



Model of Digital Transformation of Local Governments in Indonesia

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Abstract. The government's digital transformation includes stakeholders, the service delivery of new frameworks, and new types of connections. It responds to the general public administration's desire for high-value digital services. Digital transformation in local governments is seldom explored, and the attention is mostly on the central government. Municipalities are moving slowly towards digital transformation. The paper outlines a model of the digital transformation of Indonesian local governments and provides an Indonesian case study. The digital transformation model for public administrations in local governments is organized into four sections: digital transformation causes, objects, processes, and digital transformation results. This is a qualitative study, and the research technique employed was a literature analysis of prior studies. The findings highlight the barriers to adoption and the actions required for digital transformation. By examining the output, outcome, and impact, it is clear which component should be improved and enhanced.

Keywords: Digital Transformation, Local Governments, Indonesia

1. Introduction

Digital transformation changes citizen's projections within the private sector. It is in response to the public administration's need for high-value digital services. Enhanced transparency, ability, and national satisfaction are among the things that public services struggle to achieve via dynamic operations that improve service delivery and operations style [1][2][3]. Government services are holding from digital transformation and e-government services [4]. Disruptions to the organization and strategy are necessary to gain the potential to create novel opportunities for value development [5]. In the public sector, digital transformation offers new approaches to working with stakeholders, creating new service delivery models, and developing new kinds of partnerships [6]. At a high level, Digital transformation encompasses profound changes in society and industries through digital technologies [7][8][9]. Every nation's digital transformation has enormous potential and obstacles in many different areas of the general public sector. As it may affect the aims of digital transformation, it will alter the identification of how the country's size, history, and context support how digital transformation varies from them.

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A. Patunru et al. (eds.), *Proceedings of the 8th International Conference on Accounting, Management, and Economics (ICAME 2023)*, Advances in Economics, Business and Management Research 279,
https://doi.org/10.2991/978-94-6463-400-6_31

There is limited empirical evidence regarding the existing practices, expectations, and potential of digital transformation [1][10][11][7]. Primarily it focuses on central government digital services. Local public administration is an underexplored field that has additional obstacles in terms of digital transformation due to central government regulations. Government area units are altering how they operate to improve service delivery, achieve goals such as improving transparency, ability, and subject satisfaction, and be more inexpensive and effective in their designs [12][13]. The terms "subject satisfaction," "digitalization," and "digital transformation" are interchangeable in the literature.

This paper presents a model of the digital transformation of local governments with estimation using data from empirical evidence and Kementerian PPN/Bappenas [14]. It applies a model of digital transformation of local governments based on digital transformation reasons, objects, processes, and results of digital transformation.

2. Literature Review

Digital transformation is an advanced and extreme type of business transformation that refers to a chaotic process that fundamentally alters how businesses compete, perform, and create value. A much more holistic definition regards the changes in digital technology that cause or influence all aspects of human life [15]. Technology radically improves enterprises' performance or reach [11]. The third and highest stage of digital acquisition, known as digital transformation, may also be described as the modification of innovation and power via the development of digital usages, which in turn stimulates important changes within the information or skilled domain [10]. The purpose and effects of the digital transition are examined in this last description [16].

2.1 Characteristics of Digital Transformation

Digital transformation of public services must be seen from a comprehensive organizational standpoint [17]. It is not only to support the amendment; processes, people, policies, and particularly leadership must be modified to achieve digital transformation within the public sector [1][18]. E-government attempts to make dealing with government entities more convenient and cost-effective while boosting citizen and stakeholder satisfaction [12].

Digital transformation is viewed as a paradigm shift and is sometimes referred to as a technology revolution [19]. These cutting-edge technological advancements, which are not part of the wider public sector, evaluate how dynamically individuals see governments' capacity to provide high-quality digital services. To accomplish goals like openness, honesty, and citizen participation, public administrations are conscious that they must enhance service delivery and become more efficient [3][20][21]. Still, despite the elevated expectations, digital transformation is mostly perceived as an internal organizational culture shift. There are not many specifics in the literature yet about how to plan this revolutionary shift.

National governments, multilateral organizations, and industry groupings developed strategic foresight to attain long-term policy goals [9]. Public policy implementation regarding digital transformation is expected to execute the goals listed in Table 1.

Table 1. Digital Transformation Goals

Perspective	Objective
Social	Encourage the creation of a more innovative and collaborative culture in both industries and society.
	Change the educational system to educate people with new skills and a future orientation so they may flourish in digital jobs and society.
	Create and manage digital communication infrastructures to assure governance, accessibility, quality of service, and affordability.
	Enhance digital data security, transparency, autonomy, and trust.
Economic	Improve the accessibility and quality of digital services available to the public.
	Implement fresh and creative business models.
	Increase income creation, productivity, and value addition in the economy.
	Enhance regulatory framework and technical standards.

3. Research Methodology

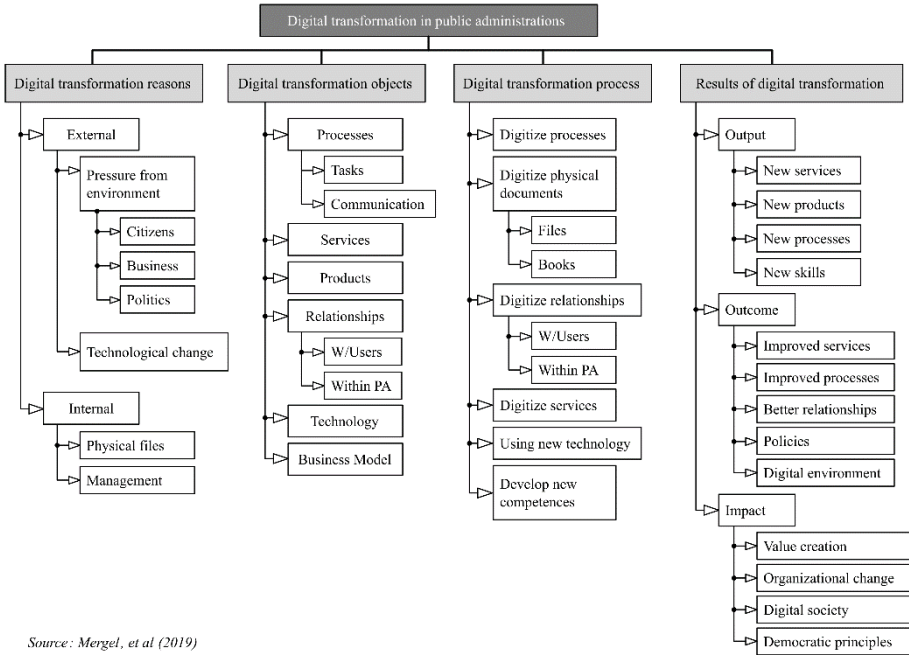
This study employed a qualitative research design, and the research methodology comprised a review of the literature from several prior investigations. Secondary data gathered from online resources, documentation books, and periodicals is the technique of data acquisition. Information released by reputable organizations, including the Ministry of National Development Planning/Bappenas [14].

In this study, data analysis was done utilizing descriptive analytic techniques. After obtaining the data, the descriptive analysis approach was used to examine it. The process of using the descriptive analysis approach involves gathering the data, interpreting it, and analyzing it to offer insights into the issues that arise while creating a model.

4. Result and Discussion

4.1 Model of Digital Transformation on Local Governments

This section describes the digital transformation model on local governments, which classifies the model's prediction outcome into four different states of prediction: digital transformation reasons, digital transformation objects, digital transformation process, and results of digital transformation in Figure 1.



Source: Mergel, et al (2019)

Figure 1. Model of Digital Transformation on Local Governments [1]

Digital Transformation Reasons

Digital transformation fundamentally changed the way of life, not only for the government but also for the whole world. It will be external and internal reasons, external reasons such as environmental pressure and technological change. Environmental pressure could be seen in citizens, businesses, and politics. Population data (KTP and KIA) is the data basis for all citizens' public services. Cooperation with the private sector for data interoperability is essential in business, strengthening the implementation of One Map and One Data Indonesia [14].

The change occurs mostly from the external environment rather than the internal environment. Technological change should apply to the national government and local government's environment to keep competing with the countries in the world [3]. The change included fixed laptops and PCs to mobile devices. As we know, businesses are crucial for the organization, and primarily, technology applies within the companies. Citizens play a crucial role in public services data to be in one big data. Technological assets are all assets that distinguish an organization from its rivals by giving benefits to the firm's essential activities. They are special product-related knowledge that must be kept confidential from other organizations [22][23].

The reason is internal and related to the physical files and management. Most of the documents are printed and distributed as physical files. If we change to

technological change, it will be paperless but need the online cloud to save the data. Acceleration of strengthening the internet network is essential in remote areas, as well as increasing technology adoption in bureaucratic activities, especially those that must be carried out routinely. Management should work and collaborate to achieve efficiency and effectiveness. Synchronization of content and training for technological developments must be carried out. The internal reason might be a problem for the national government and local governments. It focuses on recognizing the management of the organization.

Digital Transformation Objects

Digital transformation objects included six (6) aspects: processes, services, products, relationships, technology, and business model. Processes are the key role of the digital transformation objects, continuing to the relationships and services. Processes or procedures within an organization need to be changed, either tasks or communication. Employee services provided to users in a company are to be altered. Products provided by an organization and production content. Relationships need to be transformed between PA and users and within PA. PA and users is a relationship between employees and users outside the office, for example, citizens, customers, businesses, other organizations, or between local and national governments. A change in technology and business model for the organization's purpose.

Digital Transformation Process

Digital transformation is necessary to ensure that the process remains effective and efficient. It includes digitizing processes, digitizing physical documents, including files and books, digitizing relationships with users and within PA, digitizing services, using new technology, and developing new competencies.

The utilization of new technology and digitizing processes are expected to be critical components of digital transformation processes since the processes will involve digitizing current processes, forms/documents, and services, as well as stakeholder interactions. This involves leveraging big data, data-driven techniques, creative ways, and user-centered approaches while implementing new technologies. However, additional competencies, abilities, and educational initiatives may be required. It requires the ability to adapt and participate in a new way of thinking.

Results of Digital Transformation

Digital transformation may be seen in the output, outcome, and impact. The output will result in new services, products, processes, and skills. The desired outcome should be to enhance services, processes, relationships, policies, and the digital environment. The impact will then be visible in terms of value generation, organizational change, digital society, and democratic values. Output is quantifiable and may be quantified or expressed in numerical terms. It featured tangible and quantifiable services, goods, processes, or skills. The outcome is decided by the results of implementing a new measure. Outcomes include enhancing services and processes, boosting interactions in terms of simplicity, accessibility, quality, advantage, efficiency, speed, responsiveness, and competitiveness, as well as

contributing to the development of policies and digital environments. Impact covers the whole organization's transformation to deliver better workspaces, as well as how transformation leads to improved public value to contribute to a digital society, give advantages to people, and contribute to society, culture, and the economy.

4.2 Case of Ministry of National Development Planning/Bappenas

Presidential Regulation No. 39/2019 on Satu Data Indonesia, which was enacted on June 12, 2019, regulates government data governance to support development planning, implementation, evaluation, and control. The Ministry of National Development Planning/Bappenas [14] implements four (4) principles of One Data Indonesia due to

1. One data standard. Standards that underlie data and regulate methodologies from concepts, definitions, classifications, measures, and units.
2. One metadata. Structured data identifies its content and source so that it may be readily discovered, used, or controlled again.
3. Interoperability. The capacity to communicate or transfer data between interconnected systems.
4. Reference code. A mark that describes the intent as a reference to data identity and/or data that represents objects in government business processes determined to be shared.

The percentage of connected agencies, namely the percentage of connected ministries, is 72.3%; the percentage of connected provinces is 71.1%, and the percentage of connected districts/cities is 43.4%. One data provides data

1. Economy and industry
2. Regional development
3. Public order and safety
4. Environment and natural resources
5. Education and labor
6. Defense and foreign affairs
7. Culture and religion
8. General government
9. Social protection and health, and
10. General support.

The Ministry of National Development Planning/Bappenas has potential priority sectors for digital transformation in trade, education, health, financial services, tourism and travel, industry and manufacturing, and digital government, explained in Table 2 as follows.

Table 2. Potential priority sectors for digital transformation

Potential Priority Sectors	Digital Transformation
1 st -Trade	Improving MSME competitiveness with access to digital platforms Lowering business costs to a more inclusive level Major impact on human capital quality output
2 nd -Education	Innovation-generating sector Multiplatform with vast possibilities Multiplatform with vast possibilities
3 rd -Health	The urgency of accelerating service development through the application of technology The urgency of utilizing big data sources (BPJS)
4 th - Financial services	The number of (private) services emerging and the speed of development demand an established ecosystem and utilization by the government
5 th - Tourism and travel	The potential of online travel agencies for national tourism development (data potential, easy access to information and services, benefits for rural and exotic areas)
6 th - Industry and manufacturing	Big impact on the environment, employment, and national economy The application of digital technology encourages the strengthening of supply chains
7 th - Digital Government	Digital government services based on citizens' needs Integrated government services Data-driven policy Displayed equations are centered and set on a separate line.

5. Conclusion

The models of digital transformation are related to each other for the implementation. There are still challenges to adopting and steps to digital transformation to succeed. The result of the output, outcome, and impact could be referenced to determine whether the implementation of the digital transformation model succeeds or not. It is still in the early stage, and of course, there are still many improvements to integrate overall and work. The key to digital transformation is to provide an effective, efficient, accountable, and transparent system with high accuracy and speed for flexibility in all processes.

6. Implication and Limitation

It would be interesting to examine the future implementation of digital transformation to provide the perceived benefits. The digital transformation in national governments is still progressing, but the local governments are not enough to accommodate the influence, whether successful or not. Furthermore, it would be interesting to find out what aspects of the digital transformation have succeeded and which part could continue to achieve maximum benefits. It is still too early to get definite results and how it affects the overall situation.

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