

The Digital Transformation of Tax Systems Progress, Pitfalls, and Protection in a Danish Context

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ABSTRACT

The authors examine possibilities and challenges in using digital tools to obtain tax simplification and to improve tax assessment, collection, and transparency. Hence, the main objectives of the article are, from a legal perspective, to shed additional light on the relations between tax administrations and taxpayers in an increasingly digitalized world and to discuss how this development may influence taxpayers' rights and the overall efficiency of tax systems. In doing so, practical experiences—incurred in Denmark during its journey from a paper-based and manual tax administration process toward a more digitalized one—are analyzed. Against this background, it is concluded that many states around the world, including Denmark, have come a long way in making tax processes smoother and more efficient through the use of digital tools for the benefit of both taxpayers and tax administrations. However, at the same time, global as well as Danish experiences clearly show that states, in their pursuit to digitalize tax administrations further, need to take appropriate measures into consideration in order to ensure the legality and transparency of the digital tax administration processes.

I. INTRODUCTION

In a recent report released by the Organization for Economic Cooperation and Development (OECD), the continuous global trend toward digital transformation of tax administrations is highlighted. Moreover, it is stated that this trend has been accelerated by the

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COVID-19 pandemic to such an extent that digital contact channels now dominate interactions between tax administrations and taxpayers.¹

Even though the global pandemic may have accelerated the digital transformation of tax systems, policymakers, and tax administrations have been preoccupied with implementing solutions based on information technology (IT) for quite some time to make it easier for taxpayers to meet their tax obligations, to enhance compliance, and to increase efficiency. In addition, the digitalization of tax administrations—as well as of the global economy as such—has attracted the interest of tax scholars, and ever-growing literature deals with various issues related hereto. Accordingly, several different research streams may be identified within the field of *tax and technology*.²

In this article, however, our primary focus is on the possibilities for and challenges with using digital tools to improve tax simplification, tax assessment, tax collection, and tax transparency.³ Hence, our main aims are—from a legal perspective—to shed additional light on the relations between the state (i.e., the tax jurisdiction) and its citizens (i.e., the taxpayers) in an increasingly digitalized world and to discuss how this development may influence taxpayers' rights and the overall efficiency of tax systems.⁴

1. Org. for Econ. Co-operation and Dev. [OECD] FORUM ON TAX ADMIN., TAX ADMINISTRATION 2022 22–23 (2022). The report provides comparative information on fifty-eight advanced and emerging economies, accounting for around 90 percent of the global GDP.

2. See, e.g., Claudio Cipollini, *A Systemic Introduction to Tax and Technology*, IBFD Int'l Tax Stud. 3 (2022). The author identifies the following six research streams: taxation of the digital economy, technology and tax collection, technology and tax transparency, technology and tax simplification, technology and taxpayers' rights, and, finally, technology and taxation in developing countries.

3. In this article, the term *tax simplification* is understood as endeavors to reduce the complexities of the tax system as such, including tax code complexity, structural complexity, policy complexity as well as administration and compliance complexities. For more on the dimensions of tax complexity, see Lynne Oates & Gregory Morris, *Tax Complexity and Symbolic Power*, in TAX SIMPLIFICATION 25–32 (Chris Evans et al. eds., 2015). The notions *tax assessment* and *collection* are used broadly, i.e. as the overall process of assessing taxpayers' income statements and actually collecting the taxes (including taking action against those who have not filed a return in time or paid their taxes when due). For more on these tax administration functions, see *Tax Administration 2022*, *supra* note 1, at 54, 122. The term *tax transparency* is used to refer to the transparency of taxpayers' affairs through the automatic exchange of information between states as well as through strengthened reporting and disclosure requirements for taxpayers and third parties. For more on the notion of tax transparency, see Johanna Hey, *General Report – The Notion and Concept of Tax Transparency*, in TAX TRANSPARENCY 3 (Funda Başaran Yavaşlar & Johanna Hey eds., 2019).

4. In this article, the term *tax simplification* is understood as endeavors to reduce the complexities of the tax system as such, including tax code complexity, structural

In doing so, we will illustrate a number of practical examples incurred by Danish policymakers and authorities during Denmark's journey from a paper-based and manual tax framework toward a more digitalized one. The intention is that this approach will make the issues discussed more tangible and enable policymakers, officials, and scholars to learn from real-life examples provided in a Danish context.⁵ Moreover, Denmark is considered a useful case for this purpose because Denmark has one of the most digitalized public administrations in the world and Denmark historically has been at the forefront of implementing digital solutions into their tax administrative framework.⁶ Finally, some of Denmark's digital initiatives—in particular, the unsuccessful ones—have been subject to intense debate in the Danish media and scrutiny by national institutions, such as the National Audit Office and the Ombudsman.⁷

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5. For a similar example-based approach used in a general administrative justice context see e.g., Jennifer Raso, *Implementing Digitalisation in an Administrative Justice Context*, in THE OXFORD HANDBOOK OF ADMINISTRATIVE JUSTICE 521 (Marc Hertogh, 2021).

6. United Nations, E-Government Survey 11–14 (2020), and European Commission, Digital Economy and Society Index 66-76 (2021). See also Finansministeriet, Danmarks digitaliseringsstrategi – Sammen om den digitale udvikling [The Ministry of Finance, Denmark's Government's digitalization strategy – together for the digital development] (2022). The first national digitalization strategy was launched in 2001. For more, see Hanne Marie Motzfeldt & Azad Taheri Abkenar, DIGITAL FORVALTNING [DIGITAL MANAGEMENT] 20–22 (2019). Finally, see Digitaliseringsstyrelsen, Vejledning om digitaliseringsklar lovgivning [The Digitalization Agency, Guidelines for Digitalization Ready Legislation], Guideline nr. 9590 af 12.6.2018, which main aim is to ensure that digitalization is included in all of the preparatory work for new legislations from start to finish.

7. The National Audit Office [*Rigsrevisionen*] is an independent institution placed under the Danish Parliament. Its main tasks are to determine whether public accounts are correct (financial audit) and to examine whether government-funded agencies and enterprises comply with current laws and regulations (compliance audit) as well as whether the administration has a sufficient focus on economy, efficiency, and effectiveness (performance audit). See Folketinget Rigsrevisionen, www.rigsrevisionen.dk (last visited

As the overall topic of the digital transformation of tax systems is extremely comprehensive, a number of delimitations had to be made to ensure a sufficient focus. Accordingly, we found it necessary to exclude explicit considerations on indirect taxes, duties, and tariffs. Moreover, we have not included considerations on developing countries' specific challenges with respect to the digitalization of their tax administration. While these areas are important, they exceed the scope of this paper and require further research.

It is part of the aim of this article to explicate relevant areas of Danish law as it stands (*de lege lata*) or as it stood. This explanation is done in accordance with the traditional Danish legal dogmatic method of interpretation and by relying on commonly accepted sources of law, including the wording of the tax provisions in question, statements in the *travaux préparatoires*, and Danish case law.⁸ Furthermore, to facilitate a deeper understanding of the various processes that have led to the digital transformation of the Danish tax administration, historical, legal sources play a significant role in the article.⁹

Additionally, to provide a comprehensive insight into the international and Danish digital transformations of tax systems, broader considerations concerning good public administration are also included.¹⁰ In this regard, a number of other sources are relied on as well, including reports from major international and Danish organizations and institutions, white papers, academic literature from

Sep. 8, 2022). The Danish Parliamentary Ombudsman's [*Folketingets ombudsmand*] main task is to help ensuring that the public administration acts in accordance with the law and good administrative practice, thus protecting citizens' rights vis-à-vis the administration. The Ombudsman investigates complaints and opens cases on his own initiative and carries out monitoring visits. See *Velkommen til ombudsmanden*, www.ombudsmanden.dk (last visited Sept. 8, 2022).

8. For more on interpretation in Danish tax law see e.g., Peter Koerver Schmidt, *Legal Pragmatism – A Useful and Adequate Explanatory Model for Danish Adjudication on Tax Avoidance?*, *Nordic Tax J.* 29 (2020).

9. Hence, it may difficult or impossible to understand the present state of tax law and tax administration without knowing what led for current ills. See e.g., Reuven-Avi Yonah, *Why Study Tax History?*, 48 *INTERTAX* 687, 687–89 (2020) (reviewing to it. In other words, to comprehend the current state-of-play one has to understand what the lawmakers were trying to achieve in the past. Further, solutions in tax tend to repeat themselves in cyclical fashion, and therefore studying the past can suggest remedies *STUDIES IN THE HISTORY OF TAX LAW* (Peter Harris & Dominic de Cogan eds., vol. 9 2021)).

10. Broadly speaking the field of *public administration* is concerned with the institutional arrangements for the provision of public services and regulation of governmental activities, whereas administrative law examines these arrangements in terms of legal principles such as legality, fair procedure, and proportionate use of power. However, there is a close connection between the two disciplines. John S. Bell, *Comparative Administrative Law*, in *The Oxford Handbook of Comparative Law* 1254 (Mathias Reimann & Reinhard Zimmerman eds., 2019).

various research fields, statements from the Danish National Audit Office, and expositions from the Danish Ombudsman.

The remainder of this article is structured as follows: Section two includes a short introduction to the fields of taxation and tax administration. Section three contains an analysis and a discussion of the opportunities for simplifying tax administration through digitalization. Section four explores the digitalization of tax assessment and collection procedures. Section five analyzes and problematizes issues with tax transparency in a digital context. Section six considers the future possibilities for and challenges of further digitalization of the tax administration. Finally, Section seven presents and discusses the overall conclusions.

II. TAXATION AND TAX ADMINISTRATION IN A NUTSHELL

Even though the statutes of most states do not include an explicit definition of the notion of tax, the term is typically defined as a compulsory levy, which is imposed by an organ of government, for public purposes and without regard to the particular benefits received by a taxpayer (i.e., it is an unrequited payment).¹¹ There are three main goals of taxation: to raise revenue for necessary government functions and public purposes, to redistribute income, and to steer behavior.¹²

Taxation is typically a heavily regulated area, where an overwhelming amount of statutes and regulations prescribe how the taxable amount (i.e., the tax base) should be computed and how the tax payment should be calculated. This area of the law can be labeled material tax law. However, it is worth mentioning that tax law as a discipline normally is viewed as a subdiscipline within the field of administrative law and that formal tax law thus is concerned with broader questions concerning how a tax administration is authorized to work as well as which remedies that it has available.¹³

11. Marjana Helminen, *General Report*, in *The Notion of Tax and the Elimination of Double Taxation and Double Non-Taxation* 17, 160–61 (Sdu Uitgevers, International Fiscal Association, 2016). The same understanding of the notion of tax applies in a Danish context. See Lars K. Terkilsen, *Denmark*, in *The Notion of Tax and the Elimination of Double Taxation and Double Non-Taxation* 297, 297–314, at 297 (Sdu Uitgevers, International Fiscal Association 2016).

12. Reuven Avi-Yonah, *The Three Goals of Taxation*, 60 *Tax L. Rev.* 1, 3–4 (2006).

13. At least in the continental European traditions, administrative law is concerned with the powers and organization of the executive organs of the state. See Bell, *supra* note 10, at 1252. Moreover, an accelerating diffusion of administrative principles among legal systems appears to take place. See Francesca Bignami, *Comparative Administrative Law*, in *The Cambridge Companion to Comparative Law* 167, 168–69 (Mauro Bussani & Ugo Mattei eds., 2012). *Material tax law* is sometimes also labeled *substantive tax law*, and

While a part of administrative law, tax law does have specific traits. Not only is the tax legislation often among states' lengthiest and most complex statutes, taxes also have the particular function of financing government operations and impact the vast majority of citizens in various ways.¹⁴ Accordingly, the fact that taxation involves costly mass administration—as well as the fact that efficiently running a tax system is largely dependent on taxpayers' own reporting and self-assessments—should be kept in mind when analyzing and discussing the relations between tax administrations and taxpayers.¹⁵ This also applies to the digital transformation of tax administrations.¹⁶

A. Tax Simplification and Digitalization

Even though simplicity is often highlighted as one of the central tenets of a good tax system,¹⁷ tax legislation tends to be complex.¹⁸ One explanation for this complexity is the reliance on income taxation, as the measurement of income inevitably contains difficult questions.

formal tax law is sometimes referred to as *procedural tax law*. See Pasquale Pistone, *General Report*, in *Tax Procedures EATLP International Tax Series* 18, 7–9 (2020).

14. See generally Lawrence Zelenak, *Maybe Just a Little Bit Special – After All*, 63 *Duke L.J.* 1898 (2014) (this article is a response to the claim that tax law is no different from other areas of law; thereby, the article contributes to the longstanding discussion in the United States about so-called tax myopia or tax exceptionalism).

15. The overall costs of running the tax system are often perceived to be high and may roughly be divided into three categories: 1) *distortion costs*, i.e., costs that arise when taxes affect taxpayers' decisions; 2) *administrative costs*, i.e., cost incurred by the tax administration in order to establish and operate systems to manage all aspects of taxation; and 3) *compliance costs*, i.e., costs incurred directly by taxpayers in order for them to comply with their tax-related obligations as well as for third parties involved in the process. See Jonathan Shaw et al., *Administration and Compliance*, in *Dimensions of Tax Design – The Mirrlees Review* 1100, 1105–06 (James A. Mirrlees & Stuart Adam eds., 2010).

16. See, e.g., the discussion in Benjamin Walker, *New Wave Technologies and Tax Justice*, in *TAX JUSTICE AND TAX LAW* 261 (Dominic de Cogan & Peter Harris eds., 2020).

17. Dating all the way back to Adam Smith, *simplicity* has been hailed as a core principle of a good tax system, see generally, Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (Reprint by Elec. Book Co. 2000). In more recent times, *simplicity* was included in what has been referred to as the Ottawa Principles, i.e., a set of broad taxation principles that should apply to electronic commerce. See Committee on Fiscal Affairs, *Electronic Commerce: Taxation Framework Conditions* (1998) (presented to Ministers at the OECD Ministerial Conference, *A Borderless World: Realising the Potential of Electronic Commerce*). Years later, the importance of the Ottawa Principles was reaffirmed in the Final Report on Action 1 in the BEPS Project. See OECD, *Addressing the Tax Challenges of the Digital Economy – Action 1: Final Report* 134 (2015).

18. See generally Joel Slemrod, *Why'd You Have to Go and Make Things So Complicated?*, in *TAX SIMPLIFICATION* 1 (Chris Evans et al., eds., 2015).

Accordingly, some of this complexity can be viewed as a necessary price to be paid in order to aid legislators in fine-tuning the income tax liability, that is, to personalize income taxation according to certain taxpayer characteristics, to obtain some desired level of redistribution in society (e.g., horizontal or vertical equity),¹⁹ and to steer taxpayers' behavior in a certain direction (e.g., to invest more in the green transition or reduce pollution). However, it has been argued that part of this complexity is not for the purpose of contributing any social value but is merely caused by misguided legislative initiatives that have ended up distorting the economy.²⁰ The reasons behind such misguided attempts can be many, including the fact that legislators, tax officials, and taxpayers are all subject to cognitive limitations and that these limitations may be exploited.²¹

The need to protect tax systems against avoidance and evasion adds to this complexity and, more recently, the increasing mobility of taxpayers and the cross-border affairs of large, multinational enterprises have put further pressure on legislators and tax administrations.²² As a consequence, many states have (often unsuccessfully) embarked on simplification reforms aimed at reducing the complexity of tax rules.²³ More successfully, technology to reduce the compliance burden for taxpayers—as well as for providing better and more reliable information to tax administrations—has played a significant role in many states. As further elaborated in the following sections, common examples are electronic filing of returns (often prefiled to some extent), online tax payments, and the delivery of online taxpayer assistance.²⁴

19. The concepts of horizontal or vertical equity have been subject to extensive debate in the legal literature. *Horizontal equity* means that taxpayers who are positioned identically relative to the tax base should pay equal tax, whereas the concept of *vertical equity* stipulates that taxpayers with different amounts of income or wealth should pay different amounts of tax. This latter concept is often reflected in states' use of progressive tax rates. For a discussion of the concepts, see, e.g., Ira K. Lindsay, *Tax Fairness by Convention: A Defense of Horizontal Equity*, 19 Fla. Tax Rev. 79 (2016).

20. Slemrod, *supra* note 18, at 7.

21. For more on the complexity and opacity of the United States' Federal Income Tax and a discussion of the consequences and possible technological solutions hereto, see, e.g., David I. Walker, *Tax Complexity and Technology*, 97 IND. L.J. 1095 (2022).

22. See generally CONRAD TURLEY ET AL., *International Tax Administration Solutions in Major Countries*, in A NEW DAWN FOR THE INTERNATIONAL TAX SYSTEM (2017).

23. At times, even well-meaning attempts to simplify the legislation have themselves created complexity. See, e.g., Judith Freedman, *Managing Tax Complexity*, in TAX SIMPLIFICATION, *supra* note 20, at 253, 256.

24. Turley et al., *supra* note 22. For a discussion of such possibilities in the context of the United States, see Joseph Bankman et al., *Using the "Smart Return" to Reduce*

B. The International Development

Initially, it should be recognized that, as countries differ in respect to their policy and legislative environment as well as administrative practices and culture, tax administrations face a varied environment within which to administer their taxation systems.²⁵ However, in general, most tax systems around the world operate with what may be described as a sequential process. This implies that taxpayers should be identified, and taxpayers are required to identify and report transactions and incomes as well as subject their income to the appropriate tax rules. On this basis, the tax obligation of each taxpayer should be calculated and paid. Subsequently, tax administrations should have the option to audit the tax assessment of each taxpayer and to enforce the taxation, and taxpayers should have the option to dispute the taxation.²⁶

While obviously being country-specific, the general development of tax administration around the world has been characterized as evolving from Tax Administration 1.0 to 2.0, implying a digitalization of what was previously paper-based and manual sequential processes.²⁷ Further, the digitalization has created new opportunities for the data use and analytical tools by tax administrations to support the sequential tax administration processes.²⁸ Arguably, this development has resulted in efficiency gains and an increase in effectiveness of tax administration processes for taxpayers and the administration.²⁹

Simplifying the sequential tax administration process for taxpayers through digitalization may be seen as a significant improvement in many ways. Notably, tax administrations have not only focused on reducing quantifiable costs from the administrative burden but also on costs associated with frustrations and anxiousness experienced by taxpayers uncertain of complex tax legislation and detailed reporting obligations.³⁰ Some of the digital initiatives, developed and implemented to support taxpayers in the sequential tax administration process, are so-called nudge techniques. These techniques aim to encourage and

Evasion and Simplify Tax Filing, 69 Tax L. Rev. 459 (2016), and Joseph Bankman, *Using Technology to Simplify Individual Tax Filing*, 61 Nat'l Tax J. 773 (2008).

25. OECD, *Using Third Party Information Reports to Assist Taxpayers Meet their Return Filing Obligations — Country Experiences with the Use of Pre-populated Personal Tax Returns* 3 (2006).

26. See OECD, *Tax Administration 3.0: The Digital Transformation of Tax Administrations* 10 (2020).

27. *Id.* at 7, 76.

28. *Id.* at 10.

29. See generally Turley et al., *supra* note 22; OECD, *supra* note 26.

30. See generally Walker, *supra* note 21.

promote correct taxpayer behavior and are based on behavioral insights into each individual taxpayer, online self-service tools, and targeted help. Examples of the latter are online live chats and virtual assistants who, based on artificial intelligence, provide information and to various extents fulfil assistance functions.³¹

Further, tax administrations use the traditional media and social media to communicate general information, deadlines, and updates to taxpayers.³² Another increasing trend among tax administrations in their effort to simplify tax compliance is the use of mobile apps, which are becoming increasingly transactional. The most sophisticated apps offered by tax administrations are now a primary way for taxpayers to access information and personal tax accounts, to communicate with the tax administration, to submit information and tax returns, and to pay taxes.³³

However, while some at the forefront of tax administration provide full-service mobile apps for specific parts of the taxation system, most tax administrations still rely on e-filing and e-payment channels. Accordingly, in a survey conducted by the OECD with respect to average e-filing, for the years 2018 to 2020, it was concluded that in the participating countries, more than 90 percent of business taxpayers submitted their tax returns electronically, whereas 85 percent of personal income tax returns were submitted electronically—both types of taxpayer returns had experienced an increase of approximately 19 percentage points since 2014. In assessing these figures, it should be noted that, for a number of tax administrations, a 100 percent e-filing rate has already become a reality.³⁴ As for e-payments rates, more than

31. Alfredo Collosa, *Digitization of Tax Administrations, and Facilitation of Tax Compliance*, Inter-American Center of Tax Administrations (Oct. 4, 2021), <https://www.ciat.org/ciatblog-digitalizacion-de-las-administraciones-tributarias-y-facilitacion-del-cumplimiento-tributario/?lang=en>; OECD, *supra* note 26, at 10–11; *see also* Johanna Hey, *General Report – The Notion and Concept of Tax Transparency*, in *Tax Transparency 3* (Funda Başaran Yavaşlar & Johanna Hey, eds., 2019), section, 1.2.3.3. (the role of digitalization).

32. *See* OECD, *supra* note 26.

33. OECD, *Tax Administration 2021 Comparative Information on the OECD and other Advanced and Emerging Economies* 87 (2021). As examples, Brazil's tax and customs "Normas" and Russia's special tax regime "Professional income tax" are discussed.

34. OECD, *Tax Administration 2022: Comparative Information on the OECD and other Advanced and Emerging Economies* 55–56 (2022). The number of countries that were able to provide the average e-filing rates for the years 2018–2020 were 47 with respect to business income tax returns and 50 with respect to personal income tax returns. However, only 33 and 31 countries were able to provide information on the average e-filing rates for the years 2014 and 2020 with respect to business income tax returns and personal income tax returns respectively.

86 percent of tax payments measured by number and more than 88 percent measured by value were made electronically in 2020.³⁵ The slightly higher percentage of e-payments by value suggests that larger taxpayers particularly use e-payment.

While these figures all suggest an increased simplification in the tax administration process through options for e-filing and e-payment of taxes, a number of jurisdictions still experience a high volume of paper-based tax returns as well as payments through nonelectronic means, although this has been significantly reduced during the COVID-19 pandemic and is expected to decline further over time.³⁶

A subsequent simplification step to e-filing and e-payment (although prior in the sequential tax administration process) is the prefilled tax return, where the tax administrations make a draft of the tax return available to taxpayers by populating the taxpayer's return with information typically provided from third parties.³⁷ A number of benefits from implementing prefilled tax returns have previously been discussed and may, *inter alia*, include a reduction in taxpayer compliance costs and system costs of the tax administration in the time taxpayers spend on the return and in the volume of involuntary errors by the taxpayers.³⁸

A prerequisite for offering such prefilled tax returns is the construction of a comprehensive and reliable information system with large-scale agile information processing.³⁹ However, the complexities of the legal frameworks governing taxes are a challenge to more automated tax calculations, and, while machine-readable legislation can help automate the calculation process using algorithms, the capabilities of information systems in this respect have been and remain limited.

To account for the limitations of information systems, prefilled tax returns may initially be used for simple and frequent types of taxpayers (thereby decreasing requirements for the capabilities of the information

35. *Id.* at 56. With respect to the average e-payment rates for the years 2018–2020, 47 countries were able to provide this information.

36. *Id.*

37. OECD, *supra* note 33, at 62–66. In the report, examples from China, New Zealand, Norway, Peru, Russia, and Spain are discussed. See also Alfredo Collosa, *Pre-prepared Tax Statements: An Instrument of Facilitation and Control*, Inter-American Center of Tax Administrations (May 28, 2021), <https://www.ciat.org/pre-prepared-tax-statements-an-instrument-of-facilitation-and-control/?lang=en>. The author argues that preprepared tax returns are very effective to achieve the goal of making it as easy as possible for taxpayers to comply with tax obligations in a simple way and without feeling doubt.

38. See also Collosa, *supra* note 37 (This author also discusses the benefits of a reduction in postverification programs, improvements of the impression of the tax administration, as well as the perception that it is acting in real time as well, as increased collection.)

39. *Using Third Party Information Reports*, *supra* note 25, at 10.

system), that is, within tax regimes that allow few deductions and credits and in places where the tax return can be verified with third-party data sources.⁴⁰ A typical example of suitable taxpayers to be offered prefilled tax returns is employees where the employer provides data to tax administrations.⁴¹

As already indicated, another prerequisite for offering prefilled tax returns is that tax administrations are able to collect all the relevant data. Therefore, obliging third parties to report information is regarded as a vital step in offering prefilled tax returns.⁴² Accordingly, comprehensive systems requiring third parties to report income, for example, employment-related payments, such as wages, bonuses, and other fringe benefits, should typically be reported by the employer, whereas interests and dividends should typically be reported by financial intermediaries. Reporting obligations covering assets might include the sales and purchases of shares and bonds, which should typically be reported by financial intermediaries, and deduction-related information may be information on union fees, home mortgage interest, contributions to unemployment insurance and retirement savings plans, and childcare expenses typically reported by a number of intermediary third parties.⁴³ An inherent advantage of imposing reporting obligations on such large and institutionalized third parties is that they generally have the capacity to professionalize the processes, and they are likely to benefit from economies of scale.⁴⁴

Some argue that the sum of information provided by the taxpayer and third parties offers tax administrations a high level of transparent tax data on each taxpayer, which is justified by principles of legal and equal taxation and the general public interest.⁴⁵ However, it is challenging to balance between the convenience of collecting information without the need for cooperation by (or knowledge of) the taxpayer and the risk of jeopardizing taxpayers' trust in the tax administration. Consequently, as is further discussed below, the process of collection and utilization of the collected information needs to be transparent for the taxpayer as well.⁴⁶

Unsurprisingly, following the principle of garbage in garbage out,

40. See *Tax Administration 2022*, *supra* note 1, at 57.

41. *Using Third Party Information Reports*, *supra* note 25, at 10.

42. See *Tax Administration 2022*, *supra* note 1, at 57–62.

43. See *Tax Administration 2022*, *supra* note 1, at 57–62; *Using Third Party Information Reports*, *supra* note 25, at 10.

44. See *Using Third Party Information Reports*, *supra* note 25, at 10.

45. Roman Seer, *Purpose and Problems of Tax Transparency: The Legal Perspective*, in 17 *TAX TRANSPARENCY* 17, pg. 2 in online version (Funda Başaran Yavaşlar & Johanna Hey eds., 2019).

46. Hey, *supra* note 3.

prefilled tax returns are only as good as the data received by the tax administrations. Accordingly, it has been argued that an important aspect of prefilled tax returns is taxpayers' self-assessment—even when the taxpayer merely confirms the proposal received.⁴⁷ This system may be implemented by requiring all taxpayers to respond, either by confirming that the return gave a complete and accurate picture of the taxpayer's tax affairs or by adjusting the information included in the prefilled tax return. Alternatively, a system of deemed acceptance can be adopted, that is, the taxpayer only has to react if the taxpayer has amendments or additions.⁴⁸ However, as is further discussed below regarding the practical experiences from Denmark, maintaining the self-assessment obligation upon taxpayers may imply challenges from a taxpayers' right perspective. As an example, it may be difficult for taxpayers to review their tax returns based on information that they have not provided themselves and combine this information with a sufficient understanding of the rules applicable to their tax affairs.

C. Danish Experiences

In many ways, the Danish development correlates with the international tendencies presented in the previous section. Hence, in 1995, Denmark made it possible for individuals to file their tax returns online. Accordingly, Denmark was among the first movers when it came to utilizing IT for such tax administration purposes, and, already in 2004, 68 percent of the tax returns of individuals were handled online, increasing to 96 percent in 2009. Moreover, it was made possible for corporations to file their tax returns online as of 2005.⁴⁹

To a large extent, these tax returns are automatically prefilled using information received from various intermediaries, such as employers, banks, and pension funds. The approach includes a deemed acceptance of the prefilled tax return after the expiry of a notice period. For a significant part of the Danish individual tax base, complete online prefilled tax returns are thus being generated.⁵⁰

47. See also Collosa, *supra* note 37.

48. See *Using Third Party Information Reports*, *supra* note 25, at 10.

49. Jørgen G. Christensen & Peter B. Mortensen, *Overmod og afmagt*, 36–37 (2018); see generally Org. for Econ. Co-operation and Dev. [OECD], *Tax Administration 2017: Comparative Information on OECD and Other Advanced and Emerging Economies* (2017) (In 2014, it became mandatory for Danish corporations to file their tax returns online). For more about this requirement, see Mette B. Larsen and Asger L. Høj, *DIAS – digitalisering af selskabsselsvangivelsen*, SR-Skat, 104 (2015) (Nowadays, in Denmark, all filing of tax returns for individuals as well as for corporations take place online.) See also *Tax Administration 2022*, *supra* note 1 at Table D13.

50. See *Tax Administration 2022*, *supra* note 1, at Table A.46.

The Danish success in implementing e-filing and prefilled tax returns may partly be explained by the fact that Denmark already had introduced taxation at source for employees (pay-as-you-earn taxation or PAYE) in 1970.⁵¹ Hence, a condition for the efficient operation of the PAYE system was an increased use of electronic data processing.⁵²

To fully grasp the importance of this head start, the historical development of the Danish PAYE system will be explored further, as it illustrates how Denmark, as one of the first countries in the world, was able to lead its tax administration procedures in a digital direction.⁵³

The preparation for the introduction of the Danish PAYE system had started back in the late 1950s when the Danish Ministry of Finance invited the International Business Machines Corporation (IBM) to assist in analyzing and defining the necessary preconditions and barriers for introducing such a system. Simultaneously, a joint venture was launched between the central government and the municipalities with the task of acquiring computers as well as the task of developing and operating the new PAYE tax system and related supporting systems.⁵⁴

Among other things, these efforts led to the creation of the Central Personal Registration System in 1965 and to the creation of the Central Registration System for Companies and Employers in 1975.⁵⁵ The reason behind the creation of these registers was to ensure that each taxpayer, employer, and other information-providing third parties could be uniquely identified.⁵⁶

In 1972, a report was published in which an appointed committee gave a number of recommendations on how to improve the efficiency of the PAYE tax system, including how to create a system that, as far as possible, made additional payments unnecessary and eased the burden of control.⁵⁷ Many of these suggested improvements (as well as other improvements) were implemented during the 1970s and 1980s.⁵⁸

51. Lov. nr. 100 af 31.03.1967 om Kildeskatteloven [Act on Taxation at Source], (Den.).

52. Christensen & Mortensen, *supra* note 49, at 36–37.

53. Lov. nr. 100 af 31.03.1967 om Kildeskatteloven [Act on Taxation at Source], (Den.).

54. Søren D. Østergaard, *The Danish Tax System and the 'No Touch Strategy' in History of Nordic Computing* 58–64 (Christian Gram et al. eds., 2014).

55. Lov nr. 239 af 10.06.1968 om folkeregistrering [Act on Personal Registration] (Den.); Lov nr. 151 af 24.04.1974 om erhvervsregistret [Act on Registration of Businesses] (Den.).

56. See generally Østergaard, *supra* note 54.

57. Betænkning fra udvalget til forbedring af kildeskatten [Report from the Commission on Improving Taxation at Source] Report no. 638 (1972) 6–7 (Den.).

58. Østergaard, *supra* note 54 at 60–61.

This development paved the way for the launch of an integrated digital self-service strategy in the mid-1990s. The strategy contained a so-called no touch goal with an aim of ensuring that taxpayers interacted with the tax administration in the most cost-effective and time-effective way, that is, by enabling taxpayers to help themselves online through the website of the tax administration or by communicating online with tax officers.⁵⁹ In general, this strategy has proved to be a success, and, in 2004, the Danish tax administration was awarded the Danish eCommerce Prize (E-handelsprisen) for their digital self-service tax system called "TastSelv."⁶⁰

Obviously, the journey toward a digitally based tax system has only been made possible through massive investments in IT, but, along the way, several legislative changes have also been made to facilitate the transition, to provide sufficient legal basis, and to clarify the responsibilities of taxpayers, third parties, and the tax administration.

Important examples of these initiatives are the adoption of the new Tax Control Act and the Act on the Reporting of Information to the Tax Administration in 2017.⁶¹ The former contains rules concerning the obligations and responsibilities of taxpayers when providing information to the tax administration as well as rules on the powers available to the tax administration. The latter contains rules on the obligations for employers, banks, and others to report information about taxpayers to the Danish tax administration.

These two laws replaced a principal act dating back to 1972,⁶² which partly was based on a principal act dating all the way back to 1946.⁶³ Accordingly, it was broadly agreed that there was an urgent need to replace the old legislation, which, through numerous smaller amendments over the years, had become an unsystematic patchwork.⁶⁴ Moreover, it was argued that the old legislation did not sufficiently take the digital transformation of the tax filing processes and tax control

59. Org. for Econ. Co-operation and Dev. [OECD], *SURVEY OF TRENDS AND DEVELOPMENTS IN THE USE OF ELECTRONIC SERVICES FOR TAX PAYER SERVICES DELIVERY* 16 (Mar. 2010), <https://www.oecd.org/tax/administration/45035933.pdf>.

60. Lise Sønnichsen, *TestSelvhistorie*, 13 SKATTEREVISOREN 1, 100 (2010).

61. Lov nr. 1535 af 19.12.2017 om Skattekontrolløven [Act on Tax Control] (consolidated act 283 of 03.02.2022) (Den.), and Lov. nr. 1536 af 19.12.2017 om Skatteindberetningsloven [Act on Reporting of Information to the Tax Administration] (consolidated act 1754 of 30.08.2021) (Den.).

62. Lov nr. 568 af 16.11.1972 om selvangivelse af indkomst og formue [Act on self-assessment of income and property] (Den.).

63. Lov nr. 392 af 12.07.1946 om selvangivelse af indkomst og formue [Act on self-assessment of income and property] (Den.).

64. Jan Pedersen, *Ny skattekontrolløven*, SR-Skat 33 (2018).

processes into account,⁶⁵ including the fact that most individual taxpayers no longer prepared and provided a tax return, but rather received an electronically generated yearly statement containing information provided by various third parties, which often could not be amended online by the taxpayer. In this context, it appeared reprehensible to still hold the taxpayer liable for the correctness of the information in the yearly statement generated and obtained in this way.⁶⁶

Accordingly, in the new Tax Control Act, the requirement to prepare and provide a tax return was replaced by an obligation to disclose relevant information.⁶⁷ Moreover, it is now explicitly stated that this obligation does not comprise liability for information, which is or should have been provided by third parties, provided that the third party is independent of the taxpayer and that the information is to be used in the yearly statement.⁶⁸

Despite these improvements, concerns still exist when it comes to the question of whether taxpayers' rights are sufficiently protected in the digital era.⁶⁹ As a consequence, the Danish Ombudsman launched a thorough investigation into the tax administration's digital procedures and IT systems in 2021.⁷⁰ One aim of this investigation is to examine a number of existing IT systems in order to assess whether the systems sufficiently support the Danish tax administration in complying with their obligations following from general administrative law, as set out in the in the Public Administration Act as well as in the General Data Protection Regulation (GDPR).⁷¹ Another aim of the investigation is to

65. Lovforslag nr. 13 2017/2018 [bill no. 13 2017/2018] (Den.).

66. *See also*, the criticism put forward by Borger- og Retssikkerhedschefen, *Redegørelse fra arbejdsgruppen ved skattekontrolløvens ansvarsregler* [The Head of Tax Payers' Rights, Report from the Working Party on the Tax Control Law's Rules on Liabilities and Sanctions] (2011).

67. Lov nr. 1535 af 19.12.2017 om Skattekontrolløven § 2(1) [Act on Tax Control] (Den.).

68. *Id.* at § 2(2).

69. For more on digitalization and general administrative law in a Danish context *see e.g.*, PER B. SØRENSEN, *FORVALTNINGSRET MED ET DIGITAL PERSPEKTIV* (2017).

70. Folketingets Ombudsmand [The Danish Parliament's Ombudsman], News release of Mar. 17, 2021, Skattekontoret sætter fokus på digitalisering hos skattemyndighederne (2021) (Den.).

71. Lov nr. 571 af 19.12.1985 om Forvaltningsloven [Public Administration Act] with later amendments (consolidated act no. 433 of 22.04 2014) (Den.), and Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC, 2016 OJ (L 119) together with Lov nr. 502 af 23.05.2018 om Databeskyttelsesloven [Danish Act on Supplementing Provisions to the Regulation on the protection of natural persons with regard to the

look at a number of IT projects that have not been finalized yet to ensure that the administrative law requirements are sufficiently considered already in the developing phase. At the time of writing, the Ombudsman's thematic report on the tax administration's digital procedures and IT systems has not been published.

Over the years, the Ombudsman has closed a number of more limited and more narrowly scoped investigations concerning the use of digital tools and applications in the Danish tax administration. One of these investigations concerned the so-called One Tax Account system.⁷² This system was meant to facilitate payments between businesses and the tax administration through one single account. However, when the new account was launched, the system contained an error, which entailed that no interests were levied on the outstanding payments for a major part of the businesses. The accumulated interest was subsequently collected manually with significant extra costs and inconvenience for the tax administration as well as the concerned taxpayers. Against this background, the Ombudsman criticized that the system was launched despite containing deficiencies that harmed a great number of taxpayers.⁷³

Another of the Ombudsman's investigations concerned a new IT system that was meant to facilitate automatic transfers to the tax administration of information concerning transactions taking place on sharing platforms focused on renting out houses, apartments, summer cottages, and more (e.g., Airbnb). In connection to these transactions, the Ombudsman highlighted the fact that even though the new IT system only collected and transferred information—and thus did not directly generate any decisions itself—the information provided through the new system was also used by other agencies. These agencies then used the transferred information when making administrative decisions. Against this background, the Ombudsman emphasized that it is important that the agency responsible for the new IT system sufficiently takes account of the possible uses of the generated information by other agencies. Moreover, the Ombudsman considered it deplorable that the taxpayers' right to legal representation had not

processing of personal data and on the free movement of such data] (Den.). *See also*, paragraph 5.2 below.

72. The legislation behind the One Tax Account system [En Skattekonto] was adopted in 2006. *See*, Lov nr. 513 af 07.06.2006 om opkrævning via én skattekonto [Act on Tax Collection Through One Account] (Den.). The rules took effect from Aug. 1, 2013. *See*, Ministerial Order nr. 577 of 30.05.2013 (Den.).

73. Redegørelse fra Folketingets Ombudsmand [The Ombudsman's Report], case no. 17/03200 3–4 (Den.).

sufficiently been taken into account during the system development.⁷⁴

Finally, the Ombudsman has also examined how the Danish tax administration communicates with taxpayers through social media.⁷⁵ In this respect, the Ombudsman has emphasized that the tax administration's opening and administration of a Facebook account should be considered an activity within the scope of public administration and that common administrative law rules should be adhered to. Accordingly, the Ombudsman highlighted that proper procedures should be in place for answering and archiving enquiries from taxpayers, for the preparation of full notes, and for the handling of confidential information.⁷⁶

In conclusion, the Danish tax administration has come a long way in making tax processes smoother and more efficient through the use of digital tools. A prominent example is the fact that most individual taxpayers no longer need to prepare and file a tax return, as they automatically receive a prefilled, digitally prepared, yearly statement. However, the Danish development also shows that digitalization poses a number of challenges with respect to the protection of taxpayers' rights, including a need to recalibrate taxpayers' information obligations and liabilities as well as a need to alter internal tax administration procedures.

III. DIGITALIZATION OF THE TAX ASSESSMENT AND COLLECTION

The primary purpose of any tax administration is arguably the collection of tax revenue.⁷⁷ In doing so, the tax administration has to examine the completeness and correctness of tax returns, assess tax obligations, collect the taxes (sometimes by force), and provide guidance to taxpayers.⁷⁸

Accordingly, tax administrations are faced with a number of heavy and costly tasks. In the aftermath of the financial crisis of 2008, many states have tried to stretch the resources allocated to their tax administrations further, for example, by carrying out reorganizations,

74. See Redegørelse fra Folketingets Ombudsmand [The Ombudsman's Report], case no. 21/01499 (Den.).

75. See Udtalelse fra Folketingets Ombudsmand [Ombudsman's Statement], case no. 18/03627 (Den.).

76. For a thorough examination of the tax administration's (digital) communication channels see also, Borger- og Retssikkerhedschefen, *Undersøgelse af skatteforvaltningens kommunikations-kanaler* [The Head of Taxpayers' Rights, Examination of the Tax Administration's Communication Channels] 67–70. (2011).

77. See *Tax Administration 2022*, *supra* note 1, at 32–33.

78. Matthijis Alink & Victor van Kommer, *Core Business of Tax Administration*, in *Handbook Of Tax Administration* chap. 2 (2015).

auditing taxpayers based on information-driven risk profiling, and enhancing the digital processes and tools deployed.⁷⁹ Concerning the latter, it has, on the one hand, been argued that IT has the potential to cut the costs of processing taxpayer information, to reduce the risk of errors, and to help to expose noncompliance. However, on the other hand, it has been argued that new IT can be extremely difficult and costly to implement.⁸⁰ In the following subsections, we will explore these opportunities and challenges further.

A. The International Development

As stated, an important and time-consuming function of tax administrations is the assessment of accuracy and completeness of reported information. Generally, this assessment has happened and to a great extent still happens through different audit types, such as comprehensive or issue-oriented audits, inspections of books and records as well as in-depth investigations of suspected tax fraud, and potential visits to the taxpayer's premises.⁸¹ However, accelerated as a result of the COVID-19 pandemic, advances in technology have led administrations to consider new ways of engaging with taxpayers during the audit process, including electronic submissions of audit-related documentation, increased use of automated electronic checks, and validations and matching of reported information.⁸² As it is further discussed below, the transparency of these digitalized compliance actions is critical to supporting voluntary compliance, perceptions of fairness, and prophylactic effects.⁸³

A significant part of more targeted and managed compliance is driven by the increased availability of data. Therefore, most tax administrations now apply data science techniques and analytical tools in audit case selection and analytics, including behavioral analysis, to build a more holistic understanding of compliance risks, behavioral patterns, and appropriate compliance interventions.⁸⁴ This approach allows tax administrations to better identify the tax returns, claims, or transactions, which may require further scrutiny. Furthermore, these

79. See generally Turley et al., *supra* note 22.

80. Shaw et al., *supra* note 15.

81. See *Tax Administration 2022*, *supra* note 1, at 96.

82. See generally Turley et al., *supra* note 22; see *Tax Administration 2022*, *supra* note 1.

83. See *Tax Administration 2022*, *supra* note 1, at 96.

84. See generally Org. for Econ. Co-operation and Dev. [OECD], *Advanced Analytics for Better Tax Administration: Putting Data to Work*, 20 (May 13, 2016), https://read.oecd-ilibrary.org/taxation/advanced-analytics-for-better-tax-administration_9789264256453-en; see also *Tax Administration 2022*, *supra* note 1, at 97, 102.

models—many of which can operate in real time—allow administrations to conduct automated electronic checks on all returns or on transactions of a particular type and allow administrations to use rule-based approaches to treat some defined risks. Therefore, these models provide tax administrations with more effective and efficient ways to undertake the assessment of taxpayer compliance.⁸⁵

In terms of collecting taxes, the payment of taxes has, as explained above, largely been digitalized over the years with the majority of tax payments now being paid electronically. Further, the collection of taxes that have not been paid timely has been digitalized. The collection of outstanding tax payments is not only important for financing public spending,⁸⁶ but it is also important for maintaining high levels of voluntary compliance and citizens' trust in the overall tax system.⁸⁷ Accordingly, as the main goal of taxation is to collect revenue, the goal of debt management will arguably be to increase the net present value of outstanding tax debt while respecting legal principles and the perceived fairness of the tax system.⁸⁸

The traditional approach for tax collection is a standard process that is applied uniformly to all debt until it is either paid or written off. A more effective approach, however, focuses on the debtor instead of the debt and uses advanced analytics and behavioral sciences to understand the driving mechanisms of the debtor's behaviour. Accordingly, instead of following a fixed order, predictive techniques may be used to identify taxpayers who are unlikely to meet their obligations but likely to respond to debt-management intervention, while prescriptive techniques may be applied to determine how to communicate most effectively with these segmented taxpayers.⁸⁹

Accessing the data in the chain of the collection system and having the data properly structured are prerequisites for building risk models with predictive power that can be used to forecast payment behavior. For example, a risk model may predict payment behavior by distinguishing between cases where the tax debt is likely to be paid without further intervention and cases where early intervention is almost certainly needed. Based on such predictive models, tax administrations can target their nudge campaigns. For example, they

85. See *Tax Administration 2022*, *supra* note 1, at 111–12.

86. See *Tax Administration 2021*, *supra* note 33, at 44.

87. See *Tax Administration 2022*, *supra* note 1, at 129–30.

88. See Org. for Econ. Co-operation and Dev. [OECD], *Working Smarter in Tax Debt Management*, 29 (Oct. 24, 2014), https://read.oecd-ilibrary.org/taxation/working-smarter-in-tax-debt-management_9789264223257-en.

89. See *Advanced Analytics for Better Tax Administration*, *supra* note 84, at 24, 26; see also *Working Smarter in Tax Debt Management*, *supra* note 88, at 19; *Tax Administration 2021*, *supra* note 33, at 136–37. See generally Turley et al., *supra* note 22.

can change how choices are presented without limiting the taxpayers' options or economic incentives.⁹⁰

As discussed above, tax administrations are rather data-rich organizations in terms of information submitted by third parties. However, tax administrations also have information on the historical performance of taxpayers and their previous interactions with taxpayers.⁹¹ Accordingly, one of the biggest challenges is integrating and understanding all of the available data to gain deep insights into taxpayers' behaviour and payment risks. This process is difficult because tax systems usually are built around individual taxes and tend to focus on individual debt claims rather than the taxpayer.⁹² Unsurprisingly, risk modelling and analytics require expertise and competent people who understand both data analysis and business analysis and who can collaborate with tax administration experts. In other words, data scientists are a prerequisite for successfully developing analytical tools for collecting taxes.⁹³

It has been argued that the application of advanced analytics is particularly suited for tax debt management, as the payment cycle is relatively short—either the debt is paid, or it is not. This system makes it easier to run trials supported by behavioural insights strategies for testing different wording in reminder letters and assessing the results in terms of payments. In this respect, it is important that tax administrations strike a balance between collecting the amounts due and assisting taxpayers to avoid distress. In other words, tax administrations should maintain a compliant attitude among taxpayers to avoid a reputation of being too lenient on the speed of recovery of tax debt and to ensure equal and consistent treatment of taxpayers.⁹⁴

In practice, the debtor-oriented approach is usually based on segmentation.⁹⁵ Initially, segmentation will usually divide taxpayers

90. See Org. for Econ. Co-operation and Dev. [OECD], *Successful Tax Debt Management: Measuring Maturity and Supporting Change*, 87 (Mar. 28, 2019), <https://www.oecd.org/tax/forum-on-tax-administration/publications-and-products/successful-tax-debt-management-measuring-maturity-and-supporting-change.pdf>.

91. See *Working Smarter in Tax Debt Management*, *supra* note 88, at 23; see also, e.g., *Successful Tax Debt Management: Measuring Maturity and Supporting Change*, *supra* note 90, at 21.

92. See *Working Smarter in Tax Debt Management*, *supra* note 88, at 24.

93. See *id.* at 25.

94. See *Tax Administration 2021*, *supra* note 33, at 130; see also *Working Smarter in Tax Debt Management*, *supra* note 88, at 24.

95. See Antonio Faúndez-Ugalde et al., *Use of Artificial Intelligence by Tax Administrations: An Analysis regarding Taxpayers' Rights in Latin American countries*, 38 COMPUT. L. & SEC. REV. 1, 3–4, 6 (2020); see also *Advanced Analytics for Better Tax Administration*, *supra* note 84, at 25, 30. See generally Turley et al., *supra* note 22.

into large taxpayers, smaller and medium-sized enterprises, and individual taxpayers.⁹⁶ However, effective segmentation has been argued to require at least three additional levels of maturity:⁹⁷

1. subsegmentation based on certain debt and taxpayer characteristics, e.g., debt size, debt age, and the business sector;
2. risk-based clustering by incorporating taxpayer behavior, which allows tax administrations to apply more targeted strategies to high-risk, noncompliant taxpayers and to apply strategies that are based on the value and complexity of collecting tax debt from other segments of taxpayers;
3. dynamic risk clustering aiming at improving the matching of treatments to each risk cluster and debt prevention must be dynamic by using a feedback loop to ensure continuous improvement.

Accordingly, based on the characteristics of both the debt itself and the debtor, a debt will then receive a risk classification. A group of taxpayers with the same classification can be clustered, enabling a segmented approach whereby the tax administration applies similar debt treatments across the group. This cluster also supports a level playing field by ensuring that taxpayers with similar characteristics are treated consistently.⁹⁸

In the following section, Danish experiences with the digitalization of tax assessment and collection will be discussed, including a number of unsuccessful (to say the least) implementations of digital tools that aimed at harvesting rationalization and efficiency gains without appropriately accounting for the inherent risk in developing and applying a new IT system.

B. Danish Experiences

In terms of applying digital means to improve tax assessment procedures, Denmark has successfully implemented a number of the analytical tools discussed in the previous section, including audit case

96. See *Working Smarter in Tax Debt Management*, *supra* note 88, at 25.

97. See *id.* at 27–30.

98. See *id.* at 35. See generally Turley et al., *supra* note 22.

selection. However, as further elaborated below, Denmark has struggled to find a suitable digital solution for the collection of tax debt.

Nowadays, all parts of the public administration in Denmark use digital tools to support, to steer, and sometimes even to decide on cases. The Danish tax administration, among other agencies, makes use of such tools most noticeably.⁹⁹ Accordingly, robotic process automation is widely used to collect data, and, combined with the use of various digital templates and case-handling systems, many procedures within the public administration have become highly automated.¹⁰⁰

One of the most prominent examples is the fully automated digital generation of yearly statements for most individual taxpayers.¹⁰¹ However, as taxpayers still have the possibility to add information to the automatically generated yearly statement, control measures have to be put in place. Among these measures are digital blockers, which the Danish tax administration started using as of the income year 2017.¹⁰² These digital blockers are able to prevent taxpayers from adding information to their yearly tax statement through the self-service IT system (TastSelv) if the added information does not conform to the information that the tax administration already has obtained about the taxpayer.¹⁰³

Further, as of the income year 2018, the Danish tax administration started applying a broader and more advanced digital tool that is capable of going over all of the added information by taxpayers through the self-service IT system. The digital tool has the capacity to go

99. Motzfeldt & Abkenar, *supra* note 6, at 32.

100. Hanne M. Motzfeldt & Emilie Loiborg, *Digital sagsbehandling – om legalitet, styring og interne regler* [Digital Case Processing – About Legality, Management, and Internal Rules], FESTSKRIFT TIL BENT OLE GRAM MORTENSEN, at 262–64 (2022). Redegørelse fra Folketingets Ombudsmand [The Ombudsman's Report], Opgradering af Skatteforvaltningens ESDH-system [Upgrading the Tax Administration's ESDH System], Case No. 21/01501 (2022) (emphasizing that it is paramount that the responsible agency monitors whether such systems support correct application of relevant legislation and sufficiently takes account of the possible interaction with other agencies' case handling systems). See Udtalelse fra Folketingets Ombudsmand [The Ombudsman's Statement], Skatteforvaltningens registrering af og korrespondance med partsrepræsentanter i ældre it-systemer [The Tax Administration's Registration of and Correspondence with Party Representatives in Older IT Systems], Case No. 21/00385 (2021). This criticism has also been raised with respect to a number of other IT systems used by the tax administration.

101. See *supra* Part 3.2.

102. Press Release, Skattestyrelsen [Danish Tax Admin.], Digitalt kontrolværktøj stopper forkerte indtastninger af fradrag i TastSelv for knap 50 mio. kr. [Digital Tool Stops Incorrect Typing-in of Deductions for 50 Million Danish Kronor] (Mar. 5, 2020).

103. See also Folketingets Skatteudvalg [Danish Parliament's Tax Comm.], SAU alm. del endeligt svar på spørgsmål 361, [Final Answer to Question 361] (2016-2017) (offering more about the background of the tax administration's use of digital blockers).

through approximately 1,000 yearly statements every minute and is able to point out which taxpayers have added information to the yearly statement that is atypical or, in other ways, diverges significantly from the average pattern.¹⁰⁴

Moreover, with respect to the rather new and relatively popular phenomenon of trading in cryptocurrencies, the Danish tax administration has started using a digital control tool that can help decode the extensive amount of data related to such transactions and find out where the risk of incorrect filing is highest. At the same time, the tax administration has started using knowledge and information from other areas of control, such as information from banks on cross-border fiat money transfers, when auditing taxpayers with such activities. This information has given the tax administration a more accurate picture of what is actually going on with respect to taxpayers' trading in cryptocurrencies, and the efforts have already led to the amendment of several taxpayers' yearly statements.¹⁰⁵

However, these tools are not the first examples of the tax administration using IT to select taxpayers for individual audit. For instance, back in 2006, the tax administration started using a digital tool to select businesses for tax audit.¹⁰⁶ The tool was developed against the backdrop of legislation enacted in 2004, which was intended to pave the way for digital submissions of information of financial accounts and for enabling the tax administration to move toward a more digital and risk-based audit approach.¹⁰⁷ On the basis of the data received digitally

104 Danish Tax Administration, *supra* note 102 (in the very first year of application, the use of the new digital tool led to the manual investigation of 1300 taxpayers pin-pointed by the tool).

105. Press Release, Skattestyrelsen [Danish Tax Admin.], Kryptovaluta [Cryptocurrencies] (Mar. 2020); see Skatterådet [The Tax Council], SKM2019.15.SKTST, Pålæg af oplysningspligt efter skattekontrollovens § 8 D, stk. 1- handel med virtuel valuta [Imposition of a Duty to Provide Information Pursuant to Section 8 D, subsection 1 of the Tax Control Act Trade in Virtual Currency] (2019). With the permission of the Danish Tax Council, the Danish Tax Administration has gained access to information from three Danish exchange services for transactions with cryptocurrencies. See *infra* Part 5.2 (discussing more on Denmark's exchange of information with other states). Moreover, the Danish tax administration has received information about the transactions of Danish citizens from a Finnish exchange service for transactions with cryptocurrencies.

106. Folketingets skatteudvalg [Danish Parliament's Tax Comm.], Vedrørende lov nr. 1441 af 22. december 2004 om digitalisering af regnskabsoplysninger mv. (L 31, folketingsåret 2004/05, 1. samling) [Regarding Act No. 1441 of 22 December 2004 on Digitization on Accounting Information etc. (L 31, Parliamentary Year 2004/05, 1st session)], SAU alm. del, annex 36 (2006-2007).

107. Lov nr. 1441 af 22.12.2004 *Lov om digitalisering af regnskabsoplysninger, ophævelse af virksomheders underretningspligt og afskaffelse af kildeskattebøderne* [Act on Digitalisation of Financial Information, Removal of Businesses' Information Duties and Abolition of Withholding Tax Fines] (Den.).

and annually from the businesses as well as other data already collected by the tax administration, the new tool should thus assist the Danish tax administration in selecting businesses for further manual audit more effectively.¹⁰⁸

The legislation enacted in 2004 coincided with the beginning of a major renovation and renewal of the Danish tax administration's IT systems. One reason for the administration to embark on this ambitious project was the fact that the number and complexity of its IT systems had grown significantly over the years and that the entire system posed a technological risk.¹⁰⁹ Accordingly, it was decided to grant the tax administration funds to invest in and develop a new IT structure in the following years.¹¹⁰

Besides mitigating the technological risk, the aim of the major update of the IT structure was to make the tax administration more effective and, thereby, be able to cut down massively on staff.¹¹¹ Accordingly, the number of staff within the entire Danish tax

108. Lovforslag L 31 af 17.12.2004 forslag til lov om ændring af skattekontrolloven og lov om opkrævning af skatter og afgifter m.v. [Proposal for an Act on Amendments to The Tax Control Act and Act on Collection Taxes and Duties etc.], § 3 (Den.); see Skatteudvalget [The Tax Comm.], *Gennemsigthedsrapport SKATs kontrolarbejde* [Transparency Report on the Tax Administration's Audit Activities], SAU Alm.del Spørgsmål 281 (2017), 6 (showing that as part of the risk-based audit approach, the tax administration divides taxpayers into various segments containing different characteristics and tax challenges); see Rigsrevisionen [The Nat'l Audit Off.], Beretning til statsrevisorerne om ToldSkats indsats mod sort økonomi [Report to the State Auditors on the Tax Administration's Activities Targeting the Black Market], RB A303/05 (2005) Accordingly, 2004 appears to mark an important turning point in the tax administration's audit approach, seeing (roughly speaking) a change from a broad and uniform approach toward an approach based on segmentation and risk-profiling of taxpayers.

109. See Rigsrevisionen [The Nat'l Audit Off.], Udvidet notat til statsrevisorerne om ToldSkats IT-systemer [Extended Memo to the State Auditors on the Tax Administration's IT Systems], RN D101/04 (2004). Hence, the tax administration's overall IT structure was described as a "spaghetti pot," comprising seventy-one IT systems that were interconnected through 453 connections. Moreover, the tax administration's own systems had 312 additional connections to external IT systems.

110. See Finansudvalget [The Parliamentary Fin. Comm.], Aktstykke [Committee Appropriation] 157 (2004) (giving the first of two steps planned for the project); see Finansudvalget [The Parliamentary Fin. Comm.], Aktstykke [Committee Appropriation] 151 (2006) (giving the second step).

111. See Christensen & Mortensen, *supra* note 49, at 155 (arguing that the massive update of the tax administration's IT structure combined with an extensive reorganization of the entire Danish tax administration carried on from 2005 on onwards (in essence, a merger of the municipal and state-based tax departments into one single and centrally managed organizational unit) should be perceived as one big cost-cutting exercise); see, e.g., Org. for Econ. and Co-Operation and Dev., Ctr. for Tax Pol'y and Admin., TAX POLICY REFORMS IN DENMARK 12 (2015) (providing more information on the amendment of the entire organizational structure of the Danish tax administration in these years).

administration was reduced significantly from more than 10,000 in 2004 to just over 6,000 in 2015.¹¹²

One IT project that was contemplated to contribute extensively to a more effective tax administration—in line with the international best practices for debtor-oriented and risk-based debt management—was the so-called Common Debt Collection System (*Ét Fælles Inddrivelsessystem* [EFI]). The aim of EFI was to gather all public debt collection within one system and thus allow for the administration to replace a vast part of the manual debt collection activities with automated digital debt collection.¹¹³ Initially, the plan was to put EFI into use in the second half of 2007, but the inauguration had to be postponed several times. Finally, in 2013, EFI was put into use, but the application of the system had to be stopped again a few months later, and, in 2015, it was decided to scratch EFI completely. The reason for this cancellation was that the Ministry of Taxation believed that mending the many defects in EFI would be too costly and risky.¹¹⁴

Among EFI's many defects were certain legality issues. Hence, an investigation carried out by the legal advisor to the Danish State had shown that various functionalities in EFI contributed to the collection of debt claims that were actually obsolete.¹¹⁵ Moreover, the data quality was, in many instances, found to be so poor that correct debt collection would not be possible. Accordingly, even in the relatively short period in which EFI actually had been applied, several taxpayers had been subject to unlawful debt collection. On top of that, EFI posed problems with respect to the General Data Protection Regulation (GDPR), as the system did not delete the taxpayers' information after the debt was collected and actually continued to gather new information on the taxpayers, including information about their spouses and children.¹¹⁶

Another problem with this system was that the tax administration had continued to cut down on staff in the debt collection unit despite the fact that the launch of EFI was postponed several times. In other words, the Danish tax administration had tried to harvest the rationalization

112. See Christensen & Mortensen, *supra* note 49, at 30.

113. See Finansudvalget [The Parliamentary Fin. Comm.], Aktstykke [Committee Appropriation] 151 (2006). Accordingly, it was expected that EFI would enable the public administration to cut approximately 200 man-years.

114. Skatteministeriet [Ministry of Tax'n], REDEGØRELSE OM ÉT FÆLLES INDDRIVELSESSYSTEM [Report on one common debt-collection system], SAU alm.del, annex 48 (2014/2015), 51–52.

115. Kammeradvokaten [Legal Advisor to the Danish State], RAPPORT OM LEGALITETSANALYSE AF EFI-DELSYSTEMFUNKTIONALITETER [Report on legality analysis of the EFI-system functionality] (2015), 5–6.

116. Michael Tell, *Denmark*, in TAX TRANSPARENCY 473, 473–89 (Funda Basaran Yavaslar et al. eds., 2019); see also *infra* Part 5.2. (expanding on GDPR-related issues).

gains upfront despite the risk inherent in developing and applying a new IT system.¹¹⁷ As a consequence, the amount of uncollected debt increased substantially and a vast amount ended up becoming obsolete and thus was never collected. In 2014 and 2015, debt claims amounting to 900 million DKK and 1.3 billion DKK respectively were forfeited.¹¹⁸ While obviously being a disaster from a fiscal point of view, the writing down of debt claims also conflicted with the principle of equal treatment, as it arbitrarily benefitted a number of noncompliant taxpayers that potentially could have paid what they owed.¹¹⁹

Another example of legality problems from the digitalization of the Danish tax administration concerned the rules for municipal real estate taxation, which basically is a wealth tax on land.¹²⁰ Application of such a wealth tax requires valuations, and the task of preparing all these valuations is demanding. Consequently, the Danish tax administration has for years applied various IT systems to overcome this task.

In 2003, a number of technical amendments were made to the rules on municipal real estate taxes.¹²¹ One of these amendments gave access to a deduction in the basis for taxation for certain improvements made on taxpayers' owned land.¹²² However, when the new rules were subsequently applied by the tax administration, it appeared that the basis for taxation—calculated automatically by an IT system—became extremely low in certain situations. A local tax official discovered these odd results and informed his superiors who facilitated a change in 2005

117. Christensen & Mortensen, *supra* note 49, at 155.

118. Skatteministeriet, *supra* note 114, at 14.

119. See Skatteministeriet, *Skatteministeriet indgår forlig med EFI-leverandører [The Ministry of Taxation settles claims against the suppliers of EFI]*, Skatteministeriet, Mar. 29, 2019 (explaining that new staff resources were given to the debt-collection unit, that large efforts were made to restore an effective debt-collection function, and that the Ministry of Taxation also sued some of the suppliers for damages, which resulted in a settlement agreement in 2019); see Gældsstyrelsen, *Nyt inddrivelsessystem lønindeholder mere end 1 mia. kr. af danskernes gæld [New debt collection system withhold more than 1 billion DKK in Danes' salary payments]*, Gældsstyrelsen, Dec. 18, 2020 (detailing a new digital debt-collection tool called PSRM that was launched in 2020.); see Rigsrevisionen, *Beretning afgivet til Folketinget med Statsrevisorernes bemærkninger [Report to the Parliament with the remarks of the State auditors]*, Rigsrevisionen, 7-14, 18-26 (2020) (noting that the tax administration's project steering and application of PSRM has been subject to criticism).

120. Lov nr. 34 af 02.18.1961 Lov om kommunal ejendomsskat [Act on Municipal Real Estate Tax] as changed by Act no. 1463 of 06.10.2020 (Den.).

121. Lov nr. 1047 af 12.17.2002 Lov om ændring af lov om beskatning til kommunerne af faste ejendomme og lov om vurdering af landets faste ejendomme [Act amending the Act on taxation of immovable property to municipalities and the Act on the valuation of the country's immovable property] (Den.).

122. Lbkg. no. 1463 of 06.10.2020 Promulgation of the Municipal Property Tax Act at § 1(5).

to the IT system as the odd results were perceived to be in conflict with the intentions behind the legislation. The change made to the IT system was carried out in direct cooperation between the Danish tax administration and the supplier of the IT system.¹²³

In the following years, discussions took place internally in the Danish tax administration about the legality of the changes made to the IT system, as no simultaneous amendments had been made to the wording of the law itself. However, it was not until 2009 when taxpayers had started making complaints that the Danish tax administration's top management asked the legal advisor to the Danish State to investigate whether the changes made to the IT system constituted an unlawful change of practice. In 2010, the legal advisor concluded that this activity was in fact unlawful in the case.¹²⁴

Subsequently, the tax administration's decisions and behavior were subject to severe criticism from the state auditors.¹²⁵ Hence, it was sharply criticized that the Danish tax administration had decided to change the IT system without carrying out a full legal analysis of the possible need for a change in the wording of the law itself. In addition, the state auditors criticized that the tax administration had not reacted appropriately to earlier warnings about the unlawfulness of the change in practice and that the tax administration had not stopped the unlawful practice at an earlier stage.

The outcome of this criticism was that the parliament, in late December 2010, changed the wording of the law in order to reflect the, until then, unlawful practice that had been conducted by the tax administration. However, as the amendment would not have retroactive effects, it did not change the fact that a significant number of taxpayers had been subject to unlawful taxation for years. Accordingly, a large number of taxpayer complaints had to be dealt with subsequently.¹²⁶

All in all, it must be acknowledged that the Danish tax administration, with some success, has implemented various digitalized tools to enhance taxpayer compliance, including the use of digital blockers and the more automatized selection of taxpayers for individual audit. However, the failed attempt to digitalize the debt collection processes, as well as the unlawful changes made to the IT system generating valuations for real estate tax purposes, clearly illustrate some of the difficulties that the Danish tax administration has run into

123. Christensen & Mortensen, *supra* note 49, at 170–71.

124. See Kommunaludvalget [Parliament's Municipalities Committee], L 65 Svar på Spørgsmål 13 Offentligt [Public Answer to Question 13 of L 65] (2010/2011).

125. Statsrevisorerne, *Beretning om ulovlig opkrævning af ejendomsskatter* [Report on unlawful collection of real estate taxes], 3–4 (2011).

126. Christensen & Mortensen, *supra* note 49, at 174.

along the way. Moreover, these experiences clearly show that it is of utmost importance to ensure that new IT systems are carefully assessed both from a technical and from a legal perspective.

IV. TAX TRANSPARENCY AND DIGITALIZATION

The term *tax transparency* is not clearly defined and covers both the affairs of taxpayers as well as the activity of tax administrations.¹²⁷ In an international tax context, the core of the term relates to the exchange of information between tax administrations in different countries, but, nowadays, it covers a much broader range of topics.¹²⁸ Despite this development, we mainly focus on the increasing transparency of taxpayers' affairs through the automatic exchange of information between states as well as through the strengthened reporting and disclosure requirements for taxpayers and third parties.¹²⁹

It has been argued that transparency in connection to taxpayers' tax-relevant affairs is a precondition for a just and equal application of tax legislation. Further, it has been stated that transparency has a so-called deterrence effect, that is, an effect causing taxpayers to neither evade nor avoid taxes due to a perceived higher risk of detection.¹³⁰ In this context, digitalization plays an important role, as it can be used as a forceful enabler of tax transparency.¹³¹ At the same time, however, it has to be ensured that the extent and use of data collection is proportional to its purpose and that taxpayer rights are appropriately taken into consideration.¹³²

A. *The International Development*

Tax administrations need information about taxpayers to impose a tax assessment and collect taxes, and, in this respect, the fundamental problem of information asymmetry between the tax administration and the taxpayer is a difficult challenge. On the one hand, taxpayers have

127. Alessandro Turina, "Visible, Though Not Visible in Itself": Transparency at the Crossroads of International Financial Regulation and International Taxation, 8 WORLD TAX J. 378, 380 (2016).

128. Hey, *supra* note 3, at 3.

129. See, e.g., Tatiana Falcão & Armando L. Yaffar, *General Report: Exchange of Information: Issues, Use and Collaboration*, 105B CAHIERS DE DROIT FISCAL INT'L 197, 197 (2020) (summarizing the instruments for exchange of information in international tax matters).

130. Hey, *supra* note 3, at 8.

131. *Id.* at 12–13.

132. Xiaqing Huang, *Ensuring Taxpayer Rights in the Era of Automatic Exchange of Information: EU Data Protection Rules and Cases*, 46 INTERTAX 225, 229 (2018).

more and better information about the relevant facts, circumstances, and implemented tax structures. On the other hand, tax administrations generally have more knowledge and information about the content, interpretation, and application of the law.¹³³

As already discussed above, tax administrations have invested significantly to reduce the asymmetry of digital initiatives developed and implemented to support taxpayers in the tax administration process. Further, with respect to reducing the information asymmetry of taxpayers' tax affairs, as already discussed, the last decade has witnessed an unprecedented increase in information collected on taxpayers, which is exchanged between tax administrations. The exchange of information regimes currently applicable are generally based on three sets of legal norms:

1. The tax treaty network with exchange of information provisions modelled after Article 26 of the OECD Model Tax Convention on Income and on Capital (2005 and subsequent updates).
2. The tax information exchange agreement network, modelled after the OECD Model Agreement on Exchange of Information in Tax Matters of 2002, with Model Protocol of 2015.
3. The multilateral Convention on Multilateral Administrative Assistance in Tax Matters originally signed in 1988 but rebranded as the most comprehensive and widely signed instrument on exchange of information since 2009.¹³⁴

In respect of collecting information, the tax administrations can use different approaches. These have previously been categorized as¹³⁵:

- Voluntary disclosure, for example, publicly available tax strategies implemented by corporate taxpayers versus a legal obligation to disclose, such as mandatory disclosure rules for certain cross-border

133. Stan Stevens, *Thematic Report: Cutting-Edge Techniques to Collect Information from Taxpayers*, in TAX TRANSPARENCY: 2018 EATLP CONGRESS ZURICH 7–9 JUNE 2018 97, 97 (2019).

134. Falcão & Yaffar, *supra* note 129, at 201.

135. See Stevens, *supra* note 133; see, e.g., Falcão & Yaffar, *supra* note 129, at 202 (providing a comparative analysis of the various instruments and reporting obligations).

arrangements.¹³⁶

- National reporting and exchange of information versus international exchange of information on request—spontaneously or automatically. The exchange may, inter alia, include facts, circumstances, financial information, advance tax rulings, advance pricing agreements, and country-by-country reporting (CbCR). Under the CbCR rules, a company is obliged to file detailed information and explanation on, inter alia, its group structure, revenue from related parties and third parties, total revenue, profit before tax, corporate income tax and withholding taxes, current-year accrued corporate income taxes, stated capital, accumulated earnings, tangible fixed assets and employees' internal transactions, a list of all constituent entities of the multinational enterprise, and a description of the nature of the activities of each constituent entity. All this listed information is exchanged between the tax administration of the jurisdictions in which the company is active.¹³⁷

- Reporting of information to the tax authorities versus the public reporting implemented as a reputation mechanism, such as the ultimate beneficial owner register.¹³⁸

136. Council Directive 2011/16, O.J. (L 64) 1 (EU) (demonstrating that at the European Union level, member states have backed the implementation of the OECD's Base Erosion and Profit Shifting project through the adoption of several directives inter alia on administrative cooperation in the field of direct taxation); *see also* Turley et. al., *supra* note 22, § 16.2.2 (discussing regimes in inter alia the US, UK, and Canada).

137. As of October 2022, there are over 3300 bilateral exchange relationships activated with respect to jurisdictions committed to exchanging CbCR, and the first automatic exchanges of CbCR took place in June 2018. *See Activated Exchange Relationships for Country-by-Country Reporting*, OECD, <https://www.oecd.org/tax/beps/country-by-country-exchange-relationships.htm>, (June 2022).

138. Council Directive 2015/849, 2015 O.J. (L 141) 73 (EU). (On May 20, 2015, the European Union adopted the 4th Anti-Money Laundering Directive (Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No. 648/2012 of the European Parliament and of the Council, and repealing Directive 2005/60/EC of the European Parliament and of the Council and Commission Directive 2006/70/EC, OJ L 141). According to this Directive,

All of these initiatives, which have been put in place with the aim of reducing information asymmetry and thereby increasing tax transparency, have been facilitated by digitalization to a large extent, which, on one side of the coin, arguably represents a chance for fairer and more efficient tax enforcement but, on the flip side, increases the risk of data abuse and encroachment of taxpayers' privacy.¹³⁹ The new technical means of data tracking imply that the range of data known by the tax administration is significant and may include family status, religious affiliations, health conditions, and business secrets.¹⁴⁰ While taxpayers who are privileged by living in democratic rule of law states may not need to be too concerned about data abuse, the risk should not be neglected, and tax administrations need to be careful to avoid risks of breaching taxpayer confidentiality as a consequence of exchanging information.¹⁴¹ In this respect, it should be noted that information received under agreements on exchange of information is typically treated as confidential and given the same level of protection as information provided under domestic law. This protection will typically imply that information may only be disclosed to persons or authorities, including courts and administrative bodies, whose role is to deal with the assessment and collection of taxes or the prosecution of claims.¹⁴² However, in this respect, it has previously been problematized that international agreements on the exchange of information often do not mention the protection of personal data but instead refer to domestic law.¹⁴³

Consequently, although digitalization and "datafication" may be beneficial to fight tax evasion and improve equality in tax collection, the protection of taxpayers through guarantees of confidentiality and

Member States are obliged to implement rules requiring companies to disclose their ultimate beneficial owners and beneficiaries of trusts.).

139. Hey, *supra* note 3, at 12.

140. Anna-Maria Hambre, *Tax Confidentiality: A Legislative Proposal at National Level*, 9 WORLD TAX J. 2, sec. 1. (2017).

141. Turley et al., *supra* note 22, § 16.2.2.

142. Organisation for Economic Co-operation and Development [OECD], *Multilateral Convention on Multilateral Administrative Assistance in Tax Matters*, art. 22 (2011); *see, e.g.* Organisation for Economic Co-operation and Development [OECD], *OECD Model Tax Convention on Income and on Capital*, art. 26, ¶ 2 (2019).

143. *See, e.g.*, Falcão & Yaffar, *supra* note 129, at 233 (problematizing that Article 22 (1) of the Multilateral Convention on Multilateral Administrative Assistance in Tax Matters is the only provision amongst the three treaties on the subject that mentions the protection of personal data; according to Article 22 (1), safeguards may be put in place by the supplying party in accordance with its domestic laws to ensure the protection of personal data).

principles of data protection are gaining support.¹⁴⁴ In line with these observations, many countries have implemented far-reaching legal reforms of their tax procedures as a result of the digitalization and automatization of the tax administration. However, it has been argued that data protection laws need to be adapted further to cope with this process of digitalization.¹⁴⁵ At the same time, support for a mandatory public disclosure policy of some taxpayers' tax return information is increasing, and voluntary compliance is encouraged by relying on the public eye to promote or even demand that taxpayers act responsibly.¹⁴⁶

Another challenge with datafication, the use of algorithms, and the production of tax assessments automatically, is the lack of transparency during this process—not only for the taxpayers but also for the tax administrations themselves, for the courts overseeing the decisions, and for governments.¹⁴⁷ This lack of transparency in the used algorithms is also challenged by the fact that data analytics codifies the past, that is, it is based on the past and the assumption that patterns will be repeated.¹⁴⁸ Accordingly, the assumptions behind the decisions that determine the selection are unclear and hardly to be scored for fairness. Further, as predicative models are based on correlations that do not imply causality, there is a risk of stigmatization and discrimination when segmenting taxpayers based on shared characteristics. Arguably, predicative models, to some extent, sacrifice fairness for efficiency and, accordingly, predicative models require continuous feedback based on careful evaluations and assessments of the results provided by the

144. Hey, *supra* note 3, at 14–15 (citing Philip Baker & Pasquale Pistone, *General Report*, in 100b THE PRACTICAL PROTECTION OF TAXPAYERS' FUNDAMENTAL RIGHTS § 3 (2015); Kimberly A. Houser & Debra Sanders, *The Use of Big Data Analytics by the IRS: Efficient Solutions or the End of Privacy as We Know It?*, 19 VAND. J. ENT. and TECH. 817, 866 (2017); see Kay Blaufus et al., *The Effect of Tax Privacy on Tax Compliance – An Experimental Investigation*, 26 EUR. ACCT. REV. 561, 562 (2017). *Contra* Laura C.B. Altafulla, *The Line between Tax Secrecy and Tax Transparency*, in TAX POLICY CHALLENGES IN THE 21st CENTURY 423, 445 (Raffaele Petrucci & Karoline Spies eds., 2014).

145. Hey, *supra* note 3, at 13.

146. Hey, *supra* note 3, at 15 (citing Marjorie E. Kornhauser, *Doing the Full Monty: Will Publicizing Tax Information Increase Compliance?*, 18 CAN. J. L. & JURIS. 1, 101–03 (2005)); Joshua Blank, *Reconsidering Corporate Tax Privacy*, *Proceedings of the Annual Conference on Taxation*, 11 N.Y.U. J.L. & BUS. 31, 49 (2014); Reuven S. Avi-Yonah & Ariel Siman, *The 1 Percent Solution: Corporate Tax Returns Should Be Public (and How to Get There)*, 73 TAX NOTES INT'L 627, 627 (2014); Lee A. Sheppard, *Should Corporate Tax Returns Be Disclosed?*, 142 TAX NOTES 1381, 1381, 1383 (2014); see Allison Christians, *Do We Need to Know More About Our Public Companies?*, 66 TAX NOTES INT'L 843, 843 (2012).

147. Hey, *supra* note 3, at 13.

148. See CATHY O'NEIL, *WEAPONS OF MATH DESTRUCTION: HOW BIG DATA INCREASES INEQUALITY AND THREATENS DEMOCRACY* 8 (2016).

model.¹⁴⁹

Despite these legal concerns, the digitalization of the Danish tax administration does not seem to have resulted in severe debate or scrutiny by institutions or the public media. Actually, and as further explained in the paragraph just below, the Danish tax administration's comprehensive transfer of taxpayer information appears to be broadly accepted by Danish taxpayers.

B. Danish Experiences

As already described, the Danish tax administration receives information about Danish taxpayers from a long list of domestic third parties. However, in line with the general international development, the Danish tax administration is also heavily involved in cross-border exchange of information. Accordingly, the Danish tax administration continually receives vast amounts of information about Danish taxpayers from tax administrations around the world and transfers an abundance of information to the same foreign tax administrations in return.¹⁵⁰

The Danish tax administration's wide possibilities for collecting and transferring taxpayer information are not subject to widespread concern. The fact that Denmark is a quite homogeneous welfare state with strong democratic traditions and a transparent public administration probably explains why the administration's activities are not subject to widespread concern. Accordingly, the Danish state's institutions, including the tax administration, generally command high levels of trust from Danish citizens.¹⁵¹

In other words, it appears to be broadly accepted that the Danish tax administration needs wide access to collect, store, and transfer information about taxpayers to perform its tasks appropriately and efficiently. This comprehensive access to taxpayer information is facilitated by a strong tradition for international cooperation combined with a comprehensive domestic legal framework.¹⁵²

However, it is worth noting that the Danish tax administration's

149. Stevens, *supra* note 133, at 152.

150. See also Søren L. Nielsen & Bent Bertelsen, *Denmark*, in 105B CAHIERS DE DROIT FISCAL INTERNATIONAL, 307, 307 (2020).

151. Tell, *supra* note 116, at 473–74; see, e.g., Jacob G. Nielsen, Peter K. Schmidt & Helle Vogt, *Denmark*, in HIST TAX'N 243, 262 (2021).

152. Preben B. Hansen & Lasse E. Christensen, *Denmark*, in 98b CAHIERS DE DROIT FISCAL INTERNATIONAL [STUDIES ON INTERNATIONAL FISCAL LAW], 249–74 (2020); see also Peter K. Schmidt, *The Emergence of Denmark's Tax Treaty Network: A Historical View*, 1 NORDIC TAX J. 49, 49–63 (2018) (detailing the historical development of Denmark's network of tax treaties and exchange of information agreements).

wide access to taxpayer information is balanced against legislation aiming at protecting taxpayers. Accordingly, the legal protection of taxpayers' rights follows from provisions in various statutory laws and regulations. For example, section 27 of the Public Administration Act stipulates that any person employed by or acting on behalf of the public administration is subject to a duty of confidentiality. Further, section 17(1) of the Tax Administration Act specifies that the tax administration has to treat all taxpayer information on economic, business, and personal matters as confidential.¹⁵³ Among other things, this process entails that the Danish tax administration may only transfer information on taxpayers to foreign tax administrations if the taxpayer explicitly permits such a transfer or if a clear legal basis for exchanging the information can be found elsewhere.¹⁵⁴

With respect to the exchange of information, such a provision can be found in section 66 of the Tax Control Act. The provision thus contains the statutory legal basis for Denmark's exchange of taxpayer information with other tax administrations around the world.¹⁵⁵ Thus, the provision lists the legal bases on which the exchange can take place. These fall into four broad groups¹⁵⁶:

1. EU directives;
2. tax treaties, bilateral and multilateral (more than seventy comprehensive bilateral tax treaties plus an international multilateral instrument and a Nordic multilateral treaty);
3. administratively concluded agreements on mutual assistance in tax matters, inter alia, Tax Information Exchange Agreements or TIEAs (around fifty of such agreements);

153. Lov nr. 1441 af 22.12.2014 *Lov om digitalisering af regnskabsoplysninger, ophævelse af virksomheders underretningspligt og afskaffelse af kildeskattebøderne* [Act on Digitalisation of Financial Information, Removal of Businesses' Information Duties and Abolition of Withholding Tax Fines].

154. Nielsen & Bertelsen, *supra* note 150, at 316.

155. Lov nr. 2612 af 28.12.2021 bekendtgørelse af skattekontrolloven § 61 [Act on Tax Control] (Den.) (providing a broad legal basis for the Danish tax administration to acquire information from third parties); Lov nr. 2612 af 28.12.2021 Bekendtgørelse af skatteindberetningsloven § 22 [Act on provision of information to the tax authorities] (Den.) (containing the legal basis for Denmark's FATCA-agreement with the United States Internal Revenue Service and other agreements based on the OECD's Common Reporting Standard).

156. Nielsen & Bertelsen, *supra* note 150, at 307.

4. any other international agreement or convention relating to administrative assistance on tax matters to which Denmark has acceded.

Denmark's actual exchange of information with other tax administrations can take place spontaneously, by request, and automatically. Incoming and outgoing requests from other EU countries are mainly serviced through the eForm Central Application system, which is a digital platform based on a Common Communication Network mail system. Exchange of information with Nordic countries that are not EU Member States mainly takes place via tunnel-encrypted emails and information requests to non-EU and non-Nordic states are mainly made through an internal server-based, VPN-secured system or, if this is not possible, through ordinary mail.¹⁵⁷

All automatically received material coming from abroad is treated automatically and forwarded to the relevant audit teams upon evaluation of the data quality. Moreover, these data are automatically implemented into the taxpayers' digitally generated yearly tax statements.¹⁵⁸

Information is also exchanged with foreign tax administrations as a result of the international agreement on CbCR. The legal basis for applying these rules in a Danish context is found in sections 47 through 52 of the Tax Control Act.¹⁵⁹ The CbCR data received by the Danish tax administration is transferred to and stored in a data warehouse by the Danish tax administration. This enables the Danish tax administration to carry out data searches, make extracts, and prepare specific reports based on the stored CbCR data. These available opportunities assist the tax administration's transfer pricing specialists in the making of risk assessments of specific multinational enterprises and their group entities.¹⁶⁰

As a public agency, the Danish tax administration has to take the GDPR into account with respect to all of its activities. As a main rule, the tax administration is allowed to process taxpayer information, pursuant to article 6(1)(e), which stipulates that the processing of information is lawful if it is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller. However, when processing taxpayer information, the tax administration has to act in accordance with the

157. *Id.* at 308. The VPN system is called *bluewhale*. The Danish tax administration is not able to send anything encrypted through the normal email system.

158. Nielsen & Bertelsen, *supra* note 150, at 331.

159. *See also* Bek nr. 1304 af 14.11.2018 Bekendtgørelse om land for landrapportering.

160. Nielsen & Bertelsen, *supra* note 150, at 307–09.

general GDPR principles on legitimacy, proportionality, empowerment, accountability, and security.¹⁶¹

Overall, the Danish tax administration thus has wide access to collect, store, and transfer information about taxpayers domestically as well as across borders. This system is needed for the tax administration to perform its tasks appropriately and efficiently but has to take place in a way that sufficiently ensures taxpayers' rights. In this regard, it is reassuring that such protection, for instance, follows from various provisions found in the Public Administration Act as well as the Tax Administration Act, and that the tax administration is only allowed to transfer information cross-border if a clear legal basis for exchanging the information exists.

V. THE FUTURE OF HIGHLY DIGITALIZED TAX ADMINISTRATION

New emerging technologies and improvements of existing technologies provide huge opportunities for tax administrations in various areas and may enable tax administrations to expand the insights derived from available data significantly.¹⁶² Moreover, some scholars see great opportunities for tax administrations in the use of blockchain technology.¹⁶³ Altogether, it has been argued that the use of such new technologies represents the beginning of a whole new era for tax administrations.¹⁶⁴ However, also in this context, taxpayers' rights are at risk of being jeopardized.¹⁶⁵ These opportunities and risks are further discussed below in an international as well as in a Danish context.

A. *International Outlook*

While digitalization arguably has significantly increased the efficiency and effectiveness of tax administration as well as helped to

161. See Jan Trzaskowski & Max G. Sørensen, *GDPR COMPLIANCE: UNDERSTANDING THE GENERAL DATA PROTECTION REGULATION* 48–60 (2019).

162. Walker, *supra* note 16, at 263–71 (emphasizing big data, computer power, and data analytics).

163. Dennis Post, *DIGITAL TAX ADMINISTRATION 4.0: TOWARDS A DISTRIBUTED TAX SYSTEM*, IN *TAX LAW AND DIGITALIZATION: THE NEW FRONTIER FOR GOVERNMENT AND BUSINESS*, 39–59 (2021).

164. See Gianluca Mazzoni, *(Re)defining the Balance between Tax Transparency and Tax Privacy in Big Data Analytics*, 72 *BULL. FOR INT'L TAX'N* 656, 663 (2018).

165. Arthur J. Cockfield, *Cross-Border Big Data Flows and Taxpayer Privacy*, in *ETHICS AND TAXATION* 379, 379–396 (2020); Faúndez-Ugalde et al., *supra* note 4, at 6; see, e.g., Duncan Bentley, *Taxpayer Rights and Protections in a Digital Global Environment*, in *ETHICS AND TAXATION* 251, 251–94 (2020).

reduce burdens for different taxpayer segments, it has been argued that some countries may be reaching the end of their ability to further reduce the tax gap or the administrative burdens in any significant way.¹⁶⁶ What seems most apparent is the fact that the digitalization of the tax administration has yet to move away from sequential taxpayer-facing processes and be integrated into taxpayers' daily lives and their operational systems. This move is Tax Administration 3.0.¹⁶⁷ A number of legal scholars have suggested that blockchain technology is the technical means to take tax administrations to the next level.¹⁶⁸ The OECD has argued—without being technology specific—that the core elements of Tax Administration 3.0 could include¹⁶⁹:

- that paying taxes will become a more seamless experience, as taxpayers' behavior and systems will be the starting point to facilitate compliance by design so that noncompliance will require deliberate and burdensome activities;
- that digital platforms will become agents of tax administrations and carry out tax administration processes within their systems, implying that tax administration is conducted within a network of interacting trusted actors and no single point of failure, although the tax administrations ensure the quality, robustness, and reliability of the outputs;
- that tax administration processes will become increasingly real time to stay synchronized with taxpayers' transactions and incorporate artificial intelligence to support characterizations and

166. OECD, *supra* note 26, at 19.

167. *Id.* at 12.

168. See Charléne A. Herbain, *Fighting VAT Fraud and Enhancing VAT Collection in a Digitalized Environment*, 46 *INTERTAX* 6/7 579, 579–83 (2018); Sunny K. Bilaney, *From Value Chain to Blockchain: Transfer Pricing 2.0*, 25 *INT'L TRANSFER PRICING J.* 294, 296 (2018); Alicja Majdanska & Karol Dziwinski, *The Potential of a Standard Audit File: Tax in the European Union: A Chance for Coordinated VAT Administration?*, 72 *BULL. FOR INT'L TAX'N* 10 582, 593 (2018); Christina Dimitropoulou et al., *Applying Modern, Disruptive Technologies to Improve the Effectiveness of Tax Treaty Dispute Resolution: Part 1*, 46 *INTERTAX* 11 856, 868–70 (2018); Aleksandra Bal, *Taxation, Virtual Currency and Blockchain*, 68 *INT'L TAX'N* 19, 19–27 (2019); see, e.g., Claudio Cipollini, *Blockchain and Smart Contracts: A Look at the Future of Transfer Pricing Control*, 49 *INTERTAX* 4 (2021).

169. OECD, *supra* note 26, at 12–14.

assessments of tax claims as well as balancing mechanisms where taxation cannot be settled on a transactional basis;

- that taxpayers get the opportunity to check and question tax assessments that have been made based on automated and human decision-making;
- that every taxpayer gets one digital identity, which will support a seamless connection between other government services and private actors;
- that skilled employees will be supplemented with advanced analytics and decision-supporting tools to reduce the number of areas where compliance choices remain and in order to detect anomalies, leakages, and flaws in the tax system.

Such a transformation requires many things coming together and will, of course, be easier where the tax affairs of taxpayers are less complex.¹⁷⁰ However, the need for financing the increased public spending as well as changes in work patterns and new business models impose risks and difficulties for tax administrations and may be expected to grow over the coming years with the increasing digitalization of the economy.

In terms of changes in work patterns and business models, the rapid growth of the sharing economy through online platforms has led taxpayers to shift status from employees—where salaries are subject to withholding in the compliance by design system (PAYE)—to self-employment. While access to relevant information is addressed to some extent by domestic legal reporting requirements and cross-border exchanges of information, it does increase the complexity of tax administration and opportunities for noncompliance.¹⁷¹ Another challenge is the increase in what may be referred to as “flexible workplaces.” This challenge relates to mobile professionals who perform their work remotely from anywhere in the world, taking advantage of digital technologies. While this has previously mostly been a

170. *Id.* at 12.

171. Organisation for Economic Co-operation and Development, THE SHARING AND GIG ECONOMY: EFFECTIVE TAXATION OF PLATFORM SELLERS FORUM ON TAX ADMINISTRATION 25 (2019); Organisation for Economic Co-operation and Development, MODEL RULES FOR REPORTING BY PLATFORM OPERATORS WITH RESPECT TO SELLERS IN THE SHARING AND GIG ECONOMY 3 (2020).

characteristic of personnel of highly digitalized business models—that is, programmers and data scientists—the COVID-19 pandemic has been mainstreaming remote work. Therefore, companies deploying more traditional business models may find themselves increasingly looking for employees across national borders and allowing for a plus or minus two-hour time zone difference or even allowing for so-called digital nomads, who travel the world while working a full-time job remotely.¹⁷²

As the global economy becomes increasingly interconnected and digitalized, it has been subject to intense debate that some businesses have been able to generate profits through participation in a significant and sustained way in the economy of a country without a local, physical presence creating a taxable presence.¹⁷³ Current international discussions may entail—if implemented—that tax administrations of multiple jurisdictions should have access to highly complex, large, and geographically distributed information on multinational businesses with complex supply chains and financial arrangements.¹⁷⁴ In this respect, the optimal system might, as stated above, be an increased reliance on

172. Svetislav V. Kostić, *In Search of the Digital Nomad: Rethinking the Taxation of Employment Income under Tax Treaties*, 11 WORLD TAX J. 2 184, 203–06 (2019); see Stjepan Gadzo, *Croatia: A New (Tax-Free) Promised Land for Digital Nomads? (Part II)*, KLUWER INT'L TAX BLOG (Sept. 8, 2022), <http://kluwertaxblog.com/2022/02/28/croatia-a-new-tax-free-promised-land-for-digital-nomads-part-ii/>.

173. Louise F. Kjærsgaard, *The Ability to Pay and Economic Allegiance: Justifying Additional Allocation of Taxing Rights to Market States*, 49 INTERTAX 8, 648 (2021); Ana P. Dourado, *The OECD Report on Pillar One Blueprint and Article 12B in the UN Report*, 49 INTERTAX 3, 3–6 (2021); Thomas Greil & Stefan Eisgruber, *Taxing the Digital Economy: A Case Study on the Unified Approach*, 49 INTERTAX 53, 54, 57, 66 (2021); Xiaorong Li, *A Potential Legal Rationale for Taxing Rights of Market Jurisdictions*, 13 WORLD TAX J. 15, 26–36 (2021); Jinyan Li, *The Legal Challenges of Creating a Global Tax Regime with the OECD Pillar One Blueprint*, 72 BULL. FOR INT'L TAX'N 84, 88, 93 (2021); Hans Van den Hurk, *OECD's Pillar One and the Return of the Pencil*, KLUWER INT'L TAX BLOG (Feb. 22, 2021), <http://kluwertaxblog.com/2021/02/22/oecd-pillar-one-and-the-return-of-the-pencil/>; Gino Sparidis et al., *Digital Economy Taxation Developments: A Marker for the Future of Taxes (Part 2)*, KLUWER INT'L TAX BLOG (Feb. 5, 2021), <http://kluwertaxblog.com/2021/02/05/digital-economy-taxation-developments-a-marker-for-the-future-of-taxes-part-2/>; Daniele Frescurato & Velio A. Moretti, *The Carve-out of Financial Services from Pillar One: Good Times for a Step Further?*, KLUWER INT'L TAX BLOG (Nov. 23, 2020), <http://kluwertaxblog.com/2020/11/23/the-carve-out-of-financial-services-from-pillar-one-good-times-for-a-step-further/>; Vikram Chand & Damiano Canapa, *Pillar I of the Digital Debate: Its Consistency with the Value Creation Standard as Well as the Way Forward*, KLUWER INT'L TAX BLOG (Nov. 24, 2020), <http://kluwertaxblog.com/2020/11/24/pillar-i-of-the-digital-debate-its-consistency-with-the-value-creation-standard-as-well-as-the-way-forward/>; William Byrnes, *Recommendations for the Pillar One and Pillar Two Blueprints*, KLUWER INT'L TAX BLOG (Dec. 18, 2021), <http://kluwertaxblog.com/2020/12/18/recommendations-for-the-pillar-one-and-pillar-two-blueprints/>.

174. OECD, *supra* note 26, at 21.

the integration of tax rules into the different business accounting systems used by various businesses. However, it is important to justify why data needs to be collected rather than potential alternatives.¹⁷⁵ In order for the regime not to collect excessive unrequired documentation, arguably the rules have to be reasonably and carefully targeted at those transactions that are most likely to involve tax avoidance according to the rule of law.¹⁷⁶ Further, while digital recordings of payments, record keeping, and identity present many opportunities for tax administrations to increase transparency and to prompt compliance, digitalization may also produce transparency holes, that is, through the use of virtual currencies, cryptocurrencies, and opaque digital assets.¹⁷⁷

To mitigate underreporting or no reporting of taxable income from cryptocurrencies and to promote harmonized rules, the EU Commission initiated a process intended to lead to the eighth update of the Directive on Administrative Cooperation.¹⁷⁸ More recently, the council presidency and the European Parliament reached a provisional agreement on the markets in crypto assets.¹⁷⁹ According to the press release, actors in the crypto-assets market will be required to declare information on their environmental and climate footprint. Further, the European Banking Authority will be tasked with maintaining a public register of noncompliant crypto-asset service providers and crypto-asset service providers with a parent company located in countries listed on the EU list of third countries (considered at high risk for anti-money laundering activities) and/or on the EU list of noncooperative jurisdictions for tax purposes. These protocols will be required to implement enhanced checks in line with the EU Anti-Money Laundering framework. Further, issuers of asset-referenced tokens need to have a registered office in the EU to ensure proper supervision and monitoring. Finally, crypto-asset service providers will need an authorization to operate within the EU, and national authorities will regularly transmit relevant information on the largest crypto-asset service providers to the European Securities and Markets Authority.¹⁸⁰

Along the same line, the OECD published a report in which the need for greater transparency in the field of crypto-assets was highlighted,¹⁸¹

175. *Id.* at 24.

176. TURLEY ET AL., *supra* note 22, at chap. 16.

177. OECD, *supra* note 26, at 22.

178. See Proposal for a Council Directive amending Directive 2011/16/EU on administrative cooperation in the field of taxation COM/2022/707 final.

179. Council of the European Union Press Release, Digital finance: agreement reached on European crypto-assets regulation (MiCA) (June 30, 2022).

180. *Id.*

181. ORG. FOR ECON. COOP. AND DEV. [OECD], TAXING VIRTUAL CURRENCIES: AN OVERVIEW OF TAX TREATMENTS AND EMERGING TAX POLICY ISSUES (2020).

and the OECD is developing a proposal to ensure sufficient reporting and exchange of information. The Committee on Fiscal Affairs has also approved a work plan to review the Standard for Automatic Exchange of Financial Account Information in Tax Matters.¹⁸²

Accordingly, despite challenges and legal concerns, it seems safe to conclude that datafication and requirements for tax transparency on the international scene are here to stay.

B. Danish Outlook

In recent years, Denmark has also taken steps to facilitate a transition toward Tax Administration 3.0. Accordingly, on 1 July 2018, a new agency called the IT and Development Agency (Udviklings- og forenklingsstyrelsen) was established in connection to a major reorganization of the Danish tax administration.¹⁸³ The idea was that the new agency should support the development of a reliable and future-proof tax administration. Accordingly, the agency was given as its core task to maintain existing IT systems, ensure stable operations, and develop modern and future-proof IT solutions to the Danish tax administration.

In order to further support the successful development of such modern and future-proof IT solutions, the Danish Parliament, in December 2021, adopted a bill containing a number of changes to the Danish Tax Control Act.¹⁸⁴ The main aim of this bill was to pave the way for a more efficient and intelligent risk-based tax control.¹⁸⁵ In this context, it was acknowledged that the development of new IT solutions for tax control purposes required that the IT and Development Agency was allowed to collect and process various forms of information. Hence, the intention was to introduce a clear and unambiguous legal basis for

182. ORG. FOR ECON. COOP. AND DEV. [OECD], REPORT ON THE IMPLEMENTATION OF THE RECOMMENDATION OF THE COUNCIL ON THE STANDARD FOR AUTOMATIC EXCHANGE OF FINANCIAL ACCOUNT INFORMATION IN TAX MATTERS, 320–21 (2nd ed. 2020); *see also* Luisa Scarcella, *Exchange of Information on Crypto-Assets at the Dawn of DAC8*, KLUWER INT'L TAX BLOG (Mar. 29, 2021), <http://kluwertaxblog.com/2021/03/29/exchange-of-information-on-crypto-assets-at-the-dawn-of-dac8/>.

183. Danish Tax Administration, *A.A.1.1.1 Skatteministeriets organization Indhold [Contents of the Ministry of Taxation]*, in DEN JURIDISKE VEJLEDNING (2022). The IT and Development Agency is an agency under the Ministry of Taxation and forms part of the Danish Customs and Tax Administration. The agency has around 1,700 employees.

184. Lov nr. 2612 af 28. 12. 2021 Lov om ændring af lov om et indkomstregister, skatteindberetningsloven og skattekontrolløven [Act on amendment of the income register act, the provision of tax information act, and the tax control act] (Den.).

185. Lov nr. 73 af 21. 12. 2021 Lov om ændring af lov om et indkomstregister, skatteindberetningsloven og skattekontrolløven [Act on amendment of the income register act, the provision of tax information act, and the tax control act] (Den.).

the agency to collect, process, and combine data in order to develop tools based on data analytics, including machine learning tools.

Pursuant to section 68(1)–(3) of the Tax Control Act, the tax administration already had the right to pool data contained in the tax administrations' own IT systems in the course of its tax enforcement tasks. Further, for the purpose of assessing and collecting taxes, the tax administration already had access to necessary information about individuals and legal entities' economic and business affairs contained in the common national income register as well as in other public agencies' IT systems.¹⁸⁶

However, these rules did not provide the necessary legal basis for collecting, processing, and combining data in the course of developing new IT tools. As the tax administration, to a limited extent, had already started to utilize and pool data from various registers when developing new IT tools, it was thus found to be of great importance to ensure a sufficient legal basis for these activities.

While it is commendable that legislative changes were made in 2021, to provide the necessary legal basis, it is reprehensible that the tax administration had already started to pool and use data for these purposes before the changes were adopted. In addition, as the new legal basis provided in 2021 is rather broad and generic, it is crucial that procedures are put in place to ensure sufficient protection of taxpayers' rights.¹⁸⁷

In particular, concerns arise with respect to pooling and using data contained in various registers for the use of developing tools for the profiling of taxpayers.¹⁸⁸ However, at least according to the travaux préparatoires, the Danish legislature appears to be aware of these concerns. Hence, it is explicitly stated that [authors' own translation]¹⁸⁹:

Within the framework of the proposed provisions, it will be ensured that appropriate mathematical or statistical procedures are used for the profiling. Technical and organizational measures will also be implemented, which will, in particular, ensure that factors that result

186. Lov nr. 403 af 8.5.2006 [The Income Register Act] (consolidated act 284 of 3.2.2022) (Den.).

187. *See e.g.*, Lov nr. 73 af 21. 12. 2021 Lov om ændring af lov om et indkomstregister, skatteindberetningsloven og skattekontrolløven, annex 1, 12–15, [Act on amendment of the income register act, the provision of tax information act, and the tax control act] (Den.).

188. General Data Protection Regulation 95/46, art. 4(4), 2016 O.J. (L 119) 1.

189. Lov nr. 73 af 21. 12. 2021 Lov om ændring af lov om et indkomstregister, skatteindberetningsloven og skattekontrolløven, 12. [Act on amendment of the income register act, the provision of tax information act, and the tax control act] (Den.).

in inaccurate personal information are corrected and that the risk of errors is minimized. The measures must also secure personal data in a way that takes into account the potential risks to the interests and rights of the data subject and ensures that no differential treatment of taxpayers takes place on the basis of race, ethnic origin, political, religious, or philosophical convictions, labor union affiliation, genetic status, state of health, or sexual orientation. . . .¹⁹⁰

Further, the travaux préparatoires contain a specific assessment of GDPR-related issues. The legislator is thus fully aware that basic GDPR rules have to be respected. It is also pointed out that Article 23(1)(e) of the GDPR allows that national legislation, to which the data controller or processor is subject, may restrict the scope of some of the obligations and rights provided for in the GDPR. This is allowed when such a restriction respects the essence of the fundamental rights and freedoms and is a necessary and proportionate measure in a democratic society to safeguard important objectives of general public interest, in particular an important economic or financial interest of the EU or of a member state, including monetary, budgetary, and taxation matters, public health, and social security.

This legislation is of particular relevance with respect to the so-called purpose limitation principle, that is, the requirement that personal data may only be collected for specified, explicit, and legitimate purposes and not further processed in a manner that is incompatible with those purposes.¹⁹¹ The reason is that the new section 67(a) of the Danish Tax Control Act provides for pooling and utilization of register data for a broader purpose, that is, the development of new IT tools. Hence, this broad use of data may infringe upon the purpose limitation principle. However, as the pooling and utilization of register data arguably safeguards important objectives of general public interest, in particular the Danish state's important economic or financial interest, this infringement must probably be considered permissible.¹⁹² At the end of the day, however, it all depends on how the development of the new IT tools, as well as the accompanying procedures, actually play out.

190. Lov nr. 73 af 21. 12. 2021 Lov om ændring af lov om et indkomstregister, skatteindberetningsloven og skattekontrollloven, 14. [Act on amendment of the income register act, the provision of tax information act, and the tax control act] (Den.).

191. Trzaskowski & Sørensen, *supra* note 161, at 81–82.

192. Lov nr. 73 af 21. 12. 2021 Lov om ændring af lov om et indkomstregister, skatteindberetningsloven og skattekontrollloven, 3–8 (See comments provided by the Danish Data Protection Agency [*Datatilsynet*]).

Altogether, the Danish tax administration has taken important steps toward facilitating a transition toward Tax Administration 3.0, in a way where the development and use of new digital tools can be balanced against the need for protection of taxpayers. However, the steps currently taken still do not deviate from the traditional sequential taxpayer processes, and further steps are thus needed in order to move to the next level, that is, processes where taxation is fully integrated into the daily lives of taxpayers and their operational systems.

VI. CONCLUSIONS

To benefit both taxpayers and tax administrations, many states around the world have already come a long way in making tax processes smoother and more efficient through the use of digital tools. Prominent examples include the use of e-filing of partially or fully prefilled returns, e-payment and provision of online taxpayer assistance. This development, often referred to as the transition from Tax Administration 1.0 to 2.0, can also be observed in Denmark.

Despite the obvious benefits of this development, it is important to be aware of taxpayers' rights, including the risk of jeopardizing taxpayers' trust in the tax administration if such rights are not sufficiently protected. Consequently, the processes of collecting and utilizing taxpayer information needs to be transparent. Moreover, a sufficient legal basis and a clarification of the responsibilities for taxpayers, third parties, and the tax administration have to be ensured.

A good example of such an exercise is the amendment made in Denmark through the adoption of a new Tax Control Act in 2017. However, despite these improvements, concerns still remain when it comes to the question of whether Danish taxpayers' rights are sufficiently protected in the digital era. It is thus commendable that the Danish Ombudsman has launched a more thorough investigation into the Danish tax administration's digital procedures and IT systems to assess whether the tax administration's IT systems take sufficient account of obligations following from general administrative law and GDPR.

Advances in technology have also enabled tax administrations to digitalize audit processes through the increased use of automated electronic checks and validations, matching of reported information, and profiling of taxpayers. Accordingly, most tax administrations now apply data science techniques and analytical tools in audit case selection. This application allows tax administrations to better identify the tax returns, claims, or transactions, which may require further scrutiny. However, ensuring nondiscrimination, accountability, and transparency of such

digitalized compliance actions is critical to facilitate voluntary compliance, protect taxpayers appropriately, sustain perceptions of fairness, and create prophylactic effects.

For some time, the Danish tax administration has also used various digitalized tools to ameliorate audit processes. Useful experiences thus have been made with respect to the use of digital blockers and automatized selection of taxpayers for individual audit. However, in other areas negative experiences have been made. Hence, the attempt to digitalize the debt-collection processes suffered from poor data quality, legality problems, GDPR deficiencies, and last but not least, a too optimistic view on when expected efficiency gains could be reaped (e.g., from cutting down staff within the tax administration). Further, the unlawful changes made to the system generating valuations for real estate tax purposes clearly showed that it is of utmost importance to ensure that the application of such digital tools are continually assessed—both from a technical and from a legal perspective.¹⁹³

Tax administrations around the world have also embarked on initiatives to increase taxpayer transparency through digital means, for example, through the use of automatic exchange of information with other states. This initiative, on one side of the coin, arguably represents a chance for creating a fairer and more efficient tax enforcement, but, on the flip side, it also increases the risk of data abuse and encroachment of taxpayers' privacy. In a Danish context, the comprehensive transfer of information on Danish taxpayers to and from other states appears to be broadly accepted. This acceptance is probably caused by Denmark's strong tradition and preference for international cooperation in such matters combined with a thorough legal protection of taxpayers following from provisions in various statutory laws and regulations.

Looking ahead, most tax administrations will probably try to gradually move away from traditional sequential taxpayer processes and instead try to integrate taxation into taxpayers' daily lives and their operational systems—that is, realize what has been called Tax Administration 3.0. While this development obviously will pose new challenges and legal concerns, it seems safe to conclude that the digitalization and datafication of tax processes is here to stay.

Accordingly, it seems appropriate that Denmark, as an important first step, has prioritized creating a new agency dedicated to developing modern and future-proof IT solutions to the Danish tax administration. Further, it is commendable that the Danish Parliament, finally, has provided a clear legal basis for these endeavors. Hence, only a

193. See e.g., Paul Henman, *Administrative Justice in a Digital World: Challenges and Solutions*, in THE OXFORD HANDBOOK OF ADMINISTRATIVE JUSTICE 459, 459–80 (Marc Hertogh et al. eds., 2021).

determined, consistent, and combined focus on both the technological opportunities and the legal challenges can move the Danish tax system closer to realizing Tax Administration 3.0 and, at the same time, ensure sufficient protection of taxpayers' rights.¹⁹⁴

194. We thus share the general view presented by Steven M. Appel & Cary Coglianese, *Algorithmic Administrative Justice*, in *THE OXFORD HANDBOOK OF ADMINISTRATIVE JUSTICE* 481, 481–502 (Marc Hertogh et al. eds., 2021). The authors argue that although machine-learning algorithms and other automated tools present important challenges for governments, existing legal principles should prove to be no intrinsic or insurmountable obstacle to the responsible deployment of artificial intelligence. However, as the authors simultaneously stress, public administrators, elected officials, and concerned citizens must remain vigilant in their use of such digital tools, in order to help ensuring that artificial intelligence is used responsibly.