What is the Success Required in Digital Public Services Transformation (Case of Digital Payment for Public Apartment Rent in Semarang Regency)

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Abstract. Digital transformation in the public services by the local government will improve the service related to several benefits. E-public services to the people or users will become more efficient, e-public services open 24/7, reduce the administrative burden, be more transparent and accountable, and finally, digital public services help governments meet public expectations. The Public Work Agency of Semarang Regency manages affordable public apartments (flats), particularly for low-income people. There are four-storey flats in Ungaran, Ambarawa, and Pringapus with a total of 326 rooms. The management unit is facing problems related to rent payments by monthly cash (manual) transactions. The Government of Semarang Regency committed to transforming all transactions from manual to digital (e-transaction) including for public apartment rent. This study aims to answer the question: what is the success required in digital payment for public apartment rent in Semarang Regency? From the process of digital transformation in e-payment for public flat rental during the preparation stage to operations (June to September 2024), this research concluded the success required in digital payment as follows: (a) In terms of support, the political will from local leaders, adequate regulations, and commitment toward successful digital transformation become a strong foundation for supporting the preparation and implementation of the e-government project; (b) In term of capacity, the adequate ICT infrastructure both hardware and software and human resources with competences related to the e-government project. (c) In terms of value, e-government projects need to build the value of benefits for the people as users and demand side of government services. e-government projects should provide significant benefits to the people, so the project has the potential to be successful.

Keywords: e-transaction; public services; digital transformation

1. Introduction

Digitizing services help governments meet public expectations and become more efficient and resilient. Digital public services are an imperative with several benefits. Unlike physical offices, digital ones are open to the public 24/7. Digital interactions are less time-consuming for people and reduce the administrative burden. Moreover, automating case handling significantly boosts productivity, reducing backlogs and freeing up resources for other priorities. Public-sector employees also stand to benefit from digitization; fewer repetitive tasks and happier residents pave the way to higher levels of job satisfaction [1]. Several studies have shown that with e-government, government bureaucracy can be more accountable [2]

[3] and transparent [2]. Decision-making in the public bureaucracy will be more precise, accurate, and safe [4]. With e-government, the quality of government services can be improved [5].

The industrial revolution 4.0, which is marked by the increasingly rapid development of Information and Communication Technology (ICT), has changed the way the government organizes its working process. When the government uses ICT in its working process, at that time the government has transformed into an electronic government (e-government) [6]. e-government focuses on the use of ICT by government agencies related to their relationship with the community and business actors. The use of ICT is expected to reduce the occurrence of abuse, increase transparency and government revenue, and reduce costs due to efficiency [7]. ICT cannot be separated from an organization, whether it is an organization engaged in the business, social or public sector, or government. The use of ICT supports the organization's work system to be better. Without adequate ICT support, it is difficult for an organization to compete or provide better services to users or customers [8][9].

The Public Work Agency (*Dinas Pekerjaan Umum/DPU*) of Semarang Regency is responsible for managing and operating public apartments in the region. Public apartments or flats were provided by the local government in the form of affordable flats that can be rented for Low-Income Communities such as industrial workers and informal workers in Semarang Regency. Since 2012, there have been four-story flats in three locations: Ungaran (170 rooms), Ambarawa (98 rooms) and Pringapus (58 rooms). Currently, the total occupancy of rooms is 174 rooms occupied or around 53%.

In operating public apartments, the management unit is facing problems related to the rent payment every month as the cash transaction is still conducted until August 2024. In this period, users pay the monthly flat rental cost in cash through the administrative officer. After collecting all payments, the officer deposits the money into the bank office. Administrative officers are still responsible for managing payment data manually and consolidating them with other units in the agency as usual. This cash transaction every month remains a risks taken by the officer. Bringing cash money can be potentially lost, misused, and fraud. Besides, there are some users who delay the payment, some payments up to two or three months late, and even arrears until the end of the year. Delayed payments happen because the cash payment as well as uncertainty data made some users undisciplined in paying the flat rental cost.

Accordingly, the Government of Indonesia strongly encourages digital transformation in all sectors including realizing e-government. One form of e-government is the digitalization of public services [10]. The answer to the above problems is digitizing the payment of public flat rental costs with the use of ICT. This transformation from cash or manual payment into digital payment cuts the flow of money that was previously in cash from the user to the administrative officer, then deposited into the bank and consolidated data with other units. With digital payment, flat users can directly make payments through various digital platforms such as bank deposits or transfers, Automated Teller Machines (ATMs), e-wallets, QRIS, or payments at smart outlets.

Digital payment in public apartments or flat rental costs is a part of e-government or digitization of public services in Semarang Regency. This study aims to answer the question:

what is the success required in digital payment for public apartment rent in Semarang Regency? As known, the managing unit under the Public Works Agency has prepared the digitalization of flat rental payments from June to August 2024 and the system has been implemented starting in September 2024. This study works based on the process of preparation and early implementation of digitization of flat rental payment in Semarang Regency.

2. Methods

The application of the e-government model generally uses a four-stage model of e-government development in the long term, as the following stages: (a) The first phase, is the appearance of the website (web presence). Generally, basic information on public services needed by the people is displayed on the government website. People can access this information through the government's official website or platform; (b) The second phase is the interaction between the people and the government. In this stage, the information displayed is more varied as well as the people can use download facilities and communicate with the service provider using e-mail, platform website, etc.; (c) The third phase is a transaction. Government unit provides the existence of applications or forms for the people (public service users) to conduct online transactions, and (d) The fourth phase is digital transformation. The government services increase in an integrated manner in the effective and efficient services for the people or users as well as collaborating with other related organizations [11].

In the development of e-government, there are factors of the success required in the e-government project. Harvard JFK School of Government described the success required factors include [8]:

a. Support

This factor means a will of public and political official leaders to support the implementation of e-government concept. Political will, particularly in the "top-down" management model, is very important in the success required of this e-government project. Leaders need to support the project by giving high priority and commitment to e-government projects, allocating sufficient resources, providing supporting infrastructures, as well as setting regulations that support e-government projects [8]. A strong commitment to efficiency in solving public problems and the ability to integrate all public affairs into one unified system is part of the leadership model needed in the e-government era [12]. Successful implementation of digitization initiatives in public service delivery requires a shift in organizational culture, the establishment of a regulatory sandbox to test new technologies in a controlled and ethical manner, and overcoming barriers such as inadequate regulations and bureaucratic culture [13]. In this study, the regulatory framework is very important as a strong foundation for the preparation and implementation of the e-government project.

b. Capacity

In an e-government project, capacity means the government's ability to realize an e-government project, including the capacity of government organization, the availability of sufficient resources including financial resources, adequate ICT infrastructure, and human resources (staff) with competencies related to the e-government project [8]. Successful implementation of digitization initiatives in public service delivery requires a shift in overcoming barriers such as limited data integration, gaps in ICT infrastructure availability, and limited ICT competencies. An in-depth analysis of digitization initiatives in the public sector has revealed the significant impact of digital tools and platforms on governance practices and service delivery. While the benefits are enormous, it is imperative to address the potential challenges and pitfalls to ensure responsible and effective implementation of digital technologies in the public sector. This requires a comprehensive understanding of challenges and solutions associated with the application of digital technologies and AI in public service delivery [13].

c. Value

This factor focused on the values related to e-government projects, such as the value of the benefits obtained by the people as users of government services. For example, for a Government project that provides large or significant benefits to the people (demand side), the e-government project has the potential to be successful [8].

This research was conducted with a qualitative approach and descriptive method. Through this method, researchers try to provide an overview of descriptive identification supported by data and facts, several findings and conclusions can a problem based on facts in the field. Identification of problems, specific issues, and alternative actions related to the e-government project being implemented. Through qualitative be drawn that can be lessons learned.

This research used both primary and secondary data. Primary data was collected directly by researchers from primary or sources through interviews and observations in the field. Researchers conducted interviews with 15 resource persons or stakeholders, including the Head of the Public Works Agency, the Secretary of the Public Works Agency, the Head of the Revenue Division under the Finance Agency, the Head of the public flat management unit, the Secretary of the public flat management unit, Revenue Treasurer Public Works Agency, Administration Officer the public flat management unit (3 people) and representatives of flat users (6 people). Meanwhile, the secondary data was collected from various sources such as regulations and data which are available at agencies under the Government of Semarang Regency.

3. Results and Discussion

Regarding the four-stage model of e-government development in the long term, the e-government project to prepare and operate digital payment for a flat rental by the Public Work Agency of Semarang Regency has entered the third phase, which is the transaction

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phase [11]. Public Work Agency as a government unit provides the application or platform for people as public service users for online flat rental transactions.

This study identified the success required in digital payment for public apartment rent in Semarang Regency based on the process of preparation and implementation of the digitalization of flat rental payment. This process has been conducted from June to August 2024 as the system has been implemented starting in September 2024.

The result of the identification of factors or success required in the e-government project to prepare and operate digital payment for public flat rental by the Public Work Agency of Semarang Regency are as follows:

3.1.Support

The political will of the leaders is very important in the success of the e-government project in digital public services. This support is mainly to make the e-government project a high priority. Then leaders ensure adequate allocation of resources including supporting infrastructure, manpower, and regulations to support the project.

From our interview with related stakeholders, we found that the leaders have released policies, regulations, and other supports to implement digital transactions or e-transactions for all public payments in Semarang Regency as follows (see also Table 1):

- Semarang Regent Regulation (*Peraturan Bupati Semarang*) Number 121 of 2022 concerning Guidelines for the Implementation of Non-Cash Transactions in the Local Government Budget which stipulates that all transactions under the Semarang Regency Government are carried out non-cash or digital transactions [14].
- Recommendation of the Semarang Regency Parliament (*Dewan Perwakilan Rakyat Daerah/DPRD*) on the 2022 Local Government Budget Implementation Accountability Report [15]. DPRD recommended the Semarang Regency Government implement all e-transactions no later than January 1, 2024. Although until mid-2024, government revenue transactions are mostly still carried out in cash.
- Head of Public Work Agency of Semarang Regency Decree (*Surat Keputusan/SK*) establishing the Working Team for the Preparation of e-transaction for public flat rental No. 974.9/029/2024 dated July 8, 2024. This decree became the basis for the team to work to prepare and operate e-transactions.
- Head of Public Work Agency of Semarang Regency Decree (*Surat Keputusan/SK*) concerning the Standard Operating and Procedure (SOP) for the Implementation of e-Transaction for public flat rental No. 100.3.6/SOP/DPU/2024 dated August 13, 2024.
- Head of Public Work Agency of Semarang Regency Letter (No. 900.1.3./ 1047/2024 dated August 28, 2024, concerning the Implementation of e-Transaction for Public Flat Rental. By this letter, the implementation of the digital payment of public flat rentals must be carried out starting September 1, 2024.
- The policy of the Head and Secretary of the Public Works Agency of Semarang Regency in supporting the management unit to prepare and implement the e-transaction for public

flat rental. This support includes in the form of coordination meetings, direct support, and guidance to the team (see Figure 1).

• Support from the Finance Agency of Semarang Regency (*Badan Keuangan Daerah / BKUD*) as the super admin of the billing center of Bank Jateng. The Finance Agency has provided a digital for all government budget transactions and provided technical training and assistance for the operators or admins in preparation and implementation of e-transactions.

Figure 1. Coordination meeting for the preparation of e-transaction (15 July 2024)

Table 1. Evaluation of Factor 1 Support

No	Factor/subfactor	Value
A	**Support**	
1	*Perbup Semarang* No. 121 of 2022 concerning Guidelines for the Implementation of Non-Cash Transactions in the Local Government Budget	+
2	Recommendation of the Semarang Regency Parliament (*Dewan Perwakilan Rakyat Derah / DPRD*) on the 2022 Local Government Budget Implementation Accountability Report	+
3	Head of Public Work Agency of Semarang Regency Decree (*Surat Keputusan / SK*) establishing the Working Team for the Preparation of e-transaction for public flat rental No. 974.9/029/2024 dated July 8, 2024.	+
4	Head of Public Work Agency of Semarang Regency Decree (*Surat Keputusan / SK*) concerning the Standard Operating and Procedure (SOP) for the Implementation of e-Transaction for public flat rental No. 100.3.6/SOP/DPU/2024 dated August 13, 2024	+

No	Factor/subfactor	Value
5	Head of Public Work Agency of Semarang Regency Letter (No. 900.1.3./ 1047/2024 dated August 28, 2024, concerning the Implementation of e-Transaction for Public Flat Rental	+
6	The policy of the Head and Secretary of the Public Works Agency of Semarang Regency in supporting the management unit to prepare and implement the e-transaction for public flat rental.	+
7	Support from the Finance Agency of Semarang Regency (*Badan Keuangan Daerah / BKUD*) as the super admin of the billing center of Bank Jateng.	+

Note: + = positive / support; 0 = neutral; - = negative / opposite

From the result of the identification above, this research found the importance of the political will from leaders, adequate regulations, commitment, and providing digital platforms as well as technical assistance to become a strong foundation for supporting the preparation and implementation of the e-government project.

3.2. Capacity

Capacity in the e-government project means the government's ability or capacity to realize this project. The capacity of government organizations can be in the form of the availability of sufficient resources including financial resources, ICT infrastructure such as adequate software (digital platform) and hardware, and competent human resources. The main infrastructure in the e-transaction for public flat rentals is a digital platform of billing centers. The Finance Agency of Semarang Regency in collaboration with Bank Jateng has provided the billing center for all e-transactions for the government of Semarang Regency. Through the Bank Jateng billing center, e-transactions or e-payments can technically be carried out. (see Figure 2). Technically, this billing center or digital platform has been prepared to make it easier for users (public) to pay for the use of public services through many ways or methods. The payment methods that users (public) can choose are:

1. payment to Bank Jateng cashier or other bank cashier;
2. payment through Bank Jateng ATMs or other banks ATMs;
3. payment via Bank Jateng i-banking or m-banking or other banks i-banking or m-banking;
4. payment through Bank Jateng smart agent or other banks smart agent;
5. payment via e-wallet (such as Gopay, Ovo, Dana); and
6. payment via QRIS.

In terms of hardware infrastructures (computers/laptops and internet networks), the constraints still occur. Due to budget limitations in 2024, the Public Works Agency of Semarang Regency will purchase computers and internet infrastructure for each flat in the 2025 fiscal year.
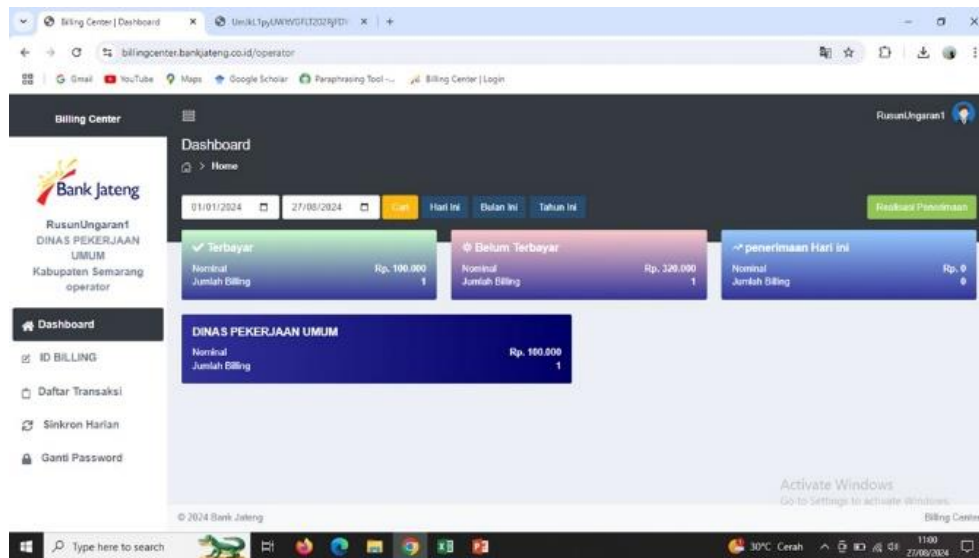
Figure 2. e-billing website of Bank Jateng as a digital platform for public flat rental payment

Meanwhile, regarding the capacity of human resources, the Head of Public Works Agency of Semarang Regency has appointed personnel and organizations that are technically responsible for the preparation and operation of e-transactions. Initially, the appointed human resources did not have enough capacity to provide digital public services. For this reason, the management unit conducted technical training and capacity building for the preparation and operation of the e-transaction for public flat rental on August 18, 2024 (see Figure 3). The assessment or evaluation of each sub-factor in this capacity factor can also be seen in Table 2.

Table 2. Evaluation of Factor 2 Capacity

No	Factor/subfactor	Value
B	**Capacity**	
1	Availability of digital platform of billing center provided by the Finance Agency of Semarang Regency in collaboration with Bank Jateng. Through the Bank Jateng billing center, e-transactions or e-payments can technically be carried out	+
2	Unavailability of hardware infrastructures: computers/laptops and internet networks, the constraints still occur	-
3	Technical training and capacity building for the preparation and operation of the e-transaction for public flat rental on August 18, 2024	+

Note: + = positive / support; 0 = neutral; - = negative / opposite

Figure 3. Technical training and capacity building for personnel of the e-transaction for public flats rent (August 18, 2024)

From the result of the identification above, this research found the importance of adequate ICT infrastructure (hardware and software), and human resources (staff) with competencies related to the e-government project. In this project, there are still gaps in ICT hardware infrastructure availability particularly laptops and internet networks. Meanwhile, limited ICT competencies have been solved by technical training and capacity building for the preparation and operation of the e-transaction for public flat rentals.

3.3. Value

In this research, values were correlated to e-government projects or digital public services. The value of the e-government project focuses on the benefits obtained, especially for the community as users of government services. Non-cash or digital payment of public flat rentals can obtain added value for organizations. The digital payment process is faster than cash payment because the money goes directly into the Finance Agency of Semarang Regency. Compared to cash payments where the money is collected first by management officers, e-transaction is much better and safer. Digital or e-payments are easier to do because e-payments can be done in many ways such as payments through bank cashiers, ATMs, e-banking, m-banking, e-wallets (such as Gopay, Ovo, and Dana), QRIS, and smart agents. Digital payments also reduce the risk of losing money and the possibility of fraud by the personnel.

In the e-government project, it is very important to build public (users) awareness of the benefits of the project. When users understand the benefits, they usually easily accept and support the transformation from manual to digital. Finally, users will collaborate and support the e-government project. To build community awareness of digital payment for public flat rentals, the management unit has carried out socialization activities for the community (users). Three e-transaction socialization meetings were held in Ambarawa on August 20, 2024, attended by 26 participants, in Pringapus on August 21, 2024, attended by 20 participants, and in Ungaran on August 22, 2024, attended by 26 participants (see Figure 4 to Figure 6).

Meanwhile, the assessment or evaluation of the sub-factors in this value factor can also be seen in Table 3.

Figure 4. E-transaction socialization meeting in public flat Ambarawa

Figure 5. E-transaction socialization meeting in public flat Pringapus

Figure 6. E-transaction socialization meeting in public flat Ungaran

Table 3. Evaluation of Factor 3 Value

No	Factor/subfactor	Value
C	**Value**	
1	Important to build public (users) awareness of the benefits of the e-government project. Understanding the benefits by users will be easy to accept and support the transformation from manual to digital	+

Note: + = positive / support; 0 = neutral; - = negative / opposite

From the result of the identification above, e-government projects need to build the value of benefits, particularly by the people as users of government services. e-Government projects should provide significant benefits to the people as demand side, so the project has the potential to be successful.

4. Conclusions

Digital transformation in the public services by the local government of Semarang Regency will improve the service related to several benefits. In the case of the e-government project of e-transaction for public flat rental in Semarang Regency, services to the people or users will become more efficient, e-payment open to the public 24/7, reduce the administrative burden, and be more transparent and accountable. Finally, digital payment in public services helps governments meet public expectations.

From the process of digital transformation in e-payment for public flat rental in Semarang Regency during the preparation stage to operations (June to September 2024), this research concluded the success required in digital payment as follows:

- In terms of support, the political will from local leaders, adequate regulations, and commitment toward successful digital transformation become a strong foundation for supporting the preparation and implementation of the e-government project.
- In terms of capacity, adequate ICT infrastructure both hardware and software, and human resources such as technical staff with competencies related to the e-Government project. Whenever there are still gaps, for example, staff with limited ICT competencies, it should be solved by technical training and capacity building.
- In terms of value, it is important for e-government projects to build the value of benefits for the people as users and demand side of government services. e-Government projects should provide significant benefits to the people, so the project has the potential to be successful.

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