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Summary and conclusions

The legal analysis in the report finds that Liechtenstein does not have any special regulations that are exclusively limited to big data and its applications. Instead, several laws of different areas are to be applied, which state that no right and therefore no ownership can be acquired in digital data. Nevertheless, there is a distinction to intellectual property rights. The Liechtenstein copyright law protects computer programs, databases and data files as they are considered to be works of literature and art and are therefore protected. This does not hold for individual data and information. Data can be classified among others by their form: raw data, structured and aggregated data and the analysis of them. None of them when being transferred for free, qualify as a service. They only do if they are transferred in exchange for a payment according to the law on VAT (MWSTG). Also, data transactions may qualify as a license but that data cannot be leased. As a further result due to the possibility that data files qualify as intellectual creations, the creator of structured or aggregated data and their analysis owns the property rights and is therefore also able to sell or exchange them.

Additionally, by regarding the source of income, it is determined that data do not qualify as asset and are therefore not subject to asset-based tax. With regard to income tax, the income from data and data transactions may derive from self-employment or from legal entities that generate income from data usage, sales and transactions. However, as data itself is neither money nor has monetary value, it is not subjected to income tax. As one of the last results, it is also found that servers and websites usually do not qualify as permanent establishments and are therefore not subject to taxes in Liechtenstein. Nevertheless, in some very specific circumstances they may still qualify as taxable. This is further examined in the context of treaty principles that are based on the OECD guidelines. By answering the question of qualification of a server in another country as a permanent establishment that justifies the taxation of the payments attributable to that permanent establishment, the server characteristics are further examined. In addition to the significant functions and business activities that have to be performed at that place to qualify as a permanent establishment, the server has to be fixed locally, has to have a specific degree of independence and the possible power of disposition.

¹ Certified Tax Consultant, Dipl.-Kauf., LL.M., Partner of the tax consultancy actus ag and lecturer at the University of Liechtenstein. He is focused on Liechtenstein and German tax law as well as cross-border tax structuring. He also advises blockchain and crypto driven businesses and accompanied the first STO in the EEA. In addition to providing tax advice regarding new technologies, he also provides his own IT services within actus ag.

² Tax Engineer, MSc, at actus ag in Liechtenstein. She has a background in taxes, accounting and commercial law, studied her Master of Finance in Liechtenstein and is a current Master student of US Tax Law in San Francisco as well as a current LL.M. student of Digitalization & Tax Law in Vienna. Her main focus within actus is acting as an interface between the IT and tax department i.e. dealing with technological innovations such as crypto and blockchain in the tax sector.

In the context of transfer pricing, the arm's length principle as well as the latest version of the OECD Transfer Pricing Guidelines (TPG) are to be applied in Liechtenstein. The approach when data are transferred does not differ from the approach of a normal transaction. In both cases: If the conditions of a transaction between two related parties differ from the usual conditions of two non-related parties, the suitable transfer pricing method with regard to the specific circumstances has to be determined and the firms have to be taxed based on the conditions between two non-related parties. Furthermore, it is stated that there is no Digital Service Tax (DST) or barter treatment in Liechtenstein. However, the Blockchain Act ensures legal security for business models using DLT. Liechtenstein additionally provides checks to support innovation and strengthen the development of digitalization. As the IP-Box regime was abolished in 2016, incentives that grant specific tax credits in relation to the development and exploitation of big data no longer exist.

Regarding VAT, it is found that if data or data products are sold, the selling company has to include VAT, because it qualifies as a service against payment. Furthermore, when studying the subscription tax, it is concluded that if a foreign or domestic company receives imported data carriers without market value that are not already exempt from VAT and either obtains such services for more than CHF 10,000 a year or has a company or permanent establishment in Liechtenstein that makes profits of more than CHF 100,000 a year, it is liable to subscription tax. This also results in the fact that he has to be registered for the purpose of subscription tax and VAT in Liechtenstein.

With regard to tax accounting, the expenses and revenues in relation to data have to be included in the balance sheet and the financial statements leading to the net income that is the starting point for taxational adaptations and corrections before calculating the tax liability. Furthermore, if data would be understood as an intangible asset, it has to be carried on in the balance sheet, which is uncertain up to now. Expenses for establishing databases and analytic tools, maintaining datasets and for collecting raw data would be considered as development expenses or expenses for the expansion of business operations and would be capitalized and amortized.

Finally, some issues that could arise if data transactions are liable to taxation are addressed. These are issues concerning documentation, monitoring and traceability as well as concerning the very individual value of data that can change with the data owner.

To summarize, as long as there are no payments related to data transactions or income, there are no taxes. As soon as a company generates income in providing, selling or transferring data, this income is subject to income tax. Furthermore, as there is a payment for a service, VAT is incurred in this context. Same holds for tax deductibility. If the data transactions are part of the business activity of that operating business the taxable net income is reduced by the expenses justified by the business activity and therefore also by the data transactions. As pointed out in some of the sections, often no clear regulations are yet in place, but as data will become even more valuable for companies the discussions about how to include them in the balance sheet and how to treat them for the purpose of taxation will go on and will introduce new approaches and regulations. Until then the standard principle "substance over form" applies.

Introduction: Legal background

It is not without reason that nowadays data are considered to be the “raw material of the 21st century” as they form the basis of the business model or provide the key to commercial success for many companies. Therefore, there is a need to clarify the legal ownership of data as well as property rights of data with regard to competition and data protection aspects.

First of all, Liechtenstein does not have a “Big Data Act” nor does it provide any special legal provisions that are expressly and exclusively limited to big data and its applications. Instead, a number of different laws may be applied, which are primarily based on the purpose and method of data processing and usually not on a specific type of data. To shed light on this issue we collaborated with Dr. Marco Dworschak, who researched and studied legal principles that apply to big-data transfers in the principality of Liechtenstein.³

Although Liechtenstein has adopted its own “Blockchain Act” (the Act on Tokens and Trusted Technologies, TVTG) which came into force on 1 January 2020 in order to provide a legally secure framework for the use of so-called disruptive technologies, this Act is not applicable to big data per se. Big data applications are not the main subject of the Blockchain Act, which focuses on the use of “trustworthy technologies”. However, if the business purpose of a company or service provider based on the Blockchain Act is aimed at big data applications, the Blockchain Act may apply.

Common law of property

Swiss law served and still serves as the basis for the reception of Liechtenstein property law, which judicature and doctrine are used for interpretation.⁴ Liechtenstein’s property law does not have a legal definition of a ‘thing’ (object). That is why the narrow concept developed according to the Swiss doctrine must be used. According to Swiss Law a “thing” (res) in the legal sense is an impersonal, physical, self-contained object that can be subjected to human domination.⁵

The substantive concept applicable under Liechtenstein law therefore presupposes the physicality of the object, which is why no “right in rem” can be acquired to digital data and data records under the applicable civil law and prevailing doctrine, i.e. no right of ownership (in the sense of property law) can exist to data records.⁶ However, a distinction must be made between this and the intellectual property rights dealt with in the section about copyright below.

In the context of the creation of the above mentioned „Blockchain-Act“, the discussion about an extension of the Liechtenstein concept of intellectual property rights was opened.⁷ The right of ownership is regulated in articles 20–33 of the Liechtenstein property law (SR).⁸

³ We would like to thank Marco Dworschak for his support in offering the legal evaluation and classification of big data and data transactions on the basis of the existing legal norms in Liechtenstein.

⁴ Layr/Marxer, Rechtsnatur und Übertragung von „token“ aus liechtensteinischer Perspektive, LJZ 2019/1, 11 (12f) mVa OGH LES 2005, 100, StGH LES 1994, 49.

⁵ Ibid.

⁶ Ibid.

⁷ Ibid.

⁸ Sachenrecht (SR) vom 31 December 1922, LGBl 1923.004 <<https://www.gesetze.li/konso/1923004000>> (accessed on 28 September 2020).

Private property is guaranteed in article 34 paragraph 1 of the national constitution (LV).⁹ In contrast to the Liechtenstein concept of property, article 34 paragraph 1 LV is interpreted extensively; the material scope of protection of article 34 paragraph 1 LV therefore also includes all “subjective private rights of a property-law nature”, i.e. “mandatory rights”, “interests of monetary value”, “intellectual property rights” and acquired rights of a public-law nature.¹⁰ Following this extensive approach, value rights (see *sui generis* rights) also fall within the material scope of protection of article 34 paragraph 1 LV. Furthermore, various public-law bases must be consulted for the legal classification of data, in particular to clarify whether it is open data or common good.

For example, the Statistics Act, which regulates, among other things, the tasks and organization of official statistics and its data protection, defines “ ‘statistics’ as the aggregation of individual data for the quantitative description and evaluation of mass phenomena” (article 3 lit. a StatG).¹¹ This legal definition seems *prima vista* particularly relevant for the context of big-data analyses of interest here.

“Statistical data” are those “which are collected, processed, analyzed, disseminated and stored for statistical purposes. They record individual data and condensed data” (lit. d). The task of the official statistics of Liechtenstein is to provide the state and local authorities, as well as the public, with “relevant, reliable and coherent statistical information on society, the economy and the environment (article 4 paragraph 1 StatG). However, the Statistics Act is only of limited relevance for big data transfers or private big data analyses, as its scope is limited to the statistical activities of official statistics. The wording of article 11 paragraph 1 of the Statute suggests that big data could be used as a method for data collection and analysis by the Statistical Office. The Office of Statistics “may” collect statistical data in particular by interviewing persons, keeping and analysing registers and collecting administrative data. Furthermore, according to article 16 paragraph 1 StatG, statistical data may only be used for statistical purposes and is therefore generally subject to statistical confidentiality, unless there is an adequate legal basis according to paragraph 2 or there is no written consent from the persons concerned. The provisions of the StatG therefore do not explicitly prevent the use of big data, provided that it fulfills the aforementioned requirements. Also, statistical data may only be passed on to other foreign statistical offices and research institutes (exclusively) for statistical purposes (article 17 paragraph 1 StatG).

For the legal categorization of data, the Archives Act also provides a possible basis, whose definition of “documents” in article 3 paragraph 2 refers, among other things, to “other data carriers and files”. The Office of Culture has the right of disposal of documents to be qualified as archival material in accordance with article 5 paragraph 3 ArchivG. It is authorized “to open up the archival material according to archival-scientific aspects and to destroy documents that are not worthy of being archived. The Archive Act serves public and private documentation requirements and information needs for legal, political, administrative, scientific and cultural purposes, but its application is limited to documents

⁹ Verfassung des Fürstentums Liechtenstein vom 5 October 1921, LGBL 1921.015 <https://www.gesetze.li/konso/1921015000?search_text=LV&search_loc=abk_list&lrnr=&lgblid_von=&observe_date=07.09.2020> (accessed on 7 September 2020); Anm: Das Eigentumsrecht und „alle anderen Vermögensrechte der Religionsgesellschaften“ werden in Art 38 LV speziell verfassungsrechtlich geschützt; Staatseigentum findet in Art 8 Abs 2 LV eine eigenständige Rechtsgrundlage betreffend seiner Veräußerung.

¹⁰ Schädler in Liechtenstein-Institut (Hrsg), Kommentar zur liechtensteinischen Verfassung. Online-Kommentar, Art 34 LV, Rz 15 (<verfassung.li>, Stand 28 June 2018).

¹¹ Statistikgesetz (StatG) vom 17 September 2008, LGBL 2008.271.

worthy of archiving. This includes documents that are of lasting value to state organs and the public for scientific, regional and family history research, for the protection of the legitimate interests of affected persons or third parties, and for the purposes of legislation, jurisdiction or administration (article 3 paragraph 3 ArchivG). According to the Ordinance on the Use of the National Archives issued on the basis of articles 10, 11 and 25 of the Archive Act, the use of the National Archives, i.e. access to the archive records, is only permitted to those persons “who (can) substantiate a legitimate interest” (ArchivV, article 1 paragraph 1). Furthermore, *ex lege* there is no right to make photocopies (article 11) or other reproductions (article 12). If the making of copies is permitted, this is subject to a fee.

The Geoinformation Act (GeolG) also provides for the provision of geodata on the territory of the Principality of Liechtenstein to the public by making it available to society, the economy and science for broad use in a simple, up-to-date, long-term manner, in the required quality and at reasonable cost (article 1). The GeolG serves the implementation of Directive 2007/2/EC. It comprises both comprehensive structured models (geodata models) and small-scale information since metadata are also covered by the access (e.g. article 6 GeolG). Article 11 GeolG provides for the principle of public access to geoinformation. Public access to spatial data sets can be restricted if it could adversely affect international relations or national security (article 12 paragraph 1 GeolG). Access restrictions must be interpreted strictly (article 12 paragraph 3).

In addition, special statutory information regulations, in particular the EEA-legally predetermined environmental information law, apply. The Act on the re-use of public sector information (“Informationsweiterverwendungsgesetz”, IWG), which aims to “facilitate the re-use of public sector documents, in particular to promote the creation of new information products and services”, appears to be of particular importance. Among other things, the IWG does not apply to documents which, for various public reasons (national security) but also private reasons (trade secrets, business secrets, etc.), must be kept secret and are subject to confidentiality. According to article 5 IWG, public sector bodies must make documents in their possession and available for re-use, available for re-use in all existing formats or languages and, as far as possible and reasonable, in open and machine-readable format together with the associated metadata. Both the formats and the metadata should, as far as possible, conform to formal open standards. Charges for the re-use of documents are limited to the marginal costs caused by reproduction, making it available and by redistribution. However, according to article 7 paragraph 1 public sector bodies can set conditions for the re-use of documents, which shall be proportionate, shall not lead to distortions of competition and shall not unnecessarily restrict the possibilities for re-use. The above-mentioned provisions of Liechtenstein national administrative law are relevant to the question of which data are to be regarded as common property or are publicly accessible and can therefore possibly be processed in the context of a big data analysis.

Copyright

Liechtenstein copyright law provides for the protection of computer programs. According to article 2 paragraph 3 URG,¹² which defines the concept of a work in more detail,

¹² Urheberrechtsgesetz, LGBl 1999.160 <<https://www.gesetze.li/konso/1999160000>> (accessed on 29 September 2020).

computer programs are considered works of literature and art.¹³ Data files are protected – implementing the corresponding provisions of article 2 of the Berne Convention and articles 4 and 5 of the WIPO Copyright Treaty¹⁴ – according to article 4 paragraph 1 URG, “provided that, with regard to selection and arrangement, they are intellectual creations of an individual character”. More specifically, article 4 paragraph 3 URG concerning databases states that they are considered collective works “provided that, by reason of the selection or arrangement of the material, they constitute an individual intellectual creation”. Existing rights to their contents are not affected. The national copyright regulation issued on the basis of the URG does not provide for any concretization for data collections or databases.

The valid Liechtenstein URG derives from the Swiss URG as a model and deviated only occasionally from the basis of reception.¹⁵ Individual data does not fall under the concept of a work and is therefore not protected by copyright, as can be seen from the wording of the second sentence of article 5 of the WIPO Copyright Treaty, ratified in Liechtenstein, according to which its protection “does not extend to the data or material itself”. Other Liechtenstein intellectual property laws also do not provide a corresponding legal basis for the protection of data. In the existing “*numerus clausus*” of intellectual property rights (trademarks, samples, patents, designs, topographies and varieties, models), the data cannot be classified. In other words: Data and information are not subject to any intellectual property rights restrictions and can be used freely, subject to other legal provisions (such as data protection).¹⁶

Sui generis rights

The Liechtenstein intellectual property law (see above URG) has special provisions in article 44c and article 45. Article 44c URG serves to protect information for the exercise of copyright and related rights. The scope of protection explicitly covers electronic information of the right holders.

As *sui generis* protection, article 45 URG granted producers of a database the right, under certain conditions, “to prohibit the extraction and/or re-utilisation of the whole or of a substantial part, in qualitative or quantitative terms, of the contents of that database” (paragraph 1). Extraction is understood to mean the permanent or temporary transfer of all or a substantial part of the contents of the database to another data carrier. Re-utilisation shall mean “making available to the public in any form whatsoever all or a substantial part” of the contents of the database by distribution of copies, (...) by on-line transmission or by other means of communication.

With the introduction of the “Blockchain Act” (TVTG), the provisions of the “Personal and Company law” (PGR) were adapted. So-called “value rights” were introduced, which depart from the corporeality focus of rights in rem explained above under general property law. Value rights were to be created by entry in the book of value rights. In the context of big data analyses, however, it should be noted that a qualification of “structured data” as a “book-

¹³ Vgl Briner, Big Data und Sachenrecht, Jusletter IT 21 May 2015, Rz 1.

¹⁴ WIPO-Urheberrechtsvertrag (WCT), LGBl 2007.051; Berner Übereinkunft zum Schutz von Werken der Literatur und Kunst, revidiert in Paris am 24 July 1971, LGBl 1999.173.

¹⁵ BuA 1998/48, 3.1.3.

¹⁶ Briner, *ibid.*, Rz 35; vgl Felder/Harmann, Die Liechtensteinische IP-Box. Kurzkommentierung ausgewählter Aspekte und Ausblick, LJZ 2013/2, 71.

entry right” within the meaning of section 81a of the Final and Transitional Provisions of the PGR, is out of the question as they are not likely to be seen as dematerialized securities.

Trade secret / Confidential information

In Liechtenstein, the protection of confidential information is based on a large number of different legal norms. In addition to general secrecy protection regulations, there are also branch specific regulations, which can be considered in the context of big data. First of all, the constitutional component must be mentioned since the protection of the secrecy of letters and correspondence is guaranteed in article 32 paragraph 1 of the Liechtenstein constitution (LV). This guarantee of protection primarily develops a defense-legal function and is thus in principle state-directed. Article 32 paragraph 1 LV corresponds to the guarantees of protection provided in other international agreements (see article 8 ECHR and article 17 of the International Covenant on Civil and Political Rights, short ICCP).¹⁷

Following the case law of the Supreme Court, which places the protective content of article 32 paragraph 1 LV in the fundamental right of “private and secret sphere”, a broad scope of protection is recognized in the literature, according to which modern developments (“technologically new phenomena”) are also included in the scope of protection (e.g. telephone surveillance, e-mail traffic).¹⁸ In the literature even this catch-all effect of article 32 paragraph 1 LV is discussed as a fundamental right to anchor banking secrecy; it could therefore be considered as a constitutional basis for other secret protection provisions as well. The Supreme Court confirmed that banking secrecy is protected as part of the fundamental right to secrecy and privacy under article 32 paragraph 1 of the Federal Constitution, even if it has no formal constitutional status.¹⁹ Article. 32 paragraph 1 LV also assumes an indirect third-party effect.²⁰ It is therefore of some relevance for big data. The Trade Secrets Directive has not yet been incorporated into the EEA Agreement.²¹ Proposed amendments for pre-adoption by adapting the Act against unfair competition (UWG)²² are the subject of parliamentary discussion. Thus, the Liechtenstein legal system does not yet contain its own genuine legal definition of a trade secret.²³

Contract law

The General Civil Code (ABGB) regulates contract law in its 17th main section in §§ 859 – 937 on personal property rights. Apart from analogous contracts, special legal provisions apply to contracts concluded electronically or by distance selling, which must be observed

¹⁷ Beck/Kley, Freiheit der Person, Hausrecht sowie Brief- und Schriftengeheimnis in Kley/Vallender (Hrsg), Grundrechtspraxis in Liechtenstein, LPS 52, Vaduz 2012, 131 (132).

¹⁸ Beck/Kley, 131 (138) mVa StGH 2006/19, Urteil vom 3 July 2006, LES 2008, 1 (4 ErwG 2.1).

¹⁹ Ibid. mVa StGH 2008/63, Urteil vom 31 March 2009 (29 ErwG 9.1); StGH 2005/50, Urteil vom 6 February 2006, LES 2007, 396 (405, ErwG 4.7).

²⁰ Ibid. (144ff).

²¹ <https://www.efta.int/eea-lex/32016L0943> (accessed on 8 September 2020).

²² Gesetz vom 22 October 1992 gegen den unlauteren Wettbewerb (UWG), LGBI 1992.121.

²³ BuA 2019/87, <<https://bua.regierung.li/BuA/default.aspx?nr=87&year=2019&backurl=modus%3dstw%26filter1%3dR%26filter2%3d784066066&sh=-936463739>> (accessed on 8 September 2020).

in the context of big data. The E-Commerce-Act (ECG)²⁴ as well as the Law on distance and off-premises contracts (FAGG)²⁵ are to be considered. Article 1 paragraph 1 ECG regulates the legal framework for certain aspects of electronic business and legal transactions, including the conclusion of contracts. It serves the implementation of Directive 2000/31/EC (E-Commerce Directive).²⁶ It regulates so-called information society services; according to article 3 paragraph 1 lit. a, all services provided “at a distance, usually in return for payment, by electronic means, at the individual request of a recipient of services, in particular (...) on-line information services (...) electronic search engines and data retrieval facilities, as well as services which transmit information over an electronic network, provide access to such a network or store information provided by a user”. Big data applications can fulfill the definition of commercial communication as provided for in article 3 paragraph 1 lit. d of the law, which is “advertising and other forms of communication designed to promote, directly or indirectly, the goods, services or image of a company, organization or individual”. This excludes “information which gives direct access to the activities of the undertaking, to the organization or to a natural person”.

Regulatory restrictions

The GDPR was incorporated into the EEA Agreement on 20 July 2018 and is therefore directly applicable in Liechtenstein. Thus, the principle of prohibition with reservation of permission applies, according to which any data processing (i.e. data relating to specific or identifiable natural persons) requires a corresponding legal basis in accordance with article 6 or 9 GDPR. For private big data applications, only the possibilities of consent (article 6 paragraph 1 let. a) or by contract (article 6 paragraph 1 let. b) appear to be conceivable scenarios. In both cases, the data subjects must be adequately informed about the data processing. In this case, the prohibition of coupling must be observed, according to which the conclusion of a contract may not be linked to consent to data processing. The question of the distribution of roles in terms of data protection law is also important here. Companies specializing in big data applications can be classified as both data protection officers and contract data processors. In both cases, they are obliged to comply with the principles of data protection law and to protect the rights of the data subjects.

Liechtenstein’s financial markets law provisions (e.g. restrictions) may be applied to big data. In particular the Law on Banks- and Investment Firms (BankG)²⁷ and the Payment Services Act (ZDG) have special provisions concerning the processing of personal data. For the purpose of “strong customer authentication”, an authentication of special (e.g. biometric) data is possible according to article 24 ZDG (legal provision). According to article 100 paragraph 1 ZDG, operators of payment systems and payment service providers are entitled to process personal data if this is necessary for the prevention, investigation and

²⁴ Gesetz vom 16 April 2003 über den elektronischen Geschäftsverkehr (E-Commerce-Gesetz, ECG), LGBl 2003.133.

²⁵ Gesetz vom 3 September 2015 über Fernabsatz- und ausserhalb von Geschäftsräumen geschlossene Verträge (Fern- und Auswärtsgeschäfte-Gesetz), LGBl 2015.276. [https://www.gesetze.li/konso/2015276000?search_text=Fernabsatz&search_loc=text&lnr=&lglbid_von=&observe_date=13 September 2020](https://www.gesetze.li/konso/2015276000?search_text=Fernabsatz&search_loc=text&lnr=&lglbid_von=&observe_date=13%20September%202020).

²⁶ Richtlinie 2000/31/EG des Europäischen Parlaments und des Rates vom 8. Juni 2000 über bestimmte rechtliche Aspekte der Dienste der Informationsgesellschaft, insbesondere des elektronischen Geschäftsverkehrs, im Binnenmarkt (EWR-Rechtssammlung: Anh. XI – 5h.01).

²⁷ Gesetz vom 21 October 1992 über die Banken und Wertpapierfirmen (Bankengesetz, BankG), LGBl 1992.108.

detection of fraud in payment transactions. The processing of biometric data by banks and payment service providers is therefore not permitted without consent for the purpose of authentication as defined by the ZDG.

For the sake of completeness, reference should be made to the processing of personal data relevant to higher education, according to which institutions of higher education may transfer personal data to authorities that compile official statistics to be commissioned to recognised research institutions for the purposes of education controlling, education statistics and educational research.²⁸

Control

Guaranteed by article 10 paragraph 1 ECHR, the right to freedom of information has de facto constitutional rank (according to prevailing doctrine and jurisprudence, the ECHR is regarded as having de facto constitutional rank).²⁹ In addition to the guarantee contents of the ECHR, article 19 paragraph 2 ICCPR is relevant to the context of interest here, according to which freedom of expression includes the freedom “to receive and impart information and ideas of all kinds, whether spoken, written or printed, whether through works of art or any other means of one’s choice, regardless of frontiers”.

Part One: Basic principles: Character, source and nexus

1.1. General overview

To determine the basic character, source and nexus of big data transactions and data, the general legal regulations and circumstances should be examined to look for general and specific laws that are to be considered when dealing with big data. These specific laws as well as the areas of law related to data transactions are described in the section above “Introduction: Legal background”. Apart from these, there are no specific and direct laws on data transactions in general.

1.2. Character

After having given an overview about the general legal situation, the character of data has to be determined. With reference to the introduction, data can be characterized by form i.e. physical documents, electronical data, interviews, signals, by the purpose i.e. medical data, educational data, statistical data as well as by the condition of data i.e. raw data, aggregated data, structured data. Furthermore, it should be differentiated between public data and private data as well as between data that can be accessed and/or downloaded freely and data that is only available against payment.

²⁸ Gesetz vom 25 November 2004 über das Hochschulwesen (HSG), LGBl 2005.002, art. 50; Gesetz vom 25.11.2004 über die Universität Liechtenstein (LUG), LGBl 2005.003, art. 34.

²⁹ StGH 2005/89 from the 1 September 2006, LES 2007, 411; StGH 1995/21, LES 1997, 18 [28, Erw 6.1].

Free data transactions are for example free data downloads. With the download, the individual is able to get the data and to even use and proceed them after – in case this is allowed by the data provider. Some of the circumstances that allow the usage and the proceeding of data and some that do not, are stated in the legal introduction of this report. Free access to data - without the download option - can be compared with having access to the weather predictions but not being able to download the forecasts and the exact data. Also, the access to the weather predictions or the download possibility could be dependent on a payment, which is the case for data that is not free for the public.

Another characterization of data can be made due to their condition: raw data, aggregated or structured data and analyses of aggregated or structured data. In this report, raw data is understood as data that is neither processed nor evaluated. They are in the same format as when they were provided by the respective data source. In contrast, aggregated or structured data differentiate in their format from the format of the origin data source. Aggregated data for example combine a large number of individual information or observation into a single value or some smaller values.³⁰ Because lots of single data are combined to new values and information, it is not possible to trace back from these new data to the original data. Structured data is data, for which a certain structure, format or arrangement is prescribed.³¹ Databases are often a form of structured data if the single values are arranged in a certain form but are not yet aggregated. Lastly, there can also be an analysis of aggregated or structured data. A data analysis is a systematic examination of data in which the examined data sample is broken down into its elements. These elements are then examined and documented according to predefined specific criteria.³² Various data analytic methods from simple manual analyses to complex analysis using algorithm and further technical methods, can be used.

Additionally, it should be clarified under which circumstances data transactions should be classified as provision of a service, license of an intangible property, lease of property or sale/exchange of property. A provision of a service is classified in article 3 lit. e MWSTG as a service that is not a supply. Additionally, the transfer of intangible assets and rights is also considered to be a provision of a service. As data is not considered to be an object (see Introduction), it is immaterial and therefore an intangible asset. This results in the fact that a transfer of data against a payment can be viewed as a provision of a service. This accounts for raw data, structured data, aggregated data as well as the analysis of data, and can further be subdivided.

A license is the permission to use or own something granted by the owner of an industrial property right or copyright to a third party.³³ This would be the case if the data of the weather forecast can be used from a third party for internal processions against a regular fee. It results in the classification of the delivery of the data as a license of intangible property. Another differentiation should be made with regard to leasing. Leasing is understood as a specific form of renting an object from the producer itself or from a specific firm. As data is again not considered to be an object, data cannot be leased.

However, because of this missing classification of data as an object, a transaction of raw data cannot be seen as a sale/exchange of property as there exists no right of ownership to data records (see Introduction). This applies for raw data. When considering structured or

³⁰ The Glossary of Education Reform, 2015, Aggregated Data.

³¹ Enterprise Big Data Framework, 2019, Data Types: Structured vs. Unstructured Data.

³² Frankenfield, Jake, 2020, Data Analytics, Investopedia.

³³ Cambridge Dictionary, 2020, License; Merriam-Webster Dictionary, 2020, License.

aggregated data as well as the analysis of such data, it has to be clarified if it is a product of the specific data provider and therefore can be viewed as a provision of a service including the sale/exchange of property. Article 4 paragraph 1 URG states that structured or aggregated data files are intellectual creations of an individual character and are considered to be collective works. Again this does not hold for individual data. Furthermore, article 45 URG prohibits the extraction or reutilization of contents of such databases. The same counts for computer programs that are considered to be works of literature and art. To conclude, structured or aggregated data as well as analysis of these data are the collective work of an individual character, who owns the property rights of these results and is therefore also able to sell or exchange the property rights.

1.3. Source

In a next step, the source of income derived from data transactions is to be determined. In Liechtenstein, wealth taxes and income taxes exist on the personal tax level. Taking the example of a customer that gets free data for example from a website or authority in downloading them or specifically asking the data provider for these data, this first could give the impression of a gift. This would however not result in any tax liability as unique gifts are tax exempt in Liechtenstein.³⁴ The focus should rather be on the character of the data or of the gift. The tax exemption of unique gifts relies on wealth, which raises the question if data is considered to be wealth in a tax perspective. Wealth is classified in movable and immovable assets. As stated in the general property law part of the introduction, no right of ownerships is applicable to digital data and data records under civil law as data do not represent an object. Assets in contrast are clearly viewed as objects. Therefore, data cannot be viewed as an asset and therefore also do not qualify as wealth. This results in the fact that there is no wealth tax on any level related to data or data records.

Apart from wealth tax, there is also income tax. Article 14 Tax Law (SteG) defines the different sources of income. In the context of the tax liability of a resident in Liechtenstein, income in relation to data transactions can be made in the context of a self-employed activity (lit b and c). In this case, the resident must be self-employed which means he has a business that carries on an economic activity with the place of actual management in Liechtenstein. Same holds if the individual undertakes a liberal profession. Within his economic activity or liberal profession, he gains money in providing, transferring or selling data. The second source of income is in the area of legal entities that are subject to unlimited tax liability in Liechtenstein.³⁵ As the income tax is calculated on the basis of the taxable net income, income from providing, selling or transferring data also falls within the taxed income. Other sources of income derived from data transactions cannot be determined. As a next step, the liability of income has to be clarified. According to article 14 SteG all income existing in money or monetary value is liable to income tax. Income in monetary value covers all means that can be exchanged for money such as vouchers, securities or credits on current accounts. Data neither is money nor monetary value, so the data itself is not subject to income tax.

Public data can be split into data that can only be accessed publicly but the public is

³⁴ Steuergesetz (SteG), art. 15 para. 1 lit. c.

³⁵ SteG, art. 44.

not allowed to proceed or use it themselves, and into data that can be accessed, used and proceeded freely by the public. The latter is for example the case for the reutilization of the public sector documents regulated in the IWC as stated above. The data provider does not sell the data and is therefore not subject to any taxes. However, if he charges a fee for covering the marginal costs for providing any specific document because of an individual demand, this is a delivery or service in the context of his business and will lead to income tax and VAT as long as the data provider operates with the intention to make profits. Same is the case if he just sells the data to customers as this would be considered as a part of his business model and business purpose to make gains.

To summarize, as long as there are no payments related to data transactions or income, there are no taxes. As soon as a company generates income in providing, selling or transferring data, this income is subject to income tax. Furthermore, as there is a payment for a service, VAT is raised in this context. The same holds for tax deductibility. If the data transactions are part of the business activity of that operating business, the taxable net income is reduced by the expenses justified by the business activity and therefore also by the data transactions.³⁶ Therefore, for example also license payments for the use of data or the copyright can be deducted from the taxable net income in the case of natural persons.³⁷

1.4. Nexus

To conclude the first section of this report, the tax nexus is to be examined. In Liechtenstein, natural persons are subject to unlimited tax liability with their entire wealth and income if they have their habitual abode or residence in Liechtenstein.³⁸ The unlimited tax liability starts with the day the individual takes residence or habitual abode in Liechtenstein.³⁹ Residency is the place where the individual stays with the intention to stay there permanently. Habitual abode is the place where the individual is staying non-temporarily. The habitual abode is to be considered a stay of more than six months from the beginning, continuous in time.⁴⁰ Sporadically short-term interruptions are not taken into account. There is one more specification in article 2 lit. c SteG concerning the habitual abode: "A stay for the purpose of attending an educational institution and accommodation in an educational, medical or health care institution as well as a spa and vacation stay of up to twelve months shall not constitute a habitual residence or domicile."

Natural persons that neither have their residence nor their habitual abode in Liechtenstein, are subject to limited tax liability with their domestic assets (land and operating facilities) and income according to article 6 SteG.

Legal persons are subject to unlimited tax liability with their entire income as soon as their registered office or the place of actual management is in Liechtenstein.⁴¹ Legal persons that do not have their registered office or place of actual management in Liechtenstein as well as special property donations without a legal personality, are subject to limited tax

³⁶ SteG, art. 47 para. 3.

³⁷ SteG, art. 16 para. 2 lit. b.

³⁸ SteG, art. 6 para. 1.

³⁹ SteG, art. 7 para. 1.

⁴⁰ SteG, art. 2 para. 1 lit. b-c.

⁴¹ SteG, art. 44 para. 1.

liability with their income in Liechtenstein.⁴² The place of actual management is the location of the center of corporate overhead management. The place of residence is the residence determined by law, statutes or memorandum of the association.

Within the framework of the EEA Decision No. 91/2000 to incorporate Directive 2000/31/EC of the European Parliament and of the Council into the EEA Agreement, the so-called “country of origin principle” was introduced in Liechtenstein.⁴³ In this Directive, “establishment” is defined as the place where a service provider starts and pursues his activities. The exact location of the server or of the website is irrelevant. The only thing that matters is the place of the economic activity, the place this activity is actually carried out by means of a fixed establishment and for an indefinite period. This means that in relation to data transactions, the residence or effective place of management of the company is also the place of establishment for the data transfer. Also, the fact that the server is located in another country would not change anything.

Part Two: Application of treaty principles

2.1. General overview

The second part of this report focusses on typical treaty provisions and the taxation of data transactions with regard to these typical provisions. The treaty principles of Liechtenstein are based on the OECD guidelines. Relevant in the context of the taxation of data transaction is article 7 DBA that covers company profits. It states that profits of the company of one country (i.e. Liechtenstein) can only be taxed in this country except if it carries on its business in the other state (i.e. Germany) using a permanent establishment situated in that other state. If the latter conditions are met, the profits of the permanent establishment can be taxed in the other state (Germany). However, the character of these profits has to be defined in advance, which is done in article 7 para. 2 DBA. The profits that are attributable to each permanent establishment of the contracting states are the profits the permanent establishment is likely to make if this permanent establishment were a separate and independent enterprise providing the same activities in the same conditions. In attributing these profits, the functions performed by the permanent establishment and other parts of the enterprise as well as the risks and assets of the enterprise, are to be regarded.

To continue this examination, the term “permanent establishment” has to be defined. According to article 5 paragraph 1 DBA, a permanent establishment is a fixed place of business that is used to carry on the activities of a business wholly or partially. Therefore, a business from the other state that makes profits with data transactions and that has a permanent establishment in Liechtenstein according to the definition of article 5 DBA, is liable to tax in Liechtenstein with the profit that is attributable to that permanent establishment in Liechtenstein. The fact that these profits are made with selling data does not affect this regulation.

However, there is another question that arises in the context of data transactions,

⁴² SteG, art. 44 para. 2.

⁴³ Regierung des Fürstentums Liechtenstein, 2000, Bericht und Antrag der Regierung an den Landtag des Fürstentums Liechtenstein zur Schaffung eines Gesetzes über den elektronischen Geschäftsverkehr: E-Commerce-Gesetz.

data driven business and permanent establishments: Does the server in another country establish an operating facility?

The OECD's Committee on Fiscal Affairs states that the location of computer equipment as for example a server can qualify in certain circumstances as a permanent establishment.⁴⁴ This is the case if the significant functions and business activities are performed at that place. Also, article 5 paragraph 4 DBA has to be checked which defines situations in which an establishment does not qualify as a permanent establishment. Especially lit. d and e could be important in this context. They define that neither a fixed place of business with the sole purpose of purchasing merchandise and goods or obtaining information for the company nor a fixed place of business that has the sole purpose of carrying other, not core activities – preparatory or ancillary activities – for the company, determine a permanent establishment. Therefore, the server really has to be a core business activity to qualify as a permanent establishment which is not the case in standard data transactions. Additionally, it has to be fixed locally and possess a specific degree of independence as a minimum. That is for example not fulfilled with servers that only incorporate data identical to the original data to i.e. shorten data paths. Normally, also the requirement of power of disposition is not given as the data is stored on multiple redundant hard drives in most of the cases.⁴⁵ Therefore, each case has to be evaluated individually based on its context, business activities and circumstances. In some situations the server may qualify as a permanent establishment, but in most cases it does not.

Referring to the ECG of Liechtenstein mentioned above, "establishment" is defined as the place of the service provider, the location of the economic activity. The exact location of the server is irrelevant. This compares to a certain extent with the approach from the OECD. In a first step, the place of the core business activities has to be defined. If the main business then depends on the server and the company has a power of disposition, the server qualifies as permanent establishment.

2.2. Detailed comments

In the Liechtenstein tax law and ordinance, there are no specific remarks, regulations or treaties covering big data, data transactions or information transfers. Also, the Liechtenstein model convention to avoid double taxation does not give any information on how big data and data transactions are to be treated. Even the information on transfer prices and arm's length transactions regulated in article 9 DBA and article 49 SteG do not provide any information on this subject. Interestingly, also the double tax treaty between the Netherlands and Liechtenstein, despite the facts that it is quite new (signed on 3 June 2020) and takes the results of the BEPS project into account, does not provide any information on how data or knowledge transfer is to be treated. As Liechtenstein also does not have specific letters, information and guidelines on this matter as for example the BMF letters in Germany, it is advisable to use the OECD principles in practice. This reveals the regulatory gaps and explains why the general principle "substance over form" is to be used on these matters in Liechtenstein.

⁴⁴ OECD, 2001, OECD Countries Agree on the Interpretation of a Key Condition for Taxing Profits from Foreign E-Commerce Business, accessed November 2020 via <http://www.oecd.org/tax/treaties/oecdcountriesagreeontheinterpretationofakeyconditionfortaxingprofitsfromforeign-e-commercebusiness.htm>.

⁴⁵ Lehmann, Daniel; 2001, E-Commerce: Steuerliche Rahmenbedingungen, eine Standortbestimmung; Steuer Revue, Nr:1/2001.

Part Three: Transfer pricing

3.1. Application of transfer pricing principles

Transfer pricing rules have to be examined as soon as there are cross-border transactions and transactions between two related parties. Therefore, this also holds for data transactions. Article 31b of the Tax Ordinance (SteV) treats the arm's length principle. According to paragraph 1, taxpayers must always apply the latest version of the OECD Transfer Pricing Guidelines (TPG) for Multinational Enterprises and Tax Administrations when determining the transfer prices of transactions between related parties. This regulation furthermore defines that the effective facts and circumstances of the specific transaction have to be taken into account when choosing the adequate transfer pricing method. Additionally, if taxpayers also qualify as member of a group with a consolidated turnover of more than CHF 900 million, they must meet specific documentation requirements.⁴⁶

As the arm's length principle has to be applied in Liechtenstein, the suitable method for certain data transactions has to be determined. Again, this approach does not differentiate from determining the method for every other transfer of goods or services. If the price paid for a good or a service between two commercial or financial related companies differs from the price two independent companies would have agreed upon, the conditions or the money that was part of that contract but would be normal in every other transaction between two independent companies, has to be added to the profits and taxed accordingly. It does not matter if data is included in the transaction itself or if it is just used to develop and evolve the product that is transferred. The arm's length principle compares a transaction between two related companies to a transaction of the same product or service that would occur in the market between companies that are not financially or commercially related. If the transaction between the related firms shows better conditions, the profits or conditions are adapted for taxing purposes. The difference between the conditions in the firm-related state to the conditions in the non-related state is taxed too.

Furthermore, it can be stated that Liechtenstein does not provide any special regulations concerning the pricing of intangible assets such as data transactions. Also, there is no specific guidance for intra-group service transactions. Liechtenstein follows the OECD TPG here. Intra-group transactions are carried out at arm's-length principle terms and all companies have to be able to provide documentation about the adequacy of the transfer prices of transactions between related companies or PEs. Also, article 31b paragraph 1 SteC provides the legal basis to apply the simplified approach for low value-adding intra-group services, which reduces the documental burden a taxpayer may face as they only have to prove the receipt of a benefit by the group members within the individual service category.

⁴⁶ SteV, art. 31b para. 2.

Part Four: Special regimes

4.1. General overview

After having examined transfer pricing in the context of data transactions, section four provides an overview of special regimes. If data would be regarded to be an intangible asset, it has to have a value. This value has to be determined for each specific dataset. When these data are then sold, the taxation is based on the specific value of the sold data. However, if goods or services that are based on big data are sold, the data used to develop the product was once either bought and thereby taxed within this transaction or it was developed and collected itself and has a value based on used resources and internal costs to obtain these data. This again has to be priced to a certain extent within the sold product to cover the production costs. By selling such products based on data, the value of the data should be somehow included in the selling price at least the costs needed to develop, obtain or process the data.

In certain cases, aggregated and structured data, databases, algorithms or advertising strategies using big data can also be understood as goodwill. Goodwill is only taxed when being sold. So, if these data (products) are sold, they have to be taxed. As long as only the product itself that uses the goodwill is sold, the goodwill does not have to be taxed. To a certain extent it could be compared to brand values. Products form specific brands and can be sold at a higher price because of – among other things – the brand value. Also, products that improve customer satisfaction due to big data or that have better advertising strategies can be sold for higher prices in some cases. However, goodwill itself is only taxed when selling the brand. Therefore, future regulations could arise that define that resources needed for the development and collection of data, data bases or analysis for the development and the sale of big data enabled goods and services, have to be gathered and taxed within the transfer of such goods. In this scenario, it is either taxed because these costs are already included in the selling price – then this has to be made traceable – or separately afterwards.

4.2. DST

There is no DST or similar tax in Liechtenstein.

4.3. Incentives

As an incentive regarding big data development or exploitation, the Blockchain Act or TVTG can be listed. It is not a direct incentive in terms of tax credits or monetary value, but in terms of legacy. In the context of civil law, legal uncertainty for business models using DLT or Blockchain no longer exists. This could encourage big data applications coming with businesses that fall under the Blockchain Act. Also, there are checks that are given to companies to support innovation, and to strengthen the continuous development of digitalization with its products and innovations. However, there are no specific tax credits that could be applicable to typical big data development and exploitation.

Furthermore, in some jurisdictions, a license box or patent box exists, which is no longer present in Liechtenstein. The design of the total revision of the tax law (came into force on 1 January 2011) was carried out in close cooperation with the EU, where the ban

on state aid was being discussed. An exception that was considered as permissible were measures to promote research and development. The special importance of research and development for the future prosperity in Europe was recognized by the European Union years ago. Especially for small, resource-poor countries such as Liechtenstein, the sustainable safeguarding of the future through research and development is vital. An instrument for so-called IP-Box systems is a way of promoting research and development. A similar IP box regime (deduction of intellectual property rights) was also introduced in Liechtenstein on 1 January 2011. Article 55 SteG stipulated that an amount of 80 % of the total positive income from intellectual property rights applies as business justified expenditure. The special deduction of 80 % of the sum of the positive income from intellectual property rights led to a reduction of the assessment basis for this income to 20 %. Therefore, the effective tax rate for income from intellectual property rights was only 2.5 %. However, the IP box regime was abolished with the law of 4 November 2016 amending the Tax law. Nevertheless, the Liechtenstein legislator has granted a transitional period up to and including the tax year 2020 for income from intellectual property rights of legal entities and self-employed persons that were subject to taxation under this provision in the 2016 tax year.⁴⁷

4.4. Barter treatment

Liechtenstein does not have any rules or discussions about barter treatments.

Part Five: Indirect tax

In Liechtenstein, the VAT and the subscription tax could be of interest when talking about indirect tax in the context of big data transactions.

Every person that operates a business and provides services in Liechtenstein or has his registered office, place of management or permanent establishment in Liechtenstein and makes profits of more than CHF 100,000 is liable to VAT (article 10 MWSTG). The legal form, purpose and profit intention of that business is of no relevance in this case. Article 18 paragraph 1 MWSTG then defines that all services rendered against payment are subject to VAT in Liechtenstein unless they are tax exempt. As pointed out in section one, a provision of a service is classified in article 3 lit. e MWSTG as a service that is not a supply. If raw data, a database, an analysis or a product that is based on big data technology are sold, the selling company has to include VAT, because it qualifies as a service against payment. Such as in every other case: The tax is being calculated out of the actual received payment.⁴⁸ Also, the arm's length principle has to be applied.

First, article 19 MWSTG could be of interest in this case. Article 19 paragraph 1 MWSTG states that independent services are treated independently from each other. If the transferred data is independent from other products and services, it has to be taxed individually. This could be even more important when other products are exempt from

⁴⁷ Langer, Matthias; 2020, Liechtensteinisches Steuerrecht, Springer Gabler; SteG, II. Übergangsbestimmungen im Gesetz vom 4 November 2016 über die Abänderung des Steuergesetzes.

⁴⁸ MWSTG, art. 24 para. 1.

VAT, but data transactions are not. However, paragraph 2 states that several independent services that are combined to form a whole or are offered as a combination of services, can be treated uniformly according to the predominant service (should have at least 70% of the overall remuneration) if they are provided at an overall remuneration. This could lead to the possibility that if the transferred data within these total assets are only about 30% of the remuneration value and the predominant product or service is either tax exempt or enjoys the reduced tax rate, the data transaction will also be tax exempt or enjoy a lower tax rate.

Second, subscription taxes exist in Liechtenstein. The subscription tax is regulated in article 45 MWSTG and defines the taxation of services purchased from abroad. Subject to subscription tax are, according to lit. a, services that are provided in Liechtenstein from a company that has its residency in a foreign country and therefore is not entered in the register as a taxable person in Liechtenstein. Even more interesting in the context of data transactions is lit. b which defines that the import of data carriers without market value and the incorporated services and rights are subject to subscription tax too. The receiver of that service or data carrier is subject to tax if he either obtains such services for more than CHF 10,000 in a calendar year or if he is subject to tax according to article 10 MWSTG. Persons that already are liable to domestic tax must include all payments that are subject to subscription tax in their declaration of VAT. The limit of CHF 10,000 does not apply here. However, the subscription tax is deductible in the same statement as input tax given that the conditions are met. This means that if a foreign or domestic company is the receiver of imported data carriers and either receives such services for more than CHF 10,000 a year or has a company or permanent establishment in Liechtenstein that makes profits of more than CHF 100,000 a year, it is liable to subscription tax. This also results in the fact that a foreign company that receives the imported data carriers and that fulfills these conditions has to be registered for the purpose of subscription tax and VAT in Liechtenstein. The service recipient that is not subject to domestic tax must report to the FTA within 60 days of the end of the calendar year in which he received these services subject to subscription tax, and declare these received services.⁴⁹

It should be noted that this is only the case for data carriers without market value that are not already exempt from VAT. Data carriers without market value are defined as any imported data carrier that is not acquired against a specific fixed fee, payment or license fee at the time of import. Examples for this are updates and upgrades, image data, data carriers with computer programs.⁵⁰ Furthermore, scrutinized rights and intangible assets, plans, drawings and illustrations by architects, engineers, graphic designers and designers as well as legal writings by lawyers, expert opinions, translations and results of research and analysis, are defined to be equal to data carriers without market value according to article 111 paragraph 4 lit. a-d.

Subsequently, there is no VAT related to free data transactions as article 18 MWSTG states that only services that are rendered against payment are subject to VAT. A payment is defined as assets that the recipient or a third party spent to receive a service.⁵¹ So as long as there is no payment for the data, there also is no VAT. Liechtenstein does not treat the free use of digital services and the data collection of the provider as a barter transaction as mentioned above, which would lead to VAT. Other indirect taxes that are of interest when

⁴⁹ MWSTG, art. 66 para. 3.

⁵⁰ Mehrwertsteuerverordnung (MVSTV), art. 111.

⁵¹ MWSTG, art. 3 lit. f.

examining data transactions, do not exist in Liechtenstein to this day. Taxes like a GST or a special consumption tax do not exist.

Part Six: Tax accounting

6.1. Recognition of transactions

To examine the recognition of transactions, the law of revenue and recognition with regard to data transactions has to be mentioned. According to article 1079 paragraph 1 PGR expenses are expenses for material, labor, depreciation and value adjustments, other operating expenses as well as depreciation on financial assets and value adjustments held as current assets, interest, extraordinary expenses and other taxes. Concerning income, net sales, own work capitalized, increase in finished goods, other operating income as well as income from investment, securities and financial assets receivables qualify as revenue. Furthermore, interest profit from ordinary and extraordinary activities are defined to be revenue as well.

Most of the expenses would arise in the area of labor when talking about collecting data, developing and maintaining databases and analytic tools. Net sales would increase if a company sold these databases or raw data directly. These expenses and revenues have to be included in the balance sheet and the financial statements leading to the net income that is the starting point for taxational adaptations and corrections before calculating the tax liability.

6.2. Capitalization and amortization

In addition to the recognition of taxation, capitalization and amortization related to data sets and databases are of interest. Article 1052 PGR defines that assets are to be carried at no more than the cost of acquisition or manufacture. The problem already mentioned frequently in the report is again, that data is not a classic asset. In the situation where data would be understood as an intangible asset, it has to be carried on in the balance sheet. Furthermore, article 1053 PGR adds that expenses for the establishment and expansion of business activities as well as development costs can be capitalized. Afterwards they have to be amortized over the period of use.

However, it is uncertain if data itself or datasets and analysis of datasets are assets in the sense of the PGR and therefore have to be carried on in the balance sheet. Expenses for establishing databases and analytic tools, maintaining datasets and for collecting raw data would be considered as development expenses or expenses for the expansion of business operations and would be capitalized and amortized. In contrast, the same approach as in section four could be used to classify data and databases as either goodwill or part of a product and not as individual assets.

To summarize, the question of capitalization and amortization depends on the classification of data: Are data assets? What kind of assets? First, raw data alone that are neither processed nor sold, have no value for a company. They should not be considered as wealth or valuable assets. However aggregated, structured or processed data that are used or sold afterwards have a value and can be understood as wealth for a company. In this

scenario, they could represent intangible assets which then could lead to their activation as well as to the activation of their related costs in the balance sheet. Also, Switzerland, that often serves as orientation for the Liechtenstein regulations, discusses the qualification of data as intangible assets.⁵² There are no clear regulations yet, but as data will become even more valuable for companies the discussions about how to include them in the balance sheet as well as in which cases they should be included, will go on and will introduce new approaches and regulations.

Part Seven: Other

Further issues when speaking about taxing data transactions might be the documentation and traceability of the provided services and generated income, especially in the context of the arm's length principle. How it is possible to determine the character of the data transferred and its market value? Every data, database, algorithm changes in value depending on where and how they are implemented, used and processed. Probably the dataset has a value x for company A but a value y for company B just because they can process and use the data differently. Therefore, it could be very hard to determine a market value for the cases the value depends highly on the contracting parties.

Also, if data transactions should be taxed, there will be huge problems in monitoring that every transaction is reported, documented and can be taxed afterwards. If firms do not collaborate and do not report every data transaction to the tax office, it is almost impossible to trace every single data transaction between firms and to monitor every download. The resources needed to control and supervise such data transactions would be huge, complex and not economical. Furthermore, it would violate many privacy rights, business secrets and customer protection regulations that are in place as introduced in the beginning section on legal background.

⁵² Schwarz, Angelica; 2020, „Die Bilanzierung von Daten bekommt große Relevanz“, Springer Professional.



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