Conference

Assessing Tax Reform as a Journey to Tax Administration

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Abstract. This study examined whether the initiatives carried out by the Directorate General of Taxation (DGT) as part of a series of tax reforms have met the characteristics of the six building blocks in the development of Tax Administration 3.0 as formulated by the OECD. The research was conducted using a literature review of the tax reform volume III that is being implemented by the DGT and of the Tax Administration 3.0 model developed by the OECD. The data in this study were secondary data collected from various reports and studies. There were several findings, including about a large number of characteristics in the "established" phase towards Tax Administration 3.0 that were carried out and designed by the DGT. However, there were some building-block characteristics that require collaboration with other parties and so which need to be a concern of the government, such as the single identity number project for digital identification, the implementation of the pay as you earn (PAYE) system in the daily life of taxpayers, and a governance framework to increase the involvement of various stakeholders in tax administration.

Keywords: OECD, Tax Administration 3.0, tax reform

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1. Introduction

The world situation in recent decades is faced with a full of uncertainty and chaos business, economic and environmental conditions (1) and combined with rapid changes as a result of the industrial revolution 4.0, specifically the presence of a great change in technology which such as the innovation of Artificial Intelligence, Big Data, and the Internet of Things (2). Furthermore, Schwab (3) declare that the digital revolution has the potential to disrupt all things, including economy, business, governments and countries, society, and individuals. Entering 2020, this condition is further exacerbated by the Covid-19 pandemic that has already hit various sectors, without exception the government sector around the world, including in Indonesia. According to experts, that situation is categorized as VUCA, which is an acronym for volatility, uncertainty, complexity, and ambiguity. VUCA (originated in the military word), which refers to the

post-cold world war conditions ended, was then widely used to describe a volatile situation (where there is a rate of change itself); uncertain (where there is a lack of clarity about present and future outcomes); complex (where there are multiple and competing decision factors); and ambiguous (where there may be a multiplicity of meanings and significance) (4).

The viewpoint which present world conditions are volatile, uncertain, complex, and ambiguous (VUCA) makes the governments and policy makers increase their sensitivity to the gap of uncertainty and prepare themselves to face various types of external pressures, risks, opportunities, and threats (2). In line with the challenges that appeared in the industrial revolution 4.0, Schwab and Davis(3), introduced the concept of "agile governance" or agility in dealing with changes that are difficult to predict and measure to run a better government. The World Economic Forum (5) defines agile governance as an adaptive, human-centered, inclusive, and sustainable policymaking, which acknowledges that policy development is no longer limited to government but rather is an increasing multi stakeholder effort. In welcoming the industrial revolution 4.0, Schwab and Davis (3) conveyed several strategies that must be carried out by policy makers, for instance the government, economic actors, and individuals. Specifically, Schwab and Davis (3) declared that two strategies can be taken by the government, such as adopting an agile governance approach and working across boundaries.

The Governments (The Ministry of Finance, specifically The Directorate General of Taxation/DGT) must prepare themselves to face the challenges caused by the uncertainty and disruption of world conditions resulting from the industrial revolution 4.0 which also has an impact on the economic and the business world. These global and national challenges have a significant influence on the performance of state revenues. Moreover, in recent years, the performance of Indonesia's tax revenue is still below other countries in the Asia Pacific region which the indicators used is the tax ratio (the ratio of taxes to the total economy as measured by Gross Domestic Product/GDP) as shown in Figure 1 below.

In the latest statement of the Organization for Economic Co-operation and Development (OECD) about Revenue Statistics in Asia and Pacific Economies 2021, Indonesia's tax to GDP ratio performance ranks the lowest among other countries in the Asia Pacific region, even when compared to archipelago countries such as Vanuatu. In a report published based on the performance of tax revenues in 2019, Indonesia's tax ratio is around 11.6%, far below the average tax ratio of Asia Pacific countries of 21% and the average tax ratio of OECD countries of 33.8%. More than half of the countries in Asia

Figure 1.1. Tax-to-GDP ratios in Asian and Pacific economies, including and excluding social security contributions (2019)

Percentage of GDP
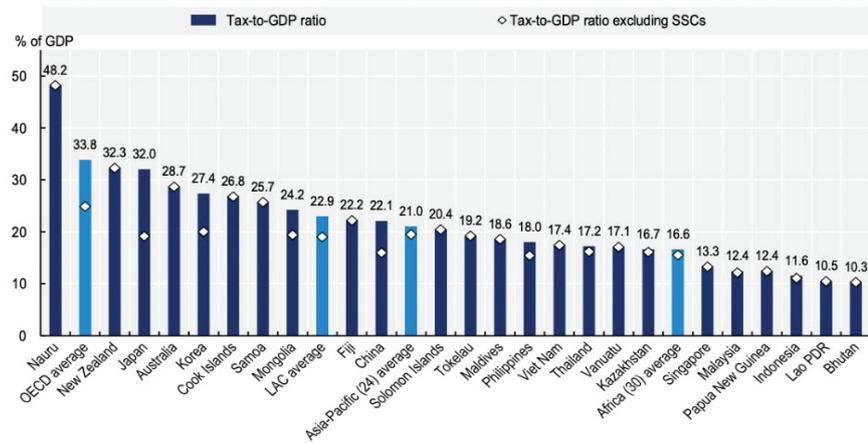
Figure 1: Tax to GDP Ratio for Asia Pacific Countries. (*Source: Statement of the Organization for Economic Co-operation and Development*)

Pacific experienced a decrease in their tax ratio for 2018 and 2019, including Indonesia with a decrease of 0.4% in 2019 when compared to performance in 2018.

In the condition of the world economic slowdown, political and social instability, and rapid environmental changes, as well as the disruption of digital technology, the low tax ratio requires a wise response from the Government. Moreover, tax revenue is the main cantilever in the State Revenue and Expenditure Budget. The portion of tax revenue in the 2021 Indonesia's State Budget contributes Rp1.444,5 trillion or around 82% of the total state revenue (grow by around 2.6% from the previous year). Meanwhile, there are several obstacles in the effort to collect tax revenues, including the low level of taxpayer compliance, the need for regulations that can anticipate the development of trade transactions, the yearly increase of tax revenue targets, the rapid development of the digital economy and technology, as well as the conditions in which the number of human resources at the Directorate General of Taxation is not commensurate with the increase in the number of taxpayers, which creates more obstacles in the implementation of compliance supervision and law enforcement. All of these aspects create the urgency of a reformation in the tax administration system.

In an event commemorating the 2021 Tax Day, Sri Mulyani (Minister of Finance of the Republic of Indonesia) declared that the tax reform is the key for increasing the state revenues in the current global changing trend. The development of digital technology has changed the way people transact and has many implications for the improvement of a digital-based business model. Several countries are trying to protect

their respective taxation rights in the current increase in economic transactions that transcend the national borders (borderless) with the existence of digital technology. This condition triggers the efforts from most countries to launch a tax reform with a point of view that each jurisdiction cannot regulate the global tax regime without any coordination, collaboration, and cooperation between countries. Based on this scheme, Directorate General of Taxation is expected to be able to use this global momentum well to accelerate the implementation of tax reform in Indonesia so the role of taxes to support fiscal independence can be realized.

Indonesia's tax reform began with the reform of tax laws and regulations in 1983. The 1983 tax reforms resulted in a change in the tax collection system in Indonesia from an official assessment based to a self-assessment based. Currently, the Government along with the Parliaments have agreed to continue the tax reform amidst the changing trends of the global economy. The Decree of the Minister of Finance Number KMK-885/KMK.03/2016 concerning the Formation of the Tax Reform Team is a milestone in the journey of Tax Administration 3.0 in Indonesia. On its official website, the Directorate General of Taxation declared that tax reform is an overall reform of the tax system, including reforming the tax administration system, improving regulations, and expanding the tax base. As mandated in the Minister of Finance Decree, tax reform aims to improve taxpayer compliance, increase trust in database management/tax administration, and improve the integrity and productivity of tax officials. As a form of the government's commitment to Tax Reform, Presidential Regulation Number 40 of 2018 was issued concerning the Reform of the Tax Administration System (PSAP). The main focus of PSAP is to create a tax administration system that is more effective and efficient as well as having high flexibility. PSAP aims to create a strong, credible, and accountable tax institution that has an effective and efficient business processes, can build an optimal synergy between institutions, improve taxpayer compliance, and increase state revenue.

In line with the challenges that arise in the industrial revolution 4.0 such as increasing digitalization in the economy and society, there are opportunities offered by digital technology to improve services to taxpayers and improve the performance of tax compliance supervision. OECD (6) introduces a discourse on Tax Administration 3.0, which is a condition where tax administration is built into the natural systems (a system used by taxpayers in carrying out their daily life and business, transacting, and communicating). In other words, this new paradigm in tax administration prioritizes automation in tax administration, making tax administration more seamless and frictionless over time and bringing potentially significant reductions in administrative burdens and improving the resilience and agility of tax administrations (6).

The implementation of Tax Administration 3.0 will take a long journey and go through gradual changes (incrementally). So, the OECD developed a digital transformation maturity model in building Tax Administration 3.0, namely digital identity, taxpayer touch points, data management and standards, tax rule management and application, new skill sets, and governance frameworks. The OECD then guides the extent to which a tax administration has complied with these building blocks based on certain characteristics.

The Tax Administration 3.0 model developed by the OECD is claimed to be able to improve services to taxpayers and supervise taxpayer compliance. Moreover, the ongoing tax reforms aim to improve the tax administration system in Indonesia which can improve taxpayer compliance. For this reason, this study will examine whether the initiatives that have been and will be carried out by the DGT as part of a series of tax reforms have met the characteristics of the six building blocks in developing Tax Administration 3.0 as formulated by the OECD.

Theoretically, this research is expected to enrich the study of tax reform in the context of current global conditions. This research is also expected to provide an overview of whether the ongoing tax reforms are in line with the digital transformation maturity model of Tax Administration 3.0 formulated by the OECD. In general, this research is expected to increase public understanding of tax reform to increase state revenues used for Indonesia's development based on fiscal independence.

2. Methods

The research method used in this research is a descriptive qualitative research. Creswell (7) emphasizes the definition in qualitative research on the research process that flows from philosophical assumptions, to an interpretive lens, then to the procedures involved in studying social or human issues. Meanwhile, Bungin (8) stated that qualitative research is a research with limited research objectives, but with those limited research objectives as much data as possible will be explored. Thus, although the target is limited, the depth or quality of the data is not limited.

Furthermore, to create detailed points of view and discussion, researchers also conducted literature review and non-structured interviews to several sources from DGT. The discussion and conclusion of this research are grouped into six parts according to the Building Blocks carried out by OECD; there are the Digital Identity, the Taxpayer Touch points, the Data Management and Data Standards, the Tax Rule Management and Application, the New Skill Sets, and the Governance Frameworks.

3. Results and Discussion

3.1. Building Block 1: Digital Identity

The first building block towards the implementation of Tax Administration 3.0 according to the OECD is Digital Identity. The OECD (6) uses the term "digital identity" as a secure and unique taxpayer identity system as a starting point for modern tax administration, such as when reporting tax returns. Sullivan (9) defines digital identity broadly which consists of 2 sets of information, namely transaction identity (information that is static and obtained when someone registers) and a larger collection of more detailed "other information" such as transaction history that is continuously updated. Digital identity is related to 2 processes, there are authentication of identity (when registered for the first time through documents belonging to the taxpayer or other information such as signatures and biometrics) and verification of identity (done when a transaction takes place) (1). Both are obtained to ensure the security of a digital service.

Referring to the digital transformation maturity model developed by the OECD regarding digital identity (shown in the Figure ??), to reach the "established" phase, there are several characteristics that must be possessed by tax authorities in developing a tax administration system towards the implementation of Tax Administration 3.0. First, every taxpayer must have a specific digital identity with a Tax Identification Number (TIN). Then, with the digital identity, taxpayers can access various tax services. Furthermore, the use of two-factor authentication, which is to authenticate the identity of the taxpayer, is used in more than one way, either in the form of "something you know" such as passwords, "something you have" such as tokens, and "something you are" such as fingerprints and biometrics (6). Fourth, there is a legal framework as the basis for the use of digital identity that guarantees privacy and security aspects. Finally, piloting a national digital identity.

Regarding the digital identity, several efforts that have been and will be made by the DGT for the tax reform are reflected in the use of electronic certificates and Electronic Filing Identification Number (E-FIN). By the issuance of the Minister of Finance Regulation Number 63/PMK.03/2021, taxpayers are required to have an Electronic Certificate to be able to access the digital tax services. The latest regulation stipulates that in fulfilling their tax rights and obligations electronically, Taxpayers must use Electronic Signatures, both certified electronic signatures (made using Electronic Certificates issued by Electronic Certificate Operators) and non-certified electronic signatures (in the form of authorization codes issued by the DGT). Both electronic certificates and authorization

Description	Emerging	Progressing	Established	Leading	Aspirational
Digital Identity	Taxpayer registration function in place. Taxpayers identity themselves at the tax administration office. Passports and paper domestic ID documents are basic credentials.	Every taxpayer has a Tax Identification Number (TIN). Enrolment of first digital identities started to support e-filing. Authentication by means of passwords.	Every taxpayer has a tax administration specific digital identity related to its TIN. Digital taxpayer services and data can be unlocked by Digital Identity (DI) Piloting national DIs. Two-factor authentication in use. Legal framework in place	Tax administrations use national DIs (private and with some other parts of government) Digital Identity by Mobile devices. Delegation of authorization to representatives. Digital Identity is used to support public private exchange of information with e.g. platforms.	Whole of society Digital IDs Digital IDs support the identification of international taxpayers.

Figure 2: Digital Identity: The Journey to Tax Administration 3.0. (*Source: Statement of the Organization for Economic Co-operation and Development*).

codes function as authentication and verification tools in electronic transactions with the DGT. Previously, in addition to electronic certificates, the DGT already had an Electronic Filing Identification Number (E-FIN) as an identity number for Taxpayers who made Electronic Transactions with the DGT, such as reporting tax returns through e-filing and generating tax payment billing codes.

The electronic certificate and the E-FIN contain the identity of the Taxpayer that will be used firstly to conduct transactions with the DGT electronically. Secondly, with the digital identity, Taxpayers can access various tax services, such as billing code generation, tax returns reporting, and e-invoice creation, Moreover, the implementation of two-factor authentication in Electronic Certificates can be seen from the use of passwords and tokens that sent via email. Tax or OTP code will be sent via mobile phone messages to Taxpayers. Furthermore, as a legal protection for the use of electronic certificates nationally, the government has issued Government Regulation Number 19 of 2016 concerning Amendments to Regulation Number 11 of 2008 concerning Information and Electronic Transactions (IET) and Government Regulation Number 71 of 2019 Article 42 Paragraph (1) concerning the Operation of Electronic Systems and Transactions which states that the Operation of Electronic Transactions is required to use Electronic Certificates issued by the Indonesian Electronic Certification Operators. In the context of electronic tax services, the use of electronic certificates has been regulated in the Minister of Finance Regulation Number 63/PMK.03/2021 and the use of E-FIN is regulated in the Director General of Taxes Regulation Number PER-41/PJ/2015 as amended several times, most recently by Regulation Director General of Taxes Number PER-06/PJ/2019. Finally, for the piloting a national digital identity, it has now become a

national discourse with the launch of a single identity number (SIN) which is expected not only to be used by DGT but also to cover all government services.

The origin of the formation of a single national identity in the context of tax administration has been discussed long time ago, such as in the Constitution Number 20 of 2021 concerning the State Budget, which is an initiative to develop an integrated tax information and monitoring system. Several years later, Presidential Decree Number 72 of 2002 was passed which mandated the establishment of a National Data Bank and a Single Identity Number. These efforts began to find a way in 2019 with the launch of the electronic Identity Card (e-KTP) program. Two years earlier, coinciding with the closing of the tax amnesty on March 31 2017, the DGT launched an innovation in the form of "Kartu Indonesia 1" (Kartin1) which is an identity card that integrates several important identity data, including National Identity Card Number, Tax ID number, National Health Insurance data, and Driving License. However, the application of a single identity number in various sectors, both private and government, has not yet been realized. Different identities are still used to access government services, such as national identity card number, driving license, passport, national health insurance, Tax ID number, and others. Meanwhile, several countries have implemented the use of a single digital identity for their citizens to access government services electronically, for instance the e-ID in Estonia digital identity in Australia, National Digital Identity (NDI) in Singapore, and Aadhaar in India.

3.2. Building Block 2: Taxpayer Touch Points

The second building block towards the implementation of Tax Administration 3.0 according to the OECD is a "Taxpayer Touch points", as the medium for taxpayers to interact with tax authorities. The taxpayer touch points can be implemented through face-to-face interactions, phone calls, multifunction websites, e-services, and business management systems (10). Taxpayer touch points are very useful to resolve obstacles found in the field, such as if the taxpayer does not understand the application of a tax regulation, and it needs further clarification, taxpayer touch points can be the tools to solve it (10).

There are some steps that the tax authorities need to be in the "established" phase in the digital transformation maturity model for building block taxpayer touch points according to the OECD. The first step is to develop a website or a mobile application that provide electronic tax services (e-services) such as e-filing. Besides, the tax authorities still also need to provide face-to-face services for taxpayers who have less literate with the access to digital services. The second step is to develop an account that allows taxpayers to monitor their taxation conditions in real time which includes their payments

Description	Emerging	Progressing	Established	Leading	Aspirational
Taxpayer Touchpoints	The majority of taxpayer engagement is supported by paper documents to be presented at the tax office. Tax administration website publishes tax laws. Cash tax payment is broadly supported.	Electronic forms can be downloaded from the website. Some first online filling functions implemented. Call center in place. Payment via electronic banking applications.	The website offers a joined-up suite of e-services. Private and business taxpayers have a personal account to check status updates and conduct transactions. Digital PAYE-like systems implemented. Accessibility for disabled and (digitally) illiterate assured. Digital payments for all transactions and tax types available.	Full pro-active pre-filling for individuals and some business taxes. Taxpayer services like registration and debt management integrated within a whole of government approach. First touch point integration into digital platform functions. Settlements based on taxpayer account basis, balancing debts and contributions.	The majority of taxpayer touch points integrated in natural systems and whole of government services. AI-support integrated in touch point service provision. Real-time settlement option available for the majority of tax liabilities.

Figure 3: Taxpayer Touch points: The Journey to Tax Administration 3.0. (*Source: Statement of the Organization for Economic Co-operation and Development*).

and tax debts. The third step is the implementation of "digital PAYE-like systems" that allow tax obligations to be imposed when income is earned (pay as you earn) so that it can reduce or eliminate administrative burdens for taxpayers. The final step is the implementation of digital payments for all transactions and types of taxes so it will be useful not only for one type of tax but also for all types. In addition, the "established" phase can also be achieved by developing channels for taxpayers who need assistance either through call centers or web chat. All of the steps for being in the "established" phase for the digital transformation maturity model is shown in the Figure 3 below.

The plan initiated by DGT to develop taxpayer touch points is reflected in the campaign to strengthen tax services through the 3C program, namely Click, Call, and Counter. As one of the DGT's strategic plans for 2020-2024, DGT seeks to optimize the use of technology in providing services to taxpayers through 3C by prioritizing the development of the "Click" channel, which is an online automated tax service that can be accessed by taxpayers either through the website or mobile applications. When there are obstacles in fulfilling the tax rights and obligations that cannot be resolved online, the Taxpayer can use the "Call" channel via telephone line to the contact center fronted by the Information and Complaints Service Office (KLIP DGT). The last option is to go directly to the Tax Service Office to get tax services manually ("Counter").

The implementation of digital-based taxpayer touch points (e-services) in this phase is the result of a series of tax service migrations that were originally only carried out offline and document-based to online-based services. There are several tax services that can now be accessed online by taxpayers, including e-registration via

https://ereg.pajak.go.id, e-billing and e-filing via the https://djponline.pajak.go.id, and e-billing in the newly launched M-Tax application on July 14 2021 to coincide with the momentum of Tax Day. In the future, DGT targets to provide more online-based tax services, either through the website or mobile application and a call center that is supported by KLIP DGT as a back-end office. Thus, the 3C program has fulfilled one of the characteristics of the "established" phase according to the OECD in terms of taxpayer touch points, which is providing tax services electronically through the website and mobile application but still providing access for taxpayers who do not have adequate digital literacy.

The next prerequisite is the digital payment aspect, namely non-cash tax payments, such as debit cards, credit cards, ATMs, online transactions, and mobile phones (11). Currently, DGT is starting to expand the tax payment channel, which previously could only be done through Bank tellers and Post Offices, but now it can be done on various platforms including ATMs, mobile banking, internet banking, and several marketplaces. By the enactment of the Decrees of the Director General of Treasury Numbers KEP-170/PB/2019 and KEP-179/PB/2019, various types of state revenues can be paid through the tax payment feature on online shopping sites, including types of Income Tax Article 21, Article 23, Article 25, and Customs. The increasing number of digital payment channels is expected to improve DGT's performance in collecting revenues. This condition is in line with the results of Maherali's research (11) that financial inclusion and digital payments have a significant effect on tax revenues.

The personal taxpayer account feature that allows taxpayers to monitor their taxation conditions in real time, such as payments and tax debts, will be implemented through updates in the DGT information system (core tax system) which is expected to be fully implemented in 2024. Core Tax System that is still being designed, will digitize 21 main business processes at the Directorate General of Taxation, ranging from taxpayer registration, processing of tax returns and documents, tax payments, audits, supervision, data management, to law enforcement.

The next step that seems to require extra effort is the implementation of digital PAYE-like systems that allow tax obligations to be imposed when income is earned (pay as you earn). This requires extensive involvement of various third parties such as digital platform owners so that tax administration can be attached to taxpayers' natural system. The OECD (10) provides an example of the application of a digital PAYE-like system scheme, namely the collaboration between the Norwegian tax authorities and banks in the process of lending credit to taxpayers. Unlike in general where banks

request income documents from customers, the tax authorities in Norway provide data in the form of income reported by taxpayers in the annual tax return to banks to assess the creditworthiness of customers. Although it is not similar to the illustration provided by the OECD, the government has carried out a similar initiative to raise the level of formal taxpayer compliance through the Taxpayer Status Confirmation (TSC) scheme. The issuance of Presidential Instruction Number 7 of 2015 encourages Ministries/Institutions to confirm taxation data for people who need public services from these Ministries/Agencies.

3.3. Building Block 3: Data Management and Data Standards

The rapid growth of applications and cloud computing technology has significantly generated voluminous amount of data, which known as big data (12). This condition is an opportunity for tax authorities to be able to improve their performance through big data analytics, such as detecting tax avoidance (13). In addition to the potential of big data, there are challenges for tax authorities in managing those data so that it can be used optimally.

The trend of increasing data also occurs in the Indonesian tax administration system. DGT's intensive efforts to gain new taxpayers and to exchange data with various parties are certainly linearly proportional to the volume of data held by DGT. In 2021, DGT has already handled 11 million Annual Tax Returns from Taxpayers who already must report Annual tax returns. Through Government Regulation Number 31 of 2012 concerning Provision and Collection of Data and Information Related to Taxation, DGT has the authority to obtain 337 types of data and information that includes transaction data, identity data, licensing data, and non-transactional data from 69 agencies, institutions, associations, and other parties. In addition, the DGT has collaborated with 108 participating jurisdictions and 87 reporting destination jurisdictions in the context of the Automatic Exchange of Financial Account Information (AEoI). With the increasing number of data managed by the DGT, there is a potential for DGT to take the advantage from those big data to collect tax revenues.

The OECD recognizes the important role of big data today and in the future for tax authorities by establishing Data Management and Data Standards as a building block in the implementation of Tax Administration 3.0. The "established" phase is marked by a centralized database of all taxpayers that enables tax services and taxpayer-centric supervision policies. The characteristics needed in this phase are centrally placing taxpayer data that can be accessed across the tax administration such as for use in

Description	Emerging	Progressing	Established	Leading	Aspirational
Taxpayer data management	First implementations of digital databases. Partial tax type specific data models in place. Data managed within specific tax type systems. Manual synchronization between databases	Taxpayer data available in digital formats, in tax law specific systems. First integrated data (governance) models in place. Data sharing and re-use within tax administration. Third party data exchange implemented together with banks and domestic governmental bodies. Data security measurements implemented.	Taxpayer data available in digital customer databases. Data sharing and governance arrangements in place with relevant public and private stakeholders. Data privacy legal frameworks implemented. International public and private data exchange networks implemented.	Data quality and integrity defined and assured together with public stakeholders. Usage of global message and data standards and exchange infrastructure. Migration from scheduled bulk data exchange to granular, data sharing at time of transaction. Transparency mechanisms developed.	Data ownership and privacy assurance frameworks implemented and governed. High quality data available in real-time for tax administration processes; distributed (rules to the data) or centralized (data to the rules). Transparency and permission mechanisms nourish societal trust.

Figure 4: Data Management and Data Standards: The Journey to Tax Administration 3.0. (*Source: Statement of the Organization for Economic Co-operation and Development*).

data analytics purposes and the existence of a legal framework that regulates data privacy and security. Another thing that characterizes this phase is the increased use of third-party data in tax return pre-filing to the systematic data collection from third parties such as through e-invoicing and online cash register schemes as well as the availability of automatic data exchange in the international scope for risk assessment and compliance purposes. The data management and data standards explained by OECD are shown in the Figure 4 below.

The current tax reform focuses on information technology and database components as one of the pillars of tax reform, namely by structuring a reliable information technology and database system, supporting DGT's business processes, and producing accurate and reliable output. Before tax reform, DGT's data was not integrated into a single database and spread across various units, including the Center for Tax Analysis (CTA), the Directorate of Tax Information Technology (TIP), and the Directorate of Information and Communication Technology Transformation (ICTT) (14). As a part of the tax reform, through Regulation of the Minister of Finance Number 87/PMK.01/2019 a new echelon II unit was formed, namely the Directorate of Tax Data and Information which is expected to be the key for managing the database at DGT through the formulation of data governance policies, internal and external data management, data analysis and development of taxpayer compliance risk management, and data science(15). Thus, the data owned by the DGT can be integrated into a database which can be maximized to provide personalized tax services and supervisory policies with taxpayers (taxpayers-centric) through the use of big data analytics.

Another reason that drives the reform of the core tax administration system (coretax system) is the performance of the existing tax administration information system, namely SIDJP cannot accommodate the needs of DGT in carrying out a series of activities that will utilize the latest technology such as big data, artificial intelligence, and etc. Reported by InsideTax (14), one of the initiatives in the tax reform pillar for the information technology and database components is to utilize big data analytics in the core tax system reform project that is being designed. Big Data analytics will be used for several purposes, including predicting the results of tax disputes that are submitted to the Tax Court which can then provide input for the preparation of rules or procedures, provide services and supervise taxpayers, such as through Compliance Risk Management to assess taxpayer's compliance and to detect fraud.

To achieve the characteristics of an increase in third party data collection, the DGT will expand the prepopulated tax returns by using information obtained from third parties to be automatically included in the taxpayer's tax returns reporting data. In addition, DGT will develop an open system with application programming interface (API) technology to enable data to be obtained from third parties (14).

Regarding the tax data exchange activities, currently DGT has established cooperation in international data exchange through the implementation of Automatic Exchange of Information (AEoI). By the enactment of Law Number 9 of 2017 concerning Stipulation of Government Regulation instead of Law Number 1 of 2017 concerning Access to Financial Information for Tax Purposes, the DGT is obliged to cooperate in exchanging financial information in a systematic, periodic, and continuous manner from the source country to the country where the taxpayer resides. In addition, in the domestic scope, through Government Regulation Number 31 of 2012, the DGT can obtain transaction data, identity data, licensing data, and non-transactional data from agencies, institutions, associations, and other parties.

To ensure the privacy and security of the data, the DGT already has several internal regulations related to data and information governance policies, including the Decree of the Minister of Finance Number 350/KMK.01/2010 concerning Electronic Data Management Policies and Standards in the Ministry of Finance, Regulation of the Director General of Taxes Number PER-41/PJ/2010 concerning Information Security Management Policy of the Directorate General of Taxes, and Circular Letter of the Director General of Taxes Number SE-30/PJ/2019 concerning Policy on Governance of Data Access Authority within the Directorate General of Taxes. In addition, there is an information system security policy as regulated in the Circular Letter of the Minister of Finance

Number SE-19/MK.1/2018 and the Circular Letter of the Director General of Taxes Number SE-14/PJ/2017 in the form of implementing a join domain within the DGT environment. Through the join domain, all DGT computers will be connected in one domain. Thus, all forms of irregularities that can threaten the security of information systems and technology at DGT can be immediately detected and prevented.

3.4. Building Block 4: Tax Rule Management and Application

Under the ideal conditions to be achieved in Tax Administration 3.0 according to the OECD (10), tax authorities supply tax regulations and information needed to taxpayer's natural systems (such as systems that accommodate the principle of pay as you earn, e-invoicing, and online cash registers) and similarly, the system will send information regarding the implementation of the Taxpayer's tax rights and obligations directly to the tax authorities. Technically, this can be done by developing application programming interfaces (API) that allow tax authorities to send various tax provisions (such as rates, thresholds, etc.) and send information back from the taxpayer system to tax authorities. Of course, to achieve this condition, close cooperation is needed between the unit that makes tax regulations and the IT unit that develops applications used by taxpayers. The challenge here is how to maximize the flexibility and agility of tax administration, especially if there are frequent changes in tax provisions.

One example of the efforts that have been made by DGT can be seen from the application of e-invoicing. With the e-invoice application, Taxpayers will be able to fill out tax invoices according to the correct tax invoice filling provisions so that the application can process further and Taxpayers will be able to send tax invoice data directly to DGT through the validation and approval process of e-invoices. The current tax reform that leads to a technology-based system encourages DGT to re-implement a similar application by launching the "e-bupot" application for income tax article 23/26. Through the "e-bupot" application that can be accessed through the website owned by the DGT or other channels determined by the DGT, taxpayers can make proof of deduction in accordance with the provisions and can report directly to the DGT with the feature of making periodical tax returns for income tax Article 23/26. With the development of technology, there is an opportunity for DGT to be able to launch other technology-based administrative systems in the future, such as applications related to withholding income tax article 21 on salaries (payroll system) to systems that can withhold tax on natural taxpayer's system in order to apply the principle of "pay as you earn".

The OECD also encourages tax authorities to use artificial intelligence technology, such as in providing consultation to taxpayers to minimize tax uncertainty. The tax authorities in Spain have developed a Virtual Assistant tool for VAT which functions to provide consultation for taxpayers regarding VAT provisions in various transactions, such as in real-estate sales. Consultation is provided through the chat bot feature where taxpayers and the system can have conversations in the form of questions and answers to find tax provisions that are in accordance with the problems faced by taxpayers. The chat bot feature operates 24/7 so that it can provide responses that are in accordance with the tax regulatory framework directly to taxpayers.

One of the services that will be developed by the DGT is the 3C (Click-Call-Counter) service, namely by automatically expanding tax service channels through websites, mobile applications, or other services without the help of a tax officer (Click), tax services via telephone to contact center as a back office (Call), and manual taxation services through the Tax Service Office (Counter) (15). DGT also plans to use supporting technology that will be operated at the contact center, including virtual assistance to support consultations on frequently asked and repeated information and co-browsing to assist Taxpayers who need assistance related to applications and website services that are not well understood.

3.5. Building Block 5: New Skill Set

In Tax Administration 3.0, various business processes in tax administration will be carried out automatically and using Artificial Intelligence technology (10). Thus, human resources who have the ability to operate and develop administrative systems such as IT professionals, programmers, data scientists, behavioral scientists and strategists, will be in great demand (10). Even so, human resources who are experts in taxation will still be needed, especially either in formulating domestic and international tax provisions or in identifying and handling complex compliance issues.

The "established" phase in the new skills building block according to the OECD (10) has several characteristics, such as: (1) the mix of expertise possessed by tax authority apparatus resources focuses on improving the current tax administration performance which is based on compliance management, customer services, and internal process, (2) the use of data analytics expertise in compiling compliance risk management, some tax authorities have even begun to use behavioral scientists in certain issues, and (3) employee recruitment and training related to the development of e-services, including the development of mobile and web applications, robotic processes, and

artificial intelligence. Despite the increasing need for IT experts, the experience and understanding of existing staff on taxpayer behavior, compliance risks, and the impact of administrative burdens still plays a crucial role in the redesign of the administrative system.

In terms of human resources, it can be said that DGT has insufficient human resources in accordance with the tasks, functions, and needs of the organization (16). The ratio of the number of tax officers to the population in Indonesia is around 1:7.742 which can be said to be lower when compared to neighboring countries such as Malaysia of 1:3.229 and Singapore of 1:2.845. By the composition, the total number of DGT employees throughout Indonesia as data per September 2019 is 44,784 employees, which 85,85% are in structural positions and 14,05% are in functional positions (16). In addition, more than 50% of human resources were allocated to manually complete administrative work which had no significant effect on tax revenues and according to the IMF, around 80% of the total tax auditors conducted tax audits which were worth 20% of the extra audit effort (16).

The number of human resources that is not proportional to the number of taxpayers is one of the reasons the human resources component is one of the pillars in tax reform. One of the tasks of the tax reform team related to human resources policies is to formulate human resources needs planning. As stated in DGT's 2020-2024 strategic plan, in the 2020-2024 range, the projection of human resources needs at DGT will pay attention to technological developments and business processes in line with the core tax system implementation plan. The composition of functional employees will be improved through the establishment of functional positions to carry out DGT's main business processes, namely service, supervision, and law enforcement. This is in line with the characteristics mentioned in the maturity model formulated by the OECD, such as the composition of employees in the "established" phase is focused on those 3 areas.

The existence of obstacles in conducting supervision and law enforcement can be caused by the allocation of human resources that is not carried out efficiently and effectively. To deal with this, DGT has a strategic initiative to develop a risk-based compliance (risk management model). As support for CRM implementation, DGT issued Circular Letter Number SE-24/PJ/2019 concerning Implementation of Compliance Risk Management in Intensification, Supervision, Audit, and Collection Activities at the Directorate General of Taxation. With the data-based CRM, human resources in supervision and inspection can be allocated more effectively in accordance with the level of risk of taxpayer non-compliance.

DGT's human resources policy direction which refers to the DGT's Human Resource Management Blueprint, states that DGT has one strategic goal, namely to achieve competency development to produce competitive human resources. Taking into account the development of technology and business processes, especially with the implementation of the core tax system, DGT employees are accommodated to be able to develop their competencies through education and training programs in the fields of information systems, information technology, to data science as stated in the Decree of the Minister of Finance Number 982/KMK.01/ 2017 concerning the Competency Development Program for Civil Servants in the Ministry of Finance. By the training related to the IT field that will be needed, it is expected to increase employee skills in operating and developing administrative systems that are in accordance with the demands of technological developments and business processes.

3.6. Building Block 6: Governance Framework

An important factor in a transformation towards Tax Administration 3.0 is a cooperation between the public sector and the private sector, both with other government institutions and non-government institutions, employers' associations or taxpayer representative groups, to the international community (10). Reciprocally, in the agile governance concept proposed by Schwab and David (3), the involvement of various stakeholders can create policies that are inclusive and human-centered, sustainable and support checks and balances. One of the breakthroughs in the concept of agile governance includes collaboration with the business community in developing a new rule before it is widely applied (developtory sandboxes) and crowdsourcing-based policy formulation that allows the public to be directly involved through a digital platform in policy proposals to monitor the implementation of a rule.

One of the initiatives launched by DGT to increase community involvement is through the establishment of a tax information, education, and training center called the Tax Center. The establishment of a tax center is stated in an agreement between DGT and various universities or non-profit organizations in a number of regions in Indonesia. The synergy between the DGT and the Tax Center is expected to be able to realize educational activities, inclusion, socialization, tax research, and revitalization of the tax curriculum (17). Other initiatives that have been carried out by DGT in building collaboration with the business world include application service provider (ASP) companies which are currently engaged in providing tax application services (17). With the application

programming interface (API) technology used by ASP companies, DGT can receive Taxpayer tax data through the ASP company.

By the increasing need to involve various stakeholders, the OECD (10) emphasizes the existence of a legal framework that can ensure that cooperation between tax authorities and other parties can run well. The required legal framework includes rules related to data privacy, taxpayer rights, complaints mechanisms, consultative arrangements, and others that guarantee accountability. Thus, in addition to intensively seeking collaboration with various parties such as in terms of data exchange and so on, DGT is expected to pay more attention to the legal framework that can ensure cooperation with other parties can run well, such as in terms of data privacy and security.

Another characteristic in the building block governance framework that must be possessed in the transformation to Tax Administration 3.0 is cooperation with tax authorities in other countries through tax treaties in data exchange, avoidance of double taxation, and settlement of international tax disputes. Based on the publication on the DGT's official website, there are 67 tax treaties that apply between the DGT and the other countries tax authorities. In addition, DGT also participates in various international forums which are expected to provide a more comprehensive view for DGT in designing tax policies in Indonesia (15).

4. Conclusion

This study focuses to determine whether various initiatives in the context of tax reform that have been and will be carried out by the DGT are in line with the digital transformation maturity model framework proposed by the OECD (10) in order to achieve the implementation of Tax Administration 3.0. There are a number of characteristics that a tax authority needs to have in order to reach the "established" phase in each of the building blocks that form the foundation for Tax Administration 3.0. In general, a large number of characteristics in the "established" phase towards Tax Administration 3.0 have been carried out and designed by the DGT. However, some initiatives that require collaboration with other parties need to be of great concern and require extra effort.

In the first building blocks (digital identity), electronic certificates and EFIN used by DGT to authenticate for taxpayers in accessing tax services has already matched to the digital identity characteristics, such as being identical for each taxpayer, functioning as access for taxpayers in using tax services, using two-factor authentication (passwords and OTP codes), and having a regulatory framework (Regulation of the Minister of

Finance Number 63/PMK.03/2021 and Regulation of the Director General of Taxes Number PER-41/PJ/2015 as amended several times lastly by Regulation of the Director General of Taxes Number PER-06/PJ/2019). However, regarding the piloting of a national digital identity, there is a single identity number project that has been initiated since 2001 and has yet been materialized.

In developing the second building block (taxpayer touch points), DGT has designed and launched a number of initiatives that has matched to the characteristics of "established" phase through the Click, Call, Counter (3C) program, expansion of digital payment channels including collaboration with e-commerce platforms, and the design of the taxpayer account feature in the core tax system. However, there is one breakthrough that requires great attention regarding the implementation of the "pay as you earn" system, that is an administrative system that allows tax provisions to be applied simultaneously with the occurrence of taxable events.

Parallel to the characteristics of the industrial revolution 4.0 era where data plays a crucial role, in the third building block (data management and data standards), DGT has had a number of initiatives that have reached the "established" phase according to the OECD. By the establishment of the Directorate of Data and Information in 2019, taxpayer data has been stored centrally and can be used for data analytics purposes. Data privacy and security has also become DGT's concern with regulations to secure DGT's information assets. Other things that have been owned and are still being developed by the DGT are prepopulated Annual Tax Returns, data collection schemes through e-invoice applications, "e-bupot", and the automatic exchange of financial data that applies internationally through AEoI cooperation.

Tax Administration 3.0 focuses on a breakthrough where tax provisions can be part of the system used by taxpayers on a daily basis. In building the fourth building block (tax rule management and application), DGT has launched several applications that are expected to provide convenience for Taxpayers in fulfilling their tax rights and obligations according to the provisions and on the other hand can directly send their tax data to DGT, such as in the form of e-Invoice and e-bupot income tax Article 23/26. Considering the benefits obtained for tax administration in Indonesia, DGT is expected to develop similar applications such as e-bupot income tax Article 21/26. In addition, as reported by the 2019 Annual Report, DGT will also develop a virtual assistance feature in Click, Call, Counter services using artificial intelligence technology to provide 24/7 consultation to Taxpayers.

The human resources aspect is no less important in tax reform and also the transformation to Tax Administration 3.0. To reach the "established" phase in the new skills building block, DGT has established human resources policies that can support the implementation of the new core tax system, such as by increasing the composition of functional positions to carry out DGT's main business processes (service, supervision, and law enforcement). In addition, education and training in the fields of information systems, information technology, to data science have been accommodated in the employee competency development program. Providing training for all employees to operate the new core tax system is certainly very important to do, including skills in performing data analytics that will be needed.

Finally, regarding the building block governance framework, DGT is expected to increase the involvement of various stakeholders in running an agile tax administration system and ensure that there is an adequate legal framework to ensure that collaboration between DGT and various parties can run well.

This study has limitations related to research findings which are based on a limited literature review on tax reform. In addition, tax reform was still in progress at the time this research was conducted, so further research is needed when tax reform has been completed.

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