisdiction T imposing withholding taxes on the royalty

⁹⁸⁶ Illustration from OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 176.

payments, the example proposes applying the DTA between countries T and R.

Furthermore, jurisdiction R is not entitled to tax any profit, because RCo's profits attributable to the permanent establishment in Y are exempt from taxation in the residence jurisdiction R. This is probably because jurisdiction R applies the exemption method provided for in Art. 23A MOECD. The capital gain from the transfer of the intangible assets to the permanent establishment in Y is not considered a taxable profit in R "under the rules applicable to cross-border transfers of assets in the R/Y region."⁹⁸⁷ Finally, RCo can offset against any remaining profits the R&D expenditure it previously incurred in developing the software intangibles.

Concerning VAT, the business to consumer (B2C) transactions between TCo and the private end consumers in state S would mostly remain untaxed. This is because the import of electronic services would rely on self-assessment by private end consumers in country S, who are unlikely to fulfill their tax obligations.

§ II. Risk Level

The OECD reports never explicitly explain what exactly the problematic features of this particular case are. BEPS strategies are discussed only in an abstract manner and in a separate chapter.⁹⁸⁸ There are two ways of understanding what the OECD considers to be the problem. First, it is possible to refer to the OECD anti-BEPS measures, which will show whether all of these problems have been addressed. In other words, the question is whether the example would

⁹⁸⁷ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 177.

⁹⁸⁸ Namely in chapter 5, "Identifying opportunities for BEPS in the digital economy" (OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 77 f.).

have different tax consequences post-BEPS. Second, it is possible to infer from the detail given in the case which points seemed to be purposely singled out to highlight a problem. The following analysis will follow this two-step approach.

- 624 The international setup described above is a simplified reflection of what tax administrations have allegedly observed in practice.⁹⁸⁹ In fact, the example recalls certain tactics employed by Google, Microsoft, Apple, etc. as part of their tax strategies. For example, Google concluded contracts not from a subsidiary within the United Kingdom but rather from its subsidiary in Ireland, thus making the sales profit attributable to Ireland.⁹⁹⁰ The concept of using intangibles to strip distributor subsidiaries in higher-tax jurisdictions of their profits (commonly referred to as license stripping) is also familiar. It was used in the case of Apple.⁹⁹¹ So it seems that the example is in principle realistic. Also, knowing the sources of inspiration helps in better understanding the main issues presented in the example.
- 625 Regarding taxation in the source jurisdiction S, the assessment of the profits of the marketing company SCo would be unaffected. It is unlikely that SCo's profits could be adjusted upwards by using a

⁹⁸⁹ Ibid., p. 167.

⁹⁹⁰ See UNITED KINGDOM HOUSE OF COMMONS, COMMITTEE OF PUBLIC ACCOUNTS, *HM Revenue & Customs: Annual Report and Accounts 2011–12, Nineteenth Report of Session 2012–13, Report together with formal minutes, oral and written evidence, HC 716*, December 3, 2012, <https://www.publications.parliament.uk/pa/cm201213/cmselect/cmpubacc/716/716.pdf> (last viewed July 2, 2020), p. Ev 38 (Q455). Confirmation of Google being the source of this example is found in “B2. Internet advertising,” preceding the cloud computing example in the OECD report, by SCHWARZ, JONATHAN, *Permanent Establishment: La lutte continue*, Kluwer International Tax Blog, July 24, 2017, http://kluwertaxblog.com/2017/07/24/permanent-establishment-la-lutte-continue/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+KluwerInternationalTaxBlogExcerptFeed+%28Kluwer+International+Tax+Blog+Excerpt+Feed%29 (last viewed July 2, 2020).

⁹⁹¹ TING 2014, p. 49, with further references.

transfer pricing method other than cost-plus.⁹⁹² Furthermore, TCo does not fulfill the requirements of a dependent agent permanent establishment in S representing the principal RCo, as it concludes contracts in its own name and on its own behalf. Accordingly, TCo should be characterized as a low-risk distributor, for which dependent agent permanent establishment status is explicitly excluded under Art. 5(5) MOECD post-BEPS.⁹⁹³ Nor, for the same reasons, does SCo qualify as a dependent agent permanent establishment of TCo.

In jurisdiction T, the risk of a transfer pricing adjustment is higher, as TCo has considerable substance in terms of staff and assets (including the data center and licenses). However, only a downward adjustment on the royalty price paid to RCo could lead to an increase in TCo's taxable profits in country T. Such an adjustment would need to be based on a thorough functional analysis of the distribution of the functions, assets, and risks involved in the royalty transaction. The analysis would have to take into account the fact that RCo at least performs the important functions concerning the development,

626

⁹⁹² Of course, one could consider SCo to be playing a principal role in the distribution of the group's product. Based on this view, SCo could be assimilated economically to a distributor of the product, thereby warranting the use of the resale-minus method (OECD TPG, paras. 2.21 f.). Calculating an arm's length margin on the basis of the end consumers' price for the entire product (especially considering the generally high margins in businesses such as online gaming, regardless of the possible status as a low-risk distributor), instead of maybe insufficiently comparable markups on a deliberate cost base controlled by the taxpayer (even as the OECD gives the reader no reason to believe that the taxpayer uses the cost-plus method inappropriately in this example), may indeed yield a higher arm's length remuneration for the services provided by SCo to TCo. However, this method was already known before BEPS. Thus, it is probably unrelated to BEPS and does not count for the argument the OECD intends to make here. In the presently discussed example, the OECD does not make clear whether the cost-plus method is wholly inappropriate, badly applied, or not a problem at all. If the cost-plus method is applied correctly, it will yield the same results as any other method, namely the arm's length remuneration for SCo. If the cost-plus method is being artificially manipulated, it is not possible to exclude that the same will happen with the method replacing it.

⁹⁹³ OECD COMMENTARY, Art. 5, para. 96. In Switzerland, the low-risk distributor is considered to be a dependent agent permanent establishment according to the pre-BEPS opinion of the federal tax administration (see *supra* note 255).

maintenance, and protection of the intangible, is the legal and economic owner of the software intangible, and has likely incurred the risks of development and exploitation. Any choice of a transfer pricing method would probably attribute the greater part of the profits to RCo rather than TCo. Nevertheless, TCo makes significant contributions to the marketing of RCo's products (as SCo is remunerated on a cost-plus basis, TCo may actually manage the risks relating to SCo's marketing activities) and should be rewarded for the functions and risks assumed.⁹⁹⁴

627 Concerning the avoidance of withholding tax in country T, the application of Art. 12(1) MOECD requires nothing more than that the royalty be paid to the beneficial owner, who must be a resident of the other contracting party to the relevant DTA. In this case, the beneficial owner of the royalty is RCo, which is in fact resident in country R. It is immaterial that the royalty is paid not to a recipient in country R but rather to its permanent establishment in country Y.⁹⁹⁵ While the requirement for applying Art. 12 of the T-R DTA is therefore technically fulfilled, it may be considered an instance of treaty shopping to have kept the residence in country R, after transferring the business to country Y, merely to benefit from that provision. RCo would appear not to have any real business activity functions or assets in country R, having transferred all relevant personnel to the permanent establishment in country Y. Accordingly, the questions of treaty shopping and compliance with anti-treaty-abuse rules arise. BEPS Action 6 described such conduct as "granting of treaty benefits in inappropriate circumstances"⁹⁹⁶ and led to the inclusion of a

⁹⁹⁴ This is similar to Example 10 in: OECD, *Aligning Transfer Pricing Outcomes with Value Creation, Actions 8–10/2015 Final Reports*, Paris October 2015, pp. 123 f.

⁹⁹⁵ The same conclusion is reached by WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 12, para. 148.

⁹⁹⁶ OECD, *Preventing the Granting of Treaty Benefits in Inappropriate Circumstances, Action 6/2015 Final Report*, Paris October 2015, pp. 75 f.

special provision concerning this in the MLI.⁹⁹⁷ Alternatively, the residence of RCo in R could be challenged under Art. 4(3) MOECD on the grounds that RCo's effective management is located in country Y.

Finally, in country R, the amount of taxable profit depends primarily on the attribution of profits to the permanent establishment in Y, with only the residual profit being taxed in R pursuant to Art. 7(1) MOECD. Although the OECD has recently been reviewing the attribution of profits,⁹⁹⁸ this would not affect how the profits are attributed in the example at hand. It is true that the R&D costs can probably be offset against any remaining income. The reality and allocation of these expenses can hardly be denied. What remains unclear is how the capital gains from the sale of the intangible by the head office to the permanent establishment could remain untaxed, as the arm's length principle would require taxation of an appropriate remuneration according to the OECD's separate entity approach.⁹⁹⁹ In practice, this remains largely a question of domestic tax law and administrative practice and has not been harmonized through international

628

⁹⁹⁷ Art. 10(1) MLI provides basically that when an enterprise resident in one state (A) derives income from another state (B) that is attributable to its permanent establishment in a third state (C) and the tax in that state is less than 60 percent of the tax in the residence country A, the treaty between the states A and B shall not be applied to that income. Although Switzerland imposes no withholding tax on royalties, it has made a reservation concerning the application of that provision, with the effect that it will not be applied to Swiss DTAs concerning the imposition of or relief from withholding taxes; see SWISS CONFEDERATION, *Status of List of Reservations and Notifications at the Time of Signature*, June 2017, <https://www.news.admin.ch/newsd/message/attachments/48555.pdf> (last viewed June 21, 2017), p. 6.

⁹⁹⁸ OECD, *Additional Guidance on the Attribution of Profits to Permanent Establishments*, BEPS Action 7, Paris March 2018.

⁹⁹⁹ Although this view could be considered speculative, the tax administration in Switzerland allows for the realization of capital gains in Switzerland where the direct method is applied to the transfer of an asset from the head office to a foreign permanent establishment based on Art. 58(1)(c) DTC (JAMES, p. 345). However, the capital gain would be deferred until actual realization (JAMES, pp. 346 f.).

consensus.¹⁰⁰⁰ As TCo is not in a low-tax jurisdiction, the CFC rules proposed in BEPS Action 3 do not seem applicable (even though they may help to increase taxation in country R).¹⁰⁰¹

629 In conclusion, it must be acknowledged that the OECD has attempted to address all of the problematic features of this BEPS case in the context of cloud computing. In the example, the new rules concerning transfer pricing and withholding tax may potentially lead to an increase in taxation in country T (the country with the most substance), thereby reducing the effectiveness of the base erosion and profit shifting created by this corporate structure.

630 However, it is questionable whether the newly introduced anti-BEPS rules are actually necessary to achieve that result. It seems that the pre-BEPS rules of taxation might have resulted in the same tax treatment. The potential transfer pricing adjustment of TCo's remuneration is not based on a substantial change in the regulation of transfer pricing. In this regard, BEPS Actions 8–10 have merely emphasized the correct application of the already existing arm's length principle. Even Art. 10(1) MLI is based on a pre-BEPS passage in the OECD COMMENTARY¹⁰⁰² which recommends that a special provision with basically the same effect be included in DTAs.

¹⁰⁰⁰ The EU Commission applied a transfer pricing solution to the hybrid mismatch problem in the Apple state aid case in a similar situation where the substance of the business was only in the permanent establishment and the head office had no substance at all. The Commission aims to harmonize the applicability of the arm's length principle in the EU region based on the principle of equality and to prohibit state aid in the form of tax privileges; see the decision of the EU Commission of August 30, 2016 on state aid SA.38373 (2014/C) (ex 2014/NN) (ex 2014/CP) granted by Ireland to Apple, p. 65 (para. 230).

¹⁰⁰¹ See OECD, *Designing Effective Controlled Foreign Company Rules, Action 3/2015 Final Report*, Paris October 2015, p. 33 (especially para. 51).

¹⁰⁰² OECD COMMENTARY, Art. 24, para. 71: "Another question that arises with triangular cases ..." As already mentioned, Switzerland will not apply Art. 10 MLI (Swiss position paper, *Confédération suisse/Statut de la liste de réserves et des notifications au moment de la signature*, <https://www.news.admin.ch/news/message/attachments/48549.pdf>, last viewed July 2, 2020, p. 8).

Moreover, pre-BEPS Swiss regulations would have resolved the problematic feature of source taxation in country S by characterizing the low-risk distributor TCo as a dependent agent permanent establishment for the principal RCo in country S.¹⁰⁰³ Thus, a limitation on this Swiss domestic rule resulting from a DTA based on the MLI could even have restricted a preexisting rule with an anti-BEPS effect.

And, even assuming that pre-BEPS rules yield different results from post-BEPS rules, much of what is problematic in the case has not been resolved by the BEPS program and the MLI (to the extent that it is applicable¹⁰⁰⁴). The avoidance of a taxable (permanent establishment) presence in country S remains an issue, even though that has been one of the most important problems throughout the OECD's engagement with international taxation of the digital economy¹⁰⁰⁵ and its predecessors.¹⁰⁰⁶ Further, the BEPS Action Plan would do virtually nothing to increase taxation in country R, even though deductions are maximized through R&D expenditure¹⁰⁰⁷ and functions, assets, and risks are minimized through the transfer of the intangibles and the employees to country Y.¹⁰⁰⁸

631

¹⁰⁰³ See *supra* para. 166.

¹⁰⁰⁴ One problem for the effectiveness of the MLI is, of course, that it is largely voluntary.

¹⁰⁰⁵ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 79 f.

¹⁰⁰⁶ See OECD, *The Communications Revolution and Global Commerce: Implications for Tax Policy and Administration, DAFFE/CFA(97)35/REV2*, Turku November 19–21, 1997, pp. 13 and 24 f. For a discussion on this issue, see *infra* paras. 764 f.

¹⁰⁰⁷ See OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 80 f.

¹⁰⁰⁸ See *ibid.*, p. 80, especially para. 187.

§ III. Connection with Cloud Computing

632 Obviously, and as openly admitted by the OECD,¹⁰⁰⁹ the proposed example titled “Cloud computing” has nothing to do with cloud computing as technology or as a business model.¹⁰¹⁰ The features of the case identified as problematic could all result from the international corporate structure of a business in almost any industry. Of course, this is also true of most aspects of the real-life cases of base erosion and profit shifting from the IT industry. To the present author’s knowledge, there are no published case decisions on taxation in which the technological or business model aspects of cloud computing were the main issues in dispute.¹⁰¹¹

633 This may be the reason why the OECD appears to have used BEPS Action 1 as an opportunity to engage in a few hypothetical thought experiments. Chapter 7 of the report discusses “broader direct tax challenges raised by the digital economy and the options to address them,”¹⁰¹² whereby it goes beyond both the measures adopted by the BEPS program and the real-life cases. This, together with the following chapter, could be considered the core of BEPS Action 1. The broader challenges it addresses relate more to the technological and business model characteristics of the digital economy at large. In particular, the OECD considered that in the digital economy a lack of

¹⁰⁰⁹ “In many cases, the nature of the strategies used to achieve BEPS in digital business is similar to the nature of strategies used to achieve BEPS in more traditional businesses” (ibid., p. 78).

¹⁰¹⁰ Neither does the example entitled “Internet advertising” (ibid., p. 171), even though the product described may be based on cloud computing technology.

¹⁰¹¹ The US Tax Court case *Amazon.com Inc. v. Commissioner* concerned the discount rate of the software code of a webshop website (decision of the US Tax Court of March 23, 2017, 148 T.C. No. 8, Docket No. 31197-12, particularly p. 113 for the method of calculation). A webshop can be (and in this case probably is) hosted on a cloud. However, the cloud aspect would have no influence on the tax assessment.

¹⁰¹² OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 97 f.

nexus in market jurisdictions, the difficulty of evaluating data usage, and the need to characterize novel types of transactions could create issues for international taxation.¹⁰¹³ Furthermore, identifying the taxpayers and their customers, determining the extent of their activities, and collecting and verifying information could create challenges of an administrative nature.¹⁰¹⁴

These broad topics are encountered in the more particular context of cloud computing too, as was previously demonstrated in this thesis. The pre- and post-BEPS nexus rules can lead to a permanent establishment only in the case of cloud providers (not their business customers) and only at the location of the data center (not in the jurisdictions where the cloud service's customers are located). Further, cloud computing services may derive substantial value from increasing amounts of stored data or from analyzing user behavior for machine learning applications. Finally, the administrative challenges mentioned above exist for any online service, including cloud services.¹⁰¹⁵

However, the proposals for addressing these problems were almost all rejected for different reasons.¹⁰¹⁶ The one exception was the concept of preparatory or auxiliary activities, which was amended by BEPS Action 7 and Art. 13 MLI.¹⁰¹⁷ Consequently, the broader

¹⁰¹³ *Ibid.*, p. 99.

¹⁰¹⁴ *Ibid.*, p. 105.

¹⁰¹⁵ Treaty characterization seems to have become easier with the advent of cloud computing, as the distinction between license fees and business profits is no longer relevant when no software code is transferred; see *infra* para. 732.

¹⁰¹⁶ For an overview of the different national legislative projects in this regard, see OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, pp. 133 f.

¹⁰¹⁷ See *supra* note 193.

challenges remain unresolved, even though two decades have passed since the OECD first recognized them.¹⁰¹⁸

§ IV. Conclusion on BEPS Action 1

636 The OECD focalized on the available real-life cases (Google, Microsoft, Apple, Amazon, etc.) when designing anti-BEPS measures, rather than on the technological and business model aspects of cloud computing. This made it difficult to understand how the taxation of cloud computing gives rise to BEPS risks. The OECD did not provide any evidence of cloud computing technology having had an important impact on the international taxation planning structure of a business. In the absence of case law, the OECD discussed the effects of technological innovation on international taxation merely from a general, hypothetical angle. The example provided in BEPS Action 1 has nothing to do with the influence of cloud computing on taxation.

637 Nevertheless, the OECD viewed cloud computing as a potential source of “challenges for international taxation.”¹⁰¹⁹ Therefore, the question arises as to what its reasons were for doing so, if indeed there were any. The lack of any other OECD material on the challenges posed by cloud computing for international taxation leaves room for much speculation. It may be that, as a rapidly growing industry, cloud computing was included in Action 1 merely to ascertain whether there actually were any tax concerns in relation to the industry. At first sight, there seems to be no reason for including cloud computing in OECD BEPS Action 1.

¹⁰¹⁸ Apart from the problem of evaluating data usage, the other “challenges” are also called “challenges” in the OECD Turku paper from 1997; see OECD, *The Communications Revolution and Global Commerce: Implications for Tax Policy and Administration*, DAF/FE/CFA(97)35/REV2, Turku November 19–21, 1997, pp. 22 f.

¹⁰¹⁹ See OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 98.

Section VI Summary of Prior Work

The PE Clarification dispelled some of the doubts that had previously been expressed in scholarly writing over the application of the permanent establishment concept to e-commerce. However, it was not able to deliver sufficient predictability on all the relevant legal questions, which represents an issue with the Ottawa Taxation Framework principle of certainty and simplicity. In fact, it raised some new questions and created uncertainties. 638

The PE Report was published in order to verify whether any further clarifications or changes to the MOECD text or the OECD COMMENTARY were necessary. It confirmed that none seemed appropriate (or possible). However, the PE Report was flawed due to many unfounded assumptions. It failed to address many aspects of the issues that this thesis has shown to be of vital importance, such as the exact nature of the right-of-use requirement in the context of ICT (see *infra* para. 723). The conclusions it reaches should therefore have a limited impact. 639

The TP Report, which explored transfer pricing problems resulting from the previous work on permanent establishments, was far more detailed and grounded in reality compared to the PE Report. The problems it described in the field of transfer pricing exist today. The report considered ICT usage to have a direct effect on the increased use of tax havens—without providing any evidence to support this claim¹⁰²⁰—but reached the conclusion that there was no need to change transfer pricing rules because of this. 640

Finally, the example in BEPS Action 1 had nothing to do with cloud computing. Therefore, it was unable to disprove that the international taxation of cloud computing is effective and fair (see *supra* para. 636). The OECD was probably right not to recommend any of 641

¹⁰²⁰ See *infra* para. 712.

the three legislative options presented in BEPS Action 1.¹⁰²¹ The supposed lack of effectiveness and fairness revealed itself to be an insufficient justification.

¹⁰²¹ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 148.

Chapter 4: Application to Cloud Computing

Section I Introduction

The Ottawa Taxation Framework constitutes the basis for any assessment of the current set of rules governing the taxation of cloud computing. Thus, it makes sense to evaluate compliance with each of its five principles. The structure of this chapter is closely aligned with the Ottawa Taxation Framework.

642

Section II Effectiveness and Fairness

§ I. Introduction

The aim here is not to provide a panorama of the different kinds of tax avoidance, but rather to identify which (if any) are caused by cloud computing. It is beyond the scope of this thesis to discuss the political aspects of a general definition of tax avoidance. However, the thesis cannot completely ignore the concept given its relevance to the effectiveness and fairness principle. For present purposes, the term tax avoidance will denote potential taxpayer behavior that is (or could be) accused of resulting in a lower tax burden than supposedly intended by the legislator or clashing with some aspect of a general sense of justice, to the extent such issues were raised in literature. The discussion will be confined to legal (as opposed to illegal) behavior that may be taken into consideration when an entrepreneur setting up an international business compares different economically equivalent alternatives with each other as part of that process. What exactly an entrepreneur alleged to be engaging in tax avoidance is

643

being accused of and what the rationale of the accusers is (or could be) will be explained in each of the examples exposed in the subsections entitled “Problem.” The examples will be strictly limited to the domain of cloud computing—even though some of them may actually or potentially reflect a broader understanding of tax avoidance—and do not claim any relevance beyond the immediate context of cloud computing. A later chapter will consider whether there are any respects in which these findings can be generalized.

644 Further, causality can come in different degrees of intensity. Therefore, the link between a certain use of cloud computing and a certain form of tax avoidance must be analyzed with regard to its intensity. In other words, the level of risk of tax avoidance has to be assessed. For example, cloud computing technology could be seen as encouraging the distribution of various business functions to tax havens. It could be argued that cloud computing potentially facilitates the use of tax havens to such an extent that one way of combating recourse to tax havens is to target the use of cloud computing (high-risk level). Yet it could also be said that the use of tax havens predated cloud computing and is therefore independent of it (lack of connection with cloud computing).

645 In sum, the present chapter will assess each of these risks (“Problem”), their causal link with cloud computing (“Connection with Cloud Computing”), and their probability (“Risk Level”). Only by considering these aspects together will it be possible to assess whether the “problem” justifies a change in the taxation of cloud computing on grounds of effectiveness and fairness.

646 The different problems will be presented in groups according to the areas they cover. These correspond to the three main topics discussed in Part I of the present thesis: permanent establishment, treaty characterization (which, in this context, is particularly relevant to the avoidance of withholding taxes), and transfer pricing.

§ II. Permanent Establishment

A) *Manipulation of the Location of Virtual Servers*

1) *Problem*

Several circumstances could cause a customer to demand a say in the location of virtual servers. Take, for instance, a cloud customer that collects valuable information on the user behavior of its customers and stores that information on virtual servers. For data protection reasons, this cloud customer may include in its contract with the cloud provider a clause specifying that the virtual servers have to be hosted within a certain region of the world or even within a certain jurisdiction. This arrangement could remain unchanged for several years. 647

If such a cloud is available all year round, twenty-four hours a day, seven days a week, the fixation test will be satisfied.¹⁰²² Assuming that a cloud contract fulfills the right-of-use requirement,¹⁰²³ then the existence and geographical location of a permanent establishment would be defined by the will of the customer. It would be in the customer's economic interest, given this opportunity, to constitute permanent establishments in low-tax jurisdictions. Cloud customers simply need to be able to indicate to cloud providers that they wish to choose the geographical location of their cloud. In other words, a permanent establishment could be created simply by clicking on a button. 648

Creating permanent establishments in this way could be considered as tax avoidance in certain circumstances. For instance, if the residence jurisdiction recognizes the permanent establishment but 649

¹⁰²² See especially *supra* paras. 367 f.

¹⁰²³ See *supra* paras. 356 f.

the source jurisdiction does not and if the attributable profit is exempt from tax in the residence jurisdiction, then it might end up being taxed nowhere.¹⁰²⁴ Situations that result in double non-taxation are commonly regarded as tax avoidance.

2) *Connection with Cloud Computing*

650 Amazon Web Services offers the possibility of limiting the geographical extension of the cloud, for example to the “EU (Ireland).”¹⁰²⁵ According to Amazon, the customers have “*complete control* over the geographic locations” (emphasis added).¹⁰²⁶ In other cases, it is even possible to choose the country in which the cloud is located.¹⁰²⁷ It is therefore conceivable that a certain kind of cloud customer, especially a business customer, might want to limit the cloud hosting geographically.

651 From these observations it is possible to conclude that the present problem has a close relationship to cloud computing. Although this kind of problem was recognized in relation to websites even before cloud computing came into existence, the contemporary cloud

¹⁰²⁴ ROBINSON/WEIGEND, p. 379; CHETCUTI, JEAN-PHILIPPE, *The Challenge of E-commerce to the Definition of Permanent Establishment: The OECD’s Response*, 2002, http://www.inter-lawyer.com/lex-e-scripta/articles/e-commerce-pe.htm#_Toc535050211 (last viewed July 2, 2020).

¹⁰²⁵ AMAZON WEB SERVICES, *Specifying the Region for a Resource*, <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-regions-availability-zones.html#using-regions-availability-zones-setup> (last viewed July 2, 2020); see also STACK OVERFLOW, *How could I determine which AWS location is best for serving customers from a particular region?*, <http://stackoverflow.com/questions/6339990/how-could-i-determine-which-aws-location-is-best-for-serving-customers-from-a-pa> (last viewed July 2, 2020); see also ROUNTREE/CASTRILLO, pp. 78 f.

¹⁰²⁶ AMAZON WEB SERVICES, *Whitepaper on EU Data Protection*, December 2016, p. 2, https://d0.awsstatic.com/whitepapers/compliance/AWS_EU_Data_Protection_Whitepaper_EN.pdf (last viewed July 2, 2020).

¹⁰²⁷ An example is Austria; see *Begründung einer Betriebsstätte durch Cloud Mining*, Finance Ministry Answer of April 30, 2018, BMF-010221/0042-IV/8/2018, valid as of April 30, 2018, Findok ref. 74371.1, <https://findok.bmf.gv.at/> (last viewed July 2, 2020).

computing market has given cloud customers more choices regarding the geographical location of the hosting services. Furthermore, cloud customers are able to change the location of the cloud faster, which *prima facie* may exacerbate the resulting problem from a tax perspective.

3) *Risk Level*

The OECD COMMENTARY, Art. 5, para. 124, states that the server hosting a website is not at the disposal of the owner of the website, “even if the enterprise has been able to determine that its web site should be hosted on a particular location.”¹⁰²⁸ Extrapolating from the preceding analysis, this statement should apply not only to website hosting but also to the hosting of a cloud.¹⁰²⁹ Therefore, it should not be possible to create a permanent establishment artificially through limiting the geographical location of the hosting of a cloud. The risk level of that kind of tax avoidance is accordingly low.

652

Even if this were possible, due to a jurisdiction’s disregard of that interpretative rule, there are further restrictions on that possibility of tax avoidance. The creation of permanent establishments in jurisdictions with lower tax rates than the residence tax rate can lead to tax savings only if the profits attributed to the permanent establishment are exempt from taxation at the residence (in

653

¹⁰²⁸ See LLINAS/GOENKA/DUKMEDJIAN/WISNER, p. 5, arguing essentially that customers have no interest in constituting a permanent establishment at the location of the physical data center where their virtual servers are hosted. Considering that data centers necessarily constitute permanent establishments (or subsidiaries) of cloud providers and will therefore have been positioned in most cases in a fiscally advantageous location, the present analysis relativizes that opinion. The often-heard counterargument that the cloud customer would end up with an inordinate number of permanent establishments is disproved by the fact that most customers’ clouds are actually hosted in a single physical location. Of course, it could be argued that if the data center is a permanent establishment of the customer, the customer’s client computer would soon become a permanent establishment of the cloud provider, which would be far less fiscally attractive.

¹⁰²⁹ See *supra* paras. 349 f.

accordance with Art. 23A MOECD).¹⁰³⁰ This means that there is no tax avoidance risk if only a tax credit is granted (in accordance with Art. 23B MOECD).

654 Additionally, the incentive to engage in that kind of tax avoidance may be insufficient. For instance, it might be possible to achieve the same tax avoidance result through the creation of a legally distinct subsidiary,¹⁰³¹ and this option is often preferred because it allows for greater certainty in determining the taxable profit. According to Canadian,¹⁰³² Swedish,¹⁰³³ and Danish¹⁰³⁴ case law, a data center handled by a subsidiary, even if wholly owned by the parent, is unlikely to constitute a permanent establishment of the parent enterprise. Therefore, the creation of permanent establishments in low-tax jurisdictions is probably rare and the tax avoidance risk thus low.

4) Conclusion

655 It is possible to include the presently discussed hypothetical into the case studies at the beginning of the thesis (see *supra* paras. 12 f.).

¹⁰³⁰ Art. 10 MLI would restrict this opportunity. However, Switzerland will not apply Art. 10 MLI; see Swiss position paper, *Confédération suisse/Statut de la liste de réserves et des notifications au moment de la signature*, <https://www.news.admin.ch/news/message/attachments/48549.pdf> (last viewed July 2, 2020), p. 8. In the case of companies resident in Switzerland that have permanent establishments abroad, there are higher standards applicable to the threshold for exempting the foreign permanent establishment's profits, according to the decision of the Swiss Federal Supreme Court of October 5, 2012, ATF 139 II 78. In the present writer's opinion, a modern cloud computing data center would certainly fulfill even these higher standards. Any tax evasion may be subject to general rules combating fiscal evasion; see *supra* para. 573.

¹⁰³¹ In practice, most data centers are organized as separate local subsidiaries; see FLYNN/CROSBY/PERKS/SPRAGUE, p. 88 (mentioned by Mr. Gary Sprague in conversation).

¹⁰³² Decision of the Canadian Revenue Agency of January 1, 2012, ruling no. 2012-0432141R3 E.

¹⁰³³ Decision of the Swedish Skatterättsnämnden of June 12, 2013, ruling no. 125-11/D.

¹⁰³⁴ Decision of the Danish Skatterådet of March 15, 2016, SKM2016.188.SR.

Y Corp. has a very low risk of accidentally constituting a permanent establishment, because the cloud is distributed over several locations. However, can Y Corp. constitute a permanent establishment by design?

The willful creation of a permanent establishment seems at first glance to be a device for tax avoidance, as some profits may become subject to more advantageous tax rates when a permanent establishment is created in a low-tax jurisdiction.¹⁰³⁵ It is part of the aim of this thesis to evaluate whether cloud computing encourages such behavior. Given that "it is very easy for a taxpayer to ensure that a permanent establishment exists if that is the result desired,"¹⁰³⁶ it should not be surprising if the answer is yes.

The current state of the law provides no absolute certainty, but there is reason to believe that a cloud customer cannot use cloud computing to constitute a permanent establishment by design. The reason for this is that cloud computing does not involve sufficient right of use over physical servers. Furthermore, if the cloud customer decides instead to rent the physical servers directly, then this could no longer be called IaaS, and the evaluation would need to shift to the situation of a cloud provider operating its own hardware infrastructure.

¹⁰³⁵ Provided the residence country follows the exemption method of Art. 23A MOECD.

¹⁰³⁶ OECD, *Issues Arising under Article 5 (Permanent Establishment) of the Model Tax Convention*, November 7, 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(19)-15.

B) *Avoidance of Permanent Establishment Status Through Lack of Personnel*

1) *Problem*

658 For cloud providers, a key issue is where to locate personnel (i.e., functions and risks) and assets (i.e., data centers and software intangibles).¹⁰³⁷ Particular attention should be given to the fact that the automation and remote control typical of data center permanent establishments could in theory lead to greater flexibility over the number of on-site and off-site personnel.

659 It is conceivable that a certain degree of double non-taxation could result. This possibility exists when a taxpayer claims that only the activities performed by the personnel physically present at the data center are relevant for permanent establishment status (designated as the restrictive view; see *supra* para. 112). In that case, these activities would more likely fall within the exclusion of auxiliary activities under Art. 5(4)(e) MOECD.¹⁰³⁸ This would rule out permanent establishment status, even for the owner of the data center.

660 The Swiss interpretation of the general definition of permanent establishment is a case apArt. In Switzerland, unlike other countries,¹⁰³⁹ a subcontractor's activity generally cannot be attributed to the taxpaying principal.¹⁰⁴⁰ If a Swiss data center is maintained solely by a subcontractor's employees, the activity there could not be attributed to the principal. Surprisingly, that would result in a cloud

¹⁰³⁷ TIAN, P. 48.

¹⁰³⁸ See *supra* para. 331.

¹⁰³⁹ For instance, Italy (*Agenzia delle Entrate, Direzione Centrale Normativa e Contenzioso*, ruling no. 119 of May 28, 2007).

¹⁰⁴⁰ LUDWIG, pp. 10 f.; SCHELLING, p. 218; contra: OBERSON/PIAGET, p. 369, specifying, also in relation to Art. 5(1) MOECD, that the personnel may be rented from a third party.

provider not having a permanent establishment at the data center. Thus, a cloud provider owning and operating a data center in Switzerland would be able to avoid permanent establishment status by contracting with a third party to supply the on-site personnel.¹⁰⁴¹ Even a specialized member of the taxpayer's corporate group of enterprises, which is bound to the taxpayer by a particularly intense bond of trust and is therefore more suitable for the task, can supply the personnel with the same effect.

2) *Connection with Cloud Computing*

Cloud computing business depends heavily on large and specialized data centers. In the future, it is possible that most data centers will, to an increasing extent, rely on cloud computing technology or business models. Therefore, if data centers are increasingly automated or operated from a remote location, this may indirectly have significant implications for cloud computing.

661

3) *Risk Level*

Today, automation and remote control are gradually reducing the need for on-site staff at data centers.¹⁰⁴² As a result, the risk of avoidance of permanent establishment status is increasing, if one considers such status to be dependent on the physical presence of personnel.

662

¹⁰⁴¹ Concerning the definition of permanent establishment in Swiss domestic law, OBERSON/PIAGET, p. 369, consider the presence of server maintenance personnel to be necessary, but specify that such personnel may be rented from a third party. Given that the subcontractor works solely for X Corp., an extended attribution of activity could be applied to permanent establishments as defined in Swiss domestic law (see *supra* para. 197). Thus, the problem seems to exist only at the level of Art. 5(1) MOECD.

¹⁰⁴² COMPUTER ECONOMICS, *Data Center Staffing Drops Sharply*, September 2015, <https://www.computereconomics.com/article.cfm?id=2135> (last viewed July 2, 2020).

663 However, such a view is due to the uncertain legal consequences of automation and remote control (see *infra* para. 724). The rules do not entirely preclude the possibility of including remote control among the factors determining permanent establishment status (see *supra* paras. 111 f.). However, the attribution of profits is currently still dependent on a contrary interpretation of the arm's length principle (see *infra* paras. 744 f.). Consequently, it is unlikely that large portions of the taxable profit will be attributed to permanent establishments engaged in automated and remote-controlled activities (see *supra* para. 530).

664 A similar problem arises where the supply of on-site personnel is outsourced in an attempt to take advantage of the restrictive Swiss interpretation of Art. 5(1) MOECD and thereby avoid permanent establishment status. The ease with which such outsourcing can occur shows that the activity of the on-site personnel is not necessarily the activity that is most essential and significant to the core business of an enterprise. Considering that the core business of most cloud providers is not the hardware level, but the software level, the outsourcing of at least parts of the on-site hardware operation team seems plausible. If there are tax incentives to do so, it becomes even more likely.

4) *Conclusion*

665 It is possible that, like the OECD, some jurisdictions interpret the permanent establishment concept and the arm's length principle inconsistently. An inconsistent approach to automation and remote control in these two respects may lead to a risk of misalignment between taxation and value creation. So far, however, there have been no efforts to resolve this matter directly.

666 Furthermore, the restrictive Swiss view that the activities of subcontractors can never be attributed to their principal for the business activity test creates a risk of tax avoidance. It shows that the focus on on-site personnel is fundamentally flawed.

C) *Avoidance of Permanent Establishment Status Through Outsourcing*

1) *Problem*

It has been established that the existence of a permanent establishment at the location of the server infrastructure depends on the taxpayer having the right to use that physical infrastructure. It may be assumed that ownership and rental of the physical infrastructure provide that kind of right of use, while IaaS and web hosting contracts do not. As a result, if contracts that grant a right of use sufficient for the constitution of a permanent establishment are replaced with contracts that do not provide for sufficient right of use, permanent establishment status can be avoided.¹⁰⁴³

667

In other words, cloud computing businesses could determine whether or not they qualify for permanent establishment status through the mere manipulation of contracts.¹⁰⁴⁴ This may be considered a problem whenever both kinds of contracts basically serve the same business purpose and the choice becomes predominantly or even purely tax-driven. The business purpose remains the same when the control over the assets is maintained. This can be done by outsourcing the assets in question to a subsidiary and concluding a web hosting or cloud hosting agreement with it (similar to a sale and leaseback transaction).

668

Outsourcing raises an additional issue for data centers: it changes the point of reference for permanent establishment status. The characterization of a permanent establishment's activity as a core business of the enterprise depends on the enterprise. As soon as a data center is transferred from the parent to the subsidiary, permanent establishment status must be assessed in relation to the

669

¹⁰⁴³ This critique is also implied in SCORNOS, p. 5, and KJÆRSGAARD, p. 415.

¹⁰⁴⁴ SINEWE/FRASE 2011, p. 2201.

core business of the subsidiary, no longer that of the parent. From this observation, additional concerns of tax avoidance may ensue.

2) *Connection with Cloud Computing*

670 What is known of the background to Amazon Web Services (AWS) may serve as an example of the kind of restructuring alluded to above.¹⁰⁴⁵ Through this kind of restructuring, it is now theoretically possible to flip a permanent establishment into and out of existence at will, merely by transferring it between subsidiaries with different core businesses. A prominent example from the history of cloud computing illustrates the problems to which this may give rise. AWS¹⁰⁴⁶ was supposedly born out of an internal demand for cloud computing. Amazon, a company best known for the online shop amazon.com, originally specialized in the international sale of books. It needed to develop the use of virtual servers allowing it to allocate computing resources within its data centers more flexibly. Cloud computing was outsourced only after it had proved to be well accepted within Amazon. The newly created subsidiary AWS took over the cloud business and began to offer its services to both external and internal customers (i.e., to Amazon group companies and to the public).

¹⁰⁴⁵ On CEO Andy Jassy's version of the background story, see, e.g., MILLER, RON, *How AWS came to be*, TechCrunch, July 2, 2016, <https://techcrunch.com/2016/07/02/andy-jassys-brief-history-of-the-genesis-of-aws/> (last viewed July 2, 2020); FOURIER, JOHN, *Exclusive: The Story of AWS and Andy Jassy's Trillion Dollar Baby*, Medium, January 29, 2015, <https://medium.com/@furrier/original-content-the-story-of-aws-and-andy-jassys-trillion-dollar-baby-4e8a35fd7ed> (last viewed July 2, 2020). Apart from these sources, there are no official written AWS documents or scientific accounts retracing the origins of AWS. Although reflecting the situation of Amazon Web Services, the following example is intended to serve as an illustration. Such transactions could well have occurred in other settings and might occur in the future.

¹⁰⁴⁶ Amazon Web Services is currently the world leader in the kind of cloud provided by X Corp. in the case studies presented earlier in this thesis (i.e., IaaS), see *supra* paras. 14 f.; see also LI/YANG/KANDULA/ZHANG, p. 3.

Therefore, the history of Amazon cloud computing services divides into two distinct periods. First, the data centers¹⁰⁴⁷ were used only within the enterprise. The activity's point of reference was Amazon's core business, namely the sale of books. At that time, the data centers performed only an auxiliary activity and therefore were not permanent establishments.¹⁰⁴⁸ The OECD COMMENTARY considers the running of servers as preparatory or auxiliary to an activity consisting in the sale of physical goods over the Internet.¹⁰⁴⁹ The data centers were then used for providing services to other Amazon group members and the public. In this second period, the point of reference shifted from the core business of the Amazon group as a whole to the core business of AWS (i.e., the provision of cloud services). As a result, the data centers were no longer performing preparatory or auxiliary services¹⁰⁵⁰ and could therefore be considered permanent establishments. What had changed was not the activity performed in

¹⁰⁴⁷ It is irrelevant to the right-of-use requirement whether use of the data centers is by virtue of ownership, rental, or other means; see OECD COMMENTARY, Art. 5, para. 10.

¹⁰⁴⁸ Indeed, there is a difference between *direct* and *indirect* electronic commerce. In direct electronic commerce, the product is delivered electronically, whereas in indirect electronic commerce only the customer's order is sent electronically, with the goods themselves being delivered by physical mail or the service performed personally on site (NOËL, p. 258; LEHMANN, pp. 1 f.). Before the commercialization of the cloud, Amazon's core business was mainly indirect electronic commerce, whereas now AWS mainly performs direct electronic commerce. The expression "electronic commerce" has come to be used frequently with the meaning of indirect electronic commerce only.

¹⁰⁴⁹ OECD COMMENTARY, Art. 5, para. 130. The OECD COMMENTARY is implicitly alluding to the difference between direct and indirect electronic commerce. On that distinction, see *supra* note 1048.

¹⁰⁵⁰ The data centers were, on the one hand, performing the same activity as the core business of the enterprise (see OECD COMMENTARY, Art. 5, para. 59) while, on the other hand, also performing their activity on behalf of other enterprises (see OECD COMMENTARY, Art. 5, para. 75).

the data centers but the core business forming the point of reference.¹⁰⁵¹

672 For the parent company Amazon, the direct ownership or rental of the data centers was replaced by a web hosting or cloud hosting contract. Thereby, the server infrastructure, which continued to perform the same business function as previously (i.e., serving as the hosting infrastructure for the Amazon webshop), remained under Amazon's control. The hosting services should be remunerated in accordance with the arm's length principle. The profits generated by those services, which can be distributed to the parent company at any time, are taxable as income for the parent company (see Art. 10 MOECD).

3) *Risk Level*

673 If the business outsources its data centers to a third party, there may be tax savings, but there is no reason to consider them as objectionable or a product of tax avoidance. The transactions described can only be considered as instances of tax avoidance if the newly restructured group maintains control over the assets at a level that is similar to that of an economic owner. If, however, the original owner of the permanent establishment truly and fully transfers control over the permanent establishment and its assets to the acquirer, be it a subsidiary or not, there is no need to consider tax avoidance, as the transferor can no longer draw any economic advantage from the transferred permanent establishment.

674 It is possible to assume that the outsourcing of a business activity into a new specialized subsidiary is a relatively common restructuring

¹⁰⁵¹ Although they were now performing the activity also on behalf of other enterprises (see *supra* para. 130), what matters is whether or not those other enterprises were outside the Amazon group. If they were not, then both conditions mentioned above would always be fulfilled in the event of outsourcing.

pattern (so-called spin-off).¹⁰⁵² Its tax consequences are well established. For example, the reconsideration of permanent establishment status after restructuring is one possible consequence.¹⁰⁵³ The web hosting service remuneration paid by the parent company to the subsidiary must conform to the arm's length principle and the profits distributed to the parent company therefrom are taxable as dividends. The subsidiary pays its own taxes based on its income from the use of the data centers. Therefore, a manipulation of contracts as explained does not per se create an opportunity for tax avoidance, so the risk of tax avoidance being the motivation for such occurrences is low. Outsourcing of this kind makes a data center more likely to constitute a permanent establishment, on account of the specialization of the subsidiary's core business, which is not what would be expected of a tax avoidance scheme.

On the possibility of deriving tax advantages from locating the subsidiary in a low-tax jurisdiction, see *infra* paras. 704 f.

675

4) Conclusion

The replacement of a rental contract with a web hosting contract is easily imaginable, and outsourcing the operation of the data center to a newly created subsidiary providing the web hosting would help in maintaining control over the assets. However, there are no significant

676

¹⁰⁵² However, the reassessment of the business activity test may be a relatively new phenomenon and has been the subject of little study. DANON 2005, p. 274, states, without further explanation, that "*dans la règle*" (i.e., as a rule) there is no change to limited tax liability status. There may be many reasons for this. Data centers are a type of permanent establishment that offers great flexibility concerning the ways in which it may be used. This might be the reason why two enterprises with very different core businesses can nonetheless use the same data center as a permanent establishment with the same basic activity. The multi-use quality may be new to permanent establishments and explain the lack of studies on the change in permanent establishment status.

¹⁰⁵³ FROTSCHER, para. 267.

opportunities for tax avoidance in this arrangement, as the subsidiary and the parent company are both equally liable to tax.

§ III. Avoidance of Withholding Taxes

A) Problem

677 It has been argued that cloud computing is a means of avoiding withholding taxes on royalties pursuant to DTA provisions based on Art. 12 MOECD.¹⁰⁵⁴ This possibility is ascribed to the fact that cloud computing generally does not transfer the software code to the source jurisdiction (see *supra* paras. 489 f.).

B) Connection with Cloud Computing

678 The above argument assumes that most transfers of software code necessarily lead to a withholding tax based on Art. 12 MOECD. This assumption is wrong. The application of Art. 12 MOECD is not triggered by the transfer of the software code by itself but only by the transfer of a partial substantial copyright (i.e., a software license). It is indeed debatable whether withholding taxes may not have been more frequent in traditional transactions unrelated (or unspecified) to cloud computing. However, such considerations should have no impact on the evaluation of the taxation of cloud computing.

679 While not transferring a software code is a powerful argument against the existence of a license, the transfer of a software code is not an argument in favor of a license. If a transaction actually involved the transfer of the software code, the contracts would need to be analyzed to check whether a license agreement was intended. It would be wrong to accuse cloud computing of encouraging

¹⁰⁵⁴ See, e.g., GÓMEZ REQUENA, P. 413; TIAN, PP. 49 f.

withholding tax avoidance unless it can be shown to have caused a decrease in the number of license agreements.

In fact, cloud-specific transactions are not substitutable to license agreements subject to Art. 12 MOECD. In principle, cloud-specific transactions by definition only cover cases of self-use, which are not subject to Art. 12 MOECD (see *supra* para. 488). In other words, a cloud customer does not acquire SaaS for the purpose of reproducing, distributing, modifying, or publicly displaying the software code. For these purposes, a customer would need to acquire the software code too (which would make it a different kind of customer). Therefore, cloud computing is unlikely to have caused a decrease in the number of license agreements subject to Art. 12 MOECD.

The fact that treaty characterization offers more certainty for cloud-specific transactions than it originally did for ordinary software transactions is to be applauded. By adding the argument concerning the transfer of the software code, treaty characterization no longer depends on difficult and uncertain interpretations of contracts and behavior. Taxpayers who originally did not intend to enter into a license agreement should not have withholding tax regimes applied to them after the event.

C) Risk Level

Considering the nature of cloud computing, there is only a low risk that cloud computing could be used to avoid withholding taxes on royalties, provided the rules remain as explained previously.¹⁰⁵⁵

¹⁰⁵⁵ From the perspective of Spain (the home country of the aforementioned author GÓMEZ REQUENA; see *supra* note 1054), as well as Greece, Mexico, Portugal, and the Slovak Republic, this is less certain to be the case, as the application of the “business use” or “self-use” exception to Art. 12 MOECD has been restricted through an observation added to the OECD COMMENTARY, Art. 12, paras. 28, 30, and 31. Although

D) Conclusion

683 Generally, cloud computing serves a purpose that lies outside the scope of Art. 12 MOECD. Therefore, it is unlikely that it could be used to avoid being caught by Art. 12 MOECD.

§ IV. Transfer Pricing

A) Difficulty of Valuing Intangibles

1) Problem

684 An intangible is not easy to define and, therefore, not easy to identify.¹⁰⁵⁶ In ICT-related transactions, intangibles are often bundled with services, goods, and other intangibles.¹⁰⁵⁷ Furthermore, intangibles are seldom transferred between unrelated parties, making comparables hard to find.¹⁰⁵⁸ Therefore, they are difficult to value. Sometimes, cloud computing businesses are accused of deliberately combining intangibles and services in single transactions to make them harder to value.¹⁰⁵⁹ At other times, it is simply acknowledged that intangibles are valued differently depending on the place and time, and that multinational enterprises may be able to take advantage of the uncertainties this creates.¹⁰⁶⁰

Spanish case law does not seem to have made much use of this restriction, a detailed survey of relevant domestic law is beyond the scope of the present thesis.

¹⁰⁵⁶ OECD TPG, para. 6.5.

¹⁰⁵⁷ TIAN, P. 57; KRAUZE, P. 143; similarly and in more detail: PORTNER 2001, PP. 92 f.

¹⁰⁵⁸ KRAUZE, P. 142; see also ROBINSON, P. 1273, regarding ICT-based business in general.

¹⁰⁵⁹ TIAN, P. 52.

¹⁰⁶⁰ MAZUR 2016, p. 675; TIAN, P. 53.

Among other things, international tax rules act as an incentive to set up a specialized company¹⁰⁶¹ to hold a group's intellectual property rights in a low-tax jurisdiction. The group's profits can thereby be absorbed into that company as license fees and taxed there at a more favorable rate. The challenge for tax advisers lies in how they should use the current domestic and international rules of international taxation to set up such a structure and, in so doing, avoid taxes that would otherwise make the use of such intellectual property rights management economically unviable.

685

Reportedly, so-called cost contribution arrangements (CCAs)¹⁰⁶² may be used with the same effect as transferring property to the intellectual property rights company without necessarily triggering the same tax consequences.¹⁰⁶³ "A CCA is a contractual arrangement ... to share the contributions and risks involved in the joint development, production or the obtaining of intangibles, tangible assets or services" with a view to creating benefits for the individual parties to the agreement.¹⁰⁶⁴ In the development of intangibles, each

686

¹⁰⁶¹ In many cases, more than one intellectual property rights company may be set up for various reasons. For instance, Hewlett Packard allocated short-term debts alternately to two intellectual property rights companies in order to finance the US entities while avoiding substitute dividend taxation in the United States (*Hearing Before the Permanent Subcommittee on Investigations of the Committee on Homeland Security and Governmental Affairs, United States Senate, One Hundred Twelfth Congress, Second Session, September 20, 2012*, <https://www.govinfo.gov/content/pkg/CHRG-112shrg76071/pdf/CHRG-112shrg76071.pdf>, last viewed July 2, 2020, p. 191).

¹⁰⁶² Similar arrangements are found in the United States (cost sharing arrangement or "CSA") and Germany (pool); see HANKEN, p. 224. Furthermore, it is common practice to propose a profit allocation agreement between the different points of presence, which provides that a certain ratio of the total profit of the enterprise shall be allocated to the permanent establishment depending on its performance. Such agreements allow the parties to predefine the method to be used to measure that performance.

¹⁰⁶³ LEHNER, pp. 439 f., see also OECD TPG, para. 8.11. On their equivalence to the transfer of property, see PINKERNELL 2013, p. 182; see also VLASCEANU, p. 223.

¹⁰⁶⁴ OECD TPG, para. 8.3.

CCA member will contribute capital, risk-mitigation functions, actual R&D, preexisting intangibles on which the new intangible can be based, or control over any of the previous elements and, in return, will acquire a right of ownership in, or a license to exploit, the developed intangible. In principle, the same transfer pricing rules apply to CCAs as to any other contractual arrangement between associated enterprises.¹⁰⁶⁵ This means that the contributions of each CCA member should be commensurate with the benefits expected from exercising the exploitation rights in the developed intangible. Likewise, the greater a member's contributions to the CCA are in comparison to those of other members, the more extensive will be that CCA member's exploitation rights.¹⁰⁶⁶

687 At the start of an intangible's development, the potential future benefit may be risky, and therefore the buy-in payment made by an entity to become a co-owner of the intangible should be relatively low. However, when the benefit turns out to be greater than expected, it can potentially far outweigh the cost of such a buy-in. For instance,¹⁰⁶⁷ a CCA member A may contribute to the CCA an unfinished version of a software program in which it alone holds the copyright. If another CCA member B makes contributions that double the value of the software, B will have earned a 50 percent ownership right in the copyright or an exploitation license of equivalent value.

2) *Connection with Cloud Computing*

688 Software copyright intangibles comprise a large portion of the assets of leading multinational cloud providers. These copyright intangibles

¹⁰⁶⁵ Ibid., para. 8.4.

¹⁰⁶⁶ Ibid., para. 8.13.

¹⁰⁶⁷ On the *Google* case, see, e.g., VAN DEN HURK, p. 29.

are mostly created in the United States,¹⁰⁶⁸ but the software they protect is used in data centers around the world. If no tax strategies were employed, the data centers would have to pay significant license fees to the head office in the United States, where they would be taxed at a relatively high rate and might even be liable for withholding taxes on the licensing fees at the data center locations, possibly resulting in double taxation.

A CCA may be used to transfer intangibles and the associated profits from the developers in the US head office to a data center or to a separate intellectual property rights company in a low-tax jurisdiction. The creation of the intellectual property rights company¹⁰⁶⁹ and its funding are tax-free.¹⁰⁷⁰ The use of an intangible by a company specially tasked with the administration of a data center would justify the payment of higher transfer prices to that company by any of the group's entities located in higher-tax jurisdictions. Thereby, the group's overall tax burden would be lowered.

There are advantages to be gained from transferring intellectual property rights to a specialized company through a CCA.¹⁰⁷¹ The US Tax Court's *Amazon* case,¹⁰⁷² the EU Commission's *Apple* state aid

¹⁰⁶⁸ See, e.g., the decision of the US Tax Court of March 23, 2017, *Amazon.com, Inc. & Subsidiaries v. Commissioner of Internal Revenue*, 148 T.C. No. 8, Docket No. 31197-12, p. 57: “[v]irtually all technological innovation occurred within Amazon US.”

¹⁰⁶⁹ As a subsidiary or a parent company.

¹⁰⁷⁰ Under US law; see PINKERNELL 2013, pp. 181 f. This is also the case in Switzerland; see Art. 60(a) DTC.

¹⁰⁷¹ See *supra* para. 686.

¹⁰⁷² Decision of the US Tax Court of March 23, 2017, *Amazon.com, Inc. & Subsidiaries v. Commissioner of Internal Revenue*, 148 T.C. No. 8, Docket No. 31197-12, p. 57: “[v]irtually all technological innovation occurred within *Amazon US*” (emphasis added).

case,¹⁰⁷³ and maybe schemes within other large cloud providers¹⁰⁷⁴ all concerned, among other things, the correct application of arrangements that would qualify as CCAs according to OECD terminology. Interestingly, the CCAs underlying the US *Amazon* case were effective as of April 30, 2006,¹⁰⁷⁵ the very year in which the first large public cloud service was released.¹⁰⁷⁶ While this may be a coincidence (the US *Amazon* case did not concern cloud computing in particular), it may be that Amazon's cloud computing business benefited from this intellectual property rights management arrangement in subsequent years.¹⁰⁷⁷

691 In the cloud computing business, a CCA is imaginable when several points at which a multinational group or enterprise is present come together to develop a software program that they wish to exploit as a cloud service. The research centers will more often than not be at the head office in the United States, and the non-US data centers will want to use the software to deploy the cloud service. Alternatively,¹⁰⁷⁸ when a centralized private cloud provider within a multinational group

¹⁰⁷³ Decision of the EU Commission of August 30, 2016 on state aid SA.38373 (2014/C) (ex 2014/NN) (ex 2014/CP) granted by Ireland to Apple, pp. 36 f.

¹⁰⁷⁴ With regard to Google, see VAN DEN HURK, p. 29; SOKATCH, p. 738; see also Alphabet Inc. and Google Inc. form 10-K for the year 2015, https://abc.xyz/investor/pdf/20151231_alphabet_10K.pdf (last viewed July 2, 2020), p. 92. With regard to Microsoft, see Australian Senate Economics Reference Committee hearing of August 22, 2017, http://parlinfo.aph.gov.au/parlInfo/download/committees/commsen/26ec9adf-e36b-4f6d-802a-c0ecbabb6c83/toc_pdf/Economics%20References%20Committee_2017_08_22_5408_Official.pdf;fileType=application%2Fpdf (last viewed July 2, 2020), p. 22, concerning "US cost-share rules."

¹⁰⁷⁵ Decision of the US Tax Court of March 23, 2017, *Amazon.com, Inc. & Subsidiaries v. Commissioner of Internal Revenue*, 148 T.C. No. 8, Docket No. 31197-12, p. 26.

¹⁰⁷⁶ See *ibid.*, p. 47.

¹⁰⁷⁷ The Tax Court held that cloud computing technology was not part of property transferred under the cost sharing arrangement (*ibid.*, p. 119).

¹⁰⁷⁸ OECD TPG, para. 8.11. The OECD Guidelines distinguish between two broad categories of CCAs, namely services CCAs and development CCAs (OECD TPG, para. 8.10).

deploys a standard cloud service, the group may decide to have recourse to a CCA to distribute the costs relating to the centralized IT services, as well as the development and maintenance of the software deployed as a service.¹⁰⁷⁹

In the case of a CCA for the development of software, the unique and valuable nature of the software intangible will naturally make it more difficult to value. Comparables may be hard to find due to a lack of available data on similar software or because openly accessible market prices are unreliable and opaque.¹⁰⁸⁰

However, there does not seem to be a direct connection between cloud computing technology or business models and tax avoidance through the use of intangibles. Although software copyrights may be difficult to value and more abundant in the ICT business, the same can be said of intangibles in many other kinds of businesses. The connection with cloud computing is weak.

3) Risk Level

Given the relatively large amount of case law on the appropriate use of CCAs, the valuation of intangibles, and their development costs, the risk seems particularly high (see *supra* paras. 686 f.). However, it should be noted that the OECD BEPS plan¹⁰⁸¹ and US regulations¹⁰⁸²

¹⁰⁷⁹ See MAZUR 2016, p. 675.

¹⁰⁸⁰ See *supra* para. 43.

¹⁰⁸¹ One of the main goals pursued throughout the entire OECD BEPS project, starting in 2013, was “a realignment of taxation and relevant substance” (OECD, *Action Plan on Base Erosion and Profit Shifting*, Paris July 2013, p. 13).

¹⁰⁸² As of December 16, 2011, a mere investor, lacking any minimal research resources of its own, could not derive from a CCA a benefit beyond a reasonable return on investment for those business functions: DEPARTMENT OF TREASURY, INTERNAL REVENUE SERVICE, *26 CFR Parts 1, 301, and 602/Section 482: Methods To Determine Taxable Income in Connection With a Cost Sharing Arrangement*, *Federal Register*, vol. 76, no. 246, December 22, 2011, Rules and Regulations, <https://www.gpo.gov/fdsys/pkg/FR-2011-12-22/pdf/2011-32458.pdf> (last viewed July 2, 2020); see also PINKERNELL 2013, p. 182, note 18.

introduced several measures to reduce this kind of tax avoidance. For instance, a harmonized definition of intangibles was proposed,¹⁰⁸³ renewed emphasis was placed on the development of intangibles,¹⁰⁸⁴ special regulations were introduced for intangibles that were hard to value,¹⁰⁸⁵ the guidance on CCAs was reviewed,¹⁰⁸⁶ etc.

695 In this respect, it is interesting to consider an illustrative example provided by the OECD:¹⁰⁸⁷ An enterprise (called “Shuyona” in the example) cannot expect to shift residual CCA benefits to a manufacturing subsidiary with no research personnel located in a lower-tax jurisdiction just because the subsidiary receives funding from it and assumes the contractual responsibility for any developmental risks. The risk remains under the control of the principal enterprise that actually performs the R&D activity. The OECD concludes that the subsidiary is entitled to nothing more than the risk-free return on its funding activity.

696 It remains to be seen how jurisdictions will apply these measures in their case law. Given that not all enterprises value tax certainty over

¹⁰⁸³ OECD TPG, para. 6.6.

¹⁰⁸⁴ See Example 14, “Shuyona,” at paras. 46 f. in the annex to chapter VI of the OECD TPG, first published in: OECD, *Aligning Transfer Pricing Outcomes with Value Creation, Actions 8–10/2015 Final Reports*, Paris October 2015, pp. 127 f.; the essence of these examples was already present in pre-BEPS OECD TPG, paras. 8.20 f. and 8.29 f.

¹⁰⁸⁵ Apparently, these rules were inspired by the US regulations (PENELLE, PHILIPPE, *The OECD hard-to-value intangible guidance, International Tax Review*, April 11, 2017, <http://www.internationaltaxreview.com/Article/3709003/The-OECD-hard-to-value-intangible-guidance.html> (last viewed July 2, 2020).

¹⁰⁸⁶ In principle, BEPS Action 8 required that the potential balancing payments between CCA members be based on the actual value contributed rather than cost (see OECD TPG, para. 8.14). Additionally, each CCA member is now required to have control over the risks it assumes under the CCA (OECD TPG, para. 8.15). This can be considered an attempt by the OECD BEPS program to realign taxation with the substance of a CCA (i.e., the actual value of the contributions).

¹⁰⁸⁷ The following paraphrase of Example 16 in the annex to chapter VI of the OECD TPG is drawn from: OECD, *Aligning Transfer Pricing Outcomes with Value Creation, Actions 8–10/2015 Final Reports*, Paris October 2015, pp. 129 f.

tax minimization,¹⁰⁸⁸ it is difficult to predict the overall impact the additional tax uncertainty will have on the aggressiveness of transfer pricing strategies.

4) *Conclusion*

Intangibles (especially software intangibles) are common in the cloud computing business. There is a loose connection with cloud computing business models. However, the taxation rules for intangibles have recently been changed and the overall risk of taxation may have been significantly reduced.

697

B) *Effects of Cost Savings on Transfer Pricing*

1) *Problem*

The use of certain transfer pricing methods is alleged to be more problematic in the cloud computing context. One example is the excessive use of those described as “one-sided,” such as the transactional net margin method. Where the tested party is the cloud customer, the residual profit may be attributed to the cloud provider as the party holding intangibles.¹⁰⁸⁹ If the cloud provider is in a lower-tax jurisdiction, this method could at first glance seem to be an opportunity for tax avoidance.

698

In addition, the cost savings commonly created by cloud computing¹⁰⁹⁰ will increase residual profit, which, in turn, will be

699

¹⁰⁸⁸ See KLASSEN/LISOWSKY/MESCALL, P. 487.

¹⁰⁸⁹ MAZUR 2016, p. 676.

¹⁰⁹⁰ For more information on the creation of these cost savings through the replacement of regular hosting with cloud computing, see, e.g., HONG/XUE/THOTTETHODI. Also, on the reduction of costs through the use of ICT as opposed to brick-and-mortar business, see PORTNER 2001, p. 93; LEHMANN, p. 10. For an example of how cost savings through ICT are often accompanied by increases in transaction value, see *supra* note 981.

attributed to the holder of the software intangibles. If that entity is in a jurisdiction that applies lower tax rates than the jurisdiction where the tested party is located, the overall tax burden of the group is further reduced.¹⁰⁹¹ It is easier to overestimate the value of a software program intangible than the more easily quantifiable costs of running a data center.

2) *Connection with Cloud Computing*

700 When dismantling local, self-owned server infrastructure and outsourcing IT services to the cloud, cloud customers may incur cost savings that would increase taxable income in their jurisdiction.¹⁰⁹² Such cost savings can lead to tax savings only if they are coupled with the outsourcing of a business function to a group member located in a low-tax jurisdiction.¹⁰⁹³ Whenever cloud computing services replace internal hosting and IT infrastructure, the question arises as to how the resulting cost savings should be distributed among the group members.

3) *Risk Level*

701 Generally, tax deductions are accepted only when they are warranted on commercial grounds.¹⁰⁹⁴ Hence, tax savings obtained from outsourcing self-owned server infrastructure to lower-tax jurisdictions will be accepted—and probably occur—only when they are commercially justified. Whether any savings should be passed on to other group members via transfer prices should be determined on the basis of the arm's length principle and comparable uncontrolled

¹⁰⁹¹ MAZUR 2016, pp. 675 f.

¹⁰⁹² *Ibid.*, p. 670. It should be noted that such cloud customers also lose the ability to deduct the depreciation and acquisition costs of their assets from their taxable income, which may reduce the overall savings.

¹⁰⁹³ *Ibid.*, p. 676.

¹⁰⁹⁴ See Arts. 58(1)(b) and 59 DTC.

transactions.¹⁰⁹⁵ Where a “one-sided method,” such as the transactional net margin method, leads to unreliable results, this is not a proper application of the arm’s length principle. The OECD has already stated that a one-sided method may often be inappropriate when used to capture highly integrated business models.¹⁰⁹⁶

Furthermore, the adoption of cloud computing may not always result in an overall drop in costs. Although the services that are replaced with the cloud may see their costs decrease, they could be combined with a multitude of other benefits and services delivered through the cloud, which might even cause costs to increase.

702

4) *Conclusion*

There is no reason automatically to consider cost or tax savings resulting from cloud computing as tax avoidance. However, tax avoidance connected to the shifting of business functions to low-tax jurisdictions is a separate matter and will be discussed in the following section.

703

C) ***Shifting of Business Functions to Low-Tax Jurisdiction***

1) *Problem*

An effect similar to that resulting from a permanent establishment intentionally created in a low-tax jurisdiction can be achieved through the creation of a subsidiary. It has been suggested¹⁰⁹⁷ that, as a result of the Internet, multinational groups have considerable freedom to choose the most tax-efficient jurisdiction in which to locate an

704

¹⁰⁹⁵ On location savings in particular, see OECD TPG, paras. 1.141 f.

¹⁰⁹⁶ *Ibid.*, para. 2.120, referring to 2.133 (as revised in June 2018).

¹⁰⁹⁷ Notably by MAZUR 2016, p. 671; TIAN, p. 48; SCORNOS, p. 5, references other unnamed authors.

intragroup cloud service provider function, and that their ability to do so is further facilitated by the possibility of having personnel work from remote locations.¹⁰⁹⁸ This is a problem because it is considered unjustified that a jurisdiction should acquire a basis on which to tax a business that does not have a sufficient geographical connection with it (so-called benefit principle or origin of wealth principle).¹⁰⁹⁹

2) *Connection with Cloud Computing*

705 The main flaw in this argument is that it regards cloud computing data center permanent establishments and subsidiaries as having no economic connection with the jurisdictions in which they are located. It is sometimes based on the assumption that the business models in question depend on single servers that are mobile. However, this is not the case.

706 Modern, competitive business models are based on data centers.¹¹⁰⁰ The location of a data center (whether automated or not) depends on many other factors that are not tax related. These include, for instance, local power cost, availability, and sustainability; network presence and infrastructure; latency; risks and disasters; land cost; operating costs; the quality and cost of the local work force; and the

¹⁰⁹⁸ MAZUR 2016, p. 672.

¹⁰⁹⁹ According to the frequently invoked benefit principle, an enterprise should be taxed in a jurisdiction in return for the public services it receives from it (see KRAUZE, p. 150, doubting this argument, although without much explanation of his views on the substantiality of today's technology infrastructure). The origin of wealth principle is an essentially equivalent concept used by the OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, p. 167, referring to only one part of the doctrine of economic allegiance proposed by BRUINS, GIJSBERT/EINAUDI, LUIGI/SELIGMAN, EDWIN/STAMP, JOSIAH, *Report on Double Taxation Submitted to the Financial Committee*, League of Nations, Economic and Financial Commission, Doc. E.F.S.73.F.19, April 1923, pp. 20 f., especially p. 23.

¹¹⁰⁰ On data centers generally, see *supra* para. 52.

availability of green technology.¹¹⁰¹ It should be noted, in particular, that latency tends to cause data centers to be placed nearer to the physical location of their market jurisdiction. Certain legal restrictions having the same effect also need to be taken into account.¹¹⁰² In this regard, cloud providers are not as mobile as the makers of tax rules seem to think.

Sometimes, cloud services are not provided via the Internet or the World Wide Web, but rather through intragroup networks. Certain kinds of data centers need to be close to certain geographical locations to ensure minimal latency (e.g., physical servers hosting automated trading services need to be near the stock market). Further, legislation (data protection rules, criminal law, copyright law, etc.) may prevent a cloud provider from using data centers in jurisdictions that do not provide an adequate standard of protection. Finally, data centers require highly specialized personnel, which means that an appropriate local labor market must be available. In sum, it cannot be said that a data center has no connection with the jurisdiction in which it is constructed and, thus, the freedom to choose whichever jurisdiction is most tax-efficient is not without limits.

707

¹¹⁰¹ DATAQUEST, *Top 10 Criteria for Data Center Location*, February 23, 2013, <https://www.dqindia.com/top-criteria-for-choosing-data-center-location/> (last viewed July 2, 2020); BOLEMY, STEPHEN, *New Factors determine data center location*, May 9, 2017, <https://www.datacenterdynamics.com/opinions/new-factors-determine-data-center-location/> (last viewed July 2, 2020); MENA, MARISSA/MUSILLI, JOHN/AUSTIN, Ed/LEE, JEFF/VACCARO, PAUL, *Selecting a Data Center Site: Intel's Approach*, IT@Intel White Paper, February 2014, <https://www.intel.com/content/dam/www/public/us/en/documents/white-papers/selecting-a-data-center-site-intels-approach-paper.pdf> (last viewed July 2, 2020). Switzerland's biggest arguments for attracting data center business are political stability and a reliable electricity supply; see MÜLLER, JÜRIG, *Was sich hinter der Cloud verbirgt*, NZZ, March 16, 2017, <https://www.nzz.ch/wirtschaft/was-sich-hinter-der-cloud-verbirgt-eine-wolke-aus-beton-und-stahl-ld.151489> (last viewed July 2, 2020).

¹¹⁰² Depending on the exact nature of the service provided by the data center, certain data protection rules may become important. Further, there may be legal limitations on cloud storage of accounting records; see SINEWE/FRASE 2011, p. 2200.

708 In comparison with hardware infrastructure, personnel seem to be more mobile. Many IT firms allow their workers to work from home,¹¹⁰³ which has created certain taxation problems in jurisdictions where profits are still attributed to the physical location of the worker rather than the place where the work produces its effects (“telecommuting”).¹¹⁰⁴ The future may see more personnel working from a remote location rather than on the premises, in which case the tradition of attributing profits to the physical location of personnel will increasingly deviate from actual value creation. However, although cloud computing may in practice encourage the creation of software that enables telecommuting, the development of telecommuting is not dependent on cloud computing.

3) *Risk Level*

709 The risk of this kind of tax avoidance is not as high in cloud computing as in other, traditionally more mobile businesses (e.g., certain treasury or management functions). This is due to the aforementioned limitations on the mobility of fully connected data centers requiring large sums of investment. Nonetheless, it can be said that taxation will certainly be one of many aspects to be taken into account when deciding upon the location of a data center for cloud computing, given that a significant share of taxable profits may be attributable to that location.¹¹⁰⁵

710 However, this argument lacks the necessary depth, as it touches on some very fundamental distinctions between accepted and legal tax

¹¹⁰³ VMware, SAP, and Amazon do; see the job descriptions at <https://www.flexjobs.com/jobs/telecommuting-jobs-at-vmware>; <https://www.flexjobs.com/jobs/telecommuting-jobs-at-sap>; <https://www.flexjobs.com/jobs/telecommuting-jobs-at-amazon> (all last viewed July 2, 2020).

¹¹⁰⁴ See *infra* para. 972.

¹¹⁰⁵ The shifting of cloud computing business functions seems to be particularly profitable within the European Union; see PINKERNELL 2012a, pp. 337 f.

planning and the applicability of certain anti-avoidance rules (i.e., the valid limits on tax competition between jurisdictions). For instance, the European Court of Justice decided in the *Cadbury Schweppes* case that, in principle, setting up a company in another country is not per se an act of tax avoidance that national tax legislation should prohibit, even if that act's sole purpose is to benefit from more convenient tax laws.¹¹⁰⁶ In that decision, acceptable tax planning becomes unacceptable tax avoidance¹¹⁰⁷ when the arrangement is wholly artificial and aimed at circumventing the application of a jurisdiction's legislation.¹¹⁰⁸

In Switzerland, the Federal Supreme Court has not had to decide on a case exactly equivalent to *Cadbury Schweppes*.¹¹⁰⁹ Nonetheless, the relocation of a business is considered one of the classic examples of acceptable tax planning, provided the business actually gives up all the advantages afforded by the previous location.¹¹¹⁰ The aforementioned argument can be rephrased as follows: the easier it is to relocate a business function to a lower-tax jurisdiction, the greater the risk of tax avoidance. Given current developments in international corporate taxation, such an argument needs additional

711

¹¹⁰⁶ Decision of the European Court of Justice of September 12, 2006, C-196/04, *Cadbury Schweppes*, C-196/04, recitals 49 f.

¹¹⁰⁷ On the significance of the distinction between acceptable tax planning and unacceptable tax avoidance, see *supra* para. 574.

¹¹⁰⁸ Decision of the European Court of Justice of September 12, 2006, C-196/04, *Cadbury Schweppes*, C-196/04, recital 51.

¹¹⁰⁹ The reason why there has been no similar decision is probably that the Swiss equivalent of freedom of establishment (Art. 24(1) Cst.) applies less broadly in Swiss tax law compared to the *Cadbury Schweppes* case (see the decision of the Swiss Federal Supreme Court of July 18, 2012, 2C_1049/2011, recital 5.5, with further references). In particular, the Swiss constitutional freedom of establishment is not applicable to corporations (see BIAGGINI, Art. 24, para. 6).

¹¹¹⁰ HÖHN, p. 144; similarly: OBERSON 1969, pp. 298 f., and, as previously mentioned, WEBER, p. 258, stating that “[t]ransferring a tax residence or a source of income by exercising the freedom of movement is not as such unjustified tax avoidance as long as the transfer is ‘real’ (it has substance; it is not artificial).”

contextualization and justification. So far, however, there has been no additional convincing argumentation in this regard.¹¹¹¹ It would go beyond the purpose of this thesis to attempt to provide it.

4) *Conclusion*

712 The shifting of business functions to permanent establishments or subsidiaries in low-tax jurisdictions can result in significant tax savings. The connection with cloud computing is not as significant as anticipated, as data centers are not as mobile as commonly believed. By contrast, the personnel in a cloud computing business may represent a more mobile business function, as new and ever-advancing forms of telecommuting allow them to be located almost anywhere. Finally, the risk of tax avoidance of this kind can exist only if the shifting of business functions is regarded as unacceptable tax avoidance in and of itself. Yet, there is no immediate reason to consider it as such.

§ V. Enforcement

A) Problem

713 Tax enforcement is said to be more difficult in the context of ICT-based business than elsewhere. Rule makers and commentators assumed that an ICT-based business might not have a physical presence in a jurisdiction to which international tax law attributes (or would attribute) the right to tax. Thus, observers argued, the jurisdiction may be unaware of a tax-triggering fact, or, even if aware of such a fact, might not be able to seize any assets of an ICT-based

¹¹¹¹ This is acknowledged even by the authors of the critique themselves; see MAZUR 2016, P. 673, stating that “shifting functions and assets to low-tax jurisdictions as a means of lowering the overall tax burden of the MNE group is arguably not objectionable in itself.”

business that has none within its territory.¹¹¹² Additionally, analysts used to hypothesize that online payment methods (including cryptocurrencies) would not leave an electronic or paper trail and would hide the identity of the payer, thereby making it impossible to track the geographical origins of such payments.¹¹¹³ Arguably, encryption could also hide tax-relevant information from tax authorities.¹¹¹⁴

B) Connection with Cloud Computing

There is no immediate connection with cloud computing in particular. Cloud providers will likely comply with their tax obligations in a jurisdiction where they possess a data center. Hence, they should not represent a problem for tax enforcement.

714

¹¹¹² DOERNBERG/HINNEKENS, pp. 113 f.; CHETCUTI, JEAN-PHILIPPE, *The Challenge of E-commerce to the Definition of Permanent Establishment: The OECD's Response*, 2002, http://www.inter-lawyer.com/lex-e-scripta/articles/e-commerce-pe.htm#_Toc535050211 (last viewed July 2, 2020).

¹¹¹³ DOERNBERG/HINNEKENS, p. 114; HORNER/OWENS, p. 522. In 2010, the OECD wrote: "In the case of e-commerce, system audit trails may be wholly electronic and contain large volumes of complex data which may be more easily altered or destroyed than their paper equivalents, leaving no record of such actions. In paper-based systems, documents from an external source are usually regarded as possessing an inherently higher degree of credibility than internal documents even before internal controls are applied during entry processing. In e-commerce systems, the credibility of any external electronic document used as audit evidence will depend less on its origins and form and more on the nature, source and reliability of internal controls applied during processing and any additional measures applied to ensure its integrity. In the absence of internal controls and additional measures, an auditor should regard any external electronic record produced as audit evidence as being of little more value than an internal electronic record. Auditors will therefore need to test system controls to validate audit evidence in order to form an opinion of the reliability of the records." (OECD, *Forum on Tax Administration, Guidance Note: Guidance on Test Procedures for Tax Audit Assurance*, Paris April 2010, p. 7) In the present author's view, the same skepticism should be displayed towards paper documentation.

¹¹¹⁴ HORNER/OWENS, p. 522.

- 715 For cloud customers, cloud computing ranks among the services that can be performed in a jurisdiction without having (a significant amount of) physical presence there.¹¹¹⁵ However, cloud customers generally do not incur tax liability at that location. Thus, they are not caught by the enforcement argument.
- 716 It has already been observed that cloud computing requires computer hardware and that users in a market jurisdiction need local computers to be able to interact with cloud computing software. While local client computers currently do not give rise to tax liability for cloud providers,¹¹¹⁶ this might one day change. The unwillingness of legislators to enforce new taxes at the location of the client computer cannot be seen as a practical problem of enforceability caused by cloud computing.

C) Risk Level

- 717 From today's perspective, concerns that direct taxes are less enforceable on ICT-based business must be differentiated. As previously explained, the permanent establishment concept rules out tax liability without a physical presence. Nowadays, large buildings containing data centers constitute this presence and they seem hard to conceal from tax administrations. India has nonetheless introduced an equalization levy, supposedly based on the belief that it is able to enforce this levy on taxpayers with no permanent establishments and maybe even no physical presence in India at

¹¹¹⁵ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 65: "An individual can, for example, reside in one country, purchase an application while staying in a second country, and use the application from a third country... [Furthermore, they can use] virtual personal networks or proxy servers." This issue is discussed *infra* paras. 764 f.

¹¹¹⁶ See *supra* para. 305.

all.¹¹¹⁷ Further, modern international information exchange, whether automatic or on request, and country-by-country reporting, etc., generally make it impossible for international corporations to perform hidden business activities in a jurisdiction.

Compared to paper, electronic records can be monitored far more easily and reliably, with encryption playing a major role in this development. One of the distinctive features of cryptocurrencies is precisely the use of a decentralized and publicly available “blockchain,” an electronic trail documenting all transactions, which cannot be falsified.¹¹¹⁸ Online businesses have been requested to self-report the (admittedly presumed) geographical locations of their customers for VAT¹¹¹⁹ purposes.

718

D) Conclusion

Far from making tax enforcement and administration more cumbersome, ICT-based technologies have mostly bolstered and improved the process of tax administration and will continue to do

719

¹¹¹⁷ See OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, pp. 142 f.; the same could in principle be said of the diverted profits tax in the United Kingdom; see *ibid.*, pp. 149 f.

¹¹¹⁸ Admittedly, the blockchain only contains the references to the public keys of the individual wallets. However, like cash assets, cryptocurrency assets are targeted by the regular self-reporting duties of taxpayers; see DIRECTION GÉNÉRALE DE L'ADMINISTRATION FISCALE CANTONALE DE GENÈVE, *Monnaie virtuelle, déclaration réelle*, <https://www.ge.ch/actualite/monnaie-virtuelle-declaration-reelle-13-02-2018> (last viewed July 2, 2020).

¹¹¹⁹ In Switzerland, see ADMINISTRATION FEDERALE DES CONTRIBUTIONS, TAXES SUR LA VALEUR AJOUTEE TVA, *Infos TVA concernant les secteurs, 13 Télécommunications et prestations de services en matière d'informatique, 4 Lieu des prestations de services en matière d'informatique ou de télécommunications – établissements stables*, <https://www.gate.estv.admin.ch/mwst-webpublikationen/public/pages/sectorInfos/cipherDisplay.xhtml?publicationId=1000066&componentId=1000086&cipherKeyDate=23.06.2020&lang=fr&redirect=true> (last viewed July 2, 2020). In the EU, see Art. 1(2)(d)(i) of the Council Implementing Regulation (EU) No. 1042/2013 of October 7, 2013 amending Implementing Regulation (EU) No. 282/2011 as regards the place of supply of services, in: *Official Journal of the European Union*, L 284/1.

so.¹¹²⁰ ICT-based businesses are no longer harder to administer than other kinds of business (provided that the means of administration evolve in harmony with the technology used in the business). From today's perspective, past concerns over enforcement do not seem sufficiently plausible to affect the recommendations in the present thesis. In particular, physical presence is not always a requirement for the effective enforcement of direct corporate taxes on ICT-based businesses, as the Indian equalization levy seems to demonstrate.

§ VI. Conclusion on Effectiveness and Fairness

720 Cloud computing was not developed in an effort to avoid taxes. The technological and commercial reasons for its development will likely continue to constitute taxpayers' principal motive for adopting the cloud. Some uncertainties exist, which may temporarily exacerbate already existing problems of taxation, such as the difficulty of valuing intangibles (see *supra* paras. 684 f.) or the avoidance of permanent establishment status through lack of personnel (see *supra* paras. 658 f.). However, upon closer inspection, there would seem to be no real justification for some of the accusations of tax avoidance discussed above, such as the avoidance of withholding taxes (see *supra* paras. 677 f.).

721 Even so, it is intriguing to observe how some of today's most important cloud providers, such as Google, Amazon, and Apple, are sometimes seen as a group of taxpayers particularly prone to tax

¹¹²⁰ OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, pp. 202 f.; OECD, *Tax Administration 2017, Comparative Information on OECD and Other Advanced and Emerging Economies*, Paris 2017, p. 29; OECD, *Technologies for Better Tax Administration/A Practical Guide for Revenue Bodies*, Paris 2016; SEER, pp. 19 f.

avoidance.¹¹²¹ Given its strictly juridical and scientific approach, the present thesis must confine itself to arguments based on the inner coherence of the international tax law system, particularly the conformity of the taxation of cloud computing as a business model and technology with the predetermined Ottawa Taxation Framework. Other considerations regarding taxpayer behavior unrelated to cloud computing that can be criticized on the basis of other principles or arguments are beyond the scope of this thesis.

¹¹²¹ Such accusations appear to have led the IT giants to form a special lobby called the Digital Economy Group; see BOWERS, SIMON, *US tech firms make eleventh-hour attempt to halt tax avoidance reforms*, *The Guardian*, January 19, 2014, <https://www.theguardian.com/business/2014/jan/19/tech-firms-attempt-halt-tax-avoidance-reforms> (last viewed July 2, 2020). For evidence of the existence of this group, see MCINTYRE, AMRITE, *Letter on behalf of the Digital Economy Group to taxlawdesign@treasury.gov.au on Tax Laws Amendment (Tax Integrity: GST and Digital Products) Bill 2015*, July 7, 2015, https://treasury.gov.au/sites/default/files/2019-03/C2015-026_Digital_Economy_Group.pdf (last viewed July 2, 2020). On the role of these enterprises in cloud computing business, see COLUMBUS, Louis, *Roundup of Cloud Computing Forecasts, 2018*, *Forbes*, September 23, 2018, <https://www.forbes.com/sites/louiscolumbus/2018/09/23/roundup-of-cloud-computing-forecasts-and-market-estimates-2018/> (last viewed July 2, 2020).

Section III Certainty and Simplicity

§ I. Introduction

Some degree of uncertainty is inherent in applying the law to new subject matter. To date, there are relatively few sources with which the present analysis or its results can be compared. On most questions there are no formal laws or judicial decisions. The following sections will therefore consider which areas in the taxation of cloud computing are marked by unjustifiably low legal certainty.

722

§ II. Permanent Establishment

Regarding the general definition of permanent establishment (hereinafter, unless specified otherwise, references are to both the Swiss domestic and the OECD definitions), there is one uncertainty that potentially has highly significant implications. It does not seem sufficiently clear whether, depending on the extent of their right of use over the physical elements of the data center, cloud customers are capable of creating a permanent establishment at the location of the data center hosting their cloud. From its inception, the right-of-use requirement is not clearly specified at the OECD level and there seems to be no international consensus on its exact meaning. Nor has there been any attempt to clarify the concept in Swiss domestic law. As a result, right of use is not only difficult to handle in general, but specifically in the context of ICT-based business (see *supra* paras. 349 f.). As was recognized in this thesis, right of use is particularly problematic in relation to IaaS and colocation services (see *supra* paras. 349 f.).

723

There is a second uncertainty with potentially significant implications concerning the impact of telecommuting on permanent establishment status. There is no international consensus on whether

724

remote activities count towards the business activity test threshold (see *supra* para. 112). However, there are strong indications that the OECD prefers to give a wide meaning to “in” and “through which” in the general definition of permanent establishment, which suggests that remote activities are in fact eligible activities for the business activity test. The uncertainty over the eligibility of remote activity stems from the legal qualification of automated equipment and the requirement of personnel for the business activity test. Opinions can be found in international and Swiss scholarship which appear to conflict with the OECD COMMENTARY in this regard. In sum, uncertainty exists in relation to the following questions: Is remote activity attributable to the permanent establishment for purposes of fulfilling the requirement of an essential and significant activity? Is the activity performed by automated equipment, such as servers and routers, or the activity of subcontractors, such as externally mandated data center personnel?

725 There are several other uncertainties that might not have consequences as significant as the first two. For instance, it is uncertain whether shifting the processing of a cloud from one physical server to another (within the same data center or between physically separated data centers) is considered a “significant interruption” for the purposes of the duration requirement in the fixation test. Additionally, it is uncertain whether the most basic levels of cloud computing, such as IaaS or colocation services, are analogous to the mere letting of property or constitute a legitimate business activity that can be taken into account in the business activity test for the provider’s permanent establishment (see *supra* para. 314).

726 Finally, there is uncertainty over whether SaaS is more or less likely than IaaS to constitute a data center permanent establishment of the provider (i.e., assuming the provider operates the physical data center). On the one hand, SaaS can hardly be considered mere letting of property, so is more likely to qualify as business activity. On the

other hand, the operation of the physical equipment (i.e., the servers and data centers) is less directly connected with the fulfillment of the core business (i.e., the provision of *software as a service*), so it is less likely to fulfill the requirement that the activity be essential and significant relative to the core business of the enterprise. Indeed, if cloud computing is only used internally within an enterprise, it cannot be part of the enterprise's core business.¹¹²²

When it comes to the dependent agent permanent establishment, there is considerable uncertainty over the application of the definition in general, especially as far as the exclusion of independent agents is concerned (see *supra* para. 179).¹¹²³ Furthermore, the impending changes to Art. 5(5) and (6) MOECD and the corresponding parts of the OECD COMMENTARY based on BEPS Action 7 may have the effect of significantly extending the scope of the definition in a way that increases legal uncertainty. However, these uncertainties have no significant impact on the international taxation of cloud computing, in particular (as the effects of the independence criterion on cloud computing remain unchanged; see *supra* para. 425). Therefore, they do not require further discussion in this thesis.

727

§ III. Treaty Characterization

A) *Significance in General*

According to the OECD report on the subject of legal certainty, the “uncertainty about input tax credits, refunds” was the third top tax factor affecting investment and location decisions by the surveyed

728

¹¹²² See *supra* para. 130.

¹¹²³ REIMER 2016, Part 2, para. 354; WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 230.

taxpayers.¹¹²⁴ In particular, “[u]ncertainty about the ability to effectively obtain relief for withholding taxes” was considered an important tax factor for such decisions, along with “streamlined and effective withholding tax relief reclaim systems.” While less important in relation to other factors, taxpayers and administrations agreed on the general significance of effective withholding tax relief reclaim systems for greater tax certainty.¹¹²⁵

729 When the withholding tax is calculated on the basis of the gross income from the source state, the payment of withholding tax can in itself constitute a considerable handicap for business liquidity management.¹¹²⁶ The expenses in managing the refund of foreign withholding taxes are generally high. A company that carries on global business activities may be confronted with a great variety of local refund procedures and formal demands under the applicable DTA. It may be far more difficult to obtain a refund in certain jurisdictions compared to others.¹¹²⁷ In difficult cases, enterprises may be forced to hire local tax professionals to help them with the refund procedure.

730 Furthermore, there is the issue of conflicts of qualification.¹¹²⁸ Such conflicts arise when the source jurisdiction considers that a transaction qualifies for a withholding tax (e.g., on the basis of Art. 12 MOECD), while the jurisdiction in which the recipient of the payment is resident considers that Art. 7 MOECD is applicable. Conflicting

¹¹²⁴ OECD, *Tax certainty, IMF/OECD Report for the G20 Finance Ministers*, Paris March 2017, p. 31.

¹¹²⁵ *Ibid.*, p. 37.

¹¹²⁶ PÖLLATH/LOHBECK, in: VOGEL/LEHNER, Art. 12, para. 12.

¹¹²⁷ See BEEGUN, RAVI/LAURES, GÉRARD/OLINGER, JEAN-PAUL/SCHNEIDER, OLIVER, *KPMG Withholding Tax Study 2016*, December 8, 2016, <https://home.kpmg/lu/en/home/insights/2016/12/withholding-tax-study-2016.html> (last viewed July 2, 2020); although, strictly, it concerns the application of Arts. 10 (dividends), 11 (interest), and 13 (capital gains) MOECD, certain conclusions can be drawn on the difficulty of the refund process pursuant to Art. 12 (royalties) MOECD as well.

¹¹²⁸ See OECD COMMENTARY, Arts. 23 A and 23 B, para. 32.5.

qualifications may lead to double taxation or double non-taxation. They easily arise when the subject matter is relatively new or uncommon and no international consensus has yet formed on how it should be characterized and treated fiscally. Furthermore, there is a tendency for capital importing (mostly developing) countries to extend their source taxation rights through an extensive interpretation of DTAs.¹¹²⁹ In principle, the residence country should accept the interpretation of the source country and grant a tax credit.¹¹³⁰ Switzerland has increased the risk of non-compliance by including in the OECD COMMENTARY an observation to the effect that when the conflict of qualifications is caused by a modification in the domestic law of the source jurisdiction, then it reserves the right not to apply the relevant DTA rules.

In order to create more certainty in this regard, the OECD has been promoting the Treaty Relief and Compliance Enhancement (TRACE) project since 2013.¹¹³¹ That project is particularly aimed at exempting portfolio income from withholding taxes.¹¹³² The OECD has not published an evaluation of the project's impact on specific business sectors.

731

B) Application to Cloud Computing

It has been established in the previous sections that income from cloud computing transactions (cells c-2 and c-3 of the taxonomy of cloud computing transactions, *supra* para. 25) should generally not qualify as royalties under treaty law and that, when a source

732

¹¹²⁹ MÜLLER/LINDER, in: ZWEIFEL/BEUSCH/MATTEOTTI, Art. 12, para. 21.

¹¹³⁰ OECD COMMENTARY, Arts. 23 A and 23 B, paras. 32.3 f.

¹¹³¹ OECD, *Update on Tax Certainty, IMF Report for the G20 Finance Ministers and Central Bank Governors*, Paris July 2018, p. 12.

¹¹³² OECD, *TRACE Implementation Package for the adoption of the Authorised Intermediary System, a standardised system for effective withholding tax relief procedures for cross-border portfolio income*, Paris January 2013, p. 3.

jurisdiction, Switzerland imposes no withholding tax on royalty payments to foreign beneficiaries. The fact that cloud computing has made it unnecessary to transfer the software code from the provider to the user has clearly reduced the scope of application of Art. 12 MOECD (royalties) (see *supra* paras. 489 f.). In the case of traditional software transactions, there was often a need to differentiate between Arts. 7 and 12 MOECD. Today, this is no longer necessary in relation to payments for cloud services (i.e., cloud-specific transactions, including IaaS and SaaS), so the technological development can be said to have increased legal certainty.

733 However, a foreign source jurisdiction may well withhold tax on royalties¹¹³³ pursuant to its domestic legislation. To be refunded for the amounts withheld, an international business would need to comply with diverse national procedural rules.¹¹³⁴ Given the global nature of services offered through the World Wide Web, cloud computing businesses generally have high compliance costs in this regard, compared to other, more locally oriented businesses whose dealings cover only a few jurisdictions.

734 Compliance costs are also relatively high for cloud computing start-ups that offer SaaS, when compared to average production costs (before tax), which are very low. In contrast to the legal uncertainty discussed in the previous sections, the issues raised by withholding taxes are not just to do with predictability. In most cases it should in theory be possible to predict whether a taxpayer will be entitled to relief, a refund, or credit, provided these remedies are based on known sources of law (i.e., not only the DTA but also publicly available domestic administrative practice or privately available tax ruling practice). However, predictability becomes more of an issue in the case of an SaaS start-up that is active at a worldwide level. Such start-

¹¹³³ For instance, Germany; see BACKU, p. 186; SINEWE/FRASE 2014, p. 293.

¹¹³⁴ This is a difficulty which the OECD had already recognized in OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, Paris December 2005, p. 64.

ups will usually have no budget for a comprehensive study of the law of every country they have dealings with. The great number of different rules effectively creates the same uncertainty as when the law is largely unpredictable.

Generally, if Switzerland, in its capacity as a residence jurisdiction, does not consider a payment to be subject to withholding tax under the applicable DTA, it will not grant the benefit of a tax credit (see *supra* para. 204). Although Switzerland generally does not consider cloud-specific transactions as being liable to withholding tax, other jurisdictions may well consider cloud computing fees to be license fees for the use of software,¹¹³⁵ royalties for the use of ICS equipment¹¹³⁶ or the transfer of know-how,¹¹³⁷ or fees for technical services¹¹³⁸ and would accordingly withhold taxes. Therefore, there is a risk that cloud computing businesses will suffer double taxation due to conflicts of qualification. As cloud computing fees are growing in importance, it may be unrealistic to expect residence jurisdictions to grant tax credits on the basis of the wording of Art. 12 MOECD, for the sole reason that some source jurisdictions assess that subject matter differently.¹¹³⁹ Replying to a telephone inquiry, the Swiss State Secretariat for International Financial Matters (SIF) stated that no

735

¹¹³⁵ For instance, India; see WAGH, P. 544.

¹¹³⁶ For instance, Art. 12(3) of the *Convention entre la Confédération suisse et la République arabe d'Égypte en vue d'éviter les doubles impositions en matière d'impôts sur le revenu conclue le 20 mai 1987* (RS 0.672.932.15) still refers to ICS equipment. However, given the different wording of the DTA, Switzerland might well agree with the source country's interpretation and allow the tax credit in this particular case.

¹¹³⁷ See, e.g., the decision of the Indian Authority for Advance Rulings (Income Tax), New Delhi, of May 7, 2012, AAR No. 1036 of 2010, concerning Thoughtbuzz Pvt. Ltd, provider of a social media monitoring service.

¹¹³⁸ For instance, Brazil; see *supra* note 814.

¹¹³⁹ That assessment may be different if the wording of the applicable DTA is based on the UN Model or differs specifically in relation to cloud computing. However, if the wording were the same, the principle of equal treatment would not allow practice to be changed on account of the source country only.

established practice concerning cloud computing exists at the moment.¹¹⁴⁰

736 Various definitions give rise to particular uncertainties. For instance, the OECD's and the UN Model's definitions of "technical services" distinguish between the contemplated service and its means of delivery. The characterization of cloud-specific services depends to a large extent on this distinction (see *supra* para. 506). However, the distinction risks becoming obsolete in an increasing number of cases where the technology does not allow a service to be easily distinguished from its means of delivery (see the example given *supra* in note 981).¹¹⁴¹

§ IV. Transfer Pricing

A) Introduction

737 It is important to remember that "transfer pricing is not an exact science,"¹¹⁴² which in itself is a source of great legal uncertainty. Tax

¹¹⁴⁰ Pascal Duss, Swiss State Secretariat for International Financial Matters (SIF), Department for Double Taxation Treaties (telephone call on Sept. 28, 2018).

¹¹⁴¹ KJÆRSGAARD, pp. 389 f. and 421, points out that clarifications of the taxation of mixed contracts (see *supra* para. 205) should be considered. In the present author's opinion, this line of thought is a natural extension of the issues that might arise as soon as the basic scope of application of the different withholding tax regimes is figured out. Due to the lack of a direct connection of this topic to cloud computing as a technology or business model specifically the discussion of the contemporary theories on mixed contracts independent from concrete examples of application to cloud computing is beyond the scope of the present thesis. Mixed contracts appear in any economic sector, not just cloud computing. Nonetheless, the treatment of mixed contracts should inarguably be considered an integral part of the proper definition of such terms as "royalties" in policy discussions on the national and on the international level, such as in BUNDESZENTRALAMT FÜR STEUERN, *Beschränkte Steuerpflicht und Steuerabzug bei grenzüberschreitender Überlassung von Software und Datenbanken*, GZ IV C 5 – S 2300/12/10003 :004, October 27, 2017, para. 23 (p. 8): "d) gemischte Verträge".

¹¹⁴² OECD TPG, para. 1.13.

authorities may have difficulty disputing taxpayers' transfer pricing proposals, even when provided with detailed and accurate data. The US Tax Court *Amazon* case shows how difficult it is for tax authorities to build up sufficient know-how on intricate and unique transactions involving software intangible in order to attack previous tax assessments.¹¹⁴³ It remains to be seen whether tax authorities make use of the extended set of eligible data afforded by the increasing exchange of information. This question is particularly relevant to the digital economy, given that one of its greatest challenges is the multitude of variables and the unpredictability this causes.

However, this problem is not necessarily more acute in the cloud computing context than elsewhere. The diversification of comparables does not in itself rule out the methods currently used in transfer pricing. The following section will discuss four main themes in the transfer pricing analysis of cloud computing transactions. Data centers, together with remote control and automation, would seem to have an obvious connection with cloud computing. Cloud-specific uncertainties may also arise in relation to more traditional aspects of transfer pricing, namely intangibles and the choice of the appropriate transfer pricing method.

738

B) Data Centers

Investment in data center infrastructure is of strategic importance given the competition among leading IaaS providers. It is, and will likely remain, crucial to the growth of the cloud computing industry and the many other industries depending on it. This interdependence creates a special risk pattern, which functional analyses must take account of, and may be a cause of uncertainties due to a lack of comparability (see *supra* para. 56).

739

¹¹⁴³ Decision of the US Tax Court of March 23, 2017, *Amazon.com, Inc. & Subsidiaries v. Commissioner of Internal Revenue*, 148 T.C. No. 8, Docket No. 31197-12.

740 Technological advancements cause uncertainties in relation to pricing, as they make the valuation of assets less comparable and thus more difficult (see *supra* paras. 55 f.). For instance, the use of general-purpose machine learning engines for the administration of Google data centers has reduced costs and increased the profitability of data centers, which has an impact on the potential value and comparability of the assets.¹¹⁴⁴ This is linked to the development of new kinds of software intangibles in machine learning.

C) Intangibles

741 Cloud computing is particularly dependent on software intangibles, which are mostly developed in the United States and exploited in data centers abroad (see *supra* para. 58). According to OECD BEPS Actions 8–10, each of these two DEMPE functions must be taken into account separately for transfer pricing, but the OECD has not yet specified how any of the DEMPE functions are to be evaluated and weighted.¹¹⁴⁵ The OECD has admitted that there is a lack of guidance and has promised to provide guidance on transfer pricing for highly digitalized business models in the future.¹¹⁴⁶ However, the examples have made it clear that extreme cases in which transfer pricing is used to shift profits to subsidiaries located in tax havens, whose sole purpose is to hold or exploit an intangible, while the group entity that

¹¹⁴⁴ See, e.g., GAO, JIM (GOOGLE), *Machine Learning Applications for Data Center Optimization*, 2014, <http://static.googleusercontent.com/media/www.google.com/en/us/about/datacenters/efficiency/internal/assets/machine-learning-applicationsfor-datacenter-optimization-finalv2.pdf> (last viewed July 2, 2020).

¹¹⁴⁵ COLLING RUSSO, CATERINA/BLANKENSTEIN, HENDRIK, *Intangibles in a post-BEPS world*, *International Tax Review*, May 20, 2016, <http://www.internationaltaxreview.com/Article/3556068/Intangibles-in-a-post-BEPS-world.html> (last viewed July 2, 2020).

¹¹⁴⁶ OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, p. 173.

actually developed the intangible is attributed a meager markup on costs, should no longer be accepted.¹¹⁴⁷

CCAs sanctioned by tax rulings will, in many cases, cease to provide greater tax certainty, as BEPS Actions 8–10 have introduced regulations that make CCAs less suitable for creating tax savings. Uncertainty has increased because these new regulations may be subject to further modification in the future.¹¹⁴⁸ As the CCAs in the cloud computing business rely heavily on transactions involving software intangibles, they may be exposed to a greater risk of *ex post* pricing adjustments than is the average taxpayer.

742

Therefore, it is likely that either US subsidiaries of software-developing cloud providers will be attributed more profits than before, or cloud providers will shift software-developing functions to jurisdictions with lower tax rates, such as Switzerland.¹¹⁴⁹ The consequences and the magnitude of these developments have yet to be assessed.

743

¹¹⁴⁷ See *supra* para. 550.

¹¹⁴⁸ See, e.g., MÜLLER, JOHANN, *What is so different about hard-to-value intangibles?*, Kluwer International Tax Blog, June 28, 2017, <http://kluwertaxblog.com/2017/06/28/different-hard-value-intangibles/> (last viewed July 2, 2020), who considers that if there are no reliable comparables and the intended valuation is highly uncertain, the rules governing hard-to-value intangibles are applicable to “the vast majority of intangibles.” As this is often the case with software in the overhyped cloud market, cloud software may very often be targeted by rules concerning hard-to-value intangibles. Regarding the applicability of the hard-to-value intangibles proposals of the OECD in Switzerland, see SCHWARZ, pp. 457 f.

¹¹⁴⁹ An example is Google extending its research and development center in Zurich, Switzerland; see WARNKING, PATRICK, *Zurich calling – Expanding our European tech hub*, Google: The Keyword, January 17, 2017, <https://www.blog.google/around-the-globe/google-europe/zurich-expanding-our-european-tech-hub/> (last viewed July 2, 2020).

D) Remote Control and Automation

744 The OECD's interpretation of the arm's length principle in electronic commerce (see *supra* paras. 527 f.) has created some certainty by clearly stating that a machine on its own cannot be attributed any significant functions or risks and, therefore, should not be attributed any significant portion of the taxable profit of an enterprise. However, it remains unclear what constitutes a "significant portion," what "routine functions" can nonetheless be attributed to the machine, and what the justification for all of this is.¹¹⁵⁰

745 There are also contradictions in the OECD's argument. It seems incoherent to believe that there is justification for not attributing *any* functions to a mindless machine, while at the same time attributing "routine functions" and a small amount of profit to it. Further, it is unclear exactly how the maintenance personnel at the location of the server would be remunerated if a certain part of the development (e.g., the testing) of the software intangibles takes place at the location of the server, given that maintenance personnel would have nothing to do with that development activity. Finally, there is a fundamental contradiction in the OECD's position on the attribution of profits to permanent establishments: if a computer has to perform *essential and significant* activities to constitute a permanent establishment,¹¹⁵¹ such activities cannot at the same time be characterized as "routine" and meriting only negligible consideration.¹¹⁵²

¹¹⁵⁰ From an American perspective: MAZUR 2015, pp. 46 f.

¹¹⁵¹ OECD COMMENTARY, Art. 5, para. 59.

¹¹⁵² COCKFIELD, para. 26. Considering the uncertain definitions of the terms "essential and significant activity" and "routine function," it is difficult to prove beyond all doubt that they cannot overlap. Even so, the two terms are obviously opposed to each other, meaning that a situation that can be described with both of them at the same time should be rare.

Perhaps the most important problem with the OECD's interpretation, however, is that it does not provide the necessary tools to quantify the profit attributable to highly automated permanent establishments, that undoubtedly represent the main investments and value drivers of a business. There is no indication regarding the supposed impact of the degree of automation on profit attribution, other than that automated business functions should generally be remunerated less than non-automated business functions. In so doing, the OECD gives no response to the very question it supposedly set out to answer.

746

E) Choice of Method

A number of difficulties arise when choosing a transfer pricing method for cloud computing and applying it. As the *CUP method* is largely dependent on the availability of reliable comparable data (see *supra* para. 541), reference can be made to the earlier general remarks.¹¹⁵³

747

There are many reasons for not applying a *cost-plus method* to a cloud transaction (cost is based on volatile use, markup depends on valuation of the software, etc.; see *supra* paras. 544 f.). Accordingly, this method is more likely to be applied to IaaS than to SaaS. However, the choice of this method over any other will need to be justified through extensive proof that establishes sufficient certainty. While this may be difficult, it will be even harder to show that a cloud transaction constitutes a low value-adding intragroup service (LVIS). However, if this can be done, the LVIS rules allow for more certainty with regard to the amount of markup.

748

As software intangibles are usually involved in cloud transactions, it will be easier to justify the use of the *transactional net margin method* (see *supra* paras. 551 f.). In the context of cloud computing, the most cumbersome comparability factors may be the size of the parties in

749

¹¹⁵³ See *supra* para. 541.

the uncontrolled transaction and the low risk of new market entrants in IaaS business. At a technical level, this method seems to offer most certainty compared to the others; however, it has been criticized as a one-sided method open to manipulation.¹¹⁵⁴ Therefore, tax authorities may nonetheless challenge it.

750 The obvious advantages of the *transactional profit split method* are its relative independence from comparables and its capacity to flexibly adapt to even the most rare and idiosyncratic cases (see *supra* paras. 555). However, this flexibility can also be a source of uncertainty. The previous analysis has shown that choices made within the transactional profit split method need to be duly justified, so there may be some uncertainty over whether the choices will be acceptable.¹¹⁵⁵

751 Further, OECD BEPS Action 1, addressing the challenges of the digital economy, demanded that the transactional profit split method be revised.¹¹⁵⁶ The transactional profit split method's relevance to the digital economy lies in the fact that the developments in ICT have allegedly accelerated and thereby changed the spread of global value chains and have made MNE groups move closer to the economist's conception of a single firm (the OECD uses the expression "increased

¹¹⁵⁴ See, e.g., NIJHOF, MARGREET/MOERER, OMAR/FLETCHER, RICHARD, *Goodbye TNMM, Hello Profit Split? Will the Profit Split Become Standard Fare?*, *Lexology*, May 26, 2016, <https://www.lexology.com/library/detail.aspx?g=b0a98ba3-e3be-4ecd-ba2e-5820d18394c4> (last viewed July 2, 2020).

¹¹⁵⁵ See VERLINDEN, ISABEL/KATZ, ADAM/VAN DER HAM, SUSANN/DE BAETS, STEFAAN/ERNICK, DAVID/MACLEOD, STUART/VAN WEEGHEL, STEF/OLSON, PAM/GREENFIELD, PHIL, *OECD publishes long-awaited additional guidance on use of profit split methods*, August 6, 2018, <https://www.pwc.com/gx/en/tax/newsletters/pricing-knowledge-network/assets/pwc-tp-oecd-psm.pdf> (last viewed July 2, 2020), stating, for example, that "[t]he concept of 'highly integrated' is at best ambiguous."

¹¹⁵⁶ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2014 Deliverable*, Paris September 2014, p. 119; OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 92.

integration” to describe this evolution).¹¹⁵⁷ This increased integration may indicate greater reliance on value chain analysis and the transactional profit split method(s). In particular, cloud computing was listed under the different examples of “Annex B. Typical tax planning structures in *integrated business models*” (emphasis added),¹¹⁵⁸ vaguely suggesting that cloud computing qualifies as an integrated business model per se.¹¹⁵⁹ However, the exact nature of the link between the transactional profit split method and cloud computing has not been discussed in OECD publications.¹¹⁶⁰

In conclusion, the recent discussions about the concretization of the transactional profit split method have revealed the existence of a certain level of uncertainty. Paradoxically, the OECD might unwittingly increase the uncertainty through its attempts at concretization. This could happen if it introduces new ideas that depart from established practice or if the newly introduced ideas are unnecessarily vague.¹¹⁶¹

752

¹¹⁵⁷ For this and the next sentence: OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 92; see also the argument that the difficulty of applying traditional transfer pricing methods to ICT-based transactions may increase the use of methods of last resort, such as the profit split method (OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, Paris December 19, 2005, p. 63).

¹¹⁵⁸ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 175 f. The example is discussed in detail *supra* paras. 616 f.

¹¹⁵⁹ Similarly, concerning “exchanges over the Internet and the development of intranets within MNE’s [sic]”: OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, Paris December 19, 2005, p. 60.

¹¹⁶⁰ See OECD, *Revised Guidance on the Application of the Transactional Profit Split Method/Inclusive Framework on BEPS: Action 10*, Paris June 2018, *passim*, without any explicit mention of cloud computing or the digital economy.

¹¹⁶¹ See the opinion of the PriceWaterhouseCoopers international transfer pricing team, *supra* note 1155; similarly, Deloitte’s international transfer pricing team: PENELLE, PHILIPPE/SHAPIRO, ALAN/TOBIN, JOSEPH/STACK BOB, *OECD releases new guidance on transactional profit split method and hard-to-value intangibles/Global Transfer Pricing Alert 2018-020*, <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-global-transfer-pricing-alert-18-020-17-july-2018.pdf> (last

In the present author's opinion, attempts to concretize the transactional profit split method promise only little legal certainty for cloud computing.

§ V. Future Tax Policy

754 In addition to the preceding issues, the fact that the digital economy and cloud computing were selectively targeted by the OECD BEPS program (and by previous studies aimed at modifying the law in relation to ICT in general) is in itself another factor creating legal uncertainty, even though the OECD ended up considering changes to be inopportune at the moment.¹¹⁶² Continuing uncertainty has been caused by recurrent proposals to change the taxation of ICT-based business, along with the lack of an explicit and clear justification for specifically targeting this area¹¹⁶³ and the ominous warning that, in any case, "there is a need to continue to monitor how direct tax revenues are affected by changes to business models resulting from new communication technologies."¹¹⁶⁴

754 At present, the threat of an unpredictable change in international tax law for the digital economy stems from, for example, individual jurisdictions creating special taxation regimes for the digital economy or the OECD's promise to publish a new report on the issue by

viewed July 2, 2020), stating, for example, that "[t]he examples in the 2018 final report, although helpful at a basic level, do not address some of the more challenging issues, and often assume away the situations that may be seen most often in practice."

¹¹⁶² Most recently in: OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, p. 178.

¹¹⁶³ *Ibid.*, pp. 178 f.

¹¹⁶⁴ OECD, *Are the Current Treaty Rules for Taxing Business Profits Appropriate for E-Commerce?/Final Report of the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for Taxing Business Profits*, Paris June 2004, p. 72.

2020.¹¹⁶⁵ There is no empirical evidence showing that the resulting tax uncertainty influences investment behavior. Indeed, such an influence would be difficult to measure in isolation. However, the suspicion of its existence, and the awareness of the negative effects that such tax uncertainty can have, should not be completely disregarded.¹¹⁶⁶

§ VI. Conclusion on Certainty

In all aspects of the international taxation of cloud computing that have been analyzed in the present thesis, some level of legal uncertainty can be observed. The EU and OECD are concerned with areas of tax uncertainty induced by the OECD BEPS program and similar supranational and national legislative processes. However, the tax uncertainty faced in the area of cloud computing goes farther back to the lack of regulation, which was caused by the OECD's hesitant position on the possibility of creating guidance for ICT-based business. This is all the more surprising since the technology around cloud computing and its business model are not particularly novel;¹¹⁶⁷ similar business models and technology have existed since the inception of the Internet in the last century.

755

Tax certainty can help remove barriers to market entry for start-ups and other small providers of cloud services. It is important for removing competition distortions between small and large cloud providers. The latter can spend more on compliance costs than the

756

¹¹⁶⁵ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 138. Additionally, there have been several domestic attempts to legislate in the area of e-commerce and the digital economy.

¹¹⁶⁶ OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, pp. 178 f.

¹¹⁶⁷ See BEDNER, p. 54, explaining the historical roots of cloud computing and considering it an "evolution" rather than a "revolution."

former. Reducing the compliance costs for start-ups, in particular, is especially relevant in the IT sector, where most start-ups have less financial leverage than in other sectors. Cloud computing is a business that has made market entry costs for IT start-ups more bearable, which in turn increases the significance of compliance costs for them compared to their lower average operating costs.

Section IV Flexibility

§ I. Introduction

The OECD identified key features of the digital economy as mobility, reliance on data, network effects, use of multisided business models, a tendency towards monopoly, and high volatility.¹¹⁶⁸ In view of ongoing technological and commercial changes, some of these could be considered a risk for the tax base of a market jurisdiction and, thus, a flexibility issue. However, the OECD did not explain the role each of these features plays in relation to taxation. 757

The OECD did make it clear, nonetheless, that some of these features are more important than others. In this thesis, three features are singled out as being most closely connected with the flexibility principle. They also have a connection with cloud computing, which will be explored in the following subsections. 758

The most frequently mentioned feature is the mobility of the digital economy. This aspect raises the issue of digital businesses lacking physical presence, and therefore also tax liability, in a market jurisdiction. It will be discussed first. 759

Next, the digital economy is believed to have a special effect on competition (“tendency towards monopoly” and “volatility”). This view recalls earlier comments on how ICT-based business tends to make certain traditional intermediaries redundant. A subsection will compare such comments with the fact that cloud computing represents an outsourcing of IT activities. 760

Finally, the subject of automation and remote control is central to the taxation of cloud computing, as was established in Part I of the present thesis. Although the OECD did not recognize automation and 761

¹¹⁶⁸ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 64 f.

remote control as key features of the digital economy, it has mentioned them on numerous occasions when describing the tax-relevant facts of the digital economy at large. Automation and remote control will be discussed in a third subsection.

762 The following exploration focuses on the relationship of each of these aspects of the international taxation of cloud computing with the flexibility principle. Each discussion will be structured in line with the definition of the flexibility principle. It will begin by presenting the purported problem. If there is a flexibility problem, this means that there must be some inflexibility in the tax system, on the one hand, and novel technological or commercial developments that put pressure on that inflexibility, on the other hand. Each subsection will therefore discuss whether the alleged unintended inflexibility actually exists. If it does, the analysis will also consider the existence of a technological or commercial advancement capable of putting pressure on such inflexibility.

763 The final subsection will look at the empirical evidence for inflexibility in the tax system. It will examine whether state tax revenue has decreased in relation to state spending. These figures are relevant insofar as they represent the ability of tax systems “to ensure they meet the *current revenue needs of governments*” (see *supra* para. 581, emphasis added). Even though no such empirical evidence will be found, this does not necessarily mean that tax systems are already sufficiently flexible. It is possible that inflexibilities exist but have not become manifest.

§ II. Absence of Physical Presence

A) Problem

764 The digital economy supposedly makes it possible to be economically present in a market jurisdiction without being physically present

there. Insofar as this can be a way of avoiding permanent establishment status and tax liability, it is considered to be a problem. The issue is that digital businesses not liable for tax can compete with local businesses that are liable for tax¹¹⁶⁹ without having to bear the disadvantages that the lack of a physical presence brings in other sectors.¹¹⁷⁰ The products of digital businesses are thought of as being capable of supplanting those of local businesses, thus creating competition, while digital businesses are free to pay taxes in lower-tax jurisdictions. This is one of the most often repeated criticisms prompted by the flexibility principle.¹¹⁷¹

The above critique implicitly covers cloud computing as part of the digital economy. This section will inquire whether and how this argument has a bearing on cloud computing. In so doing, it will be necessary to introduce some distinctions in the rather broad concept of cloud computing.

Moreover, the lack of physical presence can be seen as undermining the neutrality principle (see *infra* paras. 811 f.). It can also be

¹¹⁶⁹ For a discussion of the competition between brick-and-mortar and digital businesses, see, e.g., KAGAN, PP. 284 f.

¹¹⁷⁰ HORNER/OWENS, P. 517.

¹¹⁷¹ Among many other sources subject to political influence: SECRÉTARIAT D'ÉTAT AUX QUESTIONS FINANCIÈRES INTERNATIONALES SFI (Switzerland), *Position du SFI sur l'imposition de l'économie numérique/Imposer l'économie numérique sans l'entraver*, March 8, 2018, <https://www.sif.admin.ch/dam/sif/fr/dokumente/Publicationen/SIF-Newsletter/SIF-Newsletter%201-2018.pdf.download.pdf/SIF%20Newsletter%201-2018f.pdf> (last viewed July 2, 2020); HM TREASURY (UK), *Corporate tax and the digital economy: position paper*, November 2017, <https://www.gov.uk/government/consultations/corporate-tax-and-the-digital-economy-position-paper> (last viewed May 17, 2018), pp. 8 f., explicitly referring to the flexibility argument; EU2017.EE, *Presidency Issues Note for the informal ECOFIN Tallinn, Discussion on corporate taxation challenges of the digital economy*, September 16, 2017, https://confindustriaadiotv.it/wp-content/uploads/2017/09/Ecofin-Informal_WS-II_digital-economy_15-16.Sept_17.pdf (last viewed July 2, 2020), p. 3; OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, p. 24; OECD, *Public Consultation Document: Addressing the Tax Challenges of the Digitalisation of the Economy*, Paris February 13, 2019, p. 8.

analyzed from the perspective of the effectiveness and fairness principle (see *supra* paras. 704 f.). In relation to flexibility, however, some special considerations must be taken into account.

B) Technological Advancements

767 The lack of a physical presence has been an issue in the debate on the taxation of electronic commerce since its inception more than twenty years ago.¹¹⁷² At that time, reference could be made to earlier business models with the same feature, such as telemarketing¹¹⁷³ and mail-order business.¹¹⁷⁴ Some argue that the telemarketing and mail-order businesses were subject to limitations that made them incapable of competing with businesses that had a physical presence in the market jurisdiction.¹¹⁷⁵ At any rate, the existence of remote business activities is not a new technological development in itself; what could be considered new is the unprecedented proliferation of remote business activities.

768 It is not strictly true that ICT-based business does not have a physical presence in a jurisdiction. After all, ICT-based business often consists in displaying a website on a potential customer's local client computer. The business's presence takes the form of a particular movement of electrons in the local computer, without which it would be impossible for the ICT-based business to make contact with the potential customer. As has been discussed regarding enforcement (see *supra* para. 713), monitoring and enforcing taxation for businesses with a presence of this kind is equally, if not more, feasible than for brick-and-mortar businesses. ICT itself could make

¹¹⁷² U.S. DEPARTMENT OF THE TREASURY OFFICE OF TAX POLICY, *Selected Tax Policy Implications of Global Electronic Commerce*, Washington November 1996, pp. 21 f.

¹¹⁷³ SCHAEFER, p. 131, in 1999.

¹¹⁷⁴ HORNER/OWENS, p. 516, in 1996.

¹¹⁷⁵ LI, p. 1436.

taxation of ICT-based business possible.¹¹⁷⁶ Whether rule makers are mindful of this is a different question.

Moreover, cloud computing business is particularly dependent on data centers. These physical objects already qualify as permanent establishments for the cloud providers that maintain them. Thus, it seems that the lack of physical presence is, once more, overstated in the context of cloud computing. This is not to say, however, that technology has not brought about any changes that might pose a threat to the tax base of an inflexible system.

769

C) Tax System Inflexibility

There is no denying that the current international tax system often refers to physical presence (as opposed to virtual or economic presence). This very thesis makes several references to it— be it in the permanent establishment's tangibility criterion (see *supra* para. 76), the on-site personnel criterion for profit attribution between a permanent establishment and a server location (see *supra* para. 116), or the physical presence requirement in Art. 15 MOECD relating to the attribution of the right to tax income from employment (see *infra* paras. 967 f.), to name but a few.

770

Criticism is directed above all at the permanent establishment concept. The tangibility requirement means that only a physical object can qualify as a place of business (see *supra* para. 339). In essence, this is why cloud providers have permanent establishments at the place where a server is located, while cloud customers do not (see *supra* para. 401).

771

This difference means that a distinction must be made between cloud providers and customers when discussing the criticism. In the case of cloud providers that maintain their own data centers, the argument of competition must be relativized. Cloud providers who have a local

772

¹¹⁷⁶ See *supra* paras. 717 f.

data center may be liable to tax there (hereinafter “local providers”). It is of course true that foreign and local providers compete with each other for those cloud customers who do not mind where their cloud is located in a worldwide market.¹¹⁷⁷

773 However, local providers have a competitive advantage over providers that use remote data centers. A potential cloud customer may be interested in ascertaining where the data center hosting its cloud is located (see *supra* para. 706). Thus, the local cloud provider and the foreign cloud provider are not always direct competitors. In light of the market share of cloud providers that cater to customers looking for local hosting, cloud computing cannot be accused of reducing the tax base in the market jurisdiction. Therefore, the flexibility argument applies only to the extent that local and foreign cloud providers actually compete. It is for a quantitative study to evaluate the strength of that argument.

774 In addition to allowing foreign and local cloud providers to compete with each other, cloud computing technology may enable cloud customers, too, to compete with their local peers. Hence, the same distinction needs to be made for cloud customers as for cloud providers. Some cloud customers need to have their clouds hosted in the market, while others do not. Those that do not require hosting in the market jurisdiction could set up their own servers in their low-tax residence jurisdictions. By doing so, they could continue their economic presence without using cloud computing, freed of the attendant tax liability. As far as they are concerned, cloud computing cannot be blamed for creating a nonflexible tax situation.

775 By contrast, there are those who, without cloud computing, would be compelled by market forces to set up servers in the market jurisdiction, thereby submitting to tax liability there. They could be

¹¹⁷⁷ See, e.g., the decision of the Swiss Competition Commission of March 10, 2016, DPC 2016, pp. 763–770, recitals 32 f.; and the decision of the Swiss Competition Commission of March 27, 2013, DPC 2013, pp. 262–274, recital 73.

forced into this situation by the fact that their business requires good latency or because they need to offer local hosting due to data protection laws, etc.¹¹⁷⁸ In such cases, cloud computing would jeopardize the market jurisdiction's tax base, because it is cloud computing (or web hosting) that allows them to avoid permanent establishment status.

This can be all the more problematic as a cloud customer may have a completely digitalized business. Such businesses have no physical anchorage or substance and are in general only taxed at their residence. However, those cloud-based business models that cannot avoid offering local hosting are rarely in competition with brick-and-mortar businesses. Indeed, the present author has not found a single example. Moreover, it is possible that the tax burden will fall not on cloud providers but on cloud customers, which would reduce the force of the argument even further.¹¹⁷⁹

776

¹¹⁷⁸ See *supra* para. 647.

¹¹⁷⁹ For instance, the Indian equalization levy was passed on to customers, see private e-mail from Google to AdWords business customers referred to on Google Ads, <https://www.en.advertisercommunity.com/t5/Billing/Equalisation-Levy-Google-Tax-in-India/td-p/560839> (consulted for the first time in 2017, but which today, on July 2, 2020 is no longer available, as described on <https://support.google.com/datastudio/thread/11497202?hl=en>), in which reference is made to Google's AdWords terms and conditions (effective November 1, 2016): "Charges are exclusive of taxes. Customer will pay (i) all taxes and other government charges" (para. 7 "Payment"). See also an interview with a member of the original consultative committee: SONI, SANDEEP, *India's Architect for Equalization Levy*, Entrepreneur India, February 26, 2017, <https://www.entrepreneur.com/article/289766> (last viewed July 2, 2020); VIRMANI, SOURABH, *Equalisation Levy: Impact and consequences*, taxguru.in, February 20, 2017, <https://taxguru.in/income-tax/equalisation-levy-impact-consequences.html/> (last viewed July 2, 2020). Tax incidence depends on market conditions and not on the law (OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 277, without referring to any characteristics particular to digital economy markets). Given that the cloud market is global, the large cloud computing providers may never really be taxed if the market allows them to pass their entire tax burden on to their customers. In the opinion of the present author, it is unclear whether the OECD's analysis of the tax incidence of the equalization levy was able to predict this

D) Conclusion

- 777 Cloud computing can endanger the tax base of a market jurisdiction. However, the threat is limited to those markets where local and foreign cloud businesses are actually in competition with each other. As it happens, foreign and local providers compete with each other only for customers who have no preference as to the place where their cloud is hosted. International data protection laws and other recent developments have created an incentive for cloud customers to prefer local cloud providers.
- 778 By contrast, competition between local and foreign cloud customers as well as between local cloud customers and brick-and-mortar businesses is probably not influenced by cloud computing. It is difficult to imagine a situation where local hosting is required (thus necessitating cloud computing) when competing with local brick-and-mortar businesses.
- 779 The absence of physical presence is not necessarily a problem for cloud computing taxation. At any rate, the flexibility argument has only limited validity in this context. The force of the argument depends on a quantitative analysis of the extent of the competition.

§ III. Disintermediation and Outsourcing

A) Problem

- 780 In the early days of discussions over the taxation of electronic commerce, there were claims that the Internet would eliminate or substantially reduce the need for intermediaries,¹¹⁸⁰ thereby

outcome in India (OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 281 f.). It is also unclear if it aligns with the ongoing debate in economic theory on the economic incidence of taxes in general (see, e.g., WEYL/FABINGER, p. 559; STERN, pp. 153 f., contradicting the OECD).

¹¹⁸⁰ For this and the following sentence: OWENS, p. 1838.

eliminating established points in the value chain where taxes used to be collected. For example, a bookshop would be ousted as an intermediary between the publisher and potential buyers through the opening of a webshop on which the publisher sells its books directly. This would lead to the loss of the bookshop as a taxpayer, which could have a significant impact on the global distribution of the tax base¹¹⁸¹ and thus become a flexibility issue.

Interestingly, this concern does not apply to cloud computing. On the contrary, public cloud providers are themselves intermediaries of a new kind between cloud customers (such as webshops or online service providers) and their respective end customers. Therefore, they represent a new geographical anchoring point where states can levy taxes. This observation belies the classic disintermediation argument. Rather, the real problem may be the opposite of disintermediation.

781

The creation of new anchoring points for taxation could also cause a redistribution of the corporate tax base. Cloud customers outsource their IT-hosting activity to their cloud providers.¹¹⁸² As a result, cloud service fees reduce some of the profit that was formerly taxed at the location of the cloud customer. At the same time, these fees increase the profit of the cloud provider, which can be located in a different jurisdiction. Hence, there may be a shift in the tax base from the location of the cloud customer to that of the cloud provider. This phenomenon is generally called “outsourcing.”

782

Such redistribution of the tax base can become a flexibility issue if it results from unintended inflexibility in the law. It may also need to be considered in light of the effectiveness and fairness principle (see *supra* para. 667), although the issues are not the same as with the flexibility principle.

783

¹¹⁸¹ FORST 1999, p. 715.

¹¹⁸² SCHUSTER/REICHL, p. 40.

B) Tax System Inflexibility

784 In the earlier discussion on effectiveness and fairness (see *supra* para. 674), it was assumed that the tax system is equipped to handle outsourcing. The resulting shift in the tax base is part of an international compromise: although double taxation is forbidden, every jurisdiction has in principle the right to tax a business that has a sufficient territorial link with it.¹¹⁸³ The fact that this was intended by the rule makers means that it cannot raise flexibility issues, which by nature are unintended.

C) Technological Advancements

785 Outsourcing is not a new phenomenon. The decentralization of businesses is the reason why international tax law exists in the first place. It may well be that ICT generally eases decentralization. However, decentralization's long history is proof that it did not originate with ICT. Therefore, the present concern—namely, that cloud computing is responsible for shifting taxable profits through the creation of new intermediaries—can be dismissed without needing to comment further on technological advancements.

D) Conclusion

786 Disintermediation used to be seen as a flexibility issue for electronic commerce. However, this problem does not apply to cloud computing. Cloud providers are a new kind of intermediary. The outsourcing of IT business functions may shift part of the tax base from cloud customers to providers. A flexibility issue might be at stake, but it should ultimately be discarded because the shift of the

¹¹⁸³ See BRUINS, GIJSBERT/EINAUDI, LUIGI/SELIGMAN, EDWIN/STAMP, JOSIAH, *Report on Double Taxation Submitted to the Financial Committee*, League of Nations, Economic and Financial Commission, Doc. E.F.S.73.F.19, April 1923, p. 20, in relation to the expression "doctrine of economic allegiance."

tax base is not due to technological advancements. Rather, outsourcing's effect on the shifting of the tax base has long been accepted internationally.

§ IV. Automation and Remote Control

A) Problem

From a technological perspective, the novelty of cloud computing in the context of taxes consists in the increased possibility it offers for significant business processes to take place on servers geographically separated from the bulk of the staff—i.e., the problem of automation and remote control (see *supra* paras. 662 f.). In fact, automation is a basic feature of the concept of a machine and it cannot be distinguished qualitatively from remote control (See *infra* para. 854). Assuming that the location of personnel is still the decisive factor in the allocation of the tax base, automation may cause a shift in the tax base from source jurisdictions to residence jurisdictions.

787

B) Tax System Inflexibility

The problem of remote control in international taxation was described in 1923 in a paper prepared for the first draft of what would become the MOECD.¹¹⁸⁴ The problem of automated equipment was analyzed from a cross-border taxation perspective in 1903 in relation to automatic vending machines.¹¹⁸⁵ The German *Pipeline* case considered it natural to interpret the permanent establishment

788

¹¹⁸⁴ *Ibid.*: "While in most cases the commercial manager can do most effective work on the spot or in the place where the head office is situated, there are many exceptions to the rule; and control at a distance is far more possible than before."

¹¹⁸⁵ Decision of the Swiss Federal Supreme Court of March 25, 1903, ATF 29 I 8, recitals 2 f.

concept in a way that takes account of technological advancements and referred explicitly to both automation and remote control.¹¹⁸⁶ In both the *Pipeline* and the vending machine cases, the permanent establishment concept was extended to accommodate remote control and automation.

789 Thus, the problems of automation and remote control and their tax implications are not new. However, Part I of this thesis showed that there are areas in which these problems have led to uncertainties (see *supra* paras. 744 f.), which could potentially constrict the tax base of a market jurisdiction.

790 The right-of-use requirement may be interpreted in a technological sense. If it is understood to refer to specific technological phenomena, it becomes inflexible in the face of technological change. The flexibility principle would require that it be interpreted in a way that does not involve references to technology (see *supra* para. 581).

791 The same considerations apply to the interpretation of the words “through which” in Art. 5(1) MOECD regarding the tax treatment of remotely performed business activities (see *supra* paras. 312 f.). If remote-controlled activity is excluded from the business activity test, this could have significant implications for the tax base of a source jurisdiction. The implications would be especially important if the value created by remote-controlled activity were to increase.

792 Similarly, the OECD interpretation of the arm’s length principle seems inflexible in the face of an increase in automation and remote control (see *supra* paras. 527 f.). In the spirit of the flexibility principle, the OECD had originally intended to extend source taxation to permanent establishments without personnel. However, the interpretation of the arm’s length principle eliminates the effect of this well-intended extension of source taxation rights.¹¹⁸⁷ In fact, it allocates profits to

¹¹⁸⁶ Decision of the German Bundesfinanzhof of October 30, 1996, II R 12/92, BStBl. II 1997, 12, IStR 1997 p. 148, recital II.1(a)(dd).

¹¹⁸⁷ See *supra* para. 663.

the place where the personnel are physically located rather than to the place where their activities take effect economically (this criticism is further developed *infra* paras. 844 f.). That would be where the automated and remote-controlled activities take place. Thus, any tax system that relies on this interpretation of the arm's length principle would actually experience a global redistribution of the corporate tax base through the mere progress of automation technology.

C) Technological Advancements

The OECD itself acknowledged that ICT-based transactions posed problems for transfer pricing that are “neither fundamentally different ... nor more challenging.”¹¹⁸⁸ Indeed, the mere existence of these phenomena does not create a problem. The cases above are proof enough that automation and remote control are not new. However, the unprecedented proliferation is problematic. In fact, some scholars believe that the proliferation of automation and remote control, or “robots,” will seriously threaten the tax base as it is currently defined.¹¹⁸⁹ The reason is that the transactions conducted through the use of remote control and automation will become so valuable that they will come to represent a significant share of the corporate tax base. At that point, the attribution of profits will create such a strong shift in the corporate tax base that the “needs of government” will be threatened, revealing the tax system’s lack of flexibility. The cause of

793

¹¹⁸⁸ OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, in: OECD Tax Policy Studies, No. 10, Paris May 2005, p. 54.

¹¹⁸⁹ For instance, OBERSON 2017, p. 236; contra: SWISS FEDERAL COUNCIL, *Eine Prospektivstudie über die Auswirkungen der Robotisierung in der Wirtschaft auf das Steuerwesen und auf die Finanzierung der Sozialversicherungen/Bericht des Bundesrates in Erfüllung des Postulats 17.3045 Schwaab vom 1. März 2017*, December 7, 2018 (however, this study does not consider the cross-border shifting of taxable income, which is an issue this thesis addresses).

this development will not be the technological advancement itself but rather the commercial changes to which it gives rise.

794 Automation is not peculiar to the cloud. However, automation and remote control play an increasingly important role in cloud computing (see *supra* para. 53). Conversely, cloud computing enables remote control by allowing access to computing sources over networks. It also enables new forms of automation, such as big data analysis¹¹⁹⁰ and machine learning.¹¹⁹¹ Assuming that cloud-based data centers will increasingly use automation and remote control, these phenomena will have a significant impact on the international taxation of cloud computing.

D) Conclusion

795 When source taxation was extended to permanent establishments without personnel, this was done with the intention of observing the principle of flexibility. However, certain parts of the permanent establishment concept are vulnerable to an interpretation that could undermine the tax base of source jurisdictions. That could be the case when the right-of-use requirement or the wording “through which” are interpreted with reference to technological criteria. Even if permanent establishments themselves are not defined in technological terms, these efforts can be effectively reversed if the attribution of profits remains tied to technological distinctions. Through the interpretation of the arm’s length principle, the OECD has created an impediment to the tax system’s ability to adapt to the proliferation of automation and remote control. Strictly speaking, the threat lies not in the existence of these phenomena but rather in the growing transaction value they may come to represent.

¹¹⁹⁰ HASHEM/YAQOUB/ANUAR/MOKHTAR/GANI/KHAN, PP. 102 f.

¹¹⁹¹ HWANG, PP. 403 f.

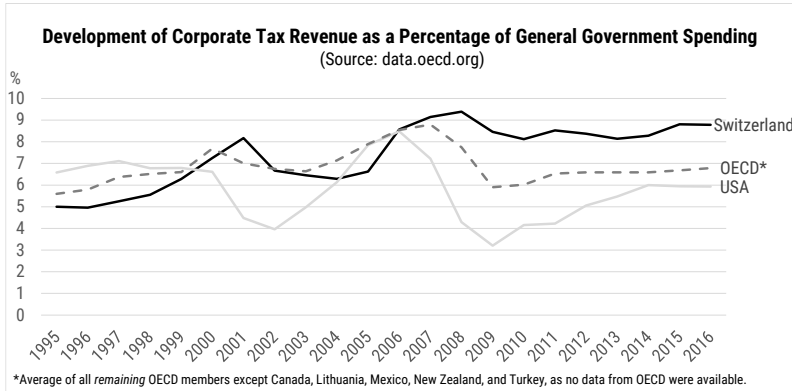
§ V. Empirical Evidence of Flexibility Issues

A lack of flexibility becomes apparent only when corporate direct tax revenue fails to meet the “needs of governments.” The OECD has not provided a definition of this expression. However, it can be assumed that it has some relation to “general government expenditure.” There is some evidence to show that since 1995 state revenue from corporate direct tax has remained stable in relation to government expenditure in most OECD countries. Post-1995 data is especially relevant as this was when the OECD became aware of the tax implications of the digitalization of the economy.¹¹⁹² For the analysis that follows, it is interesting to distinguish between (i) Switzerland, (ii) the United States, and (iii) the average of other OECD countries (with the exceptions indicated below). The United States will serve as a contrast to Switzerland. The information available from the OECD database can be represented in the following graph:¹¹⁹³

796

¹¹⁹² The OECD first referred to tax issues in relation to ICT-based business in OECD, *Software: an emerging industry*, Paris 1985, pp. 169 f. The first proper publication was the report entitled *Tax Treatment of Software*, in: OECD, *Model Tax Convention: Four Related Studies*, Paris 1992, pp. 65 f., reprinted in: OECD, *The Tax Treatment of Software*, Paris July 1992, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, R(10). The next publication was OECD, *The Communications Revolution and Global Commerce: Implications for Tax Policy and Administration*, DAFFE/CFA(97)35/REV2, Turku November 19–21, 1997; this paper was preceded by U.S. DEPARTMENT OF THE TREASURY OFFICE OF TAX POLICY, *Selected Tax Policy Implications of Global Electronic Commerce*, Washington November 1996.

¹¹⁹³ The calculations underlying the graph were made by the present author on the basis of the following sources: OECD DATA, *General government spending, Total, % of GDP, 1970–2017*, <https://data.oecd.org/gga/general-government-spending.htm> (last viewed July 2, 2020); OECD DATA, *Tax on corporate profits, Total, % of taxation, 1965–2016*, <https://data.oecd.org/tax/tax-on-corporate-profits.htm#indicator-chart> (last viewed July 2, 2020).



797 As can be seen from this graph, OECD countries were able to cover between approximately 3.2 and 9.4 percent of their general government spending with revenue from tax on corporate profits. Switzerland and the average of the rest of the OECD were even able to increase this percentage over time. That was possible through an increase in corporate tax revenue in Switzerland,¹¹⁹⁴ and to a decrease in government spending in the other OECD countries.¹¹⁹⁵ The percentages for Switzerland and other OECD countries have never fallen below the 1995 values. The United States, by contrast, lost 1.2 percent between 1995 and 2016. It also had two large drops around 2000 and 2007. This is in line with a century-old trend, according to which US tax revenue from corporate tax has slowly but steadily been

¹¹⁹⁴ See also EUROSTAT, *Main national accounts tax aggregates (gov_10a_taxag)*, classification code D51B; label: Taxes on the income or profits from corporations for Switzerland, <http://ec.europa.eu/eurostat/data/database> (last viewed July 2, 2020).

¹¹⁹⁵ There is no consensus among scholars regarding tax revenue from corporate income; see COZMEI, P. 821, correcting PIOTROWSKA, JOANNA/VANBORREN, WERNER, *The corporate income tax rate-revenue paradox: Evidence in the EU*, February 2008, p. 10, https://ec.europa.eu/taxation_customs/sites/taxation/files/resources/documents/taxation/gen_info/economic_analysis/tax_papers/taxation_paper_12_en.pdf (last viewed July 2, 2020); EUROSTAT, *Main national accounts tax aggregates (gov_10a_taxag)*, classification code D51B; label: Taxes on the income or profits from corporations, <http://ec.europa.eu/eurostat/data/database> (last viewed July 2, 2020).

decreasing in relation to GDP.¹¹⁹⁶ It is only natural that the political stance taken towards tax revenue from corporate taxes should be different from the rest of the OECD. Whether these drops are due to inflexibility in its tax system or to other reasons is a question outside the scope of the present thesis. Other possible causes are untimely tax cuts, wars, and economic crises.

In sum, there has been no fall in tax revenue from corporate taxes in relation to government spending. On the contrary, corporate taxes have come to account for a larger share of the tax mix.¹¹⁹⁷ This is significant because the data coincides with the period during which the digitalization of the economy could hypothetically have diminished corporate tax revenue. So the digital economy may even have helped to increase the share of tax revenue from corporate taxes.¹¹⁹⁸ Admittedly, the figures do not provide irrefutable proof. However, there seems to be no empirical evidence of the digital economy jeopardizing the “needs of government.” Thus, the flexibility issue does not seem to be particularly urgent in an average OECD country, and particularly in Switzerland. Whether the situation is more

798

¹¹⁹⁶ For instance, TAX POLICY CENTER, *Corporate Income Tax as a Share of GDP, 1946–2015*, <https://www.taxpolicycenter.org/statistics/corporate-income-tax-share-gdp-1946-2015> (last viewed July 2, 2020), based on THE WHITE HOUSE, OFFICE OF MANAGEMENT AND BUDGET, *Historical Tables/Table 2.3/Receipts by Source as Percentages of GDP: 1934–2023*, <https://www.whitehouse.gov/omb/historical-tables/> (last viewed July 2, 2020). However, there seems to be some confusion in this regard; see KIELY, EUGENE, *Paul Ryan Misleads on Corporate Tax Revenues*, April 16, 2018, <https://www.factcheck.org/2018/04/paul-ryan-misleads-on-corporate-tax-revenues/> (last viewed July 2, 2020).

¹¹⁹⁷ OECD, *Revenue Statistics 2018*, Paris 2018, p. 55.

¹¹⁹⁸ See ETRO, PP. 179 f.; IANSITI/RICHARDS, PP. 344 f. It is worth recalling that Amazon Web Services publicly launched its first IaaS, EC2, in the year 2006; see AMAZON WEB SERVICES, *Announcing Amazon Elastic Compute Cloud (Amazon EC2) – beta*, August 24, 2006, <https://aws.amazon.com/de/about-aws/whats-new/2006/08/24/announcing-amazon-elastic-compute-cloud-amazon-ec2--beta/> (last viewed July 2, 2020).

dramatic in certain other countries (such as the United States) is a question beyond the scope of the present thesis.

799 Even if it were found that there had been a decrease in tax revenue, that would not be sufficient to infer the existence of a flexibility issue. For that, it would still be necessary to show a causal link (or at least a correlation) with ICT-based business. In 2005, the OECD stated that it did not find sufficient evidence of a flexibility issue,¹¹⁹⁹ and at the time of writing it has not been able to provide such evidence. Therefore, the flexibility principle is not readily available to advocate an immediate change in international tax law. This conclusion is particularly valid from a Swiss perspective.¹²⁰⁰

§ VI. Conclusion on Flexibility

800 The digital economy is described as “the result of a transformative process brought by information and communication technology (ICT).”¹²⁰¹ Also, “[d]efining what constitutes the digital economy has proved problematic, because of the ever-changing technologies.”¹²⁰² At the same time, it is recognized that there is no generally accepted

¹¹⁹⁹ OECD, *Are the Current Treaty Rules for Taxing Business Profits Appropriate for E-Commerce?/Final Report of the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for Taxing Business Profits*, Paris June 2004, p. 27.

¹²⁰⁰ This is not because such loss of tax revenue cannot be measured. Ways have been found to measure tax avoidance and connect it to a significant loss of tax revenue (e.g., COBHAM/JANSKY, p. 221, with further references). However, as shown earlier (see *supra* para. 720), the risk of tax avoidance in the case of cloud computing as technology or as a business model is low. This does not mean that there might not be taxation issues with the OECD’s concept of digital economy, but that question lies outside the scope of the present thesis.

¹²⁰¹ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 142.

¹²⁰² EUROPEAN COMMISSION, *Commission Expert Group on Taxation of the Digital Economy/Report*, May 28, 2014, p. 11.

yardstick by which to measure the supposed technological advancements that make new taxation rules necessary.¹²⁰³

While the digital economy may display considerable dynamism as a whole, the fundamentals of cloud computing as described in the present thesis are a noteworthy exception. The basic technology¹²⁰⁴ and the business models¹²⁰⁵ have been around for decades. It seems at first sight that other elements of the digital economy, such as the fintech business models relating to cryptocurrencies, may evolve more rapidly than cloud computing in a tax-relevant manner.¹²⁰⁶ However, the main factor is the increasing frequency of, and value attributed to, certain transactions influenced by cloud computing.

Of the several issues that were analyzed, some turned out to be of little importance. Notably, cloud computing cannot be accused of jeopardizing the tax base of a jurisdiction by threatening the existence of traditional intermediaries. In fact, a cloud provider could be considered as a new sort of intermediary.

In addition, the fact that the digital economy can compete with local brick-and-mortar businesses while avoiding tax liability in the market jurisdiction is a problem that has to be kept in proportion for cloud computing as a whole. For that, certain distinctions needed to be made. In general, the concepts of digital economy and cloud computing were both too broad as a basis on which to assess the

¹²⁰³ OLBERT/SPENGL, p. 5.

¹²⁰⁴ For a comparison of current cloud computing technology with 1960s timesharing technology, see NEMANI, pp. 272 f.

¹²⁰⁵ See SCHUSTER/REICHL, p.40. The tax implications of outsourcing and commoditization have been the subject of numerous studies.

¹²⁰⁶ See, e.g., CUNEO, STEVE/GRIEGO, IGNACIO/SEAMAN, SAM/BARRETT, JEFF/LIDDELL, MAURICE, *Evolving Cryptocurrency Framework*, June 2018, <https://www.bdo.com/insights/industries/financial-services/%E2%80%8Bevolving-cryptocurrency-framework> (last viewed July 2, 2020), regarding various regulatory developments concerning how cryptocurrency-related businesses are conducted and therefore also taxed.

flexibility of the rules of taxation developed in Part I of the present thesis.

- 804 By contrast, the automation and remote control performed through cloud computing constitute a significant threat to the tax base of market jurisdictions based on current taxation rules. Notably, the flexibility of the permanent establishment concept and the attribution of profits to servers should be revised.
- 805 Finally, no empirical evidence of inflexibility in the current tax rules was found. This means that no urgent changes need to be made on the basis of the flexibility principle. It might be worth monitoring whether future fluctuations of a state's tax revenue are caused by any of the aforementioned flexibility aspects of cloud computing. The most likely cause would be an increase in automation and remote control. Such increase might well be related to the proliferation of cloud computing (which is essentially a form of remote control of automated machines). However, there may be many other industries that are equally affected by the continuing spread of automation and remote control.¹²⁰⁷

¹²⁰⁷ See, e.g., OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, pp. 53 f., explicitly mentioning the manufacturing and agricultural industries.

Section V Neutrality

§ I. Between Cloud Computing and Brick-and-Mortar Businesses

The neutrality principle requires that cloud computing should not be regarded as an isolated domain. In general, proposed rules must be capable of application to all sorts of business, including brick-and-mortar businesses. Special treatment of certain areas of business, such as cloud computing or the digital economy, should only be considered in exceptional, well-justified cases when such special legal treatment is necessary to compensate for an inequality in the subject matter.¹²⁰⁸ Cloud computing can and should be studied as a particular example of the application of a much wider range of general rules of taxation. It should help to highlight particular problems in the general rules that need to be fixed for the benefit of all business sectors. When studying cloud computing, it is important to bear in mind that it is but one of many industries and situations.

806

In certain areas, it is possible that special treatment of cloud computing is justified. In that case, such treatment must be based on the unique characteristics of the technology or business model. This means that any intended special treatment should be based on a thorough understanding of cloud computing, including its technological, economic, and legal particularities. As the analyses in this thesis will reveal, that should only rarely be the case (see *infra* paras. 809 f.).

807

¹²⁰⁸ The same neutrality argument has even led to the claim that dealing with the digital economy separately would ultimately lead to a state aid case under EU law; see CUSONS, PETER, *BEPS: possible EU law issues*, *Tax Journal*, June 20, 2014, <https://www.taxjournal.com/articles/beps-possible-eu-law-issues-18062014> (last viewed July 2, 2020).

§ II. Between Similar Cloud Computing Businesses

808 The neutrality principle explicitly states that “[t]axpayers in similar situations carrying out similar transactions should be subject to similar levels of taxation.” This means that cloud computing businesses that are sufficiently comparable with each other should bear similar tax costs. Thus, the neutrality principle is intended to prevent distortions in market competition. If large cloud providers are able to spend more on tax compliance than smaller cloud providers competing in the same global market, tax compliance costs can constitute market entry costs. The neutrality principle can be used to argue for the removal of tax compliance costs for smaller market participants.¹²⁰⁹

§ III. Specific Areas of Application

A) Introduction

809 When applying the neutrality principle, special attention should be given to the rules addressing ICT-based business in particular. Three areas are targeted by rules of this kind: the server permanent establishment concept (see *supra* paras. 344 f.); the treaty characterization of transactions involving software (see *supra* para. 480); and the interpretation of the arm’s length principle with regard to servers (see *supra* para. 527).

¹²⁰⁹ See also OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 21, concerning “vertical equity,” which also seems to apply to corporations. Similarly: the dissenting opinions of Chief Justice Roberts and Justices Breyer, Sotomayor, and Kagan in the decision of the United States Supreme Court of June 21, 2018, *South Dakota v. Wayfair, Inc.*, 585 U.S. (2018).

B) Permanent Establishment

The special rules regarding the server as a permanent establishment introduced in the OECD COMMENTARY, Art. 5, pre-BEPS paras. 42.1–42.10, are probably the best known in this context and have also generated most discussion in scholarly literature. As can be inferred from separate analyses, most of these rules have no particular normative effect on cloud computing.¹²¹⁰ However, they create a number of uncertainties in cloud computing taxation, which are likely to have an impact on taxpayer behavior. Therefore, there may be a need to change these rules in order to reestablish neutrality between cloud computing and other businesses that are not targeted by these specific rules. 810

There are also issues regarding future tax rules. Most importantly, a lack of neutrality is perceived between local brick-and mortar businesses liable to tax and the nonlocal webshops not liable to tax which compete with them.¹²¹¹ This criticism is directed at the digital economy, which implies cloud computing. 811

However, the argument should be relativized. Local and foreign cloud providers do not necessarily cater to the same clientele. Their situations are not altogether comparable. Moreover, cloud customers that need local hosting generally do not compete with local brick-and-mortar businesses. Therefore, the neutrality argument cannot be applied without certain restrictions to at least one of these two categories. For more detailed reasoning, see the parallel argumentation with regard to flexibility *supra* paras. 772 f. 812

In conclusion, the neutrality argument can lend greater certainty to the international tax rules applicable to cloud computing. However, 813

¹²¹⁰ For more on the following two statements, see *supra* para. 603.

¹²¹¹ Most recently, this idea resurfaced in the decision of the United States Supreme Court of June 21, 2018, *South Dakota v. Wayfair, Inc.*, 585 U.S. (2018); see especially pp. 16 f.

its relevance to the perceived lack of tax liability resulting from cloud computing's nonphysical aspects is less clear.

C) Treaty Characterization

814 The treaty characterization of transactions involving software applies equally to cloud computing. Here, it generally means that the withholding of taxes in the source jurisdiction is ruled out (see *supra* para. 498). At first, this seems consistent with the OECD's reluctance to apply withholding taxes to the digital economy.¹²¹² The fact that Art. 12 MOECD is not applicable to SaaS because no software code is transferred (see *supra* paras. 489 f.) should not be considered as an unequal treatment of SaaS compared to traditional software transactions. This difference (like all the other treaty characterizations made in the relevant OECD report¹²¹³) simply results from the application of the general principles of treaty characterization. In fact, cloud computing can be compared only with those traditional software transactions that were not targeted by Art. 12 MOECD (see *supra* para. 680).

D) Transfer Pricing

815 Finally, the OECD's interpretation of the arm's length principle with regard to automated business activities performed by a server is problematic (see *supra* paras. 527 f.). Although the OECD intended merely to apply the generally applicable features of the arm's length principle (thereby presumably avoiding unequal treatment), the result

¹²¹² See OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 114; see also OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, p. 139.

¹²¹³ OECD, *Treaty Characterisation Issues Arising from E-Commerce*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, R(18), *passim*. For further discussion, see *supra* paras. 457 f.

is not compliant with the neutrality principle. A case of unequal treatment is revealed when situations involving servers are compared with those that do not involve servers. In actual fact, having a server perform certain automated functions in or from a particular location is economically equivalent to having a human perform those functions at that server's location (except with respect to wages, see *infra* para. 864).¹²¹⁴ This is true regardless of whether the customer is at the same or a different location, as a human being usually contacts a customer remotely (e.g., by phone, e-mail, or letter¹²¹⁵) in a manner identical to a server (by answering requests from a client computer via the Internet). The neutrality principle requires that there should be no discrimination between a situation in which a human service provider is personally present on site and one where the human being is replaced with a machine that the human being controls from a remote jurisdiction. This opinion is discussed separately in more detail *supra* paras. 658 f. and 787 f.

§ IV. Conclusion on Neutrality

In conclusion, the principle of neutrality has an important impact on the application of the other principles of the Ottawa Taxation Framework. Alone, it also reveals certain inequalities in the tax treatment of ICT-based business, namely with regard to the permanent establishment concept and the application of the arm's length principle to servers.

816

¹²¹⁴ COCKFIELD, paras. 26 f., making exactly the same argument with many examples for programmed activities. However, COCKFIELD opposes this (more convincing) interpretation of the arm's length principle because he thinks that it does not protect the tax base in OECD jurisdictions. In the present author's view, such reasoning is not legally but politically inspired.

¹²¹⁵ Notably, under VAT law most businesses will effectively need written invoices (in paper or electronic form) to fulfill the formal requirements of Art. 26(1) Swiss VAT Act, enabling them to deduct input tax.

Section VI Efficiency

817 Policymakers should consider whether prospective rules are too impractical for tax administrations and taxpayers. The rules must be modified if the cost of complying with them exceeds the resulting tax revenue. It is important to remember that in the cloud computing sector there is a multitude of small and middle-sized businesses whose compliance budgets are limited.

818 Compliance with withholding taxes was an issue encountered previously in this analysis. The greater the number of jurisdictions to be complied with, the more costly compliance becomes. Cloud providers often offer their services via the World Wide Web, regardless of whether they have the means to acquire compliance services. These costs have a distortionary effect on competition when only cloud providers with the financial means to ensure compliance are able to offer their cloud services globally. The efficiency principle requires these compliance costs to be reduced, if possible.

819 Moreover, there are situations in which the applicable tax rules seek to reflect the efficiency principles but fail to do so. The most obvious example is the exclusion of preparatory or auxiliary activities from the permanent establishment definition in Art. 5(4) MOECD. It is not right to raise taxes where the taxpayer performs only preparatory or auxiliary activities,¹²¹⁶ because such activities are believed generally to create less tax revenue than significant and essential activities.¹²¹⁷

¹²¹⁶ GÖRL, in: VOGEL/LEHNER, Art. 5, para. 85.

¹²¹⁷ OECD, *Fiscal Committee, Concept of Permanent Establishment, Note by the Secretary of the Committee*, Paris January 1958, p. 10, which constitutes a draft of the OECD COMMENTARY, Art. 5, para. 12, on the 1963 Model Convention: "But the [auxiliary] services it [i.e., the branch] performs for its parent enterprise [i.e., head office] are so far antecedent to the actual realisation of profits by its parent body [i.e., head office] that no profits can properly be allocated to it [i.e., the branch];

However, this is not necessarily so. The qualitative assessment might originally have been introduced to simplify self-assessment for taxpayers. However, the abundant case law and the arbitrary application of the examples provided in Art. 5(4) MOECD show that this goal has not been reached.

820 These issues demonstrate that the implementation of the efficiency principle depends on recognizing where there is no need for compliance or administrative costs. Then it is possible to invent ways of reducing the unnecessary costs. This is done in a separate section *infra* paras. 936 f.

accordingly it [i.e., the branch] does not constitute a taxable unit [i.e., a permanent establishment].”

Section VII Provisional Conclusion

The preceding inquiry presents a complete picture of the extent to which the current taxation of cloud computing complies with the Ottawa Taxation Framework. It appears that recent literature has been overemphasizing the lack of compliance with the effectiveness and fairness principle. On the other hand, the certainty and simplicity principle and the flexibility principle are at much greater risk.

821

The analysis of these latter two principles of the Ottawa Taxation Framework provides ample scope for imagination. The amendments to the current rules of taxation it inspires will be presented in Part III of this thesis. Before that can be done, however, the results realized need to be compared with those of the OECD in prior work. This comparison will serve as a rudimentary assessment of the quality of the results achieved in the present thesis.

822

Section VIII Comparison with Prior Work

The presumed “challenges” of technological innovation have remained unchanged and unresolved for a long time. The OECD has made several attempts to address these challenges since 1999, proposing various remedies and, apart from a few exceptions, rejecting them immediately.¹²¹⁸

823

There are some differences between the present thesis and the work of the OECD. These differences are what enables the present thesis to propose amendments to the current rules. For instance, the OECD is primarily concerned with the effectiveness and fairness principle (especially in BEPS Action 1). Hence, the other principles of the Ottawa Taxation Framework are less prominent in its analysis than in the present thesis. The certainty and simplicity principle appears to have been unduly neglected, whereas, as demonstrated in the present thesis, there are many opportunities to implement more certainty and simplicity. Finally, the OECD has not yet investigated on all technological aspects of cloud computing that are relevant to taxation. As a result, its assessment of cloud computing in BEPS Action 1 was unable to reach any definitive conclusions on the

824

¹²¹⁸ For instance, Art. 13 MLI mentioned that the list of negative examples in Art. 5(4)(a)–(d) MOECD is contingent on the activity being of a preparatory or auxiliary nature. This idea stems from OECD Action 1 and the discussion around ICT-based business. However, Switzerland did not adopt the rule and it is questionable whether the examples in Art. 5(4)(a)–(d) actually have any particular relevance for ICT-based business (see *supra* paras. 325 f. and 389 f.). Amazon’s use of warehouses for its indirect e-commerce business, which is considered as the trigger for this idea (see BIANCO/TOMAZELA SANTOS, point 5), has little to do with its use of ICT. Despite making more use of technology, warehouses continue to perform the same business function. Of course, it could be argued that this is a problem in itself and that Art. 5(4)(a)–(d) MOECD should be extended to accommodate examples that have some relevance to ICT-based business. However, that would doubtlessly violate the principle of neutrality. For the present author’s recommendation in this regard, see *infra* paras. 929 f.

subject. By contrast, the present thesis is entirely based on the factual circumstances of cloud computing business and technology.

825 In conclusion, there are certain differences of approach between this thesis and the OECD. They are due to the incompleteness of the OECD's analysis. It should be said that the OECD recognizes the summary nature of its research on cloud computing. Despite these differences, the results of the present thesis seem to accord with the OECD on the most important point: both consider that the effectiveness and fairness principle does not provide sufficient justification for immediate legislative action in the context of cloud computing. Thus, the level of effectiveness and fairness is basically appropriate.

Chapter 5: Conclusion on Appropriateness

Part II of this thesis has sought to answer the question of whether the rules of international taxation currently in force are appropriate for present-day manifestations of cloud computing as technology and as a business model. The question was examined in the light of the official OECD principles informing tax legislation in the context of cloud computing (the so-called Ottawa Taxation Framework).

826

The OECD has had to admit that there is no evidence of cloud computing constituting a unique risk of base erosion and profit shifting. The example provided in Action 1 does not seem to be specifically related to cloud computing technology or business models. Therefore, the fight against tax avoidance can scarcely justify reforming the current set of rules applicable to the international taxation of cloud computing.

827

Some minor modifications may nonetheless be called for to prevent certain possible risks (e.g., a likely increase in the use of automation and remote control). The position of taxpayers in the cloud computing business reveals that there is considerable scope for improving the legal certainty and flexibility of these rules. Modifications should concentrate on the certainty and simplicity principle and the flexibility principle.

828

Part III: *De Lege Ferenda*

Chapter 1: Introduction

Part II of this thesis revealed various opportunities for amending the international taxation of cloud computing. The question to be addressed in Part III is, what amendments can be proposed? 829

All propositions will be based directly on the conclusions drawn from the preceding analyses. Any recommendation will include a description of how it can solve the problems presented in Part II. The order in which the issues are covered will differ from the previous structure in that transfer pricing will be dealt with first. This is because a recommendation regarding transfer pricing will form the basis for most other recommendations. 830

The recommendations are intended to provide an answer to the question, how should cloud computing influence the making of tax rules. At the same time, they will also form a basis for new questions that will need to be answered in future research, the most noteworthy of which are presented in a separate chapter. 831

Chapter 2: Recommendations

Section I General Considerations

The following recommendations are intended to enhance the implementation of the principles discussed in Part II. These include (see *supra* paras. 572 f.): effectiveness and fairness; certainty and simplicity; flexibility; neutrality; and efficiency. Certainty proved to be the most pressing issue (see *supra* para. 821), so it will be given special emphasis. Sometimes, certainty will be increased simply through better communication. The areas in which certainty can be improved were pointed out earlier (see *supra* paras. 722 f.), so the following sections will not dwell on the most obvious of these opportunities.

832

The removal of juridical distinctions based on technology will be a recurrent theme. This recommendation results directly from the flexibility principle. It aims to prevent technological changes from influencing the size of the tax base of the source jurisdiction. Furthermore, the removal of references to technology in tax rules would increase tax certainty. Refusing to plan for the introduction of such distinctions¹²¹⁹ would have the same effect. The proposed recommendations show how to avoid technological distinctions.¹²²⁰

833

¹²¹⁹ See *supra* paras. 753 f.

¹²²⁰ The recommendations are based on the following perceived technological distinctions in the current rules: the current interpretation of the right-of-use requirement based on the technical sophistication of the control over the place of business (see paras. 667 f.); the qualitative and possibly technological interpretation of “essential and significant activity” (see *supra* para. 436); the ineligibility of remote-controlled business activity for the business activity test (see *supra* paras. 658 f.); the application of the arm’s length principle without distinction between humans and machines, between different kinds of machines, and between the remote control, programming, and construction of a machine (see *supra* paras. 787 f.), which leads

In so doing, they provide a means of harmonizing the application of the law across all businesses that are fundamentally the same. In this respect, they implement the neutrality principle.

834 In light of the principle of neutrality, the recommendations are not intended to be restricted to the cloud computing business or the digital economy. It is indeed neither possible nor desirable to ring-fence whatever is digital and detach it from the rest of the economy.¹²²¹ Cloud computing will serve as a springboard for recommendations designed to produce the same effect on every kind of business that shares fundamental features with it.

835 For instance, automation and remote control affect many kinds of industries that may or may not be related to cloud computing. Given that cloud computing is fundamentally influenced by the taxation of remote and automated activities, an inquiry into cloud computing taxation may help to illuminate the issues raised by the taxation of remote and automated activities in general. An analysis of industries less influenced by automation and remote control is likely to produce less perceptible results.

836 If, on the basis of those results, a change in the law were confined to cloud computing, that would be contrary to the neutrality principle, because cloud computing is not fundamentally distinct from other industries in its use of automation and remote control. So, while a change in the rules regarding automation can be inspired by the effects it is intended to have on cloud computing, it should also be sufficiently neutral for it to potentially apply to other businesses that

to the attribution of profits deriving from remote control to the location of the machine and the corresponding change to Art. 15 MOECD (see *infra* paras. 967 f.).

¹²²¹ OECD, *Tax Challenges Arising from Digitalisation/Interim Report 2018*, Paris March 2018, p. 18. So-called ring-fencing of regimes can be a key factor for a certain set of (domestic) tax rules to qualify as harmful preferential tax regimes (OECD, *Harmful Tax Competition/An Emerging Global Issue*, Paris May 1998, pp. 26 f.; see also “criterion 2,” in: EU GENERAL SECRETARIAT OF THE COUNCIL, *Agreed guidance by the Code of Conduct Group (business taxation): 1998–2018*, 5814/3/18 REV 3, Brussels July 13, 2018, pp. 5 and 117 f.). Such regimes must be avoided.

use automation and remote control. Whether or not the ideas developed from observing cloud computing can actually be applied to other businesses is a question that goes beyond the scope of the present thesis and must be left to future research.¹²²²

¹²²² See *infra* paras. 986 f.

Section II Transfer Pricing

§ I. General Idea

The OECD should introduce a new interpretation of the arm's length principle for remote-controlled machines. This new interpretation should acknowledge that the work of a human being—in a situation where he or she is controlling a machine remotely—actually takes effect at the location of the machine. The OECD should also withdraw its previous opinion, which implied that the location of the human body is of chief importance in remote-controlled activity and that profits for activities performed through the machine should be attributed primarily to the location of the human being. The present thesis, on the contrary, contends that those profits should be attributed primarily to the location of the machine.

837

The same argument should apply to the programming or physical modification of machines. This is because it is not possible to draw a clear distinction between the remote control, programming, and physical modification of a machine. For example, a data center is remote-controlled, programmed, and physically modified (i.e., constructed) to perform the business functions assigned to it by the personnel.

838

The attribution of profits to a data center (a permanent establishment) can be done in two steps. First, one must acknowledge that, in principle, all profits arising from the activity of a human being performed through the data center are attributable to it. Next, the human being's activities performed directly for the location of the data center must be remunerated. The remuneration must comply with the arm's length principle and this should be verified on the basis of available service, license, or sales comparables. This second step of remunerating the location of the human being is equivalent to deducting from the taxable profit at the location of the

839

data center the cost of acquiring hardware, software, or development services from third parties.

§ II. Implementation

840 If this recommendation is accepted, the following text should be added to the OECD TPG:

D.6.2. Combining advantages of different local markets through remote-controlled machinery

1.144 A human being controlling a machine for any kind of work from a remote location abroad creates value through that work at the location of the machine. Thus, the functions assumed and risks incurred should not be attributed to the location of the human being, but rather to the location of the machine. In other words, the controlled transaction occurs between the location of the machine and the location of the acquirer of the service performed through the machine. It is comparable to an uncontrolled transaction between a human being at the location of the machine and the acquirer of the service. This is true of any kind of tangible machine that can be controlled remotely, such as oil drilling equipment, computing infrastructure, robots, etc.

1.145 Any distinction between (i) remote control, (ii) programming, and (iii) physical modification of a machine would need to be based on a purely arbitrary and inflexible technological distinction. Technology has made these three ways of using machines largely interchangeable. Moreover, this demonstrates that they are all functionally and economically equivalent. Therefore, the remote control, programming, and physical manipulation of a machine

should all have the same tax consequences as described in the previous paragraph.

1.146 As a machine is incapable of performing any business functions on its own, it acquires its ability to execute these functions from human beings. As such, it is a vessel of a human being's intentions. The services, licensing, and sales performed by humans through the machine must be remunerated by the machine at arm's length on a transaction-by-transaction basis. These transactions represent the construction or purchase of the hardware, the programming or licensing of the software, and the service of remotely controlling it. Generally, the remuneration will decrease in proportion to the technological sophistication of the machine, reducing the human effort needed to maintain the same productivity level. Furthermore, the labor costs can be lower at the location of the human being than at the location of the machine. On an arm's length basis, these location savings are likely to be passed on fully to the machine, further increasing its taxable profit. Finally, the tangible and intangible assets as well as the risks attributable to the location of the machine need to be considered.

Corresponding changes would need to be made to the *OECD Report on the Attribution of Profits to Permanent Establishments*¹²²³ and the OECD COMMENTARY, Arts. 5, 7, and 9. The position taken on this subject in previous OECD publications¹²²⁴ would need to be revoked, at least to the extent that it conflicts with the new interpretation proposed here.

841

¹²²³ OECD, *2010 Report on the Attribution of Profits to Permanent Establishments*, Paris July 22, 2010.

¹²²⁴ Especially the following publications: OECD, *Clarification on the Application of the Permanent Establishment Definition in E-commerce: Changes to the Commentary on the Model Tax Convention on Article 5*, Paris December 2000; OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, Paris December 19, 2005.

842 The present recommendation merely describes the principle. Whether the principle can be simplified for day-to-day application is a different question. Simplification would in any event need to be based on a correct interpretation of the arm's length principle. A simplified version of the present recommendation for small businesses and small taxable amounts might be desirable in the light of the certainty and simplicity principle.

§ III. Justification

A) *OECD Interpretation of the Arm's Length Principle*

843 The OECD's interpretation of the arm's length principle with regard to the effect of automation on functional analysis begins with some undisputed facts: Human beings are the originators of any automated or remote-controlled business function executed by a server (as well as of the related assets and risks).¹²²⁵ Further, the profits earned from a transaction must be attributed to the party that performs the business functions. Thus, the profits should be attributed to human

¹²²⁵ "Hardware and software do not, on their own, ensure that commercial activities occur on a web site" (OECD, *Attribution of Profit to a Permanent Establishment Involved in Electronic Commerce Transactions/A Discussion Paper from the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for the Taxation of Business Profits*, Paris February 2001, p. 14). This argument is repeated in various forms on the following pages of the document (e.g., in paras. 80, 59, 61, 67, and 70, which, for example, raise the question of who would conclude a contract with a computer). Of course, unexpected things can happen to machines, as when they are damaged by a natural disaster or a server is hacked by malevolent outsiders. However, it is probably safe to say that in most cases a computer will only make a taxable profit when a human being so wills.

actions, not to the actions of a computer.¹²²⁶ In other words, the server is merely a cross-border extension of the human being.

However, the OECD then goes on to make an inexplicable leap in its reasoning. It states that, when the transaction occurs, the bodies of the personnel are located at the head office (thanks to automation and remote control) rather than at the location of the server and that, for precisely this reason, the profits should also be attributed to the tax jurisdiction in which the head office is located.¹²²⁷

While conceding that at least some (albeit “routine”) business functions are performed where the server is located, the OECD mistakenly assigns remote human intellectual activity to basically inactive human bodies. Yet there is a difference between the physical location of the human programmers’ bodies and what—without wishing to push the discussion into the realm of science fiction—could be called the location of their “virtual selves.”¹²²⁸ It is their virtual selves that perform the business activities through automation and remote control.¹²²⁹ In the present author’s view, the OECD fails to recognize that the business functions are still performed by human beings, but at the location of the server and not at the head office.

The arm’s length principle focuses primarily on the comparison of business activities, not on those executing the activities. The arm’s length principle requires that all facts and circumstances that have a

¹²²⁶ In the case of permanent establishments, profit is attributed according to “significant people functions” (OECD, *2010 Report on the Attribution of Profits to Permanent Establishments*, Paris July 22, 2010, p. 26), leaving no room for attribution to automated equipment. Henceforth, the expression “business functions” will encompass the meaning of “significant people functions.”

¹²²⁷ See *supra* para. 527.

¹²²⁸ Presenting a similar idea: HORNER/OWENS, p. 519. Unfortunately, the same authors seem to contradict themselves on p. 521, where they attempt to attribute profits to the server alone and not to the human activity (i.e., remote control, programming, or construction) performed through it. Also presenting a similar idea: DOERNBERG/HINNEKENS, pp. 167 f.

¹²²⁹ See MAZUR 2016, p. 673.

direct effect on the valuation of a transaction be taken into account, which makes it impossible to ignore where human business functions take effect. If the place where the personnel are located is different from the place where an activity takes effect (as is the case with remote control), the location of the physical bodies of the personnel is often secondary. Economically, a human being remotely controlling a machine from abroad must be compared to a human being where the machine, not the remote controller, is located.¹²³⁰

847 The OECD's interpretation leads to several problems that were only partly acknowledged at the time. Most fundamentally, it makes the attribution of profit dependent on a black-and-white conception of automation at a permanent establishment (in other words, the equipment is either automated or not automated). As a result, the scope of application of the OECD's interpretation is difficult to circumscribe. Considering technological diversity and continuing progress in servers, at what degree of technological sophistication does the interpretation apply to a future, currently unforeseeable piece of hardware? The OECD's postulation overlooks the fact that, in reality, a business function can at best be placed on a spectrum of degrees of automation.¹²³¹ The view that a business function is either automated or not is too simplistic and will inevitably lead to problems when attempting to make legal definitions. The new interpretation presented in this thesis detaches itself from attempts to artificially binarize automation, while still taking account of automation's effects on the overall arm's length price.¹²³²

848 Businesses are likely to continue investing in data centers and in technological assets in general. Technology generally improves the productivity of the human beings who use it. Consequently, such

¹²³⁰ See *infra* para. 853.

¹²³¹ ROPHOHL, PP. 144 f., essentially showing that the use of technology forms a spectrum of different degrees of usage.

¹²³² See *infra* para. 856.

investments create a competitive advantage that generates value. It would seem unfair to tax the income from this increased productivity at the place where the personnel are located when it was brought about by investment elsewhere. It is at the place where these investments are made that the deductions for acquisitions and amortizations are generally claimed. The jurisdiction that bears the tax deductions should also be able to benefit, to the appropriate extent, from the returns on the investment.

Finally, the idea that a permanent establishment can exist without the need for on-site personnel is not fully implemented if a permanent establishment's tax base is incommensurate with the economic importance it has in the enterprise's overall value chain. A permanent establishment's activity is by nature essential and significant (Art. 5(1) MOECD). It would be inconsistent to accept remote control for the server permanent establishment's business activity test (see *supra* para. 110) and yet not include profits resulting from remotely performed activity in the profits attributable to that server permanent establishment.

849

B) Overview on the Consequences of a New Interpretation

The main consequence of the above realization is that the machine's location can have the same economic role and effects as the location of human beings. While it is true that no functions should be attributed to a lifeless object called a server, that does not preclude the possibility to acknowledge the importance of a location for the acts of human beings, regardless of what objects are located there to enable the human beings to act.¹²³³ In particular, humans acting

850

¹²³³ This is mentioned here to assuage the doubts of critics that refuse to attribute business functions to servers due to a fear of anthropomorphising them. Such critics need to be reminded that, technically, the OECD TPG do never solicit tax lawyers to

through a machine give the site where the machine is located the ability to acquire functions, assets, and risks. The following table provides a simple example of the main consequence regarding the attribution of sales to a permanent establishment:

| | Non-automated business unit | Automation-assisted business unit | Highly automated business unit (e.g., a data center) | Business unit without on-site personnel (e.g., a lights-out data center) |
|---|-----------------------------|-----------------------------------|--|--|
| Number of non-automated function units (e.g., human traders) | 3 | 2 | 1 | 0 |
| Number of automated function units (e.g., computer traders) ¹²³⁴ | 0 | 1 | 2 | 3 |

Current Interpretation (OECD)

| | | | | |
|-------------------------------|---------|---------|---------|---------|
| Attributable sales (humans) | CHF 300 | CHF 200 | CHF 100 | CHF 0.- |
| Attributable sales (machines) | CHF 0.- | CHF 12 | CHF 24 | CHF 36 |

New Interpretation

| | | | | |
|-------------------------------|---------|---------|---------|---------|
| Attributable sales (humans) | CHF 300 | CHF 200 | CHF 100 | CHF 0.- |
| Attributable sales (machines) | CHF 0.- | CHF 100 | CHF 200 | CHF 300 |

attribute business functions to neither objects nor persons, but ultimately only to locations.

¹²³⁴ Automated function units are not to be equated with the number of servers. Rather, they represent the idea that automated and non-automated function units have a comparable degree of productivity. Considering that a machine regularly has a higher productivity than a human being with regards to its respective business function, it can be assumed that one machine can make up a multiple of the function units provided by one human being.

Correspondingly, the site of the machine is also able to trade these functions, assets, and risks in transactions with third parties and dealings with the head office (see *infra* para. 857). These functions, assets, and risks lead to the attribution of costs and losses that will most likely reduce the attributable net taxable profit of the permanent establishment in many cases. The profits at the permanent establishment will be significantly reduced if the head office has to provide goods and services of a high overall value to the permanent establishment.¹²³⁵ This will likely be the case when the permanent establishment is set up and the head office must be remunerated for the provision of physical servers and setup services. As soon as the automation at the permanent establishment is capable to earn profits from third parties without the need for substantial assistance from the head office, a more substantial part of the profits will remain at the permanent establishment. A more comprehensive set of examples is provided *infra* at paras. 878 f. First, however, it will be necessary to explain the theoretical underpinnings of the presently proposed interpretation of the arm's length principle in the following paragraphs.

851

C) *Interchangeable Forms of Cross-Border Human-Machine Interaction*

The OECD has accepted the premise that a machine, such as a server, does no work on its own.¹²³⁶ Human beings are needed to induce the work performed through a machine and are thus the original cause of the machine's activity. In essence, the above premise applies to any

852

¹²³⁵ This was recognized by the OECD but rejected due to the assumed impossibility of attributing business functions to the location of the server, see OECD, *Attribution of Profit to a Permanent Establishment Involved in Electronic Commerce Transactions/A Discussion Paper from the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for the Taxation of Business Profits*, Paris February 2001, p. 27 (paras. 108 and 109).

¹²³⁶ See *supra* para. 527.

of the three ways in which human beings influence machines across borders, namely *remote control* (i.e., the real-time commanding of a machine from a remote location, including turning it on and off), *programming* (i.e., predetermining through software the actions to be performed by a machine at a remote location), and *physical modification* (i.e., constructing the entire machine, or assembling or modifying its physical components in order to create or modify its functionalities, including its energy supply).¹²³⁷ This is but an attempt to capture the wide range of actions that can be undertaken with a machine. Machines¹²³⁸ include tangible, man-made constructs, such as computers, servers, oil drilling equipment, any kind of robots, and so forth. In the context of this thesis, special reference is made to machines that can be controlled remotely from outside a jurisdiction's territorial borders, such as a server connected to a worldwide network.

853 The functions that are performed at the location of the server through *remote control* from elsewhere are the easiest to conceive of as human activity taking effect at a remote location.¹²³⁹ For that purpose one might imagine a business function that can be performed by a human just as efficiently as by a server, such as sales or the delivery of information. Having a server perform certain remote-controlled functions in or from a particular location is economically equivalent to a human being performing these functions at that server's location

¹²³⁷ These distinctions are inspired by ROPOHL, pp. 120 f.

¹²³⁸ Defining "machine" is a separate and independent matter; see ROPOHL, p. 118.

¹²³⁹ The OECD gives an example that, if interpreted as involving remote control of machines for the development of software at the location of the server, would lead to similar results as the method proposed here; see OECD, *Attribution of Profit to a Permanent Establishment Involved in Electronic Commerce Transactions/A Discussion Paper from the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for the Taxation of Business Profits*, Paris February 2001, p. 31; see also *ibid.* p. 34.

(except as far as wage levels are concerned; see *infra* para. 864).¹²⁴⁰ This is true regardless of whether the customer is at the same or a different location, because customers are generally contacted remotely (e.g., by phone, e-mail, or letter) in a manner identical to a server (by answering requests from a client computer over the Internet). A business chooses that particular location for many reasons.¹²⁴¹ The analogy will be explained in a subsequent example (see *infra* para. 888).

The same should also apply to *programmed* activities¹²⁴² (i.e., the automated functions of a server), as they are not meaningfully distinguishable from remote-controlled activities. Setting up a machine to perform a certain task (e.g., through programming) can be considered a form of remote control in which the act of commanding the machine and the reaction of the machine are asynchronous on the timeline. From the opposite perspective, remote control can be seen as an act of setting up a machine at the same time as the machine performs the functions for which it has just been programmed.

Finally, the construction or modification of the arrangement of the physical parts of the machine should be treated identically to remote control and programming. Both computers and mechanical machines almost invariably necessitate some sort of human control, even if it is only to turn them on and off. Otherwise, the machine would not be capable of performing any tasks other than those allowed by its

¹²⁴⁰ COCKFIELD, paras. 26 f., making exactly the same argument and offering many examples of programmed activities. However, COCKFIELD is against this (more convincing) interpretation of the arm's length principle because he thinks that it does not protect the tax base of OECD jurisdictions. This seems a purely political reason and not a valid legal argument. The present thesis considers the extent to which the current tax rules comply with a politically established instrument—the Ottawa Taxation Framework.

¹²⁴¹ SEJATI, P. 264.

¹²⁴² See *supra* note 1240.

854

855

original build.¹²⁴³ In addition, the construction or physical modification of a machine cannot be properly distinguished from programming. Computer programming at the software level consists in physical arrangements of electrons on electronic circuitry. Hence, programming can be conceptualized as a subcategory of a machine's construction or physical modification. In this regard, it helps to remember that electronic computers have developed from mechanical computers¹²⁴⁴ (such as the mechanical calculator of Blaise Pascal). Conversely, some software programming is translated into what is referred to as "firmware" (i.e., hard-wiring of software algorithms into physical electric circuits). So-called field-programming allows existing circuits to be modified by their users.

856 In sum, these three kinds of automation (i.e., remote control, programming, and construction of a machine) are the three ways in which a human being can use a machine in a cross-border situation. Hence, all aspects of the activity of a machine that is regarded as a foreign extension of the activity of a human being must be treated as a whole. It would be precarious for a rule maker or a tax lawyer to try to differentiate between construction, programming, and remote control, as any distinction would be based on an arbitrary and inflexible technological distinction, which could easily be circumvented by a taxpayer or ultimately made useless by the progress of technology itself.¹²⁴⁵ It makes sense to attach the same legal consequences to the three phenomena.¹²⁴⁶

¹²⁴³ ROPOHL, PP. 200 f.; for instance, a machine that is Turing complete will be programmable only if the original build of the machine contains the necessary parts of a Turing machine.

¹²⁴⁴ WEISSER, PP. 1 f.

¹²⁴⁵ See ROPOHL, PP. 144 f.

¹²⁴⁶ See ROPOHL, P. 201, equating programming with controlling a machine; contra[?]: LEHMANN, pp. 6 f. The possibility of source taxation will continue to be determined according to the characterization defined in Arts. 6, 7, 12, and 13 MOECD and

D) **Remuneration for Direct Human Activity**

It has been established that a machine performs no activities on its own. That is, it acquires all its activities from humans.¹²⁴⁷ Henceforth, such activities will be called “direct human activity,” as opposed to “indirect human activity” performed *through* the machine. Direct human activity can consist in programming and remote control services provided by humans directly to the place where the machine is located. It may also involve the modification of physical parts of the machine, and the licensing or sale of software and hardware. Direct human activity can be remunerated in the form of one-off capital gains, regular rents, or on demand. A server can be programmed by in-house programmers or by freelance programmers from various jurisdictions. That can happen successively or even at the same time. All of these activities can be delivered directly to the site of the machine; hence, they qualify as *direct* human activity.

857

In contrast, *indirect* human activity is the activity that is performed by the machine for the benefit of the customer. It is the source of income for the entire enterprise. An example is a software as a service hosted on that server. While only the machine is active in the interaction with the customer, it is still called “human” activity, since the machine

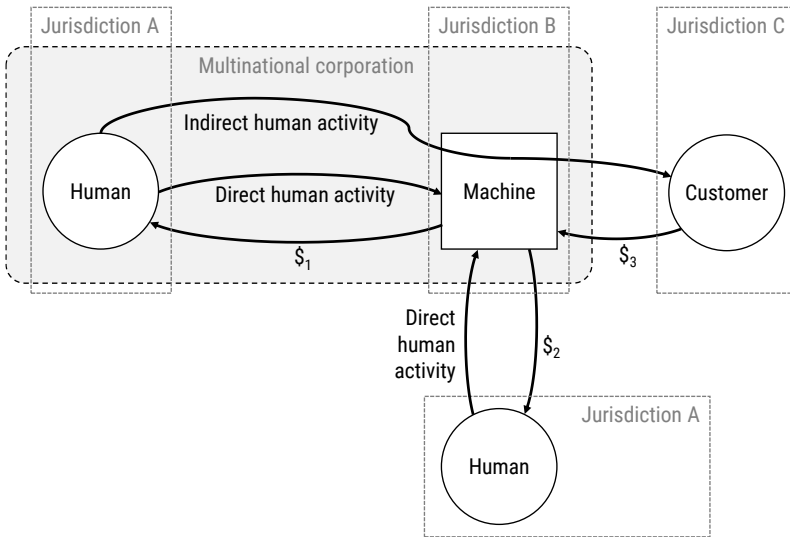
858

Art. 12A UN Model (see *supra* para. 203). The recommendation discussed here is limited to transfer pricing adjustments to the quantities involved in a transaction characterized in accordance with any of those provisions.

¹²⁴⁷ Such activities include those performed by human beings through the use of artificial intelligence, whatever its degree of sophistication. Self-programming programs (which it is fashionable to call “machine learning”) remain artefacts; so even when a program programs a program that has been programmed by another program, there is always a human at the beginning of that chain. This means that artificial intelligence—provided it does not acquire legal personality—will always be attributable to a human owner. The human being will use it as a tool to generate income. A business has no interest in spending money on developing artificial intelligence if it does not expect income in return. Thus, the hypothetical situations discussed by DE LIMA CARVALHO, PP. 435 f., seem improbable. Regardless of the improbability of the proposed scenarios, it seems he is correct in admitting that a computer program can be the main source of income for a business and that it should be taxed at the place where it runs (p. 43).

cannot act on its own and only receives all commands from humans (through remote control, programming, physical setup, etc.). Nevertheless, the human beings act only indirectly, because they have no direct interaction with the customer. Neither would they be able to interact with the customer without the intermediation of the machine. Only the machine, and not the human beings behind it, is able to provide the customer with the requested product, which in this example would be the software as a service.

859 The difference between direct and indirect human activity can be illustrated in the following diagram:



860 Direct human activity performed by in-house personnel ($\$1$) must be remunerated on an arm's length basis. However, that does not mean that all profits acquired originally through the machine ($\$3$) are automatically redistributed to the human beings as remuneration for their services, licenses, and sales. Rather, the transaction between the human and the machine must be analyzed in the same way as a transaction between two human beings. In principle, the personnel performing a direct human activity earn the same remuneration as a

third-party human service provider offering the same direct human activity (i.e., $\$_1 = \$_2$).¹²⁴⁸

The arm's length price for the direct human activity must in any event be determined on the basis of the OECD TPG by means of a comparability analysis,¹²⁴⁹ which must include a thorough functional analysis and the application of the most appropriate transfer pricing method. In most cases, as a separate entity,¹²⁵⁰ the site of the machine would earn a return on investment for most acquisitions of services, licenses, and sales. In other words, the remuneration for direct human activity would most likely be smaller than the remuneration for the indirect human activity (i.e., $\$_1 = \$_2 < \$_3$).

On the one hand, the analysis should consider the functions, assets, and risks borne by the provider of the direct human activity. On the other hand, it should consider the functions, assets, and risks concentrated at the site of the machine. For instance, the site of the machine may perform such significant and valuable functions as contacting clients, concluding electronic contracts, performing automated services, and providing licenses for digital products. The assets include not only the physical machine itself (which in the case of data centers is highly valuable) but also the software intangibles in use (i.e., the existing programming of the machine). If the business

¹²⁴⁸ This is based on the observation that the arm's length principle requires comparisons between controlled and uncontrolled transactions (see SEJATI, p. 272).

¹²⁴⁹ The advantage of the approach proposed here is that transactions need only be priced in the presence of comparables. Finding comparables is one of the main challenges facing the digital economy (SEJATI, pp. 274 f.). Part of the problem probably lies in the OECD interpretation (see *supra* paras. 527 f.). Implicitly, it seems to require comparables from completely autonomous servers (presumably, servers equipped with nonproprietary, independent, and highly advanced artificial intelligence) offering "routine functions" on the free market, which, of course, is an absurd premise. Hence, the OECD was forced to make imprecise comparisons with activities performed by human beings (see OECD, *E-commerce: Transfer Pricing and Business Profits Taxation*, in: *OECD Tax Policy Studies*, No. 10, Paris May 2005, pp. 24 f.).

¹²⁵⁰ This refers to the OECD's "separate entity approach"; see *supra* para. 288.

model depends on the proper functioning of the machine, a certain risk would need to be attributed to the site of the machine as well. If a human programmer merely adds an algorithm whose effect is to bring about a slight improvement in the performance of a machine which already generates the bulk of the business's income, the remuneration of that human programmer will be but a small part of the machine's income.

863 With regard to the remote use of a machine, certain specificities will generally need to be taken into account. For instance, there will always be an increase in productivity. A machine generally contains a tool,¹²⁵¹ which increases a human being's productivity. Like any tool, it will reduce the costs per production unit.¹²⁵² More technologically sophisticated tools (i.e., with a higher degree of automation) will generally lead to greater cost savings. In the case of servers, technology itself allows the tools used and the extent of their use to be tracked. Obviously, the savings created by the use of the tools contained in the machine should be attributed to the machine and reduce the remuneration for the direct human activity. Large and technologically sophisticated data centers would be able to achieve considerable cost savings.

864 Further, the cross-border aspect of the machine's use gives the human operator of the machine (relatively) more freedom in choosing a location. For instance, wage levels in the jurisdiction where the human operator is based could be lower than at the location of the machine, or the labor market might be more attractive, so an enterprise could make savings by taking advantage of these differences. Consequently, these location savings¹²⁵³ need to be taken into account when quantifying the arm's length remuneration of direct human activities. The extent to which these location savings

¹²⁵¹ See REULEAUX, PP. 480 f.; WOLFFGRAMM, P. 45.

¹²⁵² See *supra* note 1090.

¹²⁵³ See OECD TPG, paras. 1.141 f.

should reduce the remuneration price (so-called pass-through) must be assessed on the basis of the arm's length principle as well.

E) Application to Subsidiaries

The preceding remarks were primarily concerned with the attribution of profits between a staffed head office and a data center permanent establishment (as explained in the case study in Part I; see *supra* para. 15) pursuant to Art. 7 MOECD. In principle, these considerations are equally valid for transfer pricing among associated enterprises pursuant to Art. 9 MOECD (i.e., when the data center is part of a separate legal entity).¹²⁵⁴ In contrast to the OECD, the interpretation proposed here reaches similar results for a subsidiary (which is required by OECD COMMENTARY, Art. 7, para. 16). Some explanations are nonetheless needed on how this new interpretation of the arm's length principle would work in the context of transfer pricing among subsidiaries.

865

One subsidiary A would comprise the data center with the on-site personnel on its payroll. The other subsidiary B would employ the software development team and the part of the hardware operation team that performs its work remotely through the data center. In all probability, subsidiary B will pay a fee to subsidiary A for its use of the data center (composed of service fees; see *supra* para. 510). The software development team is likely to pay this fee out of the revenue it acquires directly from the group's third-party customers. The fee would need to contain the net profits (or losses) attributable to subsidiary A. According to the new interpretation proposed in this thesis, that would include all the profits that are attributable to the activity performed through it, including from the business functions of IT personnel physically located at the software development subsidiary B. Such personnel would be "virtually" performing their

866

¹²⁵⁴ This is more frequent than data center permanent establishments; see *supra* para. 53.

activities through programming and remote control at the site of the data center.

867 Then, the services, licenses, and sales provided by the software development subsidiary to the data center would need to be remunerated on an arm's length basis, taking into account all software development needed for the proper functioning of the data center itself, provided there are comparables available. This includes the possible service fees, royalties, or sales attributable to the direct human activity. Sales that are completely automated and performed through the data center (i.e., indirect human activity) would not form part of the remuneration. Finally, the remuneration would also need to cover the salaries of those human beings who perform the direct human activities (provided these salaries are not taxable at the location of the data center on the basis of any of the recommendations in the following sections; see *infra* paras. 967 f.). Based on these observations, it is possible to conclude that, in the case of the present recommendation, the application of the arm's length principle would yield ostensibly the same results for a subsidiary as for a permanent establishment.

F) *Applicability to a Virtual Permanent Establishment*

1) *Introduction*

868 The alternative interpretation of the arm's length principle put forward in this thesis has many advantages. One of them is that it would work in the context of a so-called virtual permanent establishment, which is basically a new type of permanent establishment not subject to the same tangibility requirement as the current permanent establishment concept. Hence, a software provider would be able to have a permanent establishment at the place where a consumer accessing a

website on his or her client computer is located. There have been many attempts to make variant forms of this idea a reality.¹²⁵⁵

One of the main problems of this proposition is that the current interpretation of the arm's length principle would not be able to attribute any significant amount of taxable profit to this kind of permanent establishment.¹²⁵⁶ The main reason is that no functions could be attributed to a jurisdiction unless the taxpaying enterprise had physical assets or personnel at that location.¹²⁵⁷

869

2) *Applications of the Proposed Interpretation*

Unlike the current interpretation of the arm's length principle provided by the OECD, the alternative proposed here would be capable of applying to virtual permanent establishments. Thus, it is in a better position to satisfy the flexibility principle. Moreover, it would even be able to differentiate between virtual permanent establishments that are full-fledged distributors and those that are low-risk distributors (for a definition, see *supra* para. 156).

870

Some business models depend primarily on images being created on the client's screen (e.g., video streaming platforms). A business model of this kind is exposed to the risk that it might not be able to produce these screen images. This technological risk must be attributed to the virtual permanent establishment, that is, the client screen. In these business models, some of the most significant

871

¹²⁵⁵ See, e.g., HINNEKENS 1998, p. 197; European Commission, *Proposal for a Council Directive laying down rules relating to the corporate taxation of a significant digital presence*, COM(2018) 147 final, 2018/0072, Brussels March 21, 2018, https://ec.europa.eu/taxation_customs/sites/taxation/files/proposal_significant_digital_presence_21032018_en.pdf (last viewed July 2, 2020).

¹²⁵⁶ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 112; with regard specifically to automation, see *supra* paras. 787 f.

¹²⁵⁷ OECD, *Addressing the Tax Challenges of the Digital Economy, Action 1/2015 Final Report*, Paris October 2015, p. 111.

business functions are performed where the client screen is located. Potentially, intangibles are being exploited at that location as well.¹²⁵⁸ In a manner of speaking, the client's screen replaces a certain number of human vendors or service providers present at that location. This could result in significant functions, assets, and risks being attributed to the location of the client. Hence, this kind of business model would see a comparatively high percentage of taxable profit attributed to the virtual permanent establishment.

872 In the case of a business model that only occasionally interacts with a client computer (such as an online backup storage service used once a year), on the other hand, a lower percentage of taxable profit would be attributed to the virtual permanent establishment. This is justified because less availability is needed for the services provided under this model. Business functions of greater importance are performed at the location of the server. Consequently, the interpretation proposed here would also work in a situation where the cloud customer is considered to have a permanent establishment at the location of the hosting data center. The profit attributable to the data center would depend on the importance of the place it occupies in the cloud customer's value chain. A significant amount of profit is likely to be attributed to a fully automated and digitized business model.

873 From the comments made in the preceding paragraphs, it might seem as if computer equipment were acting rather than human beings. However, as explained in the sections above, this would be an oversimplification. The functions are performed not by the servers

¹²⁵⁸ One of the proposals offered by the United States in the policy debate concerning the digital economy in 2019 concerned the use of the concept of marketing intangibles to attract a larger share of the corporate income tax basis to the jurisdictions where a business' customers are located (OECD, *Public Consultation Document Addressing the Tax Challenges of the Digitalisation of the Economy*, 13 February – 6 March 2019, Paris February 2019, pp. 11 f.). In contrast to the proposals in the present thesis, the marketing intangibles approach seems not to rely on people functions to attribute income, which opens up possibly unanswerable questions.

and clients but by the human programmers and operators acting *through* or *at* those locations. This is done through synchronous or asynchronous remote control and programming of physical assets at the location. A client computer does not perform business functions on its own; it performs the actions that it is ordered to perform by the remote service provider. The fact that the client computer is not owned or rented by the service provider is of no consequence. What is relevant is that it is at the disposal of service providers for them to use in performing their business.

3) *Related Work*

Various authors have expressed the opinion that it would be wrong not to attribute a significant portion of taxable profits to an economically important virtual permanent establishment. These authors also think that it is possible to achieve such a result without changing or abolishing the arm's length principle. Rather, a mere reinterpretation of it would allow taxable profit to be attributed to virtual permanent establishments.¹²⁵⁹ There have been various result-oriented proposals to achieve that profit attribution methodically. They discuss how, in some business models, user participation could be considered as having a value-creating effect. Reference is often made to the example of social networks, such as Facebook.¹²⁶⁰ Some believe that a qualified form of user participation should be seen as an asset of the taxpayer located in the market jurisdiction.¹²⁶¹ The

874

¹²⁵⁹ For instance, PETRUZZI/BURIAK, p. 17; BRAUNER/PISTONE, p. 2; SCHÖN, p. 290; HONGLER, PETER/PISTONE, PASQUALE, IBFD Blueprints for a New PE Nexus to Tax Business Income in the Era of Digital Economy – Working Paper, January 20, 2015, https://www.ibfd.org/sites/ibfd.org/files/content/pdf/Redefining_the_PE_concept-whitepaper.pdf (last viewed July 2, 2020), p. 34.

¹²⁶⁰ Specifically mentioning Facebook: BAL 2018, p. 4; SCHÖN, p. 282; PETRUZZI/BURIAK, p. 14.

¹²⁶¹ OLBERT/SPENGLER, p. 34, positing that the creation of “content” generates value; PETRUZZI/BURIAK, p. 17, proposing that data be considered as an asset; BECKER/ENGLISCH, p. 169, refining the idea to include intangibles.

OECD has announced several times that it will provide further guidance on how “active user contribution” should be used as an argument for attributing taxable profit to a jurisdiction.¹²⁶²

875 In general, these emerging ideas all seem to adhere (implicitly, for the most part) to the OECD’s current view that profits can be attributed only to the place where the human bodies of programmers and computer operators are located.¹²⁶³ In this regard, the above-mentioned profit attribution reform proposals are fundamentally different from the interpretation of the arm’s length principle put forward in this thesis, which critiques the OECD’s assumptive and hitherto unquestioned opinion. However, the possibility of attributing taxable profits to virtual permanent establishments is but a side-effect of reestablishing coherence and, as such, is not the principal subject of this thesis.

4) *Conclusion*

876 The present thesis does not attempt to discuss the taxation of the digital economy as a whole. It is merely concerned with what was described as cloud computing (see *supra* paras. 5 f.). However, to satisfy the neutrality principle, the present recommendations must be

¹²⁶² PASCAL SAINT-AMANS, *OECD Tax Talks# 11*, Paris January 29, 2019, <http://www.oecd.org/tax/tax-talks-webcasts.htm> (last viewed July 2, 2020).

¹²⁶³ For instance, PETRUZZI/BURIAK, p. 14: “The traditional understanding of functions relates to the physical presence of employees”; OLBERT/SPENGLER, p. 38: “Accounting for the interaction of people functions and (intangible) asset value might justify some allocation of IP rents from their location in low-tax to high-tax countries where a company’s staff is located”; HOFMANN/RIEDEL, p. 174, when criticizing the idea that “sustained user relationships” proposed by BECKER/ENGLISCH could constitute an intangible at the location of the users: “ownership, according to existing tax rules, is to be assigned to those parties within the MNE that performed the functions, deployed the assets and bore the risks related to the creation of the intangible asset [meaning the physical location of the personnel involved in these specific functions, assets, and risks].” As a notable exception, several authors propose that game theory can be of assistance to fundamentally reinterpret the arm’s length principle; see SEJATI, pp. 279 f., with further references.

potentially applicable to phenomena beyond cloud computing. The reinterpretation of the arm's length principle proposed here has the potential side-effect of attributing taxable profit to some forms of virtual permanent establishments. Its true worth, however, lies in its reintroduction of consistency into the interpretation of the arm's length principle.

G) Summary of the Justification

Contrary to the result reached by the OECD in its interpretation,¹²⁶⁴ a portion of the profits linked to the automated and remote-controlled functions performed at the location of the server by human beings should be attributed to that permanent establishment, regardless of where the human beings are physically located.¹²⁶⁵ Attempting instead to attribute functions, assets, and risks artificially to a server (and failing to do so) would go against the finding that a server performs no work on its own.¹²⁶⁶ Then, arm's length remuneration should be calculated separately for each transaction whereby the

877

¹²⁶⁴ In assuming that the machine does nothing on its own (see *supra* para. 527) and that the sole cause of the profit generated is the human being's real-time commanding of the machine, the OECD basically makes the mistake of artificially differentiating between operating the machine (i.e., remote control) and programming or constructing it. The machine is the physical result of a human activity of constructing and programming (see ROPOHL, pp. 65 f.), even if it was acquired from a third party (see *supra* para. 839). Attributing all the profit to operating the machine is inconsistent with the arm's length principle because that would imply that computer hardware (i.e., constructing) and software (including programming services) could be acquired or rented from third parties for free and never yield any return on investment, which is obviously untrue.

¹²⁶⁵ Similarly: MAZUR 2016, p. 673, although she instinctively rejects the idea; see also KRAUZE, p. 146, hinting at a similar idea, rejecting it without further explanation, and reflecting on the functionality of software without considering its origin. Similar also: SCORNOS, p. 6, who argues in favor of an attribution of significant people functions to a "presence of [artificial intelligence]", without further considering the origin of the artificial intelligence, its geographically determinable form, or the business reasons for its location.

¹²⁶⁶ Similarly, but much shorter: GREIL/FEHLING, p. 764.

personnel perform services for the server's location. Such services would include software development services, licensing, the sale of hardware or software, as well as a potential fee for remote control.

§ IV. Examples

- 878 An imaginary scenario will serve as an example to illuminate the most important aspects of this argument on remote control and automation.
- 879 A human taxpayer A builds an anthropomorphic robot B, which A can command by remote control from his office in jurisdiction R where he is resident. Then, A sends that robot B to a source jurisdiction S. There the robot B is used to give legal advice in a rented office, which qualifies as a permanent establishment (see Art. 5(2)(c) MOECD). Local customers (in jurisdiction S) seeking legal advice from the robot B visit this office. The robot B transmits the incoming requests and data to A in real time. Using a microphone, A gives legal advice which is delivered to the customers through a speaker in the robot B. The customers (in S) pay the robot B in cash, which constitutes the sole income for A's business.
- 880 The OECD and the present author both agree that the activity seemingly performed by the robot B in the source jurisdiction is actually performed by the human being A in his residence jurisdiction. From that observation, the OECD would conclude that the fees that the local customers pay the robot B in the source jurisdiction S are attributable to the residence jurisdiction R, which is where A is located. However, this conclusion disregards the fact that A's legal advice transactions are not identical to those of a legal adviser situated in the residence jurisdiction R. A could not advise local customers in the source jurisdiction S without making use of a presence in the source jurisdiction S. The office and the robot are a

conditio sine qua non for all of the profits.¹²⁶⁷ Thus, A's actions should in principle be treated in the same way as if he had been physically present at that office in the source jurisdiction (S).

Of course, A has built the robot B in the residence jurisdiction R, so sending the robot B to the source jurisdiction S would constitute the renting or sale of a machine to the permanent establishment in S.¹²⁶⁸ However, the same human being A exploits the asset at the permanent establishment once it has been transferred there. Further, A may be able to claim a service fee for providing legal advice to the robot, based on production costs in the residence jurisdiction R. As lawyers are paid less in that jurisdiction, A cannot claim a higher arm's length price than what the robot B would earn as a lawyer in the source jurisdiction S. This is probably the rationale for setting up the business this way.

Therefore, except for the price of selling or renting the machine and the service fee for legal advice, all of the profits would be attributable to the source jurisdiction S. The reason is that all of the profits arise from the core business, which is performed through the permanent establishment. A cannot claim the entire profit earned at the permanent establishment in the source jurisdiction S, because it is not he who performs the function of contacting clients in S. In fact, there would be no profit at all if the permanent establishment were not located there. A's salary should be paid by the permanent establishment in the source jurisdiction S, which is where the human

¹²⁶⁷ In terms of the arm's length principle, this means that the differences in comparability between a human in the residence country R and the situation described here cannot be amended by comparability adjustments. In the context of economic value chain analysis, BALDWIN might use the expression "*sine qua non* bottleneck"; see BALDWIN, PP. 8 f.

¹²⁶⁸ This is recognized by the OECD in OECD, *Attribution of Profit to a Permanent Establishment Involved in Electronic Commerce Transactions/A Discussion Paper from the Technical Advisory Group on Monitoring the Application of Existing Treaty Norms for the Taxation of Business Profits*, Paris February 2001, p. 23 (para. 91).

being A is virtually present through the use of the robot B. This is where the activities of A actually take effect.

883 Further, a customer might want to ask a question in a specialized field of law that is not very familiar to A. In this case, A might want to set up a microphone for a second lawyer L that is also physically present and resident in jurisdiction M, that has wage levels similar to R. Only L is specialized in the field of law that fits the need of that particular customer and is independent from A's business operation. Disregarding that a specialized activity might earn higher wages per production or time unit, A and L solve each 50% of the case of the customer. In this case A can only be attributed as much of the wages as L. It also has to be taken into account that the robot has to pay the rent for the office.

884 In a slight variant, it is possible to imagine that A programs the robot B before sending it to the source jurisdiction S, in such a way that B is pre-equipped to respond to all customer requests (i.e., through automation). This would be economically and functionally equivalent to remote control.¹²⁶⁹ The robot B is technologically more sophisticated, which will be reflected in lower production costs. Thus, if A's action is merely to command the robot B, he will earn less remuneration for his remote-control services.

885 It should be taken into account that the software program, too, is of human origin. In this variant, the same human lawyer A programs the robot B, as mentioned before. The programmer's remuneration must be calculated in accordance with the arm's length principle. It is possible to characterize the software as another asset that could have been rented to the permanent establishment. As this is likely to

¹²⁶⁹ It should be added that even when the robot B is remote-controlled by the human being A, there is always a degree of automation. For instance, the amount of pressure and number of turns the electric motors in the robot's joints have to make when commanded to lift its arm are predetermined, which is a form of automation.

qualify as “dealing”¹²⁷⁰ between the permanent establishment and the head office, the jurisdiction of the programmer¹²⁷¹ would be entitled to tax the royalties earned from renting the software (this is commonly called the “licensing model”¹²⁷²). However, A in fact exploits the intangible through the permanent establishment. Even after deducting the royalty payments, the residual profits from that exploitation would need to be attributed to the permanent establishment.¹²⁷³

Alternatively, it could be argued that the software intangible was actually developed by the permanent establishment, with the head office in the residence jurisdiction merely performing R&D services (this is commonly called the “service model”). A, acting for the permanent establishment, might have decided to bear the development risks on behalf of the permanent establishment. In this case, the residual profits would still be attributable to it, although after deduction of the service fees. If the robot had acquired 50% of the software from third parties, A would be entitled to the same amount of fees as the third parties. Finally, the permanent establishment might have bought the rights to the software intangible for a one-off payment without the human being who works through the permanent establishment assuming any development risks (this is commonly called the “sales model”). After the acquisition, the

886

¹²⁷⁰ Changes to the initial distribution of capital and profits between permanent establishment and the head office are only allowed when there is an internal dealing. A “dealing” is a real and identifiable event similar to a transaction between associated enterprises, and it is ascertained through a functional and factual analysis; see OECD, *2010 Report on the Attribution of Profits to Permanent Establishments*, Paris July 22, 2010, p. 48. It is subject to transfer pricing adjustments (*ibid.*, p. 50).

¹²⁷¹ This is true regardless of whether the programming is done by an enterprise that is an affiliated group member, by another part of the same enterprise, or by a nonaffiliated third party. The arm’s length principle so requires.

¹²⁷² On these distinctions, see ABDALLAH/MURTUZA, pp. 8 f.

¹²⁷³ See SEJATI, pp. 272 f.

permanent establishment would be allowed to deduct the acquisition expense or the amortization from corporate income tax and to enjoy all profit resulting from it.

887 Let us imagine another variant in which the robot is physically modified with firmware instead of being programmed at the software level. That situation would be economically and functionally equivalent to the above situation. Provided the permanent establishment is already operational, the same consequences would ensue, *mutatis mutandis*, in the leasing, service, and sales models as in the intangible property example in the preceding paragraph.

888 If, in the same scenario, the robot B were to give legal advice when customers call it by telephone from a third jurisdiction, that would also be economically equivalent to the situations discussed above, except that the permanent establishment would earn profits from exporting legal advice services to those other jurisdictions. Just like any call center that performs remote retail functions, A can perform its retail functions in the source jurisdiction S through remote control.

889 Even if A leaves the residence jurisdiction R, while continuing to give legal advice through the robot B in the source jurisdiction S, the residual profit would need to be attributed to the robot B. This would be true regardless of whether A (i) moves to a third tax jurisdiction where there is a permanent establishment, (ii) moves to a third tax jurisdiction where there is no permanent establishment,¹²⁷⁴ (iii) shifts the business's residence to that third jurisdiction, or (iv) travels incessantly around the world. In this regard,¹²⁷⁵ it is irrelevant where the human being is located.

¹²⁷⁴ In this case, according to Art. 4(1) MOECD, the human being would be considered a resident only for personal tax matters, but not in relation to his or her business.

¹²⁷⁵ The location would be relevant only with regard to the remuneration of the direct human activities performed by the human being from the place where he or she is located; see *supra* paras. 850 f.

In this scenario, the robot B is equivalent to a server permanent establishment that is assembled in the form of hardware, software-automated, and remote-controlled through a network. It should be clear by now that it is not necessary for the server to resemble the human being A in order for A to be able to perform business functions through it. Accordingly, a human being is able to perform business functions, acquire assets, and incur risks through a server permanent establishment, making it necessary to attribute the resulting profits to the server permanent establishment. Contrary to the OECD's interpretation of the arm's length principle, the location of A's body is not material to the attribution of the residual profits.

890

§ V. Alternative

As an alternative to the recommendation set out here, the OECD could insist on the importance of the physical location of human bodies. However, that would mean that certain other changes would need to be made for the sake of consistency. This is because the current set of rules accords with neither of the two options (the recommendation introduced above and this alternative). Rather, it is in a transitory phase.¹²⁷⁶

891

The OECD's interpretation of the arm's length principle would still need to be adjusted, as it does not make sense to compensate a server permanent establishment for routine functions. Personnel can take on business functions and generate profit only at the location where they are physically present. Consequently, no income would be

892

¹²⁷⁶ When the e-commerce permanent establishment was first discussed in 1997, the OECD raised the question of "whether the undertaking of periodical automated business functions (such as advertising, ordering, or payment) may be said to constitute the carrying on of a business through such a fixed place of business" (OECD, *Electronic Commerce: The Challenges to Tax Authorities and Taxpayers*, Paris November 1997, p. 24).

attributed to a data center permanent establishment that does not have any on-site personnel.

893 Instead, a solution would need to be found that allows profits made at remote-controlled permanent establishments to be attributed to the personnel that caused that profit. It would need to take account of the fact that a human being may be able to act through several remote-controlled or programmed permanent establishments at the same time.¹²⁷⁷

894 Furthermore, it should no longer be possible to constitute a permanent establishment without on-site personnel (see, e.g., *supra* paras. 118 f.). That should go without saying, as the fact that it is impossible to attribute profits to it would make this a de facto rule. Anyway, it would no longer make any sense to attach compliance costs to unmanned permanent establishments, as the cost would always outweigh the expected tax revenue. That would contradict the efficiency principle.

895 In the author's view, it is incoherent to interpret the arm's length principle in a way that focuses on the human element. The arm's length principle requires controlled transactions to be treated like uncontrolled transactions. The parties to uncontrolled transactions do not care whether a human being or a machine performs the characteristic services or prepares the sale. They do not set prices depending on the number of staff members involved. Thus, an interpretation of the arm's length principle that focuses on the human element would in fact depart from the arm's length principle. Furthermore, advances in automation and remote-control technology would make it easier for the interpretation to be circumvented. It is reasonable to assume that large employers would be able to gradually

¹²⁷⁷ It would still not be possible to distinguish remote control from programming or physical modification, as nobody has been able to come up with a consistent and technology-neutral criterion so far. It appears conceptually plausible that such criterion could not be found; see *supra* paras. 854 f.

shift their workforce (and their tax residence) to lower-tax countries to benefit from lower taxation.¹²⁷⁸

Which of the two alternatives will ultimately prevail is not a legal question, and therefore is beyond the scope of the present thesis. If ever the question is directly addressed, it is likely to be decided in the field of politics. The main interest of each jurisdiction will be to preserve or to expand its tax base.

896

§ VI. Connection with Cloud Computing

A correction such as that recommended above would lead to a more consistent interpretation of the arm's length principle, which would be particularly relevant to cloud providers.¹²⁷⁹ The correction would lead to more profits being attributed to permanent establishments constituted by cloud providers at data centers, as a data center today is highly automated and important business functions may be performed remotely by personnel physically located in a different country.¹²⁸⁰ Data centers functioning without the need for constant supervision by on-site human personnel already exist.¹²⁸¹ In the case of IaaS providers, contracting, payments, and the provision of services are all performed through data centers. In other words, the data center is largely preprogrammed by personnel physically located

897

¹²⁷⁸ SEJATI, P. 274; HORNER/OWENS, p. 518.

¹²⁷⁹ As a cloud customer will not generally have a permanent establishment at the data center according to the current rules (see *supra* para. 399), none of the cloud customer's profit can be attributed to the data center, even though the cloud customer's entire business may be performed solely through that location. Instead, all profit is taxed in the residence jurisdiction alone.

¹²⁸⁰ MAZUR 2016, P. 673; see also *supra* para. 15.

¹²⁸¹ See, e.g., DONOGHUE, ANDREW, *Beyond Lights-Out: Future Data Centers Will Be Human-Free*, in: Data Center Knowledge, September 19, 2017, <https://www.datacenterknowledge.com/design/beyond-lights-out-future-data-centers-will-be-human-free> (last viewed July 2, 2020).

at the head office or in a different subsidiary. In the case of SaaS providers, the software is executed on the data center infrastructure and the customer data is processed there. The head office would not have the necessary server infrastructure to perform these business activities. Data centers are the *conditio sine qua non* for any kind of business that provides cloud computing and should be taxed accordingly.

898 The above interpretation of the arm's length principle is strongly linked to technology, but also relates more broadly to international business decentralization. As has been observed repeatedly throughout this thesis, cloud computing is a means of decentralization as it allows personnel to be separated from data centers and the functions, assets, and risks of cloud computing businesses to be distributed among different locations.

899 For cloud customers, cloud computing's principal effect lies precisely in the fact that it permits decentralization. Such customers often have completely digitalized business models based on a global network of data centers. However, decentralization is also important for cloud providers. They tend to concentrate their human personnel in one location and to distribute their automated business functions in data centers throughout the world, and cloud computing facilitates such decentralization of business functions.

900 Furthermore, data centers are where the bulk of a cloud provider's tangible assets (servers, routers, buildings, cooling systems, etc.) are located and where the intangible assets (software intangibles, marketing intangibles, content copyright intangibles, know-how, etc.) are exploited. The tangible assets at a permanent establishment are mostly sourced directly from third parties, while many intangibles are initially acquired from or developed by humans at the head office. As a data center's software environment matures in the course of its use, the software intangibles are further developed at and by the permanent establishment. As a result, the arm's length price for the royalties due to the human personnel at the head office progressively

decreases. However, a cloud provider can also acquire the (standard and custom) software directly from third-party developers, which would make any compensation to the human personnel at head office for the exploitation of that software undeserved. Hence, cloud computing also decentralizes assets.

Finally, the performance of certain business functions at a data center means that the attendant risks are attributable to the data center permanent establishment. Although an enterprise that administers several data centers may decide on strategies that concern all the data centers at its head office, with the result that the head office assumes these larger strategic risks, many technological, credit, and other financial risks remain inextricably linked to the business functions performed through the permanent establishment. Potentially, the management risks that accompany the large strategic decisions at head-office level would be paid for by each permanent establishment through a management fee that includes a risk premium. Alternatively, each data center permanent establishment would bear the risk on its own and the management fee would be just a service fee for coordination between the different data centers by the head office. This will largely depend on the degree of centralization of the cloud provider. Therefore, cloud computing can be seen as decentralizing business risks, too.

901

§ VII. Conclusion

This section has recommended a change in the current interpretation of the arm's length principle with regard to the attribution of profits between human beings and servers. All income earned by an activity performed through a server should first be attributed to that server. Only thereafter can individual remuneration for direct interaction between the human being and the server be considered in accordance with the arm's length principle.

902

903 This proposition seeks to make the interpretation more flexible in anticipation of an expected increase in remote control and automation. Furthermore, it introduces more certainty and simplicity by replacing the OECD's ineffective interpretation. In addition, it can be seen as more neutral, as an automated permanent establishment would pay the same amount of tax as one staffed with human beings *ceterum paribus*. For the same reason, this interpretation is more effective and fairer, as taxation cannot be circumvented by using a higher or lower degree of automation in a jurisdiction. Given that the arm's length principle is regarded as efficient enough to be preferable to the alternatives,¹²⁸² the interpretation proposed in this thesis cannot be considered as particularly inefficient. That does not mean that the presently proposed application of the arm's length principle could not be simplified for practical use by small businesses, as long as the simplification is based on the correct theoretical grounds.

¹²⁸² See OECD TPG, para. 1.27.

Section III Permanent Establishment

§ I. Abolition of Right of Use

A) *General Idea*

The OECD has failed to introduce proper tax certainty by positively defining the right-of-use requirement.¹²⁸³ This is particularly problematic for the cloud computing industry (see *supra* paras. 342 f.). Apparently, there is no clear consensus on the removal of the right-of-use requirement and its replacement with a requirement of mere use by the place of business. Nor has there been any attempt to invent a new test involving some sort of farther-reaching factual right over the place of business. 904

It should be added that the OECD has a tendency to reduce, rather than increase, the requirements for permanent establishment status. This was evident in Action 7 of the OECD BEPS program. Therefore, the abolition of the right-of-use requirement would not be particularly far-fetched. 905

B) *Implementation*

At the international level, the abolition of the right-of-use requirement would hinge on a change in the OECD COMMENTARY, Art. 5, para. 11, which explains the general concept of right of use. Further, the examples in paras. 4.2–4.5 would need to be withdrawn. The same can be said of the last sentence in paras. 5.5 (concerning the area over which a satellite’s signals may be received), 9.1 (concerning roaming agreements), and 26.1 (concerning cables and pipelines). Most importantly, para. 124 would need to be removed altogether as 906

¹²⁸³ See *supra* para. 723.

it is the main source of conflict with the positive meaning of right of use in the context of cloud computing.¹²⁸⁴

907 At the level of Swiss domestic law, the literal meaning of Arts. 4(2) and 51(2) DTC does not preclude the proposed abolition of the right-of-use requirement. Thus, it seems to be a mere question of interpretation. However, there is no official guidance at the level of Swiss domestic law stating that such an interpretation is not possible. Therefore, it would seem appropriate for the competent Swiss tax administration to address the issue in a circular letter, rather than by changing the law. It is important for such a letter to contain transitional law, e.g., to state explicitly that permanent establishment status was conditional upon a right of use before the date of issuance of the letter. This would avert the risk of a taxpayer retroactively acquiring permanent establishment status in Switzerland because of this measure.

908 Switzerland would need to make a clear statement declaring the right-of-use requirement inapplicable, especially as mainstream scholarly thinking currently seems to take the opposite position.¹²⁸⁵ Such a declaration would be in line with the view that the Swiss domestic permanent establishment definition should be interpreted in a broad manner.¹²⁸⁶

C) *Justification*

909 The abolition of the right-of-use requirement would increase flexibility (see *supra* para. 580 f.). References to technology in rulemaking produce negative effects, as was observed when analyzing right of use as a requirement for permanent establishment status (see *supra* paras. 78 f.). The positive meaning of right of use implies some sort

¹²⁸⁴ See *supra* para. 354.

¹²⁸⁵ See *supra* para. 442.

¹²⁸⁶ See *supra* para. 442.

of factual control over a place of business. A legal definition of factual control likely involves highly detailed technical distinctions. The ways in which factual control over any business resource can be achieved through ICT are highly diverse as it is and that diversity is likely to increase. Rulemaking processes have neither the capacity nor the intention to monitor and regulate all ICT development. Rule makers should avoid any attempt to define what constitutes factual right of use in technological terms. Abolishing the right-of-use test would make the permanent establishment concept more simple and certain and, at the same time, more independent of future developments in ICT.

Several observations have been made which suggest that it might be easy to find the necessary consensus for its abolition. A majority of countries have reduced it to mere factual use already, including Switzerland.¹²⁸⁷

910

Furthermore, the concept of right of use lacks legitimacy. It is not part of the literal wording of Art. 5(1) MOECD. It may be that the only reason for the OECD to invent a right-of-use requirement in the OECD COMMENTARY was that they did not think of the fact that an enterprise, in order to constitute a permanent establishment, also had to carry on a substantial and significant business activity through the respective place of business (in the report characterized as the premises of a different enterprise). Possibly, the suggestive power of the term “mere presence” that the relevant report¹²⁸⁸ referred to as being insufficient for a permanent establishment and that to some could imply passivity, the absence of activity, made them simply

911

¹²⁸⁷ See *supra* para. 88.

¹²⁸⁸ OECD, *Issues Arising under Article 5 (Permanent Establishment) of the Model Tax Convention*, Paris November 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, pp. R(19)-11 (para. 27); also see *supra* para. 79.

forget about the business activity test.¹²⁸⁹ In the present writer's opinion, the necessity of fulfilling the business activity test should be sufficient on its own to reduce the risk originally perceived by the respective OECD committee that the mere presence of an enterprise (meaning the relocation of a few members of staff without any significant business-related goals) in a jurisdiction could lead to a tax liability there. An analysis of the origin of the term "disposal" in the preparatory materials and reports in this respect raises the suspicion of some form of legislative mistake, perhaps a mixture between an unsuccessful diplomatic compromise at the OECD and a misunderstanding between different generations of tax scholars throughout a long legislative process (basically from 1977 until at least 2012). That could mean that today's lawyers are in the absurd situation of having to interpret a rule that may not have been intended to exist according to the rule's own makers.¹²⁹⁰

912 In addition to all this, the uncertain nature of the right-of-use requirement seems to provide opportunities for tax judges and authorities to *de facto* disregard the principle of neutrality. This is made worse by the lack of a coherent body of historical reference material, as described in the previous paragraph, that provides interpreters of the concept with a great amount of leeway, resulting in increased unpredictability regarding permanent establishment status. This constitutes a serious risk of double and double-non-taxation that should be made the object of negotiations between any two parties intending to conclude a DTA.

¹²⁸⁹ The report seems to use the term "mere presence" as some sort of opposite of the requirement of legal right, establishing an imagined spectrum between the two terms. This spectrum did not exist before and, due to the absence of any further guidance from its inventors, needs interpretation, which will be provided in the present thesis.

¹²⁹⁰ This refers only to the makers of the 1977 OECD Commentary. The absurdity is of course relativized by the fact that the right-of-use requirement is supported by most scholars as a necessary condition to today's permanent establishment concept.

Finally, a right-of-use test does not serve the efficiency principle. The efficiency principle demands taxation where it is efficient, while the right-of-use requirement can deny the right of taxation for largely unpredictable and ultimately inefficient reasons. The requirement of right of use over a permanent establishment could restrict a source jurisdiction's tax base without any principle-based justification. 913

Arguably, the expansion of the scope of the permanent establishment concept possibly resulting from the abolition of the right-of-use requirement could be thought to create undue opportunities to avoid Swiss corporate income tax through increased use of outbound permanent establishments. However, the generally low effective corporate income tax rate in Switzerland,¹²⁹¹ as well as the recent restrictive approach of the Swiss Federal Supreme Court,¹²⁹² may limit any excessive attempts at tax avoidance. Of course, this possibility only exists, if the above statement is wrong and Swiss tax administrations actually have applied the right-of-use requirement in the past. 914

D) Connection with Cloud Computing

In the cloud computing context, it is again useful to distinguish between the cloud provider and the cloud customer. Generally, the right-of-use requirement will not be a decisive element for the cloud provider. The provider has a permanent establishment at the location of a self-owned or a rented data center (see *supra* para. 306). On the other hand, a meaningful right-of-use requirement is difficult to imagine for a cloud customer (on the application of the right-of-use requirement to cloud customers, see *supra* paras. 354 f.). Cloud 915

¹²⁹¹ For an overview, see HINNY/ECKERT, p. 2846.

¹²⁹² Decision of the Swiss Federal Supreme Court of October 5, 2012, ATF 139 II 78, recital 3.1.2, concerning the stricter requirements for outbound permanent establishments.

usage can be based on many different business models and technologies.

916 Furthermore, a right-of-use requirement would imply a measure of control over the place of business that goes beyond what is targeted in the business activity test. However, a cloud computing business has no interest in paying for a degree of control that goes beyond what is strictly necessary for the core business. The contractual and technological arrangements of the cloud service in question already allow for an extremely flexible (and therefore economically efficient) allocation of control over the physical servers. Technological and business development will likely continue in that direction. This fact inherently limits the range of possible ideas for right of use (of course, this is also true of IaaS providers). If the right-of-use requirement demands a degree of control that goes beyond business necessity, it will be fulfilled only in cases where the business decides to invest in a permanent establishment for tax planning reasons, which naturally is contrary to the aim of the right-of-use requirement. Hence, the abolition of the right-of-use requirement should take account of this economic incentive and prevent the right-of-use requirement from going beyond the bounds of business needs.

917 If the right-of-use requirement is abolished, it is still very unlikely that any cloud customer would accidentally constitute a permanent establishment at the location of a data center. The fixation test would prevent that (see *supra* para. 401). It may be that a permanent establishment at the location of the cloud provider's data center can be created at will by arranging the cloud in such a way as to fulfill the fixation test (see *supra* paras. 647 f.). However, such a permanent establishment would no longer be accidental. Indeed, it would be appropriate to tax cloud customers at the location where they consciously choose to host their businesses. That would prevent the avoidance of permanent establishment status where self-owned local servers are replaced with cloud computing or web hosting (see *supra* paras. 667 f.). Furthermore, this problem should not be regarded as a

novelty, since “it is very easy for a taxpayer to ensure that a permanent establishment exists if that is the result desired.”¹²⁹³ Most importantly, it is already the case that cloud customers can decide on the location of their cloud’s hosting servers. The considerations influencing location decisions are not linked to tax avoidance intentions. For example, a cloud customer may want to limit the geographical distribution of its customers’ data on account of data protection rules or to improve latency.

Additionally, purely from a rulemaking standpoint, the withdrawal of para. 124 from the OECD COMMENTARY on Art. 5 would remove many of the uncertainties caused by its introduction. With the advent of cloud computing data centers, the already scarce use of single servers in foreign countries is set to become even less relevant than it has been since the inception of the server permanent establishment concept.

918

E) Conclusion

The right-of-use requirement in the general definition of permanent establishment is a source of uncertainty. It also makes the permanent establishment concept dependent on inflexible technological distinctions. The abolition of this requirement would put an end to the avoidance of permanent establishment through the replacement of self-owned servers with locally hosted cloud computing, which the existence of this requirement has encouraged.

919

¹²⁹³ OECD, *Issues Arising under Article 5 (Permanent Establishment) of the Model Tax Convention*, November 7, 2002, in: OECD, *Model Tax Convention on Income and on Capital, Full Version (as it read on 21 November 2017)*, Paris 2019, p. R(19)-15.

§ II. Positive Meaning of Right of Use

A) *General Idea*

920 It is of course possible that the idea of abolishing the right-of-use requirement might not be accepted. In that case, a positive meaning for the right-of-use requirement still needs to be found (see *supra* para. 723). That much arises from the certainty and simplicity principle. What exactly that positive meaning is will depend on the proper application of the other principles of the Ottawa Taxation Framework.

921 The right-of-use requirement should not be based on technological criteria, as they generally do not provide sufficient flexibility to accommodate changes in technology (see *supra* para. 790). The technological characteristics of servers and data centers are constantly evolving.

B) *Implementation*

922 The international consensus would have to coalesce around a precise and unequivocal interpretation of right of use. It is likely that different jurisdictions will have different expectations as to the exact meaning of right of use. Each jurisdiction will interpret the right-of-use requirement in a way that broadens its own tax base. Different jurisdictions may rely on different industries with special kinds of permanent establishments. For instance, a jurisprudence rich in oil is likely to demand a right-of-use test that catches pipelines and oil-pumping stations. So, this challenge will need to be solved by diplomatic means.

923 In any event, the right-of-use requirement should not be implemented by way of examples, as is the case at the moment. Abstract and universally applicable rules are preferable to illustrations. Lists of

examples¹²⁹⁴ have many drawbacks compared to abstract rules. For instance, an example may become obsolete over time. This risk is particularly present in the area of rapidly changing technology. Also, examples are generally less flexible, especially when they consist of fact patterns whose occurrence is tied to the state of the art at a particular time. For instance, the “mirror server” mentioned in the OECD COMMENTARY, Art. 5, para. 128, reflects an outdated view of technology. Further, comparing a list item with an individual case always requires a degree of abstraction. For the sake of certainty (see *supra* paras. 575 f.), neutrality (see *supra* paras. 587 f.), flexibility (see *supra* para. 580 f.), and efficiency (see *supra* paras. 590 f.), rule makers would be well advised to include the abstraction in the law from the outset, and they should avoid delegating abstraction to those who apply the law (namely taxpayers and tax administrations with no direct democratic legitimacy) and who, in doing so, might very well reach different—and maybe incompatible—conclusions on the same questions.

C) Justification

If the OECD is not willing or able to find the necessary consensus to abolish the right-of-use requirement, the only alternative is to give it a positive meaning. The current wording of the OECD COMMENTARY limits how the requirement can be interpreted. Some authors have already made suggestions in this regard.¹²⁹⁵ As far as the present author is aware, no positive definition of right of use that includes an abstract criterion exactly matching the four examples in the OECD

924

¹²⁹⁴ Such as in Art. 5(4) MOECD; OECD COMMENTARY, Art. 5, paras. 12 f.; Arts. 4(3) and 51(3) DTC; and the first draft of the Indian equalization levy, COMMITTEE ON TAXATION OF E-COMMERCE, *Proposal for Equalization Levy on Specified Transactions*, February 2016, <http://www.incometaxindia.gov.in/news/report-of-committee-on-taxation-of-e-commerce-feb-2016.pdf> (last viewed July 2, 2020), p. 5, using the expressions “online computing” (p. 88) and “online software computing facility” (p. 89).

¹²⁹⁵ For a brief account of different proposals, see KARUNDIA, PP. 453 F.

COMMENTARY, Art. 5, paras. 4.2–4.5, has so far been proposed.¹²⁹⁶ It may be impossible to find a positive meaning capable of being applied to all kinds of business and in line with all of the OECD COMMENTARY’s examples (including those regarding e-commerce) and international case law.

925 The right-of-use requirement is especially relevant to cloud computing. None of the positive definitions so far suggested has been made with specific regard to the digital economy or cloud computing and none of them seems entirely suited to this field. Regardless of whether it is even possible to find an appropriate abstract criterion, the cloud computing perspective can contribute to the search for a positive meaning for the right-of-use requirement.

926 Avoiding a reference to technology in the positive definition would have the advantages already explained (see *supra* para. 583). It would comply with the principle of flexibility, prevent technology-related tax avoidance opportunities, and ensure neutrality between digital and brick-and-mortar businesses.

D) Connection with Cloud Computing

927 Reference can be made to the explanations relating to the previous recommendation concerning the abolition of the right-of-use requirement, *supra* paras. 915 f.

¹²⁹⁶ The proposal that comes closest to summarizing the original four examples in the OECD COMMENTARY, Art. 5, paras. 12–17, is that of BAKER, 5B.10, who seems to interpret the right-of-use requirement as a certain quality of the business activity. However, that would make the right-of-use requirement indistinguishable from the criterion for attributing a business activity to the taxpayer, which is a well-established, separate requirement for permanent establishments. Moreover, this view seems to conflict with the OECD’s special rules for the server permanent establishment in the OECD COMMENTARY, Art. 5, para. 124. Baker’s attempt to propose a definition shows how difficult it is to do justice to the multi-faceted nature of the examples making up the current right-of-use requirement.

E) Conclusion

Should it not be possible to abolish the right-of-use requirement, the certainty and simplicity principle dictates that it must be given a positive meaning. Finding such meaning might be impossible. In any event, a positive definition of the right-of-use requirement should avoid referring to technology, as this would enable the principles of the Ottawa Taxation Framework to be upheld.

928

§ III. Concretization of Essential vs. Auxiliary

A) General Idea

It should be clarified that an activity is essential and significant (as opposed to preparatory or auxiliary) whenever expected tax revenue surpasses the sum of the costs incurred in collecting the tax. Those costs include the costs of the tax assessment for the tax administration and the costs of compliance for the taxpayer. This would lead to a quantitative evaluation of the auxiliary nature of an activity.

929

This new definition should replace the lists of examples in Art. 5(4) MOECD and Arts. 4(2) and 51(2) DTC. It would be especially relevant to the implementation of the above recommendations concerning transfer pricing (see *supra* paras. 837 f.) and the abolition of the right-of-use requirement (see *supra* paras. 904 f.).¹²⁹⁷

930

¹²⁹⁷ A business should be taxed at the location of its servers only if these servers are the means of production for a significant part of its profits. Whenever the servers are used only to store an internal spreadsheet, it is not efficient to go through a time-consuming profit allocation procedure.

B) Implementation

- 931 To apply the aforementioned quantitative evaluation, the estimation of the compliance and assessment cost would need to be sufficiently accurate, as would the estimation of the tax revenue expected to arise from the permanent establishment in the given tax year. Various measures can help achieve the necessary accuracy.
- 932 First, it would be possible to increase tax certainty for small taxpayers by setting a clear minimum threshold rule, similar to VAT thresholds (see Art. 10(2)(a) Swiss VAT Act). This rule would state that only estimated tax revenues of a certain minimal amount would be subject to the quantitative evaluation. Should the tax revenue fall below that threshold, the taxpayer would not qualify for permanent establishment status as the business activity would be considered preparatory or auxiliary under Art. 5(4)(e) MOECD. The threshold would need to be set at a level equal to the minimal cost of compliance and administration.
- 933 Additionally, the results of such estimations would be subject to the customary apportionment of the burden of proof. In Switzerland, the burden of proof lies on the tax administration for all matters that lead to or increase taxation.¹²⁹⁸ If the estimation were to result in taxation, the burden of proof for its accuracy would need to be placed on the tax administration. Further, it could make sense to allow for compensation in the event that the tax administration's estimate does not match the final outcome. This would deter the tax administration from acting too aggressively when the difference between costs and revenue is not clearly in its favor.
- 934 There is no international consensus on what constitutes an essential and significant activity relative to the core business of the enterprise. The present author suspects that the current rules and case law are

¹²⁹⁸ Most recently: decision of the Swiss Federal Supreme Court of February 22, 2018, 2C_357/2017, recital 1.5, with references.

merely arbitrary, because tax authorities struggle to ensure their conformity with the efficiency principle presented above (see *supra* paras. 590 f.). Corresponding changes to the OECD COMMENTARY, Art. 5, paras. 21 f. (on Art. 5(4) MOECD) would be warranted.

C) Justification

Some uncertainty results from the distinction drawn between activities that are essential and significant and those that are preparatory or auxiliary. While the former are required for permanent establishment status, the exclusive presence of the latter would prevent such status (see *supra* paras. 125 f.). The general criterion of the Art. 5(4)(e) MOECD exception is relative and relates to the core business of the enterprise in question (see *supra* para. 133). This gives the criterion a high degree of flexibility, which would normally be a good thing. However, the current flexibility is excessive, as it does not protect the permanent establishment concept against the risk of obsolescence caused by future technological or commercial developments. It therefore unjustifiably lacks certainty and simplicity.

935

In this regard, it helps to recall the *ratio legis* of the Art. 5(4)(e) MOECD exception. It is harder to justify taxation in a jurisdiction where the taxpayer performs only preparatory or auxiliary activities.¹²⁹⁹ This is because a preparatory or auxiliary activity is not directly connected to the generation of income.¹³⁰⁰ Thus, the tax liability would not lead to a significant amount of tax revenue. The reference to tax revenue links the *ratio legis* of Art. 5(4)(e) MOECD to the efficiency principle (see *supra* para. 590).

936

¹²⁹⁹ GÖRL, in: VOGEL/LEHNER, Art. 5, para. 85.

¹³⁰⁰ WASSERMEYER, in: WASSERMEYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 5, para. 152; GÖRL, in: VOGEL/LEHNER, Art. 5, para. 85, both mentioning additional, more special *rationes legis*, which do not need mentioning in this context.

- 937 However, the efficiency principle is not fully implemented in Art. 5(4)(e) MOECD, which provides a qualitative rather than a quantitative definition of preparatory or auxiliary activities. Some activities, even though taxed as essential and significant, may create more administrative and compliance costs than tax revenues. Conversely, there may be preparatory or auxiliary activities that create higher tax revenues.
- 938 To implement the efficiency principle directly, the qualitative basis on which the nature of the activity is judged should be replaced. It represents a detour from the true goal of the rule. Taxes should be levied only when it is efficient to do so. The original reason for introducing the qualitative approach was to make the exception from permanent establishment easier to predict and handle. However, the technological inflexibility of lists of examples, linguistic inaccuracies and arbitrariness of interpretation have made the qualitative assessment more burdensome and uncertain than a quantitative one. By contrast, a quantitative evaluation would make the permanent establishment concept more practical and less affected by linguistic inaccuracies.
- 939 The quantitative approach should be simple in design. The activity performed should necessarily be considered as essential and significant when the estimated tax revenue exceeds the sum of the costs of the tax assessment and compliance for both the tax administration and the taxpayer. Alternatively, an even higher threshold could be set for the enterprise's overall profit.¹³⁰¹
- 940 This idea is in line with the general thrust of the OECD BEPS program.¹³⁰² Art. 13 MLI states that the list of negative examples in Art. 5(4)(a)–(d) MOECD should be subject to the general criterion of Art. 5(4)(e) MOECD. The intention was to extend the scope of “essential and significant” beyond the examples. Previously, there

¹³⁰¹ Similarly: SKAAR 1991, pp. 288 f.

¹³⁰² See *supra* note 193.

may have been situations in which significant tax revenues might have been attributable to a potential permanent establishment that could not be taxed because it corresponded to one of the examples in Art. 5(4)(a)–(d) MOECD that ruled out permanent establishment status.¹³⁰³ With Art. 13 MLI in force, the arbitrary application of the list of examples does not exclude permanent establishment status. The recommendations proposed in this thesis would solve that problem as well, without extending the permanent establishment definition farther than necessary.

However, what would happen if the potential permanent establishment incurs a loss? It is possible that a business unit is not profitable for a few years. This is especially frequent in the years immediately following the establishment of a new branch, before a base of regular customers has been built up. In such circumstances, the losses could easily be considered as the product of a merely preparatory activity and therefore incapable of being carried forward to the future profits of the permanent establishment. However, it would be unfair to treat a local place of business as a permanent establishment only in times of profit and to withdraw permanent establishment status in times of loss. Such behavior could only be avoided through a consistent and purposive approach. One possible solution would be to introduce a rule that freezes the existence or absence of permanent establishment status for a certain period of time—say, at least five years—unless a specific ruling provides for an exemption.¹³⁰⁴

941

¹³⁰³ For instance, it might have been worth pondering the question of whether the warehouses used by Amazon for their online retail sector fall under Art. 5(4)(a) or (b) MOECD.

¹³⁰⁴ Of course, a tax ruling concerning the existence of a permanent establishment would most likely indicate its period of validity. However, the rules presented here seek to reduce the need for tax rulings in favor of greater tax certainty for all taxpayers through published rules.

D) Connection with Cloud Computing

942 A great number of widely ranging services depend increasingly on the use of computing infrastructure.¹³⁰⁵ As a consequence of cloud computing and other decentralizing technology, the computing infrastructure for these services often takes the form of data centers or parts thereof. A data center may be one of the most multifunctional types of permanent establishment.

943 Consequently, when assessing the essential and significant nature of the use of a data center, it is important to take account of the increasing variety of businesses that use data centers. Each of these businesses represents a different core business reference point for identifying what qualifies as preparatory or auxiliary activity in that business (for an example of this concept, see *supra* paras. 670 f.). There is therefore no single standard according to which activities in any business can be characterized as either essential and significant or preparatory or auxiliary. Even flexible case law seems unable to keep pace with the rapid developments taking place in the economy. This great uncertainty caused by the above-average multifunctionality of data centers as permanent establishments could be reduced by the above-mentioned quantitative approach.

944 The present analysis encountered the concrete problem of determining whether the relevant activity performed at a data center is preparatory or auxiliary in relation to the business of SaaS provision.¹³⁰⁶ In that case, the operation of a data center seems farther removed from the core business than in the case of an IaaS provider. This would make it less likely to be a permanent

¹³⁰⁵ Examples can readily be found in industries that deal in digitalized products (music, books, knowledge databases, sharing economy, social networks, communication services, online gaming, etc.), but also in electronic commerce and any businesses involved in the management of large quantities of data.

¹³⁰⁶ See *supra* para. 726.

establishment,¹³⁰⁷ which the present writer considers to be unjustified if the business model is heavily reliant on the operation of the data center for competitive advantage.¹³⁰⁸ That would probably be true of the data centers used in certain value chains of Google, Apple, Facebook, Amazon, and Microsoft.

The most important advantage of the quantitative approach is that there is no risk that the criterion is interpreted as a technological requirement. The current qualitative standard creates a risk that data centers will be deemed to perform essential and significant activities only if they host crucial business applications or are sufficiently well connected to the rest of the business enterprise, which would introduce technological criteria into the determination of permanent establishment status. Yet, as these criteria would be arbitrary and lack flexibility, they should be avoided (see *supra* para. 585).

945

E) Conclusion

The exclusion of permanent establishment status on the basis of the preparatory or auxiliary activities exception was originally intended to make taxation more efficient. However, the uncertainty introduced by the qualitative nature of the argumentation has effectively frustrated that aim.

946

The aforementioned quantitative evaluation would reestablish the original purpose of the exception. To that end, it would introduce a simple quantitative test directly based on the efficiency principle of the Ottawa Taxation Framework. It would compare the costs and returns of the permanent establishment.

947

The quantitative test would have the advantage of avoiding technological distinctions. It would also lend greater certainty to the

948

¹³⁰⁷ Similarly, CADOSCH, pp. 128 and 131, concerning “*Inhalteanbieter*” (i.e., content providers); contra, concerning cloud providers in general: BOSS/IGLESIAS, p. 111.

¹³⁰⁸ See PORTER, PP. 124 f., where he uses the expression “driver of uniqueness.”

permanent establishment status of multifunctional permanent establishments, such as data centers. In so doing, it would clarify the taxation of SaaS providers that operate their own data centers.

§ IV. Independence vis-à-vis On-Site Personnel

A) *General Idea*

949 Given the likelihood of technological developments in the future, the acquisition of permanent establishment status through the presence of machines should be made completely independent of the existence of on-site personnel. In principle, such a recommendation would concern permanent establishments that have equipment, machinery, computing infrastructure, data centers, facilities, ICS equipment, and even intangible property connected to a fixed place of business.

B) *Implementation*

950 The OECD COMMENTARY, Art. 5, para. 36, concerning the letting or leasing of tangible and intangible property would need to be clarified. Concerning the letting or leasing of industrial, commercial, or scientific equipment in particular, not only should the activities of the on-site personnel be taken into account, but also those of the personnel performing the business activities “through” the place of business. The wording of the paragraph does not entirely rule out this possibility; however, scholarly literature and international case law have interpreted it in a restrictive way. The following addition could solve this issue: “The activity of the lessor needs to be determined not only on the basis of the personnel who are physically present at the location of the equipment, but also the activities performed by personnel through the equipment by means of remote control, programming, or physical modification of the machine.”

The rules derived from Arts. 6, 12, and 13 MOECD (royalties, rental income, and capital gains) and 12A UN Model (technical services) that allow these kinds of income to be distinguished from Art. 7 MOECD business profits would need to be adapted for this proposition. 951

C) Justification

The OECD has created an international consensus according to which a nonresident taxpayer has no need for on-site personnel to acquire permanent establishment status (OECD COMMENTARY, Art. 5, paras. 8, 10, and 42.6). Furthermore, it can be assumed that the consensus also extends to the opinion that activities can be performed “through” the place of business. This means that business activities performed by remote control through a server must come within the scope of the business activity test for permanent establishment status (see *supra* paras. 110 f.). It also means that activities performed through remote control must attract permanent establishment status (see *supra* para. 113). Finally, programming and the physical modification of the machine should have the same legal consequences as remote control on these issues (see *supra* para. 111). 952

The present recommendation (i.e., taxing at the location of the machines, regardless of on-site personnel) would shift the corporate tax base away from residence jurisdictions to those source jurisdictions where machines operate. While most of the machines may have a certain mobility, some will necessarily be placed in market jurisdictions. There may be several reasons for this, such as latency, data protection, or simply the requirements of certain services, such as the need to place high-frequency trading servers near stock markets. Taxation will be only one of many factors to consider when deciding on the location of a data center.¹³⁰⁹ The other factors make 953

¹³⁰⁹ For more reasons, see *supra* para. 706.

the location of the machine actually less mobile and, as a result, more reliable for taxation, which better implements the flexibility principle as these factors are less likely to be influenced by technological or commercial changes.

- 954 Furthermore, the removal of the personnel requirement will be more in line with the arm's length principle as interpreted in the present thesis (see *supra* paras. 837 f.). Thus, it has all the advantages of the corresponding recommendation regarding transfer pricing, which means that it is more flexible, neutral, and resistant to tax avoidance (see *supra* para. 903).

D) Connection with Cloud Computing

- 955 The capacity to resist manipulation is important, given that technological progress could increase opportunities for businesses to deploy personnel remotely. In cloud computing, the most significant activities of a cloud provider are already executed from a remote location in a data center. Although data center personnel will become highly specialized and essential to creating a competitive edge, that does not remove the need to take remote-controlled activities into account.
- 956 If the income from remote-controlled activities is not taxed at the permanent establishment, it can generally be taxed only in the jurisdiction where the enterprise is resident (Art. 7(1) MOECD). However, the fact that the activities are remote-controlled shows that they have a closer economic link to the data center permanent establishment than to the enterprise's place of residence. If there were no significant economic link, there would be no need to maintain the data center permanent establishment and to invest in the technology that enables the data center to be remote-controlled.

E) Conclusion

The OECD may have explicitly stated that personnel are not required for permanent establishment. However, on-site personnel remain the principal factor determining the permanent establishment status of a given taxpayer. A more consistent approach would allow the permanent establishment status to take account of personnel acting through the permanent establishment by means of the remote control of machines. The possibility of permanent establishment without on-site personnel is more in line with the arm's length principle.

957

Section IV Treaty Characterization

§ I. Reducing Withholding Tax Compliance Costs

A) *General Idea*

Rather than seeking to harmonize their withholding tax regimes, jurisdictions could convey information about their withholding tax regimes in a machine-readable, internationally standardized way. 958

B) *Implementation*

There are various ways in which this proposition could be implemented. Ideally, all jurisdictions would come together to develop unified compliance management software, which would be freely available to download from the Internet and to use on the basis of an open source license.¹³¹⁰ The project could be managed at the level of the OECD (without restricting its use to OECD members) in a similar fashion to the software developed for the MLI.¹³¹¹ Not only would the software contain all necessary information on every participating jurisdiction's withholding tax regime; it could also be used in association with automated invoicing software and for the purposes of notifying customers of the withholding tax duties incumbent on them and, when appropriate, automatically adjusting 959

¹³¹⁰ The open source license would make it possible for the taxpayer to verify whether the information conveyed actually complies with the law and allow spin-off software to be developed and the resulting data set to be used for statistical research and machine learning.

¹³¹¹ See OECD, *MLI Matching Database (beta)*, <http://www.oecd.org/tax/treaties/mli-matching-database.htm> (last viewed July 2, 2020).

invoiced prices (as VAT software currently does¹³¹²). Software could even help prepare the paperwork for requesting withholding tax refunds. Compliance costs for withholding tax regimes could be almost entirely eliminated by means of a project along these lines. The project could ultimately be financed using the additional tax revenue from newly compliant taxpayers.

960 An international software development project of this kind is undoubtedly ambitious. Alternatively, jurisdictions could agree on a standardized, machine-readable way of conveying all information on their withholding tax regimes. The structured data set could then be used by private firms to develop individualized proprietary compliance software, or by each jurisdiction to develop its own free compliance software. In either case, the production cost would be much lower.¹³¹³

961 The creation of a legally binding standard would be a challenge in itself, but so too would the promotion of such a standard. The OECD could well be ideally placed for promoting standards of this kind. After all, it has been attempting to promote a similar solution for collective investment vehicles,¹³¹⁴ and on several occasions the OECD has promoted data structures for the international exchange of information.¹³¹⁵

¹³¹² For instance, on Amazon's German website the appropriate VAT rate is applied automatically depending on the delivery address entered; see AMAZON.DE, *About VAT (Value Added Tax)*, <https://www.amazon.de/gp/help/customer/display.html/?nodeId=200223930> (last viewed July 2, 2020).

¹³¹³ If the private firms producing such software do not pass on the production cost savings to small business users of the software, the intended standardization would not be realized. In that case, some sort of price control would need to be implemented along with the standardization.

¹³¹⁴ See OECD, *About the TRACE Project*, <http://www.oecd.org/ctp/exchange-of-tax-information/aboutthetra-cegroup.htm> (last viewed July 2, 2020).

¹³¹⁵ See, e.g., OECD, *Country-by-Country Reporting XML Schema: User Guide for Tax Administrations*, Paris September 2017; OECD, *Exchange on Tax Rulings XML Schema: User Guide for Tax Administrations*, Paris September 2017.

C) *Justification*

The basic problem facing international compliance with withholding tax regimes is that there is an overwhelming amount of information which exists in publications of diverse kinds and in a wide variety of forms. Moreover, not all relevant information is publicly available and country-specific rules may apply. Consequently, taxpayers often have no choice but to seek professional tax advice. Sometimes, compliance software may be available for business processes to which automation can easily be applied. However, many small and medium-sized providers of online services and goods have neither the financial means nor the volume of transactions necessary for investing in such software.

962

The problem with international tax compliance is the large amount of information it involves. As software is precisely used to manage unwieldy amounts of data, it makes sense to use it for this problem. All tax jurisdictions have an interest in reducing or eliminating this cost burden for taxpayers willing to comply with the rules. Every increase in compliance expenditure represents an undesirable transaction cost (according to the efficiency principle; see *supra* para. 590). Moreover, tax compliance should be equally affordable for taxpayers of all sizes (in accordance with the neutrality principle; see *supra* para. 808). Thus, cost-free compliance management software would be an ideal solution.

963

D) *Connection with Cloud Computing*

Cloud computing is often by nature a global business. It pits competitors of all sizes against each other. However, those that are small are often unable to match the compliance budgets of their larger competitors. If only a minority of cloud providers have the budget necessary to carry on the global business of cloud computing in a fully tax-compliant manner, this could have a distortive effect on

964

competition (in terms of neutrality; see *supra* para. 808). Therefore, tax rules should aim to reduce that unfair advantage.

965 The question arises as to whether cloud computing should be part of the solution. If the software is proposed as a service, this would entail centralized hosting, which would have certain advantages, such as centralized updating of the software, no risk of nefarious alterations of the code, and a more efficient use of infrastructure resources. However, the software code is unlikely to be particularly large and could probably be executed by individual taxpayers on their own. There is every reason to think that taxpayers could be entrusted with the responsibility of updating their software and preventing nefarious alterations themselves, as it is in their interest to have a software program that is capable of ensuring compliance. Thus, although not inconceivable, a cloud computing basis does not seem necessary in this case.

E) Conclusion

966 Software could assist in managing compliance with the many withholding tax regimes taking hold of all kinds of services delivered over the World Wide Web. Such software would presuppose international cooperation promoted by the OECD. For small cloud computing businesses with a low tax compliance budget, yet wanting to compete in a global market, this could be an advantageous way of lowering compliance costs.

§ II. Adapting Income from Employment

A) General Idea

967 The following idea is based on a scenario in which the recommendation on transfer pricing (see *supra* paras. 837 f.) is a reality. When a machine is remote-controlled, a deduction is made

from taxable corporate profits (see *supra* para. 860), including for the salaries of the personnel working through that machine. Such personnel could be considered to telecommute. According to Art. 15 MOECD, the employment income of an employee who telecommutes should be taxed where the employer deducts salary costs.¹³¹⁶

B) Implementation

The OECD COMMENTARY, Art. 15, para. 1, would need to be adapted to include an exception for telecommuting, which would permit taxation in a jurisdiction where an employee is not physically present. It does not seem necessary to change Art. 15 MOECD itself, as the literal wording could, in theory, be interpreted more broadly.¹³¹⁷ In Swiss domestic law, an exception for telecommuting would need to be added to Art. 5(1)(a) DTC (and a corresponding change made in cantonal law). A similar addition would also need to be made to the special DTAs concerning the taxation of cross-border commuters.¹³¹⁸ Furthermore, it would make sense to adapt international social security rules so that they match tax rules in this regard.

Given that there is international consensus on the requirement of a physical presence for taxation, it would be an uphill task to attempt to change the general rule through a political process at international level. It would be more practicable simply to introduce an exception to the rule in the case of telecommuting. Telecommuting could be legally defined according to the effects it has on the corporate tax

¹³¹⁶ Hinting at that necessity: OBERSON 2019, p. 154; OBERSON/PIAGET, pp. 371 f.

¹³¹⁷ Art. 15(1) MOECD states that “salaries ... derived by a resident of a Contracting State ... shall be taxable only in that State unless the employment is exercised in the other Contracting State. If the employment is so exercised, such remuneration as is derived therefrom may be taxed in that other State.” In the present author’s view, the expression “is exercised” can easily be read as encompassing the place where the work of an employee who telecommutes takes effect.

¹³¹⁸ For an overview, see OBERSON 2014, paras. 620 f.

base. For instance: “Where a double taxation agreement¹³¹⁹ confers on the employer¹³²⁰ the right¹³²¹ to deduct a salary from the corporate taxable business profit before offsetting it with a recharge to another entity in one State¹³²² and that profit is produced through the use of a machine¹³²³ that is remote-controlled¹³²⁴ by employees physically present in another State, the salary shall be taxable in the first-mentioned State. When the employee can prove that the salary was effectively deducted from the employer’s tax base in a third State,¹³²⁵ the salary shall be taxable in that third State.”

C) *Justification*

970 When a business earns profits at a certain location, the costs incurred in earning those profits need to be deductible at that location.¹³²⁶

¹³¹⁹ The DTA that applies to the income of an individual employee is not necessarily the same as the DTA that applies to the employer.

¹³²⁰ When the costs of employment are passed on to another entity in a group of enterprises, the term “employer” would ultimately refer to the entity in the group where the labor costs are deducted from active profit.

¹³²¹ The employee is in no position to verify personally where or whether the employer has made a deduction from its own tax base. Further, the allocation of the taxing rights with respect to the employee’s salary should not depend on whether or not the deduction is actually made, as that is not within the employee’s power.

¹³²² This wording covers all cases in which a server is at the place of residence of a permanent establishment or a subsidiary.

¹³²³ It is immaterial whether the machine is physically present in that or another state, as only the allocation of the employer’s profit tax base is of any consequence. A broad definition of “machine”—if at all necessary—is advisable (see *supra* para. 585).

¹³²⁴ The definition of “remote control” would need to reflect the corporate income taxation context and will in part also depend on the definition of “machine.” For an overview of past definitions of technology and machines, see WOLFFGRAMM, PP. 15 f.

¹³²⁵ This may be the case when the employee is the sole owner of her or his corporate employer.

¹³²⁶ See WASSERMAYER/KAESER, in: WASSERMAYER/KAESER/SCHWENKE/DRÜEN/JÜLICHER, Art. 7, para. 152.

Such costs often include the labor costs of the personnel who perform their on-site work. The tax base attributable thereto is consequently reduced. Art. 15 MOECD, which addresses the question of where individual income from employment can be taxed, is intended to complement this rule. Instead of allowing the source jurisdiction to tax the salary at the level of the corporate employer, it generally¹³²⁷ allows the source jurisdiction to tax at the level of the individual employee as a trade-off. Thus, fairness requires that income from employment be taxed where the employer makes the deduction.

However, that is not always the case. The employer's deductions might not be made in the jurisdiction where the salary is taxed.¹³²⁸ For instance, the profits arising from human activity through remote control of an unmanned machine could be attributed to that machine (as proposed in this thesis *supra* paras. 837 f.). In that case, the deductions for salaries would need to be made at that location as well in order to determine the net taxable income. Applying the rationale of Art. 15 MOECD, fairness demands that the salary be taxed at the location of the machine, rather than at the place where the employee's body is situated. Unfortunately, Art. 15 MOECD currently requires the employee's *physical* presence,¹³²⁹ which categorically excludes taxation in jurisdictions where that employee would be *virtually* or *economically* present. Only the removal of this requirement would bring the recommendations made in this thesis into line with the rationale of Art. 15 MOECD.

971

¹³²⁷ However, that is not always the case. There are many examples showing that the employer's deductions are not made in the same jurisdiction as where the salary is taxed. Art. 15 MOECD is designed in a way that would roughly correspond to the location of the deduction. Employees have no access to the tax returns of their employers, which makes a direct legal correlation unworkable.

¹³²⁸ For example, in certain applications of Art. 15(2) and (3) MOECD, or certain instances of taxation of employee stock options.

¹³²⁹ OECD COMMENTARY, Art. 15, para. 1; OBERSON 2014, para. 607, characterizes it as the "*pratique internationale*."

972 It is not unheard of for Art. 15 MOECD to be applied in situations where physical presence is not required.¹³³⁰ In New York, e.g., according to the “employer rule” or “convenience of the employer test,” telecommuters’ salaries are taxed where the employees are employed.¹³³¹ This rule was considered constitutional, because, although it currently leads to double taxation, the salary would be taxed only once if all other states had a corresponding rule.¹³³² Other examples include cases of highly mobile employee activities, such as the taxation of truck drivers’ salaries in Belgium.¹³³³ It would make sense to consider telecommuters as highly mobile as well. Yet another example is Switzerland, where, prior to the introduction of Art. 5(1)(a) DTC, the right to tax was not conditional upon the physical presence of the employee.¹³³⁴ The reason for the switch was the change of the wording of the legal basis and had no apparent policy-related motivation.

¹³³⁰ “The concept that income from the performance of service might be taxable by a Contracting State even though the person performing the services is situated in another Contracting State is not beyond the contemplation of the OECD Model.” (DOERNBERG/HINNEKENS, p. 173, with additional examples on the preceding pages).

¹³³¹ NEW YORK STATE DEPARTMENT OF TAXATION AND FINANCE, OFFICE OF TAX POLICY ANALYSIS TECHNICAL SERVICES DIVISION, *New York Tax Treatment of Nonresidents and Part-Year Residents Application of the Convenience of the Employer Test to Telecommuters and Others*, TSB-M-06(5)I, May 15, 2006.

¹³³² Decision of the New York State Court of Appeals of November 24, 2003, *Matter of Zelinsky v. Tax Appeals Trib. of State of N.Y.*, 301 AD2d 42, recital III. This decision was confirmed by the decision of the US Supreme Court of April 26, 2004, United States Reports, vol. 541, October Term 2003, p. 1009; see also the decision of the New York State Court of Appeals of March 29, 2005, *Matter of Huckaby v. New York State Div. of Tax Appeals, Tax Appeals Trib.*, 6 AD3d 988, passim, which was confirmed by the decision of the US Supreme Court of October 31, 2005, United States Reports, vol. 546, October Term 2005, p. 976. cert. denied, 546 U.S. 976 (2005).

¹³³³ PEETERS, in: DANON/GUTMANN/OBERSON/PISTONE, Art. 15, paras. 59 f.

¹³³⁴ After a change of practice (see the decision of the Swiss Federal Supreme Court of January 29, 1996, ASA 1997 (vol. 65) p. 824, recital 2(a), with references, explaining the old practice and rationale), the Swiss domestic law rule in Art. 5(1)(a) DTC now also requires physical presence (decision of the Swiss Federal Supreme Court of March 25, 2011, ATF 137 II 246, recital 8).

Arguably, the physical presence requirement can be justified by the efficiency principle. From an administrative standpoint, it is easier for employees to have to complete a tax return only in the jurisdiction where they are physically located and it is more practical for the authorities there to enforce that taxation. However, tax returns and enforcement can be organized in other ways that are equally easy and practical. For instance, the duty to pay whatever tax is due at the appropriate location can be placed upon the employer, tax returns can be filed electronically, etc. In the present author's view, the efficiency argument is weak in this context. 973

In conclusion, the most difficult barrier to adapting income from employment is that the international consensus still requires physical presence.¹³³⁵ 974

D) Connection with Cloud Computing

Both as a technology and as a business model, cloud computing leads to a wider dispersion of business activities through the Internet and across borders in almost all industries. Many work tools are nowadays sufficiently digitalized to be deployed through a cloud service. 975

Therefore, workers have become much more mobile and less dependent on a business's physical location. In this kind of environment, it seems appropriate to abolish the physical presence requirement for the attribution of taxation rights on income from employment. 976

¹³³⁵ DOERNBERG/HINNEKENS, p. 173, argue that the place of physical presence is less open to divergent interpretations by different jurisdictions and should therefore be preferred to the place of exploitation of the work. The present author would qualify that argument in view of the abundance of differing interpretations in the literature and the conflicting case law on the 183-day rule in the context of Art. 15 MOECD.

E) Conclusion

- 979 Salaries should be taxed in the jurisdiction where the business paying the salary deducts it from its taxable profit. If the recommendations made earlier are accepted, a business could be taxed at a location without on-site personnel. Tax deductions would be made for the salaries of personnel who are not physically present at that location. Fairness demands that the taxation of the salaries at the level of the employees occur at that same location. For that reason, the physical presence of employees should no longer be a requirement for taxation, at least for the taxation of income from telecommuting.
- 978 Although, for the moment, an international consensus is lacking, the Ottawa Taxation Framework provides no grounds on which to reject this recommendation. The recommendation should be adopted for the same reasons as the earlier recommendation on transfer pricing (see *supra* para. 903), given the interdependency of the two recommendations.

Section V Summary of the Present Recommendations

The central recommendation is to fully realize the possibility of a permanent establishment without on-site personnel, as was the original intention of the OECD.¹³³⁶ Certain obstacles persist. For instance, the current rules generally attribute only an insignificant amount of profit to a server permanent establishment without on-site personnel for taxation purposes. By reconsidering remote control as a human activity taking place at the location of the machine, that overly restrictive interpretation of the arm's length principle can be adapted to today's economic importance of such activity (see *supra* paras. 837 f.). 979

During the formulation of these recommendations, it became apparent that many of them are inherently interconnected. The recommendation regarding the attribution of profits to machines would necessitate a corresponding amendment of the permanent establishment concept to consider remote-controlled activity performed "through" a place of business eligible for the business activity test (see *supra* paras. 949 f.). 980

Additionally, if the two preceding recommendations (concerning attribution of profits and "through") are adopted, it would seem appropriate to make a corresponding amendment to the international taxation of salaries. It is only fair that salaries should be taxed where the employers make a corresponding deduction from their taxable profits. If the recommendation regarding the attribution of profits to machines is implemented, that would generally be where the machine is located (see *supra* paras. 860 f.). 981

Furthermore, it has been recommended that certain modifications more loosely connected to the interpretation of the arm's length 982

¹³³⁶ OECD COMMENTARY, Art. 5, para. 127.

principle be made to the definition of permanent establishment. These include abolishing the right-of-use requirement (see *supra* paras. 904 f.) or, if possible, finding a positive definition for it (see *supra* paras. 920 f.). Also, it is recommended that the distinction between activities that are essential and significant and those that are preparatory or auxiliary be refined (see *supra* paras. 929 f.).

983 Apart from the recommendations suggesting that the current rules on the international taxation of cloud computing be modified, it has been proposed that the costs of complying with withholding taxes be reduced through the use of software (see *supra* paras. 958 f.). This would serve the efficiency principle in particular and would also prevent the distortion of competition between cloud computing businesses through inequalities in tax compliance faculties.

984 The recommendations made in this thesis arise from the observations made on the conformity of current cloud computing taxation with the Ottawa Taxation Framework. They are primarily aimed at creating more certainty and flexibility. This will be achieved by removing and replacing the rules of taxation that seem particularly at risk from technological developments and the increased decentralization of businesses caused by the advent of cloud computing.

Chapter 3: Avenues of Further Research

Section I Introduction

The present thesis has sought to answer the question of how cloud computing influences international taxation and tax policy. It prompts further questions in relation to other topics and fields of law and research. It has been impossible to consider these questions in the present study, however, on account of differences in methodology or the unpredictability of technological progress. In the future, they may turn out to corroborate or contradict the opinions expressed here. Summarized below, these questions could therefore lead to future changes in the law.

985

Section II Other Aspects of Tax Law

Within the discipline of international tax law, there are other subjects that may bear some resemblance to the international taxation of cloud computing. The issue of right of use in relation to new technology¹³³⁷ has been raised in other contexts too, such as the taxation of satellites¹³³⁸ and roaming networks.¹³³⁹ These are again situations in which a human being can control a machine from outside a jurisdiction's borders. The taxation of these phenomena has certain effects on the taxation of cloud computing, which have been considered in the present thesis. However, the question that now

986

¹³³⁷ See *supra* paras. 342 f.

¹³³⁸ OECD COMMENTARY, Art. 12, para. 9.1.

¹³³⁹ *Ibid.*, Art. 5, para. 38.

arises is whether the considerations put forward in this thesis¹³⁴⁰ can and should in turn have an effect on satellites and roaming networks. In other words, are the conclusions reached in the present thesis generalizable?

987 In answering this question, it is important that the comparisons made should be between categories of a meaningful size. Concepts such as the digital economy, electronic commerce, and cloud computing have often appeared too broad and need to be broken down into their constituent elements for specific analyses. The expressions “digital economy” and “electronic commerce” have existed for a long time.¹³⁴¹ They are large categories containing a wide range of different, barely comparable situations, and, as far as international taxation is concerned, only rarely would inquiry into one such situation lead to a clearer understanding of another. In the past, most progress has been made when these broad concepts were replaced with concrete situations and illustrations of actual use of technology. This is at least a hypothesis that could be tested.

988 That said, while the description of the situations to be studied should be more concrete, rule makers should be as general as possible when referring to technology. This is one of the main lessons to be drawn from the flexibility principle (see *supra* para. 585). Future advances in technology are difficult to predict and the administrative and diplomatic processes in international rulemaking are slow.

989 For example, the study of cloud computing could allow the focus to shift away from the broad category of the digital economy and to hone in on the specific category of situations in which a human performs activities across a border using technology.¹³⁴² This category could

¹³⁴⁰ Such as the recommendations regarding right of use; see *supra* paras. 904 f.

¹³⁴¹ See *supra* para. 596.

¹³⁴² BENNETT MOSES, p. 256. For instance, a comparison could be made between international borders and other kinds of borders, such as intercantonal or interstate borders.

potentially lead to many fruitful analogies with various situations not yet thought of as being comparable. Treating such essentially comparable situations equally would, moreover, better serve the principle of neutrality.

Another potentially generalizable result of the present thesis is that the remote control, the programming, and the physical modification of a machine must all have the same tax consequences (see *supra* para. 856). In a way, this idea is uniquely connected to the rise of cloud computing, which reflects the general tendency for human and machine activity to move from client computers to servers and networks. For the first time, it has become common for human personnel to be geographically distanced from the business activities they perform. This distance makes it possible to have the physical body in one jurisdiction and its virtual working extension in another. The remote control of servers, of the software executed on them, and of all sorts of machines is nowadays far more prevalent than in the past.

990

Section III Other Fields of Legal Study

The next question is, of course, whether the conclusions drawn from studying the international taxation of cloud computing can and should be generalized by applying them to other areas of legal study. Is it better to make specifically worded rules that require constant updating or to use open and neutral formulations that are capable of accommodating future technologies? 991

A few areas come to mind in which the law has drawn what with hindsight appear to be unavoidable technological distinctions, such as in the regulation of radio waves, Internet privacy, aviation, lethal autonomous weapons, and so forth. Neutrality towards technology has indeed given rise to heated debate in various areas of legal policy.¹³⁴³ 992

Given the fundamental role neutrality plays in the law,¹³⁴⁴ there is little chance of technological neutrality being abolished. Rather than questioning the validity of the neutrality principle in the Ottawa Taxation Framework, the present thesis has highlighted the consequences of the current neutralities and discriminations. In so doing, it has created a fertile ground for reevaluating the current application of the neutrality principle. In the end, the best one can do is to caution the makers and interpreters of rules to be conscious of the possible future implications of making reference to technology. 993

A more specific question raised repeatedly in this thesis, and which may be applied to various fields of legal study, is whether the acts of 994

¹³⁴³ For instance: *ibid.*, pp. 270 f., with many examples and references; GREENBERG, pp. 1495 f.

¹³⁴⁴ On neutrality meaning equal treatment, see RADBRUCH, p. 107.

a machine should be attributed to the machine or to its maker.¹³⁴⁵ In contrast to the more general question of technological distinctions, it seems more desirable to take a cross-disciplinary approach to the attribution of actions to the machine or the maker. The same question arises in other fields of legal study, such as tort law,¹³⁴⁶ criminal law,¹³⁴⁷ and labor law.¹³⁴⁸ It would make sense to prepare a coherent answer to this question, which would serve as a basis on which to answer the specific questions posed in each area of law. Specialists in different fields often imply such coherence without really verifying its existence. Without such a basis, the coherence between the different fields of law could be jeopardized, thereby limiting the validity of the conclusions reached in each individual field.

¹³⁴⁵ In the present author's view, this presupposes that a technological distinction is feasible—namely, that the (technological) distinction between human actions and the actions attributable to a machine can at least be envisaged. This is difficult, however, due to the fact that a machine is ultimately the product of a human and it and its actions therefore arise directly from human action. As discussed earlier, the present thesis proposes to attribute human action to the location of the machine (see *supra* para. 845), thereby making the machine incapable of being the acting legal subject and returning the responsibility for the acts of the machine to the human who operates it. Thus, an artificial and ultimately arbitrary technological distinction of the acts of the machine from the acts of its human operator can be avoided. The distinction between humans and machines is based on the OECD's view that present-day computers do not act by themselves (see *supra* para. 527) and JOHN SEARLE's idea of "derived intentionality" (see SEARLE, *passim*, as interpreted by COLE, DAVID, *The Chinese Room Argument*, in: Zalta, Edward (ed.), *The Stanford Encyclopedia*, April 9, 2014, <https://plato.stanford.edu/entries/chinese-room/>, last viewed July 2, 2020).

¹³⁴⁶ See LOHMANN/MÜLLER-CHEN, pp. 55 f.

¹³⁴⁷ See MARKWALDER/SIMMLER, p. 174.

¹³⁴⁸ See WILDHABER, pp. 214 f.

Section IV Quantitative Research

There are limits to the power of argumentation of purely juridical research. Upon reading in contemporary publications the same arguments as those put forward two decades ago, one realizes there are only a limited number of remarks that can be made about a static international tax system. These mantras are often generalized assumptions derived from anecdotal evidence and taken from earlier publications that did not challenge them on an empirical basis. For instance, it is often argued that “highly integrated businesses” should be taxed on the basis of (increasingly) formulary profit split methods,¹³⁴⁹ or that the problem of the digital economy is that foreign ICT-based businesses have an unfair competitive advantage over local brick-and-mortar businesses.¹³⁵⁰

995

In the present author’s view, quantitative studies of the taxation of e-commerce and the digital economy could be recognized more often as valuable contributions. The few quantitative studies that exist are generally based on excessively limited sets of data. Although quantitative studies are admittedly subject to interpretation before they can be integrated into the rulemaking process, it is better to rely on quantitative source material than to philosophize on the basis of anecdotal evidence. Testable tax incidence analyses and economic theories are the only means of effectively challenging the common misconceptions that can undermine the legal foundations of many rulemaking projects in this field. Especially valuable are quantitative studies made by independent researchers with no particular political agenda or studies made before the political decision-making process started. In the field of taxation, it may be particularly difficult to provide policymakers with independent objective research.

996

¹³⁴⁹ This issue has only recently been clarified by the OECD; see *supra* para. 276.

¹³⁵⁰ See *supra* paras. 764 f.

997 Of immediate practical relevance to the making of rules on the taxation of cloud computing and the digital economy are the following quantitative analyses: verifying the degree of competition between local and foreign cloud providers;¹³⁵¹ verifying the extent to which there is any correlation between cloud computing and state revenue from corporate taxation;¹³⁵² assessing whether there is any correlation between cloud computing and some forms of tax avoidance;¹³⁵³ and measuring the extent to which uncertainty over future changes to the taxation of cloud computing influences investment.¹³⁵⁴ The expected effects of these evaluations on tax policy have been described in the present thesis.

998 In general, it would help if there were an interdisciplinary discussion on the question of which factors should be the preferred subjects of quantitative studies and what their expected impact on the rulemaking process should be. This would greatly increase the usefulness of the results of such studies. Naturally, that impact must be proportionate to the reliability of the achieved results.

¹³⁵¹ See *supra* para. 779.

¹³⁵² See *supra* paras. 796 f.

¹³⁵³ See *supra* para. 632; on the use of the expression “tax avoidance,” see *supra* para. 643.

¹³⁵⁴ See *supra* para. 754. Other questions that can be investigated using quantitative methods and could have an influence on tax policy are: static and dynamic tax incidence analysis of destination-based direct taxation compared to current direct taxation; relative importance of server assets; cost structure of data centers; importance of specialized labor; mobility factors of specialized labor; degree of competition between ICT-based and brick-and-mortar businesses; “integratedness” of ICT-based business compared to non-ICT-based businesses; tax avoidance of ICT-based businesses compared to non-ICT-based businesses and comparison between the ICT basis and other factors that may contribute to tax avoidance; measures and degree of tax certainty in ICT-based businesses compared to non-ICT-based businesses in relation to different sets of tax rules; weighting of factors influencing the location of ICT investments; impact of taxation on technological innovation; global tax revenue from ICT-based business compared to non-ICT-based business, taking into account its relationship to investment in and global profit from ICT; impact of tax avoidance media scandals on public opinion and rulemaking processes; etc.

Section V Conclusion on Further Research

As explained in the preceding section, the present thesis shifts the focus from tax avoidance to the general features of expected technological advances. In accordance with the neutrality principle, it sets up the case study of cloud computing as a magnifying glass through which to view broader issues of international taxation. Future research could verify whether the general conclusions of this thesis can be applied in other situations.

999

One such conclusion was that rule makers should avoid distinguishing between different technologies in the law. It would make sense to verify this hypothesis across all situations in which technology is used for cross-border business activities without on-site human personnel. When doing so, it is important to consider input from other fields of legal study and future quantitative research.

1000

Chapter 4: Summary of the International Taxation of Cloud Computing

As explained at the beginning of this thesis, cloud computing is an umbrella term for various kinds of technology and business models. IaaS refers to the provision of virtual servers hosted on remote physical servers. SaaS is the execution of a software code on a remote server. These and many other kinds of computing resources are regularly provided on demand. In general, cloud computing involves calculations that are executed on servers at remote locations. The cloud provider operates these servers on behalf of a multitude of cloud customers. Two case studies in Part I of the thesis described these basic fact patterns. One presented the situation of the cloud customer and the other that of the provider. The next section considered the different kinds of transactions necessary for cloud computing. They were presented in the form of a table for subsequent reference. The table showed which transactions are cloud-specific (i.e., occur only in the context of cloud computing). These are basically the computing resources provided as a service (XaaS). They are distinguishable from other transactions that commonly occur in cloud computing but are also found in other industries. For instance, the management of immovable property is part of cloud computing, as data centers are immovable property. However, managing such property is not unique to cloud computing, even though it may be a prerequisite for its performance. The table was referred to as a taxonomy of cloud computing transactions.

1001

A subsequent section provided additional details about the different parties to such transactions. Particular emphasis was placed on the functions, assets, and risks involved. In cloud computing, certain business functions are regularly performed in different locations. For

1002

instance, software development need not be performed at the same location as hardware operations. That concluded the comprehensive introduction to the subject matter containing all details relevant to the ensuing legal analysis.

1003 Then, the bases on which the legal analysis was undertaken were explained. The discussion covered all relevant characteristics of business taxation. These arise primarily from the application of double taxation conventions. They include permanent establishments, treaty characterizations, and transfer pricing. These three concepts structured the research through three questions: Where should a business pay tax? What kind of income should be taxed? What amount of income should be taxed? To answer these questions, reference was made to the OECD Model Tax Convention (MOECD).

1004 An enterprise can be taxed at the location of a permanent establishment. There are many definitions of permanent establishment, each covering different situations. The present thesis analyzed the following: the general definition of permanent establishment in Art. 5(1) MOECD; the dependent agent permanent establishment in Art. 5(5) and (6) MOECD; the services permanent establishment; the substantial equipment permanent establishment; the Swiss domestic concept of permanent establishment based on Arts. 4(2) and 51(2) DTC; and the Swiss domestic concept of permanent representative. The general definition is the most relevant and clearly formulated, which explains why it is used as a basis for the other definitions.

1005 The general definition of permanent establishment introduces a number of tests. The place of business test demands a tangible place at the disposal of the taxpayer. The fixation test requires the place of business to remain at the same location for a certain period of time. Finally, the business activity test necessitates the activity performed at the place of business to be an enterprise's core business; activities

that are merely preparatory or auxiliary cannot constitute a permanent establishment.

Dependent agent permanent establishment status is conditional upon the recognition of a person as an agent. The person must have the authority to conclude contracts in the name of the taxpaying enterprise, routinely exercise that authority, and not be independent of the taxpaying enterprise. The activities performed at the dependent agent permanent establishment must be more than merely preparatory or auxiliary.

1006

The services and the substantial equipment permanent establishment definitions were briefly explained, as was the Swiss domestic definition of permanent establishment. The latter is a prerequisite for the application of the permanent establishment definitions in double taxation conventions. As it is mostly identical to the general definition, the present thesis confined itself to a comparison between the Swiss domestic and the general definition of permanent establishment according to Art. 5(1) MOECD.

1007

After the discussion of the various definitions of permanent establishment, the subject of treaty characterizations was broached. For that purpose, a separate section considered the various ways in which transactions can be characterized. The characterizations concern certain standard articles in double taxation conventions, including Arts. 6 (immovable property), 12 (royalties), 13 (capital gains), and 7 (business profits) MOECD, as well as Art. 12A UN Model (technical services). The analysis focused on the scope of each of these characterizations.

1008

Immovable property not only covers buildings and land, but also needs to take account of its accessories, which may include certain forms of movable equipment. In the context of a double taxation convention, royalties, copyrights and know-how are of particular interest and have a special meaning. A copyright license authorizes the use of a copyright in ways that would otherwise constitute an

1009

infringement. Technical services are defined in a variety of ways, which generally imply the use of know-how. Capital gains concern any income from the sale of property. Finally, business profits comprise all business income that is not targeted by any of the above rules.

1010 Each of these rules attributes the right to tax to a certain jurisdiction. In some cases, it splits that right by granting a right to tax a certain percentage of the income at its source. This often happens with royalties. In that case, the jurisdiction in which the taxpayer is resident has to grant the taxpayer relief from double taxation if the relevant DTA so provides. This can be one of several reasons why the characterization of a transaction is as significant for the residence jurisdiction as it is for the source jurisdiction.

1011 Following these explanations, the subject turned to transfer pricing, which concerns the rules governing how taxable profit should be distributed between associated enterprises. According to the arm's length principle, profit should be attributed in the same manner as between unassociated enterprises. This principle also applies to the attribution of profit to a permanent establishment. The application of the arm's length principle follows a path predetermined by the OECD. First, a comparability analysis assesses the functions, assets, and risks of each party to the transaction. Then, the profit from the transaction is allotted by applying a transfer pricing method. The OECD names five methods: the comparable uncontrolled price method; the resale price method; the cost-plus method; the transactional net margin method; and the transactional profit split method. The analysis elaborated on all of them except for the resale price method, as it was not relevant to the subsequent analysis.

1012 Having explained cloud computing and the relevant legal concepts, the thesis then proceeded to subsume the facts of cloud computing under the legal concepts and, in so doing, to answer the three aforementioned questions of where a business should pay tax, the kind of income to be taxed, and the amount of income that should be

taxed. In other words, the legal bases were applied to cloud computing.

The first question called for the application of the permanent establishment concept. According to the general definition of permanent establishment, a cloud provider constitutes a permanent establishment at the place where its data center is located. This is because, even when providing IaaS, a cloud provider does more than merely rent out servers. The operation of hardware infrastructure is a business in its own right. The cloud customer whose cloud is hosted at the data center does not constitute a permanent establishment there, the reason being that a cloud hosting contract does not give it sufficient right of use over the physical data center. A cloud provider does not qualify as a dependent agent permanent establishment of the customer, as the two are generally independent of each other. If the Swiss domestic equivalents of the general definition and dependent agent permanent establishments are applied, the results are essentially the same. Cloud computing cannot constitute permanent establishments under the two remaining definitions (services and substantial equipment).

1013

The second question concerned treaty characterizations. That section concentrated on the characterization of cloud-specific transactions. It also characterized other related transactions in the taxonomy presented earlier. For instance, the acquisition and exploitation of a data center is supposedly an important part of cloud computing business, even though data centers and other immovable property are used in other business areas as well. Such transactions qualify in some cases as income from immovable property. It is also possible that some cloud computing services involve the licensing of copyright-protected digitalized products. Thus, they would involve transactions that give rise to royalties. Any tangible or intangible property may be sold and thereby generate capital gains. It is even possible that certain technical services could be provided along with cloud computing. While the analysis found examples of transactions

1014

that commonly occur in cloud computing business for all of these characterizations, the cloud-specific transactions (i.e., those that occur only in a cloud computing setting, such as IaaS or SaaS) did not correspond to any of the previously listed characterizations. Consequently, they qualify as business profits. Therefore, they can be taxed only where the taxpaying enterprise is resident or has a permanent establishment.

1015 The last question concerned transfer pricing. It was necessary to consider the different kinds of transactions separately, differentiating them from each other with regard to their parties. For that purpose, reference was made to the explanations in the initial section regarding functions, assets, and risks, which are clearly distributed between cloud provider and cloud customer. As far as transactions between software development and hardware operation locations are concerned, the OECD has stated clearly that any substantial functions, assets, and risks can be attributed only to the place where the personnel are physically located. It has also made statements about transactions between the place where software development occurs and intellectual property rights companies. Finally, transactions between the site of hardware operations and a real estate company were briefly discussed.

1016 Based on these functional analyses, it is possible to apply transfer pricing methods. The comparable uncontrolled price method is only as reliable as the underlying comparables. The cost-plus method is only applicable to standard cloud provision services. A transactional net margin method could apply to cloud services involving valuable intangibles. However, transactions between hardware operation and software development sites should arguably be assessed only using the transactional profit split method. This last kind of transaction occurs in a highly integrated business context. Both parties make unique and valuable contributions.

1017 The above considerations concluded Part I of the thesis. Together, they provided comprehensive insight into international income

taxation in a cloud computing business context. Part II considered the appropriateness of such taxation.

There is international consensus that appropriateness should be judged based on certain principles. These were embodied in the Ottawa Taxation Framework of 1998. The OECD continues to use these principles for the international taxation of cloud computing. They include certainty and simplicity, effectiveness and fairness, flexibility, neutrality, and efficiency.

1018

Each principle was explained in detail and then applied to the results of Part I of the thesis. With regard to effectiveness and fairness, some have claimed that cloud computing could promote tax avoidance. A closer look reveals that many of these claims are unfounded. By contrast, the taxation of cloud computing lacks certainty and simplicity. This is due not only to a misguided focus on tax avoidance issues, but also to a disregard for the technological implications of rulemaking. References to technology make international taxation rules less certain. The flexibility of such rules is also negatively affected. Although there is as yet no empirical evidence of flexibility issues, they may well be latent. Neutrality and efficiency are both connected to these considerations.

1019

One of the main issues is the OECD's interpretation of the arm's length principle with regard to automation and remote control. It is inappropriate to make the attribution of taxable profit dependent on the physical presence of personnel. This is inconsistent and therefore causes uncertainty. Also, making the physical location of human bodies a determining factor creates inflexibility. After all, technology allows personnel to work at different locations. Further, this reliance on technology makes the OECD's interpretation nonneutral. As cloud computing is a manifestation of automation and remote control, it serves as a magnifying glass for problems at a wider level beyond the confines of cloud computing taxation.

1020

- 1021 By contrast, the frequently mentioned problem of economic, but nonphysical, presence relates less directly to cloud computing than generally assumed. Providing cloud services is a hardware-oriented business. Hardware being a physical thing, it generally involves some form of tax liability at its location. It may be that business models based on cloud computing are able to avoid taxes. However, this would have been possible with traditional hosting services, too.
- 1022 The OECD has in the past asked whether the existing rules are appropriate. On several occasions, the principles embodied in the Ottawa Taxation Framework have been used to answer this question. So far, the conclusion has been that there is insufficient evidence of tax avoidance through cloud computing. However, the research on whether the other principles have been observed seems underdeveloped.
- 1023 In sum, there are many opportunities to make the international taxation of cloud computing more appropriate. In general, the flexibility and the certainty principles should be emphasized. The implementation of these principles should of course uphold all five principles.
- 1024 In Part III, the thesis made a set of recommendations aimed at improving compliance with the principles of the Ottawa Taxation Framework. The most critical recommendation concerned transfer pricing. It was argued that the OECD's interpretation of the arm's length principle is inconsistent. Consistency can be achieved only by attributing taxable profit to the place where the activities of personnel take effect. That principle should be followed even if those activities take effect in a place other than where the personnel are physically located. If the personnel use a machine in another country, their activity takes effect at the location of that machine. It is important to adopt a broad and technology-neutral interpretation of the word "machine." It would include not only remote-controlling but also programming and its physical construction or modification. If off-site personnel provide services, licenses, or sales for the location of a

machine, they deserve to be remunerated in accordance with the arm's length principle.

Taking this idea further, it is also appropriate to update the definitions of permanent establishment which still contain references to technology. One example is the right-of-use requirement in the general definition. Abolishing this requirement would increase the flexibility of the permanent establishment concept. It would make for greater certainty, simplicity, and neutrality. An interpretation of the right-of-use requirement that references technology should be avoided. The right-of-use test currently plays a central role in establishing the permanent establishment status of the cloud customer. The taxation of cloud computing would be greatly simplified if this condition were removed.

1025

The permanent establishment concept could also be made more efficient. Denying the possibility of permanent establishment status for activities that are merely preparatory or auxiliary was originally intended to improve tax efficiency. However, the qualitative nature of this test has made it burdensome and inefficient. Replacing it with a purely quantitative test would restore its efficiency and make the taxation of cloud computing simpler and more certain. Furthermore, it would avoid the use of technologically inflexible lists of examples. It would also help to avoid the risk of taxpayers finding themselves with permanent establishments by accident.

1026

Today, on-site personnel can be used as a criterion to decide whether a taxpayer has a permanent establishment. However, the permanent establishment concept should be made completely independent of on-site personnel. Personnel acting through a permanent establishment, including by means of remote control, should be attributed to that permanent establishment. While the current rules do not explicitly exclude that interpretation, it could be clarified. That would help to ensure technological neutrality, flexibility, and certainty. Most importantly, it would be more in line with the arm's length principle as interpreted above.

1027

1028 Finally, the thesis recommends certain changes to treaty characterizations. Of course, the easiest recommendation to make would be to urge greater international consensus on treaty characterizations. It can be assumed that reasonable efforts are already being made in that direction. For a start, simply increasing transparency in any form would make for greater certainty. Small cloud providers are often overwhelmed by the compliance burdens of international business. At the same time, they are frequently forced to compete in a global market through the World Wide Web. Software could help in creating more transparency. Existing software projects for similar purposes could possibly be used as a source of inspiration.

1029 If the preceding recommendations were to be adopted, it would be necessary to reconsider certain rules on the allocation of taxing rights. Income generated by personnel would no longer be taxed at the place where the personnel are located, and the same would go for income from employment. It is only fair that a jurisdiction should be permitted to tax the salaries of employees for which it had to allow a deduction at the level of the employer.

1030 This set of recommendations aims to ensure that the principles set out in the Ottawa Taxation Framework are better upheld. Of course, this endeavor is merely based on the observations and analyses made in this thesis. Whether or not these recommendations can be generalized in any way remains to be seen. The neutrality principle requires that changes to the law should affect all comparable situations equally. Thus, the recommendations made in relation to the taxation of cloud computing could affect other similar situations. It is possible that a comparison of all situations of cross-border use of machines could yield fruitful results, which might make it necessary for the recommendations made here to be modified.

1031 Furthermore, tax law should strive to be consistent with other fields of legal study. Certain questions have cross-disciplinary significance. One such example is the question of whether actions should be legally attributed to a machine or to its maker, which can have a bearing on

contract law, tort law, criminal law, etc. Where tax law relies on assessments in other fields of legal study, it should consider their positions on the matters at issue.

Finally, the impact of empirical evidence should be given more attention. Legal scholars could participate more actively in the discussion on how certain empirical data should affect tax policy. The measurement of cloud computing business may raise certain specific challenges. However, ICT may be the key to providing the necessary amount of data.

1032

In sum, the present thesis has sought to answer the question of how cloud computing affects international taxation and to reflect on how cloud computing should affect tax policy. As such, its ultimate aim is to stimulate further reflection and discussion on those subjects.

1033

Alexander Weisser

International Taxation of Cloud Computing

Permanent Establishment, Treaty Characterization,
and Transfer Pricing

Cloud computing may be borderless, but taxes are territorial. It is easy to imagine how the two concepts can clash. Much effort has gone into harmonizing tax rules across borders with the result that many jurisdictions have very similar tax rules. Even so, taxation remains a basic expression of national sovereignty.

The goal of this thesis is to examine how international tax law applies to the cross-border cloud computing business. Both, multinational providers and customers of cloud computing services are analyzed. Reflecting three traditional areas of international tax scholarship, the goal could be stated in three questions. Which jurisdictions have the right to tax? What kinds of cloud computing transactions can be taxed? What amount of the profit is taxable? In more technical terms, this means enquiring into how the use of cloud computing affects the permanent establishment status of taxpayers, how the different kinds of cloud computing transactions are characterized under international double taxation treaties, and how the calculation of taxable cloud computing profit is affected by transfer pricing.

In light of the current political events, the thesis also offers recommendations de lege lata through a systematic approach. Its first part assesses the current taxation of cloud computing. The second part evaluates whether the findings of this initial assessment conform to various superior principles of good rulemaking. It identifies which of the present tax rules ought to be adapted. The final part considers how the rules could be amended to become more compliant with the superior principles. In this way, Part I embodies the thesis, Part II the antithesis, and Part III seeks a synthesis.

Toutes nos publications sont en accès libre et gratuit sur
Alle unsere Publikationen sind frei erhältlich unter

www.ejl-fjv.ch

ISBN 978-2-88954-030-3 (print)
ISBN 978-2-88954-031-0 (PDF)

