

Technology Architecture as an Instrument for Digital Taxation

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Abstract: Digital transformation fuels technological advancement and widespread public use of Internet networks, leading to a growth in digital platform users. This increase is highly likely to boost platform profits by obtaining more insights into user behavior. Additionally, digital platforms generate income through monetization. The purpose of this research is to examine the role and challenges of technology architecture as an instrument of digital tax imposition in Indonesia and to see further the digital tax arrangements in Indonesia and several countries in the world. This research uses a normative juridical approach by examining the norms or rules formulated in law without excluding empirical facts in the field. The results show that the imposition, implementation, and regulation of digital taxes have potential and challenges from various aspects. Their success will depend on the ability to overcome these challenges while maximizing the opportunities of technological architecture to increase digital taxes. Furthermore, to regulate digital tax itself, governments can update and integrate digital tax arrangements, as well as collaborate with other related parties regarding the arrangements or principles used for the imposition of digital tax.

Keywords: technology architecture; digital transformation; digital taxes



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1. Introduction

Convergent technological advances have brought changes to the way people consume and use multimedia technology devices. Changes that occur in various aspects of life, especially advances in technology and science that have developed rapidly, occur along with changes toward digital transformation (Ramli 2018, p. 27). In this interconnected global landscape, there will undoubtedly be potential implications that need to be anticipated and monitored (Ramli 2008, p. 2). A manifestation of technological advancement is the emergence of digital platforms. A platform serves as a foundation for creating applications, processes, or other technologies. A digital platform is a virtual environment that offers its users the means to engage, collaborate, conduct transactions, and access other digital service amenities.

The existence of digital platforms has had a profound influence on the daily lives of the majority of individuals. Through these platforms, people can engage in a variety of activities within a unified space and stay interconnected with one another (Cahyadi et al. 2022, p. 319). The services provided on digital platforms primarily entail the delivery of internet-based services that enable communication, data storage and retrieval, search engines, and financial transactions, as well as the provision of digital content in various formats including images, text, audio, music, videos, animation, movies, and combinations thereof. Moreover, entities responsible for offering, overseeing, and operating platforms that utilize digital media are often referred to as digital-platform service providers.

According to Indonesian regulations, digital platforms can be classified as electronic-system providers, which encompass individuals, government authorities, businesses, and communities that individually or collectively provide, manage, and/or operate electronic

systems to serve the requirements of electronic system users, whether for their purposes or on behalf of other parties.¹ An electronic system is a sequence of electronic devices and procedures designed to prepare, collect, process, analyze, store, display, announce, transmit, and/or disseminate electronic information.²

Active users and audiences within a digital platform are pivotal factors that influence the platform's income, as determined by its monetization model. Monetization is a specific framework that outlines the most effective approach for this type of platform to generate revenue and achieve a return on investment, enabling the platform to address questions related to the value it provides, pricing strategies, and potential revenue sources (Bornflight 2016, p. 6). Monetization, in essence, is the process of leveraging an app's user base and transforming user actions and engagement into sources of revenue.

It is known that YouTube's global advertising revenue in the third quarter of 2020 reached USD 5 billion, which is approximately equivalent to IDR 73.7 trillion. This amount represents a 30% increase compared to the same quarter in 2019 when it was USD 3.8 billion, roughly IDR 56 trillion (Alphabet 2020). Google has also disclosed the outcomes of the premium subscription program introduced on YouTube at the end of 2020. This initiative has garnered over 30 million subscribers on YouTube Premium, affording them the additional benefit of access to YouTube Music. During the same quarter, excluding YouTube, Google's advertising division generated revenue of USD 37 billion. Meanwhile, Facebook's worldwide revenue in the third quarter of 2020 rose by 22% on an annual basis, reaching USD 21.47 billion (Perwitasari 2020). It can be observed that Facebook's revenue has consistently grown from the fourth quarter of 2011 through to 2021 (Katadata 2021). The majority of Facebook's revenue is generated through advertising in the mobile sector, constituting 94% of Facebook's total revenue (Clinton 2019).

According to Google and Temasek's e-Conomy SEA 2021 report, Indonesia's digital economy is projected to reach USD 146 billion by 2025, having already attained USD 70 billion in 2021 (Google 2021). Indonesia's digital economy is outpacing the growth of six other Southeast Asian nations. One of the key drivers of this expansion is Indonesia's extensive geography and sizable population, which includes a substantial number of digital consumers. Given these circumstances, it is evident that digital platform companies stand as the primary beneficiaries of the ongoing global transformation in media and technology.

One of the central concerns that has garnered worldwide attention, in light of the aforementioned facts, pertains to taxation. The income generated by digital platforms within countries where their users are Indonesian citizens should constitute a contribution to the state's revenue. The extent of tax contributions to the Indonesian government serves as a compelling rationale for Indonesian authorities to formulate effective and efficient measures in implementing income tax regulations for platforms that utilize digital media for their business. These measures are anticipated to address the challenges associated with law enforcement in the era of digital economic transformation.

Another equally crucial aspect is the utilization of technology architecture for tax assessment. Given that in the present era, technology has become integral in various aspects of life, including trade, transportation, security, and the financial sector, the adoption of technology as a tool for digital tax assessment is an imperative that should be pursued. This is particularly vital in light of global competition and the sociocultural changes driven by digital transformation, which transcend geographical boundaries (Ramli and Safiranita 2022, p. 90). In light of this phenomenon, it is imperative to conduct a comprehensive assessment and analysis of the role and challenges associated with technology architecture as a tool for digital tax assessment in Indonesia. This analysis should also encompass

¹ Article 1 point 4 of Government Regulation Number 71 of 2019 concerning Electronic System and Transaction Operators jo. Article 1 point 5 of the Regulation of the Minister of Communication and Information of the Republic of Indonesia Number 5 of 2020 concerning Electronic System Operators in the Private Sphere.

² Article 1 point 1 of Government Regulation Number 71 of 2019 concerning Electronic System and Transaction Providers.

a comparative examination of digital tax frameworks in Indonesia and various other countries around the world.

2. Methods

This research is a legal study employing a normative juridical approach since the subject of examination is the norms or regulations established in law, with consideration for empirical facts within the field. Normative legal research often approaches the law as a discipline from a particular perspective (Soekanto and Mamudji 2001, p. 14). Normative legal research encompasses comparative legal research. In terms of its objective, this research falls under the category of problem-solving research (Soekanto 2008, p. 51). The comparative method is employed to gain an understanding of the regulations and implementation of digital taxes in various countries. Data collection techniques used in this research include a literature review and field study. To derive conclusions from the collected data, qualitative normative data analysis techniques will be utilized.

3. The Utilization of Technology Architecture in Digital Taxation

The utilization of technology architecture in the realm of digital taxation is frequently linked with the gathering and reporting of taxes on digital transactions, a pivotal facet of contemporary tax systems. This entails employing technology to streamline the identification, collection, and reporting of taxes on digital transactions and services. As defined by Bhuvan Unhelkar, technology architecture is a system that outlines the infrastructure necessary to support applications, operations, and reporting demands (Unhelkar 2011, p. 28). Moreover, according to Pavel Zemliansky, technology architecture serves as a framework for constructing organizations, encompassing networks, hardware, operating systems, database-management systems, and application-development standards (Zemliansky and Amant 2008, p. 25). Furthermore, as reported by The Open Group Architecture Framework (TOGAF), technology architecture is defined as (TOGAF 2009)

The logical software and hardware capabilities that are required to support the deployment of business, data, and application services. This includes IT infrastructure, middleware, networks, communications, processing, standards, etc.

Based on the aforementioned description, technology architecture can be construed as a blueprint and framework for designing and overseeing information-technology components within a system or organization. It encompasses all technical facets and design principles that establish the groundwork for technology solutions. The primary goal of technology architecture is to guarantee the seamless integration, efficient operation, and alignment with the organizational objectives of IT infrastructure and applications. The following are the key components of technology architecture:

1. Artificial Intelligence (AI) and Machine Learning (ML)

It serves as a vital foundation for deriving insights and making predictions based on intricate data analysis. Developing an up-to-date technology architecture necessitates the thorough integration of AI and ML components. This encompasses advanced data-processing platforms, intelligent algorithms, and the requisite infrastructure for training and deploying AI/ML models. By harmonizing these elements, organizations can fully harness artificial intelligence and machine learning to enhance outcomes derived from complex data.

2. Cloud Computing

The adoption of cloud computing services by organizations offers the capacity to access computing infrastructure and resources with exceptional flexibility and rapid responsiveness to specific requirements. Cloud computing also facilitates the resolution of challenges related to scaling capacity, expediting processes, and enhancing flexibility in the development and operation of digital solutions. It affords organizations the opportunity to dynamically adapt their IT resources.

3. Big Data Analytics and the Internet of Things (IoT)

In the contemporary era, organizations collect and analyze substantial volumes of data, often referred to as “big data”, to achieve their organizational objectives. To maintain competitiveness and access global markets, it is imperative to persistently pursue technological advancements (Safiranita et al. 2020). To facilitate this undertaking, the deployed technology architecture must encompass a range of components that enable the effective and efficient collection, storage, management, and analysis of data. This necessitates a sophisticated platform and appropriate tools capable of addressing the challenges associated with managing large volumes of data and conducting in-depth and precise analyses. By doing so, organizations can harness the full potential of their data, utilizing it as a valuable source of information for informed decision making.

Moreover, the Internet of Things (IoT) empowers physical objects to connect and interact with one another through networks. To realize this, a robust infrastructure and communication protocols, specially designed to facilitate the connectivity and data management of various IoT devices, are indispensable within the framework of the technology architecture. When physical objects are interconnected via IoT, this infrastructure assumes a critical role, allowing data from these devices to be collected, processed, and seamlessly shared. In essence, this technology architecture plays a pivotal role in providing the foundation that enables IoT to operate efficiently and effectively.

4. Security, Privacy, and Disaster Recovery

Security and privacy considerations hold paramount importance in the development of technology architecture. This mandates the incorporation of suitable security protocols, robust data encryption techniques, meticulous access control, and strict adherence to relevant data privacy-protection rules and regulations. In essence, the technology architecture must comprehensively integrate these components to safeguard user data and privacy in the ever-evolving digital landscape. This entails tangible actions such as implementing security measures, applying data encryption, vigilantly managing access, and adhering to applicable data privacy standards.

Disaster recovery planning is an indispensable measure in preparing an organization to counter the potential impact of unforeseen disasters or system failures. When such disasters or failures occur, the execution of a well-defined disaster recovery plan is pivotal in mitigating their consequences, ensuring uninterrupted operations, and safeguarding the organization’s data and assets. Therefore, the careful planning and design of a comprehensive disaster-recovery plan is a critical step in preserving business continuity and bolstering organizational resilience against a range of potential threats.

5. Scalability and Integration System

The design of technology architecture should consider flexibility and scalability to adapt to evolving organizational requirements. The ability to swiftly adapt and expand infrastructure and applications is crucial in facilitating organizational growth and transformation. Organizations often rely on multiple systems that must seamlessly interconnect to enable data exchange and synchronized operations. In the pursuit of synergy and efficient collaboration, organizations are confronted with the need to align and integrate the diverse technology platforms they utilize to meet their specific needs.

The utilization of technology architecture is not a novel concept within the government of Indonesia. As an innovative measure to modernize the government apparatus and support digital transformation in the public sector, the Indonesian government has embraced the electronic-based government system (SPBE), more commonly known as e-government. This program represents a governance approach that leverages information and communication technology (ICT) to provide services to a diverse range of stakeholders, including government agencies, civil servants, businesses, citizens, and others. Furthermore, the SPBE initiative aims to reduce costs, expedite processes, and mitigate the risk of corrupt practices in government services. Its implementation is geared toward en-

hancing operational efficiency, improving the quality of public services, and supporting organizational effectiveness.

Technology architecture assumes a pivotal role in aiding organizations in the attainment of their business objectives. By furnishing a robust framework, it ensures that an organization's information-technology infrastructure aligns with multifaceted operational requirements, upholds the requisite level of security, and fosters optimal performance. Additionally, technology architecture also plays a critical role in cultivating a shared understanding among technology team members and other stakeholders within the organization, guaranteeing a consistent vision of how technology can be harnessed to achieve overarching goals and address the challenges at hand. Thus, technology architecture is not merely a technical framework but also an indispensable instrument in enabling organizations to function optimally and realize their desired business outcomes.

Technology architecture can play a pivotal role as a tool for digital taxation. Firstly, in monitoring digital transactions, sophisticated technology architecture systems can be employed to track digital transactions, such as online sales of goods and services, enabling the government to gather tax-related data from digital businesses. Secondly, in business data collection, through technology architecture, the government can register digital businesses and identify entities that should comply with tax obligations. The system can pinpoint entities that are subject to taxation based on criteria such as size, turnover, or other parameters.

Thirdly, in automatic tax calculation, technology architecture can be utilized to automatically compute the amount of digital tax payable by businesses based on the collected data, ensuring precise and consistent tax calculations. Fourth, for tax reporting and compliance, technology architecture can facilitate seamless and timely digital-tax reporting. Businesses can upload their tax data to the system, which will calculate the amount of tax payable and report it to the government. Finally, in digital audits, technology architecture enables the government to conduct digital audits of digital businesses, aiding in the detection of potential violations and tax evasion.

Sixth, data security is paramount in the context of digital taxation. The technology architecture must be meticulously designed to safeguard tax data and other sensitive information against digital security threats. Seventh, system integration is crucial. Technology architecture must facilitate integration with existing tax systems, ensuring that data can be synchronized with government tax systems. Eighth, efficiency is a key advantage. The utilization of technology architecture in digital taxation can streamline the process of tax collection and reporting, benefiting both tax authorities and taxpayers. Lastly, tracking regulatory changes is essential. The government can employ technology systems to monitor and manage changes in digital tax regulations, ensuring that digital businesses remain compliant with the prevailing regulations, especially those about digital taxes.

Based on the description provided above, it is evident that the use of technology architecture can offer advantages in the realm of digital taxation. However, alongside the benefits and opportunities derived from the use of technological architecture in digital taxation, some challenges must be addressed by both the government and other relevant parties in its implementation:

First, Complexity: Implementing a digital tax technology architecture can be quite intricate, involving integration with various systems and data sources. Second, Personal Data and Security: Safeguarding sensitive taxpayer data is of utmost importance. Data breaches can have serious consequences under applicable regulations, and compliance with data protection regulations is essential.

Third, Regulatory Changes: Tax-related rules, regulations, and requirements can change frequently, necessitating adaptable and flexible technology systems. Fourth, Adoption by Taxpayers: Taxpayers may encounter difficulties in adopting new digital tax systems, requiring adequate education and support for smooth implementation. Fifth, Cost: Implementing and maintaining technology architecture for digital tax can be expensive, encompassing system development, human-resource training, ongoing maintenance, and more.

Sixth, Data Accuracy: Ensuring the accuracy of data collected from various sources can be a challenge, as errors can lead to incorrect tax assessments. Seventh, Cybersecurity Risks: Tax systems are attractive targets for cyberattacks, necessitating robust cybersecurity measures to protect taxpayer data and government revenues. Additionally, as digital tax systems become more sophisticated, unscrupulous tax evaders adapt, requiring constant vigilance and technological upgrades.

Eighth, The Digital Divide: Not all businesses and individuals have equal access to digital technology. Addressing the digital divide through technological infrastructure is crucial to ensuring fair and equitable access to the digital tax system. Finally, International Cooperation: Digital transactions often cross international borders, necessitating cooperation and coordination among tax authorities from different countries.

The utilization of technology for digital tax implementation requires collaboration between the government, particularly tax agencies, technology experts, and parties with tax obligations. The design of the technology architecture must adhere to the digital tax laws in force in Indonesia, delivering an effective and efficient process for tax collection and reporting in the rapidly expanding digital economy era.

In this endeavor, the tax authorities should exercise close cooperation with technology experts to ensure that the systems built meet all the requirements imposed in the digital tax regulations. There is a need to design adequate tools and protocols that enable the accurate and efficient collection of digital transaction data. On the taxpayer side, using the system should be easy to understand and access. The availability of a simple interface and clear guidance is essential to enable taxpayers to seamlessly report their taxes. In this regard, education and technical support for taxpayers should also be considered.

The application of digital tax technology should be continuously updated and optimized by regulatory changes and technological developments. Data security and privacy protection are key aspects that should be considered in the architecture of these technologies to protect sensitive information and maintain stakeholder trust. By conducting effective collaboration between tax authorities, technology experts, and taxpayers, the technology architecture for digital tax can provide significant benefits in dealing with the dynamics of the digital economy and ensuring efficient and accurate tax collection.

4. Digital Tax Regulations in Indonesia and Best Practices of Several Countries in the World

Currently, taxes are the mainstay of the state along with the increasing role of the state in the world political economy. This is in line with the increasingly limited natural resources that can be managed by the government to contribute to state revenue. Tax collection has become an essential function, which is necessary for the continuation and survival of the state. In Indonesia, this condition has been visible in the last few years. Since 2016, the contribution of tax revenue to the state has been more than 70% and the contribution of income tax revenue to tax revenue is more than 45% every year.

With the large contribution of income tax to the state budget, the government of Indonesia needs to be able to optimize income tax revenues, especially from those in the technology sector such as over-the-top (OTT) companies. The imposition of tax on OTTs, apart from having an impact on healthy competition between conventional media and OTT companies, can also contribute to state revenue, especially from the income tax sector on revenue earned by OTTs from market countries whose users are Indonesian citizens (Cahyadi *et al.* 2023, p. 319).

To facilitate regulatory understanding, the following are some of the regulations that are directly or indirectly related to digital tax in Indonesia:

1. Law Number 7 of 2021 regarding Harmonization of Tax Regulations (hereinafter referred to as Law 7/2021)

This regulation establishes a comprehensive legal framework concerning global tax matters. The provisions encompass various aspects, including the global-tax-collection-assistance arrangement outlined in Article 20A, the Mutual Agreement Procedure (MAP)

arrangement detailed in Article 27C, the tax-avoidance-prevention-instrument arrangement specified in Article 18, and the global-taxation-consensus arrangement articulated in Article 32A. Provisions directly related to the imposition of income tax for OTT services include those concerning the global taxation consensus. This specifically pertains to preparations for the implementation of the G-20/OECD international agreement on the application of global minimum corporate income tax rates (GloBE) and taxes on digital transactions. These provisions are strategically designed to anticipate the impacts of GloBE implementation on the utilization of tax incentives, such as tax holidays and super deductions, availed by multinational taxpayers. Additionally, they aim to facilitate the implementation of other agreements, such as BEPS.

The government of Indonesia is endowed with the authority to establish and/or execute agreements and/or treaties in the field of taxation with partner countries or jurisdictions, whether through bilateral or multilateral legal instruments. These agreements and treaties, operating under specific legal provisions (*lex specialis*), encompass various aspects, including the avoidance of double taxation, the prevention of tax evasion, counteraction against tax-base erosion and profit shifting, the exchange of tax information, tax-collection assistance, and other forms of tax cooperation. The aforementioned taxation agreements and treaties adhere to a specific format and nomenclature in the field of taxation and are about laws that were in force before, during, or after the enactment of the Taxation Regulation Harmonization Law.

2. Law Number 2 of 2020 on the Stipulation of Government Regulation in place of Law Number 1 of 2020 on the State Financial Policy and Financial System Stability for Handling the 2019 Corona Virus Disease Pandemic (COVID-19) and/or in the Context of Facing Threats that Endanger the National Economy and/or Financial System Stability into Law (hereinafter referred to as Law 2/2020)

The ensuing regulation pertains to digital taxation, primarily addressing state financial policies aimed at mitigating threats to Indonesia's national economy in response to the COVID-19 pandemic. This law encompasses provisions related to income tax, with a specific focus on income tax derived from activities conducted through electronic-systems trading, referred to as PMSE (trading-through-electronic-systems organizers are referred to as PPMSEs).

Under Law 2/2020, income-tax obligations in e-commerce activities come into effect when foreign taxpayers and/or PPMSEs meet the criteria for significant economic presence. Overseas traders, service providers, and/or PPMSEs that fulfill the criteria may be classified as business units in taxation (BUT) and are thereby subject to income tax. The criteria for significant economic presence include (1) a consolidated gross turnover of the business group exceeding a certain threshold; (2) sales in Indonesia exceeding a certain threshold; and/or (3) a specified number of active users of digital media in Indonesia. It is noteworthy that Law Number 2 of 2020 specifies that the rates, tax basis, and calculation procedures for income tax are governed by government regulations.

In instances where the establishment of BUT for PMSE and/or PPMSE business entities cannot be executed due to the implementation of tax agreements between Indonesia and other countries, PMSE and/or PPMSE business entities meeting the significant-economic-presence criteria will be subject to electronic-transaction tax. This tax is imposed on sales transactions of goods and/or services from outside Indonesia, conducted through PMSE, to buyers or users in Indonesia, whether directly or via foreign PPMSEs. Overseas foreign traders, service providers, and/or PPMSEs are responsible for paying and reporting income tax and electronic-transaction tax. They may appoint representatives domiciled in Indonesia to fulfill their obligations in terms of income tax or electronic-transaction tax. Detailed provisions regarding tax rates, tax basis, and calculation procedures for both income tax and electronic-transaction tax will be further specified in government regulations.

3. Law Number 19 of 2016 on the Amendment to Law Number 11 of 2008 on Electronic Information and Transactions (hereinafter referred to as the ITE Law)

The ITE Law is structured into two principal sections: the regulation of information and electronic transactions, and the regulation of prohibited acts (cybercrime). Its provisions cover a wide range of areas, including electronic transactions, electronic evidence, privacy, jurisdiction, intellectual property, and criminal offenses that are frequently encountered in practice and may present challenges in prediction. Article 2 of the ITE Law explicitly upholds the principle of extraterritorial jurisdiction.

This law applies to any individual engaging in a legal act as defined by its provisions, irrespective of whether they are within the jurisdiction of Indonesia or beyond, provided that their actions have legal consequences within Indonesia and/or outside Indonesia, negatively impacting Indonesia's interests. The definition of actions harming Indonesia's interests encompasses a broad spectrum, including but not limited to, causing damage to national economic interests, safeguarding strategic data, upholding national dignity, ensuring national defense and security, protecting state sovereignty, and safeguarding the rights of citizens and Indonesian legal entities.

Article 2 of the ITE Law not only reiterates the principles of territoriality, indicating its application to individuals conducting legal acts within Indonesian territory but also extends the reach of the extraterritorial principle outlined in the Criminal Code. This extension encompasses the protection of national interests as specified by the ITE Law. Consequently, legal acts committed by both Indonesian citizens and foreigners, whether within or outside Indonesian territory or by Indonesian legal entities and foreign legal entities, provided that they have legal repercussions within Indonesia, may be subject to the provisions of the ITE Law.

4. Government Regulation Number 71 of 2019 regarding Electronic Systems and Transaction Operators (hereinafter referred to as PP PSTE)

This regulation serves as one of the implementing directives of the ITE Law, encompassing stipulations pertinent to electronic-system organizers, which include digital platforms, networking services, social media, and search-engine services. According to the PP PSTE, providers of electronic systems are obligated to ensure that the information and electronic documents they contain and disseminate adhere to the provisions of Indonesian law. Additionally, electronic-system providers must secure a license from the Minister of Communication and Information of the Republic of Indonesia to operate within the territory of Indonesia. Noncompliance with these provisions may lead to administrative sanctions, manifesting as written warnings, administrative fines, temporary suspension, access termination, and/or removal from the list of electronic-system operators.

5. Government Regulation No. 80/2019 on Trading Through Electronic Systems (hereinafter referred to as PP PMSE)

This regulation pertains to PMSE (trading through electronic systems) and trading-through-electronic-systems organizers, hereinafter referred to as PPMSEs. Article 8 stipulates that tax provisions and mechanisms for PMSE business activities must comply with prevailing laws and regulations. PMSE, as defined in the PMSE Regulation, involves trading conducted through a series of electronic devices and procedures. A PMSE business actor refers to any individual or business entity, whether in the form of a legal entity or nonlegal entity, including domestic and foreign business actors engaged in PMSE activities. Domestic business actors include Indonesian citizens or business entities established and domiciled within Indonesia, encompassing domestic traders, PMSE operators, and domestic intermediary facility operators. In contrast, foreign business actors consist of foreign citizens or business entities established and domiciled outside Indonesia but conducting PMSE activities within the country.

The PMSE Regulation includes an article addressing the obligation of foreign business actors to appoint representatives residing in Indonesia, who can act on behalf of the respective business actor. This implies that foreign business actors are mandated to establish a business unit for taxation (BUT) in Indonesia, with tax provisions and mechanisms applied following the provisions of laws and regulations. Foreign business actors that

must establish a BUT in Indonesia meet specific criteria, including transaction quantity, transaction value, number of delivery packages, and/or the amount/number of traffic or accessors. Such actors are considered to have a physical presence in Indonesia and engage in permanent business activities within the jurisdiction of the State of Indonesia.

The PP PMSE also outlines sanctions for foreign PPMSEs that meet the criteria described above but fail to appoint representatives domiciled in the jurisdiction of the State of Indonesia. The sanctions include administrative penalties imposed by the Minister of Trade. Administrative sanctions consist of written warnings, with a maximum of three warnings given within two weeks from the date of the previous warning letter. Subsequently, if the business actor does not address the issues following the third written warning letter, they may be placed on the supervision-priority list. Additionally, other administrative sanctions may include being blacklisted, temporary blocking of domestic PPMSE services and/or overseas PPMSE services by relevant authorized agencies, and/or the revocation of business licenses. These provisions under the PP PMSE have been in effect since November 2019, and PMSE business actors who conducted trading activities in goods and/or services before the enactment of this regulation are required to make necessary adjustments within a maximum period of two years from the regulation's enforcement.

6. Government Regulation Number 55 of 2022 on the Adjustment of Regulations in the Income Tax Sector

This regulation constitutes one of the implementing directives of the Tax Regulation Harmonization Act. Under this regulation, the Directorate General of Taxes is designated as the authorized institution for the execution of provisions outlined in taxation agreements or accords with the tax authorities of partner countries or jurisdictions. As a result of a digital-tax treaty or agreement between Indonesia and other nations, multinational companies meeting the criteria specified in the treaty are deemed to satisfy both subjective and objective tax obligations, subjecting them to taxation in Indonesia. Provisions related to taxation arising from economic digitalization based on the agreement or accord will be expounded upon in the forthcoming Regulation of the Minister of Finance of the Republic of Indonesia. This regulation is currently being developed to facilitate the endorsement of the Multilateral Instrument by jurisdictions aligning with the global consensus in 2022. The concrete implementation of the global consensus will subsequently be delineated in government regulations or directives issued by the Minister of Finance in 2023.

7. Minister of Communication and Informatics Regulation Number 10 of 2021 concerning Amendments to the Minister of Communication and Informatics Regulation Number 5 of 2020 concerning Private Scope Electronic System Operators (hereinafter referred to as Permenkominfo Number 10 of 2021).

The Indonesian government mandates that all electronic system providers undergo registration before their utilization by users in Indonesia. The registration process is directed to the Minister of Communication and Information of the Republic of Indonesia through a licensing mechanism. Private-scope electronic-system providers obligated to register encompass those established under the laws of other countries or those permanently domiciled in other countries but rendering services within the territory of Indonesia, engaging in business activities in Indonesia, and/or offering electronic systems for use within the territory of Indonesia.

Electronic system providers meeting these criteria must proceed with registration, and failure to comply can result in administrative sanctions imposed by the Minister of Communication and Information of the Republic of Indonesia, such as the termination of access to electronic systems (access blocking). Permenkominfo Number 10 of 2021 additionally addresses the governance and moderation of electronic information or documents, requests for the termination of access to prohibited information or documents, and the provision of access to personal data for law-enforcement supervision.

8. Regulation of the Minister of Finance of the Republic of Indonesia Number PMK-35/PMK.03/2019 on Permanent Establishment Determination (hereinafter referred to as the Minister of Finance Regulation on Permanent Establishment Determination)

This regulation, issued and effective on 1 April 2019, serves the purpose of establishing legal certainty for foreign tax subjects engaged in business or activities through a business and utilization of taxation (BUT) in Indonesia. The referenced business activities encompass all endeavors conducted to generate, collect, or maintain income in Indonesia. Under this regulation, every foreign individual and entity operating a business in Indonesia through a BUT is obligated to obtain a Taxpayer Identification Number called NPWP within a maximum period of one month after commencing business activities. In cases where foreign individuals and entities fail to register, the NPWP may be issued ex officio by the Director General of Taxes.

Furthermore, this regulation reiterates the definition and criteria for a BUT. A BUT is a type of business in Indonesia utilized by individuals and/or foreign entities, with the specific criterion that the place of business used for conducting the business is permanent. The place of business encompasses the physical space, facilities, or installations, including machinery or equipment employed in business activities in Indonesia. The concept of a permanent place of business implies a location continuously used for business purposes within a specific geographical area.

The regulation also elucidates the criteria for businesses that automatically qualify as BUTs, even if they do not meet the criteria for a permanent place of business or have limited accessibility. Additionally, there are exceptions related to P3B (business cooperation agreements between Indonesia and other countries). Foreign individuals or entities engaged in business activities that are preparatory or auxiliary, designed to facilitate essential and significant activities, are exempt from the BUT criteria, even if the place of business is permanent and offers full access.

Although Indonesia has a set of regulations that support the imposition of income tax for digital-platform companies, until now, a set of Indonesian tax-law instruments has not been implemented optimally so it has not been able to reach income tax for the digital-platform company. One of the considerations for not enacting the provisions on DST in Indonesia is related to political aspects, namely, the issue of retaliation or revenge, as happened between the United States and the European Union countries. Countries that take unilateral actions to set income tax for digital platforms face a lot of trade retaliation with the United States.

The enactment of Law Number 2 of 2020 also received attention from the United States. Through the United States Trade Representative (USTR), the United States conducted an investigation related to the taxation scheme on digital transactions prepared by Indonesia even though it has not been fully implemented. There are three points listed in Section 301 Investigations Status Update on Digital Service Tax Investigations of Brazil, the Czech Republic, the European Union, and Indonesia, namely, first, the United States considers Indonesia's digital taxation scheme discriminatory because it only applies to electronic commerce conducted by nonresident tax subjects ([Office of the United States Trade Representative Executive Office of the President 2021](#), p. 10).

The specific tax is considered to target US companies, and this method is considered to discriminate against US companies. Second, the United States considers that the digital tax regulated by Indonesia is inconsistent with international taxation principles, especially income tax and electronic-transaction tax ([Office of the United States Trade Representative Executive Office of the President 2021](#), p. 10). The international taxation principles referred to by USTR are the principles regarding BUT and the risk of double taxation. Third, USTR is concerned that Indonesia's digital tax restricts US trade through the creation of additional tax burdens that force US companies to incur greater costs to comply with Indonesian tax rules and the imposition of double taxation on US corporations. USTR also continues to monitor the progress of the measures to be implemented by Indonesia. USTR has also sent a letter to the Minister of Finance of the Republic of Indonesia regarding the investigation.

Based on these conditions, the author considers that efforts need to be made to minimize the negative impact.

Besides Indonesia, several countries in the world have also issued regulations to impose income tax for OTTs, which is commonly referred to as digital-services tax (hereinafter referred to as DST), withholding tax, or digital permanent establishment (PE) (Sukardi and Jiaqian 2020). Therefore, to understand how countries around the world work to regulate taxes on the activities of digital-platform companies, here are the highlight provisions:

1. India

India was the first country to introduce a digital tax called an equalization levy (advertising-type tax, hereafter EL 1.0) in 2016 at a rate of 6%. EL 1.0 is levied on business-to-business (B2B) payments for online advertising, i.e., when an Indian-resident advertiser, inclusive of a nonresident's permanent establishment, effectuates payments to a nonresident Indian supplier for online advertising, the provision of digital-advertising space, or other services or facilities facilitating online advertising, Equalization Levy 1.0 (EL 1.0) generally becomes applicable. EL 1.0, operational since 1 June 2016, is broadly applicable to all digital-advertising services, although uncertainties persist regarding the precise scope of services subject to taxation.

The imposition of the equalization levy is executed through a withholding mechanism, mandating Indian advertisers to deduct and remit the tax at regular intervals. In this manner, the government of India effectively enforces compliance through Indian advertisers. As the party responsible for tax withholding, Indian advertisers bear the responsibility for potential under-withheld taxes, leading them to adopt a conservative stance when determining whether payments are subject to withholding or not (Osborn et al. 2020). On 1 April 2020, the scope of the equalization levy was expanded to include a 2% levy on all online sales of goods and services to India by nonresident e-commerce operators (hereinafter EL 2.0) (Goradia 2020).

2. Malaysia

Since 13 May 2019, the Malaysian government has implemented a variable withholding tax (WHT) rate. Generally, income tax is imposed on the earnings of any individual entering or originating in Malaysia. Income associated with electronic transactions will be considered as originating from Malaysia if it is attributable to any activity within the country, irrespective of whether the income is physically received by Malaysia.

3. Uruguay

In September 2017, the Uruguayan government enacted Law No. 19535, mandating the payment of income tax by foreign online companies when their customers are within Uruguayan territory, effective 1 January 2018. The legislation categorizes digital services into two distinct types: Type A, encompassing companies engaged in international activities such as the production, distribution, and intermediation of cinematographic films, as well as other audiovisual transmissions (e.g., Netflix or Spotify) (Limbatto 2020); and Type B, referring to companies that mediate or act as intermediaries through computerized means, such as Airbnb or Uber.

Both types of companies are subject to nonresidents income tax (Impuesto a las Rentas de los No Residentes or IRNR). Type A entities are taxed at 100% of their sales and are liable for income tax at a rate of 12%, while Type B entities face a tax of 50% of sales if the intermediary supplier or consumer is abroad, with an associated rate of 6%. Failure to establish a permanent establishment (BUT) renders the digital company subject to corporate income tax (Impuesto a las Rentas de las Actividades Economicas or IREA) at a rate of 25% (Ramírez 2018).

4. United Kingdom

The United Kingdom's DST was implemented on 1 April 2020. This tax constitutes a 2% levy on income generated from social media platforms, online marketplaces, search engines, and affiliated advertising enterprises. Online advertising services falling under the

purview of DST encompass those that facilitate online advertising and realize substantial advantages from their association with social media services, search engines, or online marketplaces. Notably, financial service providers are excluded from this definition. The UK DST is specifically designed for major enterprises operating in the digital realm, targeting businesses with revenues exceeding GBP 500 million, of which at least GBP 25 million is derived from users in the United Kingdom ([United Kingdom Government 2020](#)).

5. France

The French Parliament, on 11 July 2019, became the inaugural EU member state to enact a digital services tax (DST). Referred to as the French GAFA tax, it primarily targets United States companies, specifically Google, Apple, Facebook, and Amazon (GAFA companies), extending its reach to international companies from France, China, Germany, Spain, and the UK ([Dorin 2021](#)). France's DST applies to services provided in France, which are determined by the use of a terminal (computer, telephone) located in France. The determination of the terminal is made based on the IP address, physical address, Wi-Fi connection, or GPS coordinates of the user (subject to the limitations of the General Data Protection Regulation) ([Osborn et al. 2020](#)).

In 2020, France's DST contributed EUR 375 million to state revenue, with an anticipated increase to EUR 518 million in 2022. The French DST applies a 3% rate on revenue derived from specific services delivered through digital means, wherein the user's contribution equates to value creation. It encompasses all companies, irrespective of tax domicile, with global revenues from taxable services exceeding EUR 750 million and French revenues surpassing EUR 25 million. The revenue assessment is conducted on a consolidated and group basis, amalgamating the revenues of related entities if specific ownership criteria are met ([Polacco et al. 2021](#)). Tax liability under the French DST is computed based on income (excluding value-added tax) stemming from payments for taxable services in France.

6. Italia

On 15 October 2019, the Italian Government, following the precedent set by France, implemented a digital services tax (DST), effective 1 January 2020. Italy's DST rate stands at 3%, calculated based on the revenue generated each quarter ([Polacco and De Carne 2021](#)). The regulatory framework for the Italian DST is delineated in Article 1, paragraphs 35 to 50 of Law 145 of 2018, as amended by Article 1, paragraph 678 of Law 160 of 2019, and supplemented by technical provisions issued by the Italian Revenue Agency in January 2021. The Italian DST applies to both foreign and Italian companies, either individually or as a part of groups, meeting the following criteria: (1) total worldwide recorded revenue equal to or exceeding EUR 750 million and (2) total revenue from Italian domestic digital services equal to or exceeding EUR 5.5 million ([EY Global 2020](#)). Revenues subject to DST encompass those derived from advertising, intermediation and marketplace services, and data transmission ([Scampuddu 2020](#)).

The above countries have already implemented their digital-tax provisions for digital-platform companies, which is an effort by the domestic government to uphold its country's taxation sovereignty. The actions of these countries can be a guide for countries that want to implement their taxes for digital-platform companies. Basically, every country has the freedom to design and implement its tax system, based on its sovereignty. State sovereignty is the absolute authority of the state to exercise its state power without being interfered with by other states; the nature of state sovereignty extends to cover its territory on land, sea, air, and under the ground ([Alexander et al. 2021](#), p. 94). The limit of a state's sovereignty is the sovereignty of other states, through national law, and is also limited by international law ([Yudha 1999](#), p. 47). Therefore, the actions taken by countries in determining digital-taxation regulations, as has been done by India, Malaysia, Uruguay, the UK, France, and Italy, is a way or manifestation of the authority and sovereignty of the country to regulate its tax-collection issues in a law.

5. Conclusions

Based on the analysis of the problem identification provided, it can be concluded that sophisticated technology architecture can greatly enhance the government's ability to efficiently collect and manage digital tax data. This approach is effective in minimizing the potential for tax evasion and ensuring that digital businesses comply with their tax obligations. Additionally, it streamlines the process of digital tax payment and reporting. However, it does introduce challenges related to complexity, data privacy, regulatory changes, and cybersecurity. The successful utilization of technology architecture as a tool for digital taxation hinges on the ability to overcome these challenges while capitalizing on the opportunities it offers to boost digital tax revenues.

Current regulations, particularly in income tax law, do not encompass OTT business models because existing provisions solely pertain to electronic commerce organizers and activities. Consequently, amendments to the income tax law are imperative to encompass digital activities for OTTs and regulate electronic transaction tax. In addition, the other challenge for the Indonesian government in implementing the income tax law to reach OTT businesses is related to political aspects, namely, the issue of retaliation as happened between the United States and European Union countries. Therefore, the Indonesian government needs to take strategic steps as India, Malaysia, Uruguay, the UK, France, and Italy have done to develop and implement an effective international tax system within their jurisdictions to win the global tax competition.

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