

Digitalization of Local Government in the Decentralized Era: An Insight of the Stage of e-Government across Provinces in Indonesia

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Abstract: In the recent digital era, the development of Information, Communication and Technology (ICT) have been influencing and transforming the corporate governance of organizations in both the private sector and public sector. In the public sector or government organizations, the use of ICT is seen to improve performance and efficiency, particularly in the public service delivery. The implementation of decentralization in Indonesia is seen to encourage local governments to be more innovative in running the government, among other innovations in the form of innovation using ICT, in the narrow definition is defined as e-Government. An exploratory approach is undertaken to examine the implementation of e-government by the provincial governments across Indonesia. As this study is an exploratory in nature, a literature review using a desktop and library research approach is conducted to analyse a set of secondary literature on e-government. Four stages of e-government maturity models have also been used to examine the e-government portals of 34 provincial governments in Indonesia. This study found that most of the provincial government have offered some form of e-government services. The vast majority of these government websites are categorized are in initial transactional stage with only a few provinces have reached a fully transactional stage.

1 INTRODUCTION

The Indonesian government has been implementing government decentralization ever since passing two laws on decentralization, namely Law No. 22/1999 on Local Government and Law No. 25/1999 on Balanced Central and Local Financing. These laws have served as the foundation for the divestment of government authority and administrative accountability from the central government to the various local governments. With these laws, local governments have received a mandate to handle public administration and public services. Under this decentralized system of government, local governments have been given the responsibility of administering their own areas. One effect of Indonesia's decentralization policy has been the provision of more space for its local governments to manage development and administer government at the local level. Many local governments have used this opportunity to pass innovative regulations that are suited to their local conditions.

Given this situation, e-government may offer local governments a new strategy to effectively and efficiently fulfil its mandate. In the spirit of

decentralization, local governments have used this law as the basis for implementing e-government within their borders.

The implementation of e-government in Indonesia began with the passage of Presidential Instruction No. 6/2001 on Telecommunications, Media, and Information, which stipulated that all government agencies must use information technology and media to provide good governance. Two years later, the Indonesian government passed Presidential Instruction No. 3/2003 on National E-Government Development Planning and Strategy, which provides a legal guideline for developing e-government in Indonesia, including at the local level. The central government, in Presidential Instruction No. 3/2003 on the National E-Government Development Planning and Strategy, has enconced its hopes that both central and local governments can implement e-government. This instruction sets six strategic goals for e-government: (1) developing a reliable and trusted service system that can be accessed by the general public; (2) holistically organizing the administrative systems and processes of the central and local governments; (3) optimally utilizing information technology; (4) increasing the

involvement of the business sector and developing the telecommunications and information technology sector; (5) building the human resource capacity of Indonesia's government and local governments, as well as increasing the e-literacy of society; and (6) implementing systematic development in realistic and measured stages. Other regulations include Local Bylaw No. 6/2015 on Information Technology-Based Government and Openness, Indonesian Government Regulation No. 82/2012 on the Implementation of Electronic Systems and Transactions, and Law No. 14/2008 on Open Public Information.

2 THEORETICAL BACKGROUND

2.1 e-Government Definitions

e-Government includes (1) internet-based (online) services or other internet-based activities; (2) the use of information and communications technology (ICT) in all aspects of government and governance; or (3) capacity to transform public administration through the use of ICT or create a new form of ICT-based governance. These three aspects are nearly always found in various definitions of e-government, both those formulated by academics and those formulated by related organizations (OECD, 2003:63). E-government can refer to the use of information technology by various government institutions to transform the relations between the government and the public, the business sector, and other government institutions. Wirtz and Daiser (2015:9–10) understand e-government as "the electronic handling of administration and democracy processes in the context of governmental activities by means of information and communication technologies to support public duties efficiently and effectively". They formulate this definition of e-government based on a review of various definitions found in the literature, which almost all include the internet, computers, and technology. The use of internet technology and computers by public-sector organizations range from the simple provision of information and delivery of services to the practice of e-democracy and involvement of various subjects (from citizens to public sector stakeholders) (Evans & Yen, 2006). According to Yang and Rho (2007), e-government is understood as government activities supported by the internet (internet-driven activities) that are intended to expand citizens' access to public-sector information and services. Websites and portals

can not only be used by government organizations, but also ease and expand public access to government information and deliver services to the general public and the private sector (Goldkuhl & Rostlinger, 2010).

E-government is a concept that has been known in public administration since the 1990s (Bhuiyan, 2010; Bannister & Connolly, 2015; Ahn & Bretschneider, 2011; Rana et al., 2017). In its development, research on e-government is also multidimensional in that it rests on a variety of perspectives such as transformation, knowledge management, technology, social behavior, and public administration (Bannister & Connolly, 2015). Although there is no standard definition, academics and practitioners define e-government as the use and information and communication technology (ICT) by the government as a tool to achieve better governance (OECD, 2003; UNPAN, 2016). According to the OECD (2003: 63), in broad outline, the definition of e-government found in the literature can be grouped into three: (1) is an internet-based service or other internet-based activity; (2) is the use of ICT in all aspects of government activities; and (3) is a capacity that can transform public administration through the use of ICT or as a new form of ICT-based government. These three definitions seem to always be attached to various definitions of e-government, both those put forward by academics and institutions.

In its development, it appears that e-government is defined in a multidimensional manner. There are scholars who suggest e-government as a system that can help connect individual systems with government functions and public services into a coherent system, so as to enable improved Whole-of- Government (WoG) services in economic, social and environmental areas (The United Nations, 2016: 5). Then, e-government is defined as the application of ICT in government. For example, World Bank (2015) for example, defines e-government as the use of information technology in various government agencies where the use of ICT can transform government relations with society, business people and other government agencies. E-government is defined as a new way of government in providing public services. In Shareef (2016), e-government is defined as the use of ICT to provide public services.

For Sadashivam (2010), that e-government is a strategy to improve government accountability to the community because through the use of ICT, efficiency and effectiveness in government can be achieved. This efficiency and effectiveness broaden access to government services and also to the availability of information. As a strategy, e-government includes new leadership styles, new ways

of discussing and deciding public policies, new ways to access education, new ways to listen to the voices of the public/public and new ways to organize and deliver information and services (Sadashivam, 2010:304). Another definition of e-government emphasizes governance. For example, UNDESA (2014) defines e-government as part of governance that is carried out as a form of government interaction with citizens (Rose, 2005) through the use of websites and internet applications. According to Hu et al., (2009), e-government is one way to conduct governance electronically where the government can provide public services through internet portals. The use of this internet portal can simplify and simplify governance (governance) relations between the government and citizens and other stakeholders. Gil-Garcia (2012) added that e-government is a form of e-governance which is an effort to encourage business people, NGOs, political parties and civil society to participate in governance.

2.2 e-Government Stages

Various stages of e-government have been identified in the literature. Some have identified three stages (UNPAN, 2002); four stages (The United Nations, 2012; Layne & Lee; 2001; Andersen & Henriksen, 2006); and five stages (Hiller & Belanger, 2001). Generally, these stages are characterized by their degrees of interactions and complexity (Fath-Allah et al., 2014; Wirtz & Daiser, 2015) and include the use of websites to provide information, to conduct transactions, and to promote participation (Olszak & Ziemba, 2011; Almuftah, Weerakkody & Sivarajah, 2016; Perkov, Panjkota & Volić, 2017). In this study, the maturity model of e-government used is the five-stage model of e-government recognized by the United Nations, namely: (1) presence; (2) enhanced presence; (3) interactive presence; (4) transactional presence; (5) fully integrated presence. This model was chosen because it was formulated based on observations of e-government in 193 countries (Almuftah, Weerakkody & Sivarajah, 2016: 72). Its use is also appropriate because it identifies the sequential steps taken by (local) governments in implementing e-government, ranging from the immature to the mature, similar to the maturity model of e-government used and popularized by Layne and Lee (2001).

Presence. This stage marks the earliest emergence of e-government, web presence, in which local governments have official websites that they use to convey information regarding government services and distribute documents that may be downloaded by

the public. Generally, the information on these websites includes office service hours, addresses, and telephone numbers, as well as a few Frequently Asked Questions (FAQs). As such, the information is limited, basic, and static. At this stage, there are no interactions or participation (Adu, Patrick, Park, & Adjeid, 2018:88).

Enhanced Presence. This stage is marked by the presence of specific information on government websites, which is updated periodically. Online services are also improved with the inclusion of databases and other sources of information, which may be downloaded by the public as necessary.

Interactive Presence. In this stage, government website users can interact with government institutions through their websites. E-government at this stage is marked by interactions with website users, as well as the provision of various forms and applications for the purpose of taxation, license renewal, etc. Government websites also include audio and video facilities, enabling them to better interest website users.

Transactional Presence. As a continuation of previous interactive services, in this stage the government begins providing two-way transactional interactions, which may include payment of taxes, applications for identity cards and passports, an extension of licenses, etc. For these transactions, website users may use credit cards, debit cards or bank transfers.

Fully Integrated Presence. If a government has reached this level, it provides all services and information through a central portal. This stage, thus, requires an integrated network of public institutions that provides users with information, knowledge, and services.

2.3 e-Government Types and Characteristics

The government as an organization has a variety of stakeholders, namely citizens as consumers (C), business actors (B), and employees in government organizations (E). As such, in the e-government framework, interactions of government with stakeholders are grouped into four: Government to Citizen (G2C); Government to Employee (G2E); Government to Government (G2G); and Government to Business (G2B) (Wirtz & Daiser, 2015; Driss & Moulin, 2014; Singh et-al, 2010; Haque et al, 2013;). G2C and G2E are a form of internal government interaction with individuals and government employees, while G2B and G2G are government interactions with organizations, where in G2B, the

government interacts with external government organizations.

Government to Citizen (G2C).

In this type, e-government is carried out to improve and facilitate interaction between government and citizens in a virtual way through portals that generally provide information and government services - G2C is seen as the main goal of e-government (Driss & Moulin, 2014). In government organizations, community members are consumers and the government is the producer that provides public services. With this portal, citizens can get information about public services that are much faster in real time. Aside from being a media that presents information about existing public services, through government portals, citizens can also be involved in the public policy making process (Driss & Moulin, 2014).

Government to Government (G2G).

This type shows the interaction between government departments or institutions that are carried out online with the aim of creating comfortable and transparent public services. The aim of G2G is to create cooperation and collaboration between the government and other public sector institutions (Wirtz & Daiser, 2015: 1). In addition, G2G also aims to create standardized processes between existing government institutions, using ICT, these government institutions can accelerate the communication process between them. Government organizations consist of related government departments or institutions. These organizations require exchange or sharing of information (sharing information), especially different information (Gil-Garcia, 2012). By using ICT, the government can facilitate interaction between departments more efficiently and exchange information. This exchange of information can be carried out between institutions that are of different authority and hierarchical levels in law and policy (Fang, 2002). Interaction between government institutions through the use of ICT such as this can facilitate information exchange, coordination and collaboration of government agencies or departments so as to reduce redundancy or overlapping work (Singh, Pathak, Raghuvar, & Naz, 2010).

Government to Business (G2B).

This form of e-government is carried out to provide information and services as well as interactions between government institutions and other profit-oriented non-governmental organizations ((Wirtz & Daiser, 2015: 1). E-government is also carried out to

facilitate government interaction with one of the stakeholders, namely business people, through G2B, the government with the private sector or business people can interact online. This online interaction can encourage efficiency because both the government and business people can reduce transaction costs. For the private sector, the presence of G2B can simplify the process of business law such as licensing, and other legal aspects. In terms of business people, the existence of e-government can encourage the achievement of a country's economic competitiveness. This occurs because through e-government, the government can provide unrestricted online public services and can also encourage the government to create efficiency and effectiveness so that there is cost minimization in the public sector (Wirtz & Daiser, 2015: 1).

Government to Employee (G2E).

G2E is a way in which the government interacts online with government employees. According to Wirtz and Daise (2015: 1), G2E is a form of digitalization of relations between public sector institutions and employees who work at these institutions and also digitize relations with non-governmental contractors. The purpose of this interaction is to strengthen government organizations so that they can provide faster public services. Organizations can be strengthened by the exchange of information related to government employees such as employment, performance, and career management (Fang, 2002). This interaction can facilitate both the government and government employees to know various aspects of responsibility and rights, legal aspects related to rights and responsibilities. In addition, this online interaction will also simplify the work administration process.

3 OBJECTIVES AND RESEARCH APPROACH

The implementation of e-government by almost all of Indonesia's provincial governments must be accompanied by an evaluation of said implementation. As such, this study is intended to understand and evaluate the implementation of e-government at the provincial level in Indonesia. This study has been written using an exploratory approach, which is intended to produce an understanding of new insight into a phenomenon (Yin, 2016). This exploratory approach will produce a description and knowledge of a specific phenomenon (Creswell,

2007; Rubin & Babbie, 2011) on e-government implementation at the local level in Indonesia. Analysis has been written based on a review of the secondary literature and content evaluation of the websites of Indonesia's 34 provincial governments. Literature review in this study is an academic approach intended to present logical arguments based on an in-depth understanding of the topic being researched. After relevant literature is obtained, structured content analysis is conducted. As such, this study is based on a systematic literature review of scholarly articles on e-government. This content evaluation will refer to the stages of e-government identified by the United Nations, as quoted by Almuftah, Weerakkody, and Sivarajah (2016).

4 FINDINGS AND DISCUSSION

4.1 e-Government Coverage

This study has found that all of Indonesia's 34 provinces have official websites. Of these 34 provincial government websites, only 3 could not be accessed during the research period, representing 9% of all websites surveyed. The websites that could not be accessed were those of West Sulawesi, East Nusa Tenggara, and West Papua Barat. The Jambi provincial website, as returned by Google search, was jambiprov.go.id; however, this website could not be accessed, and the landing page redirected users to <http://jambiprov.go.id/v2>. Similarly, Google returned <http://malutprov.go.id/> as the website of the province of North Maluku; however, it was not active when accessed. Further investigation indicated that the official website of the Province of North Maluku was <http://mediacenter.malutprov.go.id/utama/>. The West Sulawesi government's website, <http://sulbarprov.go.id/index.php/blog/sulawesi-barat>, could not be accessed, returning a connection timeout error. Likewise, according to a Google search, the East Nusa Tenggara government's official website was located at <http://nttprov.go.id>; when this website was accessed, the user was redirected to <http://nttprov.go.id/ntt2016/>, but this website could not be accessed because it was under construction. Another eastern Indonesian province had an official website according to Google (<http://papuabarprov.go.id/>), but this website could not be accessed, and no information regarding the reason for this was provided. All of the provinces whose official websites could not be accessed are located in eastern Indonesia.

4.2 Clusters of e-Government Adoption Levels across Provinces

All of the 31 government websites that could be accessed can be identified as having at least reached the presence stage, as they fulfil basic criteria for e-government (i.e. emergence or simple presence). All provincial government websites include information on recent activities, office hours, job opportunities, information for tourists, and statistics. The websites also provide basic public information that helps users contact the provincial government and its institutions,—including office addresses, email addresses and contact information/staff. This information is supported by public documents or general information regarding provincial programs. According to Layne and Lee (2001), such websites may be understood as catalogues. Almost all of the information included is static, not being renewed or updated, and thus best categorized as web presence (Adu et al., 2018). Government websites still in the web presence stage include, for example, that of North Kalimantan (<https://kaltaraprov.go.id/>), which only includes basic information and an announcement of a 2018 program measuring civil servants' competence.

Some of the provincial government are in more enhanced presence. A total of 22 (70%) provincial government websites have reached this stage. Generally, these websites still appear technologically simple. Almost all of the provincial government websites that remain in the enhanced presence stage provide information that meets the standards for enhanced presence, but do not provide two-way interactions between stakeholders and the provincial government or its institutions. One such website is that of Gorontalo, which remains in the enhanced presence stage because, aside from providing a basic e-government platform, it also includes public information that may be freely downloaded—this is currently limited to transparency documents regarding the provincial budget and government performance.

Several Indonesian provincial governments have implemented interactive e-government, as marked by the availability of dynamic and periodically updated information and documents (Neamtu, Zait & Nichfor, 2018). Analysis of provincial government websites that may be categorized as interactive indicates that interactions occur between the government and public (government and citizen interaction), between the government and business sector (government and business interaction), and between government institutions (government and government

interaction). Provincial government websites in this stage exhibit a medium level of sophistication in their technical elements and components. In addition, most websites in this stage provides downloadable forms; online forms that can be filled, printed, and submitted to the provincial government; services for communicating with government employees; links to other government websites; search feature; online question/comment/feedback services, answers to online questions/comments/feedback, and information request services.

These websites, aside from providing information, also include two-way access, allowing users to download documents related to government services, which are periodically updated and thereby dynamic. One example is the website of the Special Administrative Region of Aceh, which includes documentation of its development efforts over the past four years as well as guidelines for completing and submitting reregistration forms, environmental impact analysis forms, forestry concession reregistration forms, agricultural concession reregistration forms, and mining concession reregistration forms. Another example is Banten, which has an e-government portal called the Banten Smart Province (BSP). This portal includes 23 links to public service applications, almost all of which are informative in nature, as well as information on the provincial government's interactions with stakeholders; this latter element is not yet interactive, as users are only able to access information. Another example is the website of the Bengkulu provincial government, which includes 234 types of permits that may be filed online; individuals/organizations that have filed for permits may check the status of their applications, as well as learn about special permits for investment.

Three provincial government websites are in the interactive stage, namely *Kepulauan Riau*, Maluku, and North Maluku. Website of *Kepulauan Riau* remains in the interactive stage as it lacks a means of making permits online. Although services are available to government employees (including e-planning), these services cannot be accessed; information is simply conveyed to employees, or links are provided. A total of seven (about 23%) provincial government websites may be classified as "more advanced transactional stage", albeit still primary as they only include one type of financial transaction. These provinces are West Java, Central Java, Jakarta, Banten, Bali, East Java, and Yogyakarta (see Table 1).

Through their websites, these provincial governments conduct financial transactions such as

paying taxes, paying other charges; they also offer non-financial transactions such as job openings and applications. For example, the West Java government website includes links to 13 other provincial government websites, 12 central government websites, 51 websites of West Java government offices, and 26 websites of West Java regencies/cities. Provincial government stakeholders may request information and file complaints; however, there is no real-time, two-way direct communication. This website also provides up-to-date information on events in West Java. Meanwhile, East Java province's website is relatively complex and sophisticated, with a more interactive design. As an example of interactions, it provides residents with the ability to pay their vehicle taxes (*Pajak Kendaraan Bermotor/PKB*) through the e-samsat portal e-samsat (<https://esamsat.jatimprov.go.id/>). Yogyakarta province, which may be categorized as an enhanced presence, provides comprehensive and detailed information and public services. Yogyakarta provincial government also provides services through six applications that can be downloaded via Google Play: Learn Indonesian (*Belajar Bahasa Indonesia*), E-Reporting Yogyakarta (*E-Lapor DIY*); Javanese Script (*Hanacaraka*); iJogja; Special Jogja (Jogja Istimewa); and Jogja Culture Center (*Lambung Budaya Jogja*).

Presently, only seven provinces have portals for paying vehicle taxes online, namely West Java (e-Samsat Jawa Barat; Sambara), Central Java (e-Samsat; Sakkpole), Jakarta (e-Samsat DKI Jakarta), Banten, Bali, East Java, and Yogyakarta. Through such e-samsat portals, the public may also make other payments, including Mandatory Donations for Road Accidents (Sumbangan Wajib Dana Kecelakaan Lalu Lintas Jalan; SWDKLLJ), Non-Tax Government Revenue (Penerimaan Negara Bukan Pajak; PNBP), validation of vehicle registration forms (Surat Tanda Nomor Kendaraan Bermotor; STNK), and transfer of title fees. These seven provinces' use of e-samsat portals indicates interactions between provincial governments and the business sector (government to business, G2B), as funds are collected through banking institutions. In November 2018, 16 provinces had plans to implement e-samsat portals: Aceh, Riau, Riau Archipelago (*Kepulauan Riau*), North Sumatra, South Sumatra, West Sumatra, Bangka Belitung, Bengkulu, Jambi, Lampung, East Kalimantan, South Kalimantan, North Kalimantan, West Kalimantan, Central Kalimantan, and West Nusa Tenggara. The analysis shows that all of the provincial governments that have implemented transactional e-government are found in Java and Bali.

Findings from the provincial government portals indicate that most provincial government websites in Indonesia have reached the transactional stage, as almost all government websites have services for making/registering permits online or providing employee access; online means for paying taxes, retributions, and other fees, however, remain limited. Only a few websites offer an online means of extending drivers' licenses, identity cards, and other documents; these are the websites of Aceh, Banten, Bengkulu, DI Yogyakarta, West Java, and Central Java. The websites of the Bali Province and West Papua provincial governments could not be accessed. Meanwhile, the Maluku and North Maluku provincial government websites do not provide online permit services or services for employees. Analysis of the provincial government website also suggests that all the e-government portal of provinces has not reached what is so called fully integrative stage.

Table 1: Summary of Provincial E-government Category based on Its Stages.

Stages	Provinces
Presence	None
Enhanced Presence	None
Interactive Presence	Kepulauan Riau, Maluku, Maluku Utara
Transactional Presence	Aceh, Banten, Bengkulu, DI Yogyakarta, DKI Jakarta, Jambi, Gorontalo, Jawa Barat, Jawa Tengah, Jawa Timur, Kalimantan Barat, Kalimantan Utara, Kalimantan Selatan, Kalimantan Tengah, Kalimantan Timur, Lampung, Nusa Tenggara Barat, Nusa Tenggara Timur, Papua, Riau, Sulawesi Selatan, Sulawesi Tengah, Sulawesi Tenggara, Sumatera Barat, Sumatera Selatan, Sumatera Utara, Kepulauan Bangka Belitung, Sulawesi Barat, Sulawesi Utara
Fully Integrative Presence	None

4.3 e-Government Types

As seen in figure 1, provincial government websites that provide G2G services are more common than other types of e-government, representing 94% of all provinces. Of Indonesia's 34 provinces, 32 offer G2G services, as seen in their websites' links to the websites of other provinces, organizations, and government/public services. The second-most common form of e-government is G2C, which is found in 85% of (29 of 34) provincial government

websites. These websites enable members of the public to directly convey their aspirations to the government through message boxes, forms, chat services, and special links. G2E services are also common in government websites, representing 82% of (28 of 34) provincial government websites, which indicates online planning (e-planning, e-budgeting, and e-monitoring) for government employees. Some provincial government websites also provide a digital means for employees to verify their attendance. Provincial government websites that offer G2B services are fewer, representing 79% (27) of provincial governments. Although this is a smaller percentage than G2G, G2C, and G2E, it is still high. This indicates that almost all provincial websites also provide businesses with electronic means of handling their permits and other needs. Based on this data, it may be concluded that Indonesian provincial governments' websites are entirely developed and technologically advanced, as many have begun providing G2G, G2C, G2B, and G2E services; many websites provide all four services, as seen in Aceh, DI Yogyakarta, Jambi, and West Java.

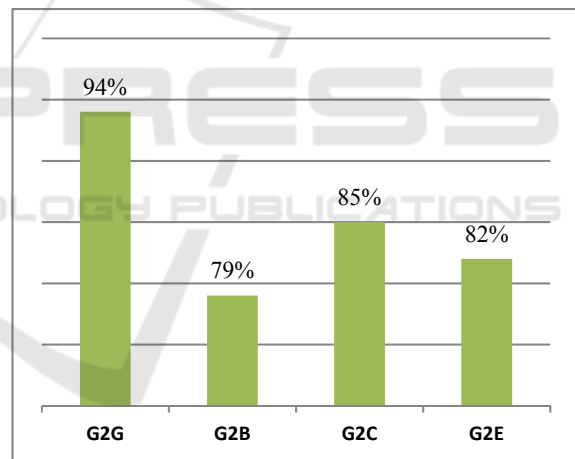


Figure 1: e-Government Types Across Provinces in Indonesia.

G2G refers to the interactions between government departments and institutions that are conducted online with the intent of providing transparent and positive public services, easing the exchange of information, collaboration, and coordination between institutions, and reducing redundancy. Using this definition of G2G and the data collected from the official websites of Indonesia's provincial governments, it may be concluded that 32 provincial websites provide G2G access, as they have links that connect the provincial governments' websites with the websites of other government

entities, including city/regency governments as well as government institutions and partners such as the Network of National Legal Documents and Information, the Ministry of Communications and Information Technology, and Information and Documentation Management Officers. Two provincial websites lacked G2G systems, namely Bali and West Papua; this can be attributed to neither website being readily accessible.

In general, provincial websites' provision of G2G services, primarily links to other government websites through the logos of provincial governments or other institutions, which may be clicked upon to access the desired website. Other provincial government websites connect to other provincial and organizational websites through a list of links. G2C is a type of e-government intended to improve and facilitate virtual interactions between the government and its citizens through portals that generally provide information and government services. One indicator that may be used to determine whether a provincial website has adopted G2C is the availability of a digital means for the public to provide feedback/complaints/criticism. Using this indicator and the data collected, it was found that 29 provinces had implemented G2C e-government. Some provinces offered such services on their own websites, while others have only provided links to other websites that are dedicated to handling public feedback. The websites of the two provinces could not be accessed, namely Bali and West Papua. Meanwhile, four provinces lacked such services on their websites, namely Banten, Lampung, West Sulawesi, and Central Sulawesi. For the G2C category, most of the provincial governments' websites in Indonesia have adopted G2C by providing services that connect citizens with the government and enable them to provide feedback. In providing such services, some websites offer links to other websites, some offer forms or boxes where citizens can submit their feedback, some offer live chat services, and some only work with lapor.go.id, simply providing a link to this service to enable public feedback.

As discussed, G2B is a form of e-government in which information and services are provided to ease the interactions of government institutions and profit-oriented non-governmental organizations. One indicator of websites having G2B services is the provision of means for making or registering business permits online. In general, G2B services are presented on provincial government websites by detailing the procedures for making permits online, beginning with the requirement to register. Various forms of business

permit services are provided, including permits for employing foreign workers, permits for merging enterprises, permits for establishing industrial areas, etc. On provincial government websites, businesses can also track the status of their permits. However, some provincial websites do not maximally provide services, and only allow users to download necessary documents, forms, and guidelines. The collected data indicated that, of the 34 provincial governments in Indonesia, only 27 have websites that offer G2B services. Of these 27 websites, only 23 allow permits to be filed online; the remaining four—East Java, West Kalimantan, Central Kalimantan, and Central Sulawesi—only provide the letters, forms, and requirements necessary for obtaining a permit offline. Provinces that lack such services are Bangka Belitung Archipelago, Riau Archipelago, Maluku, and West Sulawesi. Meanwhile, the websites for Bali, North Maluku, and West Papua could not be accessed.

G2E is a type of e-government that enables governments to interact online with their employees, with the intent of easing both the government and its employees by simplifying the administrative process, exchange of information between organizations, and provision of rapid public services. One indicator that may be used to determine whether a provincial website provides G2E services is the provision of online and shared planning facilities.

Most provincial government websites offer government to employee services that can be readily accessed. Accessing such services requires an email address or username/password, as these services are not intended for the general public. Based on this indicator and data collected, it can be concluded that 27 provinces have implemented G2E e-government through their websites; these may include e-planning, e-budgeting, and e-monitoring, or digital means of employees verifying their attendance. At the time of data collection, three provinces lacked such e-government services on their websites, namely Central Sulawesi, Maluku, and North Sumatra. As mentioned earlier, the websites for three other provinces—Bali, North Maluku, and West Papua—could not be accessed. Meanwhile, although the websites for North Sulawesi and the Riau Archipelago offered such services, they could not be readily accessed. Similarly, G2E services on the Gorontalo government website are limited, as the website only offers information about the government's plans, and does not involve employees in the planning process.

Table 2: Summary of E-government Types within Provinces.

G2G	G2B	G2C	G2E
Aceh; Lampung; Banten; Bengkulu; DIY; DKI Jakarta; Gorontalo; Jambi; Jawa Barat; Jawa Tengah; Jawa Timur; Kalimantan Barat; Kalimantan Selatan; Kalimantan Tengah; Kalimantan Timur; Kepulauan Bangka Belitung; Kepulauan Riau; Kalimantan Utara; Maluku; Maluku Utara; Nusa Tenggara Barat; Nusa Tenggara Timur; Papua; Papua Utara; Nusa Tenggara Barat; Nusa Tenggara Timur; Papua; Riau; Sulawesi Barat; Sulawesi Selatan; Sulawesi Tengah; Sulawesi Tenggara; Sulawesi Utara; Sumatera Barat; Sumatera Selatan; Sumatera Utara; Sumatera Barat	Aceh; Banten; Bengkulu; DIY; DKI Jakarta; Gorontalo; Jambi; Jawa Barat; Jawa Tengah; Jawa Timur; Kalimantan Barat; Kalimantan Selatan; Kalimantan Tengah; Kalimantan Timur; Kalimantan Utara; Lampung; Nusa Tenggara Barat; Nusa Tenggara Timur (online); Papua (online); Riau (online); Sulawesi Selatan; Sulawesi Tengah; Sulawesi Tenggara; Sulawesi Utara; Sumatera Barat; Sumatera Selatan; Sumatera Utara	Aceh; Bengkulu; DI Yogyakarta; DKI Jakarta; Gorontalo; Jambi; Jawa Barat; Jawa Tengah; Jawa Timur; Kalimantan Barat; Kalimantan Selatan; Kalimantan Tengah; Kalimantan Timur; Kalimantan Utara; Kepulauan Bangka Belitung; Kepulauan Riau; Maluku; Maluku Utara; Nusa Tenggara Barat; Nusa Tenggara Timur; Papua; Riau; Sulawesi Barat; Sulawesi Selatan; Sulawesi Tenggara; Sulawesi Utara; Sumatera Barat; Sumatera Selatan; Sumatera Utara; Kalimantan Utara	Aceh; Banten; Bengkulu; DIY; DKI Jakarta; Gorontalo; Jambi; Jawa Barat; Jawa Tengah; Jawa Timur; Kalimantan Barat; Kalimantan Selatan; Kalimantan Tengah; Kalimantan Timur; Kalimantan Utara; Kepulauan Bangka Belitung; Kepulauan Riau; Lampung; Nusa Tenggara Barat; Nusa Tenggara Timur; Papua; Riau; Sulawesi Barat; Sulawesi Selatan; Sulawesi Tenggara; Sulawesi Utara (not acesible properly); Sumatera Barat; Sumatera Selatan (not acesible); Kepulauan Riau

5 CONCLUSIONS

This study contributes to the discussion of e-government maturity model by analysing the current situation of 34 provincial governments websites across Indonesia. It adopts the United Nations four stages-of-maturity model for e-government to examine the e-government stage in by the provincial government in Indonesia. Throughout this study, 34

websites for Indonesia's provincial governments are analyzed and empirically categorized into four groups based on the maturity of their e-government model: presence, interaction, transaction, and transformation. For this study, 34 websites for Indonesia's provincial governments are analyzed and empirically categorized into four groups based on the maturity of their e-government model: presence, interaction, transaction, and transformation. In an analysis, the types of e-government available in these provincial governments' websites are grouped into four categories: G2G; G2B; G2C and G2E. The analysis shows that 32 of Indonesia's provincial governments have online portals. Some 94% of provincial governments provide G2G services, 79% provide G2B services, 85% provide G2C services, and 82% provide G2E services. In terms of maturity, it was found that the majority of provincial government websites are in the transactional stage

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