Towards a New Business Model for Tax Administration

- Exploring paradigm shifts -

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Abstract

Today, digitalisation affects society in disruptive ways and this challenges tax administrations to fundamentally rethink their business model. Tax administrations always have had to innovate and change their ways of working. Innovation is a necessity in a constantly evolving landscape of changing legislation, changing behaviour of taxpayers, budget restrictions, and challenging demands for improved effectiveness. However, current societal and technological changes ask for a paradigm shift which will lead to a completely new way of working for tax administrations.

Even though a tax administration's work has changed over time, many activities have for a long time and are still being performed on a case-by-case basis. The focus of these activities is mainly on detecting and correcting mistakes and dealing with tax evasion and avoidance. Tax administration as such is still very much organised around non-quality or failures.

This paper explores how technology might change the current business model of tax administrations. A change, we will argue, that is about moving from a case-by-case approach to a system approach; from stand-alone towards integrated tax administration. Recent perspectives on tax administrations have predominantly focussed on compliance risk management and service delivery. In contrast, this paper focuses on tax administration's core processes; the calculation of tax liabilities. This paper contends these tax administration processes will shift from centralized organisation towards decentralised implementation. In such a decentralised approach, tax administration will function as a non-central node in a network, contributing to secure and reliable computation of tax liabilities at the source.

Implementing 'tax inclusive business processes' and 'bringing rules to the data' will fundamentally change the art of tax administration. This will then move away from a linear factory-based model that perceives the world as complicated, in the direction of a networked model, acknowledging the world as being complex. This model will be much better capable of handling the variety and complexity of our current networked society.

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1. Introduction

Societies develop and evolve over time. Driven by political, demographical and technological changes their social, economic and governance structures adapt; often in a gradual pace, sometimes in a more disruptive manner. In order to stay effective and relevant Public Service Organisations need to adapt, innovate and change constantly (OECD, 2018a). For tax administrations as well, innovation is a necessity in a constantly evolving landscape of changing legislation, changing behaviour of taxpayers, budget restrictions, and challenging demands for improved effectiveness. From time to time developments are so disruptive that fundamental institutional change is necessary or inevitable.

Digitalisation is a major development in society and a key factor driving changes in tax administration. Interaction between citizens, companies and government today is almost by default digital and commercial value chains are inter-national and integrated. Current digital innovations may lead to more disruptive societal and economic consequences (Brynjolfsson & McAfee, 2014). These developments tend to be disruptive in how they affect society and will challenge tax administrations to fundamentally rethink their business model. The introduction of blockchain technology for example may (or may not) result in many new economic and taxation related challenges, depending i.e. on the openness of implementations and the establishment of supporting regulatory frameworks (Rijswijk et al, 2019). "For revenue bodies, these technologies are challenging them to think differently about their business ... to support tax administration in the 21st century. This fundamental re-examination of the tax system as a whole goes far beyond simply facilitating existing operations" (OECD, 2016a).

The past decades digitalisation has gradually changed the way tax administrations engage with taxpayers, collect data and execute their processes. This can be characterised as incremental innovations of existing products and processes thus changing and possibly enhancing the quality of service levels, risk management and the efficiency of administrative processes. New ICT-driven applications for e.g. e-filing, pre-filled tax returns and data analytics nowadays co-exist with legacy systems and third party services and systems, causing maintenance and migration issues (OECD, 2016a, 2016b).

The emergence (and implementation) of disruptive technologies and related administrative innovations may cause the need and necessity for a more radical change of the design and execution of tax administration processes. In the end this may lead to a new business model for tax administration(s), moving away from a centralised towards a more decentralised governance model (Klous & Wielaard, 2019). What would a business model look like that is able to remedy the shortcomings of the current ways of working and ensure effectiveness and efficiency in the future?

This paper presents a first sketch or outline of the contours of a new business model or new paradigm for the work of tax administrations. This paper can be characterised as an explorative (literature) study of the impact of disruptive technological developments on the business model of tax administrations. We draw on the literature on (the impact of) new technological developments in relation to public sector innovation and recent good practices of tax administration innovations as compiled in several OECD reports. The paper starts with a brief exploration of the nature and definition of business models in general and that of current tax administrations in specific. We outline the current business model and its historical roots in order to understand how tax administrations are currently working and why. Next, we analyse the possible impact of new digital technologies on tax administration. Finally, we sketch a paradigm shift towards a new business model of tax administration.

2. The current business model of tax administrations

Business models

A business model is the way an organisation creates value to its stakeholders and how it organises its activities accordingly. A company's business model e.g. is defined as "a system of interconnected and interdependent activities that determines the way the company 'does business' with its customers, partners and vendors. A business model is "a bundle of specific activities conducted to satisfy the perceived needs of the market" (Amit & Zott, 2012). Within a commercial setting a business model describes the way a company 'earns money', whereas in a governmental or societal context a business model describes the way public value is being created.

Based on an extensive literature review Amit & Zolt point out that scholars do not agree on what a business model exactly is and how to define it (Amit & Zolt, 2012). They show that research is clustered around three perspectives: (1) e-business and the use of IT in organisations, (2) strategic issues such as competitive advantage, and (3) innovation and technology management. Public-sector business model innovation is a specific subject of interest within the literature on business models (Micheli et. al., 2012; Ranerup et. al. 2016).

Many definitions and conceptualisations of a business model exist (Fos & Saebi, 2016). Nowadays the Business Canvas Model e.g. is a prominent and popular used tool and method to describe, design and innovate business models (De Reuver et. al., 2013; Osterwalder, 2004). This reference model identifies several building blocks crucial for actual value creation. In this article we use the term business model in a generic sense, meaning how the business operates on a structural and conceptual level in order to fulfil its mission and create value. The main perspective of this article is on how tax administrations can use digital solutions for business taxpayers and as a consequence re-design their business model. This perspective resonates with the growing body of knowledge on e-government and its research on the role of technological components in business models for e-government (Ranerup et. al. 2016) and on reshaping the citizen-administration relationships in the digital age (Janowski, et. al., 2018).

Value creation has for a long period of time been analysed and visualised as a sequential flow of activities in a 'value chain' (Porter, 1985). Digitalisation has highly impacted value creation in business models. Relevant in this context of digitalisation, Porter's value chain has had several critiques like i.e. its limited ability to incorporate value created from information flows and its limited applicability to services (OECD, 2018b). Stabell and Fjeldstad (1998) offer a solution and put forward that Porter's value chain is but one of three general value configurations. In addition to the value chain they define two alternative models: the value network and the value shop[4].

The concept of the *value network* is a more natural framework for many highly digitalised organisations. These value networks depend on an intermediating technology: a technology used by platform operators to link stakeholders interested in engaging in a (financial) transaction or relationship. This intermediating technology facilitates interchange relationships among end-users distributed in space and time. Digitalisation has greatly expanded the role of inter(net-)mediating technology, linking users. Value is created through the action of linking: the organisation and facilitation of exchange between users.

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[4] The following description of the value chain and value shop are based on (OECD, 2018b) where a more detailed overview can be found.

Main activities are among others (OECD, 2018, p.39):

- *service provisioning*: activities associated with establishing, maintaining, and terminating links between stakeholders (and when applicable, billing for value received.),
- *network infrastructure operation*: activities associated with maintaining and running a physical and information infrastructure. The activities keep the network in an alert status, ready to service user requests.

Janowski et. al. (2018) explore the consequences of this 'platform paradigm' on citizen-administration relationships. They point out to the governance role of administration in providing data, tools, coordination capacity and other structures that aim to empower citizens to create public value by themselves.

The concept of the *value shop* operates in an environment where interactions take place with one specific type of stakeholder. This interaction is characterised by the use of hardware, software and knowledge in order to solve a specific stakeholder demand or problem. The type of professional service delivered determines the intensity of the value shop's activities. Primary value shops activities are (OECD, 2018, p.41): problem-finding; generating and evaluating alternative solutions; communicating, and implementing the chosen solution; and measuring and evaluating the extent to which implementation has solved the initial problem.

These different perspectives on organising value creation help to understand and characterise different types of business models, less focussing on structures and control mechanisms, but instead on crucial stakeholder engagement activities.

This article explores in which way (parts of) tax administration value creation might change driven by technological change.

Current tax administration business model

The (societal) value created by tax administrations relates to the collection of money and provision of tax certainty governed by the rule of law. By doing so a tax administration contributes to sound state financing and state building processes.

The current organisation of the tax system in most western states is a result from the 19th century disruptive changes relating to the industrialisation period and nation state building. Prior to this, for many centuries taxation was very much based on, and integrated with, physical and tangible processes concerning agriculture, trade and land ownership. Taxation was therefore in practice largely governed by local legislation and local knowledge about the taxpayers. Most governments had only a limited awareness of the actual possessions and assets of its population (Black, 2014). Few governments in those days succeeded in imposing a (fair) wealth or income tax. Starting with the fall of the Roman Empire, centralised, state controlled tax administration diminished, and decentralised tax systems and processes prevailed.

The rise of the nation state led to stronger central government and industrialisation led to processes of centralisation in economic life. Artisan work was replaced by large-scale production in factories, with assembly lines, distinct processes and a sharp focus on efficiency. This modern way of working and thinking also impacted tax administration tasks and organisation. Data and information became the main ingredients feeding the bureaucratic tax machinery. Arbitrariness and estimates were step by step replaced by professional administration and computation. Taxpayers had to provide information in a standardised manner facilitating the development of process-oriented centralised machine bureaucracies.

For nearly two centuries societal bureaucratic capabilities grew, driven by i.e. monetisation, administrative innovation, automation and computerisation (Black 2014). This modernisation powered the efficiency and effectiveness of many tax administration. This growth of information processing capabilities changed the taxation landscape:

- *new tax bases* could be introduced, like e.g. corporate income, employee salaries and added value,
- physical inspections were replaced by *information based* controls, based on information reporting by taxpayers, risk assessments and book keeping audits,
- *third parties* became 'partners in taxation', first of all to 'pre-process' tax liabilities and returns and later on to feed the central tax administration with assessment and control data.

The majority of today's tax administrations activities are organised in a value chain manner, powered by batch oriented, mainframe supported back office administrative processes. Core tax administration functions are being perceived as: registration, assessment, verification, collection and dispute resolution (OECD, 2017, p.76). These primary functions are supported by overarching taxpayer services and data management processes.

Malcolm Sparrow characterised enforcement agencies as organisations that "wait until the damage has been done and then react, case by case, incident by incident, failure by failure. Enforcement agencies accept the work in the form in which it arrives, and, therefore, have tended to organize their activities around failures rather than around opportunities for interventions" (Sparrow, 1994). The same can be said about the way tax administration has traditionally been organised. Many recent business model innovations have focussed on integrating prevention management into the system. Prefilling of private income tax returns and the support of e-invoicing and electronic cash registers (OECD, 2019b) are examples of these kind of upstream quality management interventions within the chain of value creating activities.

A first characteristic of the current business model of tax administrations is a strong focus on *data and information*, mainly from tax returns but increasingly from other sources as well. Tax administrations are data processing organisations (Arendsen, 2016).

A second characteristic of most current tax administrations is their *centralised approach*, meaning that key processes are administered on a central level. Apart from the efficiencies that come with this, it allows for a more comprehensive risk assessment and for a coherent application of the tax rules. The tax administration acts as the 'central node', which collects the data and is responsible for the further processes. Activities that require interaction with the taxpayer or knowledge about local circumstances are, however, not centralised.

A third characteristic of many tax administrations is their current emphasis on compliance risk management, *checks and audits*. Most citizens, and many tax administration employees, would probably consider this the tax administration's core assignment.

Individual versus business taxpayers

This approach is still used today for business taxpayers, albeit now more and more computerised. It was also used for private individuals for a long time, but here the gradual introduction of third-party data (from employers, banks etc.) changed the way of working. Third party data was first used to check the information provided by the taxpayers. Later, in many countries, when the amount of third-party data increased and comprised almost all the information for private individuals the process was inverted. Instead of taxpayers filling out the tax return and the tax administration checking the numbers, the tax administration started to fill out the tax return and asked the taxpayer to check the numbers (pre-filled tax returns).

The use of third parties also provide opportunities to withhold tax at the source. Employers, banks and others can deduct tax from payments to private individuals and deliver the tax to the tax administration together with information about the income and the withheld tax. This increases the likelihood that the taxes will be paid, and it makes compliance easier for private individuals. The downside is that it puts an additional burden on the business taxpayers. They have to handle taxes that are not their own (Arendsen et. al., 2014).

There are thus two different approaches used, one for business taxpayers (mostly self-reporting) and one for private individuals (mostly third-party reporting). The important difference between these two approaches lies in where the relevant data are available and where rules can be best applied. For private individuals the tax administration can collect the data from third parties, do the necessary compilations and apply the rules i.e. calculate the taxes due.

The concept of using third parties as data providers is not yet implemented within the business taxpayer's context. Apart from some more presumptive forms of taxation business taxation is based on core business transactions. It is first of all in the interest of these businesses to create an overview of and insight in their business transactions. Transactions that they will need to keep track of in order to know how their business is doing and how much money they can spend. Bookkeeping is in the business own interest and often mandated by legal obligations. The bookkeeping consists of data and information that in most cases also can be used to determine tax liabilities. Business taxation today depends heavily on businesses conducting the necessary data compilations and correctly applying tax rules. To do so, business taxpayer need to have access to the rules, know the rules and have an understanding on how to apply these in their specific context. In many cases business tax filing is supported by commercial software systems, accountants and tax advisors. Tax administrations conduct final verification and assessment of these business tax returns on a case by case basis.

Today, some tax administrations are preparing or introducing pre-filled business tax return processes as well. The data used for pre-filling are retrieved from book keeping software or directly at the source of sales transactions via electronic invoices and online cash receipts (BID, CIAT, 2018; OECD, 2019b).

Another difference between private individuals and businesses is that individuals tend to have few sources of income making it possible to collect necessary data from a relatively small number of third parties. Businesses on the other hand, tend to have many transactions, both in the form of numerous sources of income and many kinds of expenses, and there is no obvious way to reduce the number of sources from where to collect the data. Individuals might also have weaker incentives for keeping track of their own transactions. It is important to consider the total compliance burden for all taxpayers and also who is best suited to handle necessary reporting and calculation of taxes. The assumption here is that if business taxpayers already

have to keep records and compile reports, they are, in general, better equipped to report to the tax administration than private individuals.

This shows that it makes sense to have different approaches for private individuals and business taxpayers. Using pre-filled tax returns can increase quality and reduce costs, both for individual tax payers and some types of business. This refined model however, is still a continuation of the centralised governance model of tax administration known for decades. A model in which tax administrations are the central data collection and distribution node within the tax system.

We will argue below that it makes sense to have different approaches for private and business taxpayers. For private taxpayers a more centralised approach seems at the moment still most effective. It reduces burdens on individuals, supports the less capable and assures uniform application of rules. For business taxpayers however, the burden can be reduced by further decentralising tax administration processes, an opportunity that arises from new technologies. This change for business taxpayers in the end might also affect the taxation of private individuals because business taxpayers (among others) are the third parties feeding individual taxation processes.

3. New technologies and consequences

Traditional tax return processes were designed when tax returns only existed on paper. Such paper documents put limitations on how the content, i.e. the information, can be handled. When dealing with paper, a linear or serial, case-by-case process makes a lot of sense.

Today, now that most of the information is available in digital format, these limitations no longer apply. Digital information can be combined, split up, duplicated and distributed in any way desired and appropriate. This means that digitalisation should not be about making existing (paper-based) processes digital (meaning that the information is digital, but we pretend that it is on paper), but instead be about adapting to a digital world.

This new digital world can be characterised by for example omnipresent, distributed, computational power and data, the Internet of Things, machine learning (artificial intelligence), big data and 3D printing. New technologies and standards[5] also facilitate the creation of virtual money and offer the possibility to administer transactions, deliveries and payments in an assured and indisputable way; thus providing 'digital trust'. These unprecedented possibilities are game changers in the way that societies and economies work (Brynjolfsson & McAfee, 2014; OECD, 2016a).[6]

These technological disruptions, together with globalisation, facilitate and create radical changes in commercial business models, and already led to the emergence of completely new business models, such as in the taxi industry or online music streaming services. These new business models are based on the features of a digital world. Most notably is that they are about services and organised as networks. Music is no longer bought and distributed as a physical good, it is a service. Music can be accessed or bought through different digital platforms. Playlists can be shared between users. New digital taxi companies also provide digital platforms in order to connect drivers with passengers. These digital platforms (all digital

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[5] Like e.g. UETP (Uniform Economic Transaction Protocol) and Blockchain.

[6] The World Economic Forum characterizes this as the '4th Industrial Revolution'.

companies like for instance Google, Facebook, Netflix, Amazon, Alibaba or Tencent can be seen as platform companies) work as nodes or hubs in a (value) network. These platforms connect different actors and makes it possible to provide a number of different services to many users at a low cost (OECD, 2018b).

This development towards a platform economy brings fundamental changes. For instance, the idea that a business needs to choose between producing high volumes of cheap low-quality products or low volumes of more expensive high-quality products no longer apply. A digital platform can provide many different personalised services to many users at the same time; based on 'scale without mass' (OECD, 2018b).

This does not mean that tax administrations just need to adapt to a new business landscape, it means that tax administrations need to gain the ability to work effectively within this constantly evolving landscape. It is about making the tax administration more adaptable and agile. The fundamental change for tax administrations that follows from these developments is moving away from a linear factory-based model towards (being part of) a networked model. The factory-based model is all about increasing efficiency by streamlining processes based on maximum level of standardisation. This former model therefore works well within a rather static environment. In contrast, the network model is all about absorbing and adapting to change and dealing with variations. The underlying feature here is that the factory-based value chain model deals with a *complicated* world whereas a more networked approach of tax administration will better be able to deal with a *complex* world.

A complicated case in most cases can be understood by examining its (static) parts. A complex case however, refers to dynamics that cannot be understood by examining its parts. Instead, it is about understanding change and the relationships between the parts. An assembly line at a factory can be very complicated, but seldom complex. Human beings and organisations interacting with each other, constantly adapting to changes in the environment, compose a networked, complex system. One of the disruptive consequences of new technologies is the growing amount and dynamics of (platform driven and intertwined) networks, thus rapidly enhancing society's complexity.

The ability to deal with complexity and variety should therefore be a core design criterion for future tax administration business models. Increased variety and complexity are difficult for one fixed centralised system to handle; instead "variety absorbs variety" (Beer, 1979).[7]. Complexity needs to be handled by something that in itself can act as (or be part of) a complex system, thus being able to adapt without the need for fundamental changes. In order to face and handle variation, that will inevitable exist, there is need for flexibility and agility. Something static cannot handle or absorb variation. Think e.g. about how to make a building more resilient to earthquakes. It needs to be able to absorb horizontal and vertical movements, which is to be flexible. Something a rigid structure cannot do.

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[7] With this phrase Stafford Beer restated Ashby's Law of Requisite Variety which states that if a system is to be stable, the number of states of its control mechanism must be greater than or equal to the number of states in the system being controlled. Ashby summarizes this axiom as: "Variety can destroy variety". Variety can be defined as the total number of possible states of a system and can be used as a measurement or indication of complexity.

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4. Outlines of a new tax administration business model

Characteristics of a new business model compared to the current one

Business taxpayers are very important partners for tax administrations. They provide data to the tax administration regarding their own taxes (VAT, corporate income tax, etc.). In this regard they are first-party data providers. They also provide data about private individuals (as employers or customers) to the tax administration. In this regard they are third-party data providers. Tax administrations generally perceive third-party data to be more reliable than first-party data. There can be different incentives for a business taxpayer to provide inaccurate data as first-party provider compared to be a third-party provider, but it is important to acknowledge that they are the same source. Instead of focusing on the reliability of the data provided, one could focus on the reliability of the source, or its capabilities to provide accurate data.

The new business model for tax administrations outlined in this paper places the business taxpayers explicitly at the core of the tax administration business model.[8] By doing so, tax administration will become a more networked and distributed function. Because business taxpayers are third-party data providers, this will affect in the end the taxation of private individuals as well. Tax administrations' mission however, will not change. Their primary concern is the legitimate collection of money, based on an adequate assessment of relevant tax bases. In other words: *"Have the right rules been applied to the right data?"*, thus providing tax certainty to tax payers and society.

As explained before, currently tax administrations collect as much (raw) data as possible, e.g. on personal or business incomes. The rationale behind this is the fact that the more data available, the easier it is to find discrepancies. If no discrepancies are found, it is more likely that the data is correct. Quality is defined as the absence of any detected discrepancies. This model puts the tax administration and the tax return at the centre and the business taxpayers as data providing agents. This model is about *bringing the data to the rules* and about searching for non-quality on a case-by-case basis.

The new business model is all about focusing on the quality of the sources (the business taxpayers) to ensure they have systems in place that accurately can handle all tax affairs including reporting of information to the tax administration. It is about integrating quality within existing processes and infrastructures. It is about *bringing the rules to the data* and putting the business taxpayers at the centre. The tax administrations core task is to provide rules, algorithms, calculation modules and other services to support business taxpayers and business processes to accurately calculate and establish tax to be paid. Business taxpayers have the best knowledge about circumstances and related data, whereas tax administrations have the best knowledge about the rules. By bringing these together, new information (i.e. correctly calculated tax) can be 'co-created' in a timely manner.

In this scenario tax returns as we know them today, may at some point become obsolete even if some information will be sent from the taxpayer to the tax administration. What is clear is that tax returns won't any longer be at the core of tax administration processes. This will reduce the burden on the taxpayers to find, interpret and apply the right rules themselves.

Tax administration will still have to make formal assessments, checks and inspections. But they will mainly focus on the quality of taxpayer's systems. This is a shift from 'checking the data' to

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[8] Businesses are already a vital element of the current centralised tax system and "agents for the collection of tax" (J. Slemrod).

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'checking the system'. It is more effective to spend resources on checking systems than on checking individual transactions. Within this business model, tax administration's need to work together with the taxpayer community and the tax service providers as part of a broader network. In such a decentralised approach, the tax administration will function as a non-central node in a network, contributing to secure the reliable computation of tax liabilities at the source. This model will be much better capable of handling variety and complexity within a networked society. Data and computational power are distributed among many different actors, providing resilience. Changing the tax system is about changing the rules and new rules can be brought to the data where needed.

The new business model in practice

The essence of a decentralised approach is the integrations of taxation into taxpayer natural business processes, such as supply chains and financial systems. This means that taxation will no longer be a separate, and often a burdensome, process but instead mostly will be inseparable from already existing processes within the taxpayers' ecosystem. Taxation, and maybe even collection, will be organised as close to business transactions and functions as possible.

The effectiveness of a networked model for tax administration depends for a great deal on the digital capabilities of businesses involved. Rules provided by tax administrations need to be implemented within their digital business management systems. Many business taxpayers already use a business system, an ERP-system (Enterprise Resource Planning-system) or other types of digital accounting systems. The availability of relatively cheap online services for billing, payment and bookkeeping is growing rapidly, providing digital business management applications to very small businesses as well.

The main focus of the tax administration will then move from reactively verifying and processing tax returns, case-by-case, to making sure that the systems within the taxpayers' environment are secure and process data and rules in a correct manner. In the near future the introduction of trustworthy digital ledgers like those implemented via blockchain technology might ensure 'digital trust'. Audits and checks will then become quality assurance instruments to provide systems reality checks and inputs for systems improvements. This does not, however, mean that the tax administration should have direct access to the business taxpayers' systems. The need for the tax administration to check on transaction level will diminish. Checks are needed on a system level. If the right rules are applied on the right data, then the content of the transactions becomes less of an interest.

The tax administration will of course want to check the transactions on a regular basis, as part of system checking or in case of suspicions of evasion or mistakes. The tax administration still needs to have the possibility to audit any business when it is deemed necessary, but it is important to perceive this checking of single tax returns or single transactions as additional measures or as part of the broader purpose of securing the system, not as a primary value adding process. This approach does not eliminate all opportunities for tax evasion, but it substantially reduces the risks of making unintentional errors. Measures will still be needed in order to combat fraud and crime, but these can to a large extent focus on transactions intentionally kept outside the business systems and on utilising other sources of information than the tax return.

A new business model and new strategies

The more decentralised business model of tax administration rests on two strategies. The first one is to support and make sure tax payers' business systems are secure and reliable and therefore are able to apply the right rules to the right data. This strategy includes tax administrations providing and publishing tax rules, regulations, policy interpretations and case law. This strategy focusses on empowering businesses and ensuring overall tax system quality.

In addition, tax administrations have to stay focussed on detecting fraud and evasion 'outside the secured system'. This is more about engaging with individual taxpayers on a transaction level. This is necessary in order to prevent 'gaming the system' and to support and foster stakeholders' confidence and trust in the system's operational quality. This is not a new strategy, but the work will change because it will no longer be organised around the assessment tax returns.

These two strategies will probably be implemented in different manners for different taxpayer segments and for different tax types. Small taxpayers e.g. will use on-line accounting and tax applications. Tax administration will work closely together with these cloud-based service providers. Large businesses will probably still deploy their own digitalised accounting and tax systems. Tax administrations will establish direct relations with these taxpayers, probably as part of co-operative compliance arrangements.

The better the first strategy works and the more it can be based on technology (e.g. machine learning and blockchains) the more cost-effective this systems approach will be. By reducing operating and compliance burdens tax administration will be able to spend more resources on the execution of the second part of the strategy.

The business model of the tax administration should therefore be organised around the different sources of information and tax payments. The main focus for tax administration will not be on the content of the information from the different sources, but rather on how reliable and trustworthy these sources are.

This fundamental shift can be summarised as follows.

Rethinking tax administrations' business model	
From	*To*
Focus on the tax return	Focus on tax services
Tax administration as a ´stand alone´ organisation	Tax administration as part of a network
Focus on case level	Focus on system level
Focus on pre-filing services and post-filing verification	Focus on ´tax inclusive´ processes and seamless interaction
Bringing data to rules	Bringing rules to data
Tax law and audit competences are key assets	Knowledge and information management are key assests
Interaction with taxpayers focuses on the process of taxation	Interaction with tapayers focuses on providing enablers

Tax administration is thus moving away from a tax return processing factory to a protector and enabler of a system that handles the flow of information and money. In terms of total quality management theory (TQM), the tax administrations tasks and responsibilities shift from end-of-pipeline quality inspections towards total quality management, assuring the system's quality. The core elements of this strategy concern: ensuring data quality and its availability at the source, publication and provision of executable tax rules, supporting the (re-)allocation of computational power as close to business transactions as possible and ensuring right and righteous application of the rules within the network.

5. Conclusions

One of today's disruptive consequences of the introduction of new technologies is the growing amount and dynamics of platform-driven and intertwined networks, rapidly enhancing society's complexity. Facing these societal challenges, the OECD stressed the necessity of a fundamental re-examination of the tax system as a whole, 'far beyond simply facilitating existing operations' (OECD, 2016).

This paper presents a first glance on how future tax administration might look like. Its objective is to raise interest and questions rather than answering questions and presenting a blue print. Three *paradigm shifts* may guide the change process towards a new business model for tax administration.

From 'data to the rules' towards 'rules to the data'

The new business model for tax administrations outlined in this paper places the business taxpayers explicitly at the core of the tax administration business model. In order to stay vital and relevant within a decentralising society, taxation has to be conducted closer to the source of value creation and business transactions. Omnipresent computational power and data enable computation (and eventually even collection) at the source.

Implementing 'tax inclusive business processes' and 'bringing rules to the data' will fundamentally change the art of tax administration, which nowadays heavily relies on a business-reporting-driven governance model. This new systems approach can be characterised as an example of 'compliance by design' (OECD, 2014).

By doing so, tax administration will become a more networked and distributed function, powered by the computational abilities of its nodes.

From 'value chain' towards 'value networks'-based tax administration

This article explores in which way (parts of) tax administration value creation might change driven by technological change. New technologies might enable the shift from a centralised towards a more decentralised, networked governance and operating model for tax administration. The focus may shift from 'tax administration as an organisation' towards 'tax administration as a function', partially embedded in networks and platforms. This might empower the societal governance role of tax administration in providing rules, tools, data, coordination capacity and other structures that aim to empower citizens and businesses to create public value by themselves.

This will then move away from a linear factory-based model that perceives the world as complicated, in the direction of a networked model, acknowledging the world as being

complex. This model will be much better capable of handling the variety and complexity of our current networked society.

From 'fighting complicatedness' towards 'embracing complexity'

Tax laws will always change. Therefor a business model of tax administration has to be able to accommodate (almost) any type of tax legislation. Even if simplifications are desirable, it would be a mistake for tax administrations to build its strategies and capabilities on a specific set of simple tax rules. The mission of the tax administration is to administer the tax system; whatever it may look like. This does not absolve the tax administration from trying to simplify and to make suggestions about better legislation, but it must be able to handle even very complicated rules.

Our argument is that a decentralised business model will be more effective and better capable of handling variety and complexity within a networked society. Data, rules and computational power are distributed among many different actors, close to reality. This enhances the tax systems' ability to assess and collect taxes in a timely and accurate manner. The ability to deal with complexity and variety should therefore be a core design criterion for future tax administration business models, thus ensuring resilience and agility.

Society will change, and so will the tax system and its tax administration function. Addressing the tax challenges of the digitalisation of the economy (OECD, 2019a) for example might eventually ask for new methods of taxation, assessment and collection of, among others, Corporate Income Tax and VAT. This will challenge not only the quality of policy and law making, but will raise major administrability issues. A more networked, decentralised tax administration will be better capable of implementing and supporting these vital societal change processes.

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7. References

Amit, R., Zott, C. (2012). *Creating value through business model innovation*. MIT Sloan Management Review 53 (3), pp. 41-49.

Arendsen, R. (2016). *Eenvoudig belasting heffen – tussen droom en daad* [Simplyfied Taxation – between dream and action]. Oration Leiden University. Retrieved from: http://media.leidenuniv.nl/legacy/oratie-arendsen---drukproef.pdf.

Arendsen, R., Peters, O., Ter Hedde, M.J., Van Dijk, J.A.G.M. (2014), *Does eGovernment Reduce the Administrative Burden of Businesses? An assessment of business-to-government systems usage in the Netherlands*, Government Information Quarterly, Vol. 31 (1) pp. 160-169.

Beer, S. (1979), *The Heart of Enterprise*, John Wiley, London and New York.

BID, CIAT (2018), *Factura electrónica en América Latina (Electronic Invoicing in Latin America, Spanish only)*, Banco Interamericano de Desarrollo (BID), Centro Interamericano de Administraciones Tributarias (CIAT), https://biblioteca.ciat.org/opac/?v=5564 (retrieved at April, 4, 2019).

Black, J. (2014). *The Power of Knowledge, How Information & Technology Made The Modern World*, Yale University Press, New Haven.

Brynjolfsson, E. and A. McAfee (2014). *The Second Machine Age*, Norton, New York.

Fos, N.J., Saebi, T. (2016). *Fifteen Years of Research on Business Model Innovation: How Far Have We Come and Where Should We Go?* Journal of Management, 43 (1), pp. 200–227.

Janowski, T., Estevez, E., Baguma, R. (2018). *Platform governance for sustainable development: Reshaping citizen-administration relationships in the digital age.* Government Information Quartely, 35, pp. S1-S16.

Klaus, S., Wielaard, N. (2019). *Three Design Principles for the Future of Tax Authorities: Modular, Agile and Decentral*, in: S. Goslinga, L. Van der Hel-Van Dijk, P. Mascini & A. Van Steenbergen (Eds). Tax and Trust: Institutions, Interactions and Instruments. Eleven International Publishing, The Hague.

Micheli, P., Schoeman, M., Baxter, D., Goffin, K., (2012). *New business models for public-sector innovation: Succesful technological innovation for government.* Research-Technology Management 55 (5), pp. 51-57.

OECD (2014). *Tax Compliance by Design: Achieving Improved SME Tax Compliance by Adopting a System Perspective*, OECD Publishing, Paris.

OECD (2016a). *Technologies for Better Tax Administration*, A Practical Guide for Revenue Bodies, Organisation for Economic Co-operation and Development, OECD Publishing, Paris.

OECD (2016b). *Rethinking Tax Services*, The Changing Role of Tax Service Providers in SME Tax Compliance, OECD Publishing, Paris.

OECD (2017). *Tax Administration 2017. Comparative Information on OECD and Other Advanced and Emerging Economies*, OECD Publishing, Paris.

OECD (2018a). *The Innovation System of the Public Service of Canada*, Organisation for Economic Co-operation and Development, Observatory of Public Sector Innovation (OPSI), OECD Publishing, Paris.

OECD (2018b). *Tax Challenges Arising from Digitalisation – Interim Report 2018*: Inclusive Framework on BEPS, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264293083-en.

OECD (2019a). *Addressing the Tax Challenges of the Digitalisation of the Economy – Policy Note.* OECD/G20 Base Erosion and Profit Shifting Project, Paris.

OECD (2019b). *Implementing Online Cash Registers, Benefits, Considerations and Guidance*, Organisation for Economic Co-operation and Development, OECD Publishing, Paris.

Osterwalder, A. (2004). *The Business Model Ontology – A Proposition in A Design Science Approach*, PhD Thesis.

Porter, M. (1985). *Competitive Advantage Creating and Sustaining Superior Performance*, The Free Press, New York.

Ranerup, A., Henriksen, H.Z., Hedman, J. (2016). *An Analysis of business models in Public Service Platforms*, Government Information Quartely, 33, pp 6-14.

Reuver, M.de, Bouwman, H., Haaker, T. (2013). *Business model road mapping: A Practical approach to come from an existing to a desired business model.* International Journal of Innovation Management 17.01.

Rijswijk, L. van, Hermsen, A.J.M., Arendsen, R. (2019). *Exploring the Future of Taxation, A Blockchain Scenario Study*, Journal of Internet Law 22 (9), Wolters Kluwer.

Sparrow, M. (1994), *Imposing Duties: Government's Changing Approach to Compliance.* Westport CT: Praeger Publishers.

Stabell, C. and Ø. Fjeldstad (1998), *Configuring Value for Competitive Advantage: On Chains, Shops, and Networks*, Wiley, http://dx.doi.org/10.2307/3094221.