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From E-Government to Smart Governance: Institutional Adoption of the Jogja Smart Service Application in Yogyakarta City

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A B S T R A C T

Jogja Smart Service (JSS) is a digital public service application developed by Dinas Komunikasi, Informatika dan Persandian Kota Yogyakarta to support independent services. E-Government Adoption is necessary because its concept has become a reference in realizing electronic-based governance, especially in simplifying services through the development of digital applications. This study uses descriptive qualitative research methods; data were collected through semi-structured interviews, non-participant observation, and documentary analysis with eleven informants selected through purposive sampling, and validity was established using methodological triangulation. This research was studied using Indrajit's theory (2005), which contains components of E-Government adoption, including Competency Building, Capital, Cyber Laws, Connectivity, Content Development, and Citizen Interfaces. The results of the study shows that each of the adoption components has been largely met, with some components only partially fulfilled. The findings indicate that the adoption of E-Government principles in the Jogja Smart Service (USS) application has generally been implemented, although several components still require improvement. Competency Building is reflected through employee training programs that are not yet conducted routinely. The Capital component shows that JSS development is primarily

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funded through the Regional Revenue and Expenditure Budget (APBD), with additional ecosystem support from CSR initiatives. Cyber Laws are supported by central and regional regulations. Connectivity is supported by hardware and software infrastructure at DISKOMINFO Yogyakarta City, although system scalability and performance still require continuous evaluation. Content Development is reflected in the application's accessible interface and integrated services, while improvements in responsiveness and user experience remain necessary. Citizen Interfaces are demonstrated through multi-access communication channels for public services.

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INTRODUCTION

Every public organisation should, without exception, make its public information available to the general public(Lenak et al., 2021). Public organisations are under growing pressure to provide transparent, effective, and accessible services in the face of digital disruption.

This is mandatory by Law No. 14 of 2008 respecting Openness of Public Information, which declares that the government protects the public's right to receive information that is factual, accurate, and not twisted, imposes this requirement.

Furthermore, according to the Indonesian Central Information Commission State Institution, Indonesia's Public Information Openness Index (IKIP) score is 74.43 in 2022 and is in the medium category (Cindy Mutia Annur, 2022). The development of information disclosure has become the government's effort to create a more open, responsible government administration and encourage public participation (Habibie, 2019). Moreover, the development of information openness is also in line with the development of internet use in Indonesia (Cindy Mutia Annur, 2022). In this context, the development of information openness is in line with the increase in internet use, which then has implications for the emergence of a new culture of digital communication. E-Government seeks to enhance public service delivery by leveraging information and communication technologies to provide accessible, transparent, and citizen-focused services.

all government public organisations must be able to stay up to date with current technology

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advancements, by creating information systems and using the Internet to record and manage public information more effectively and efficiently. Furthermore, the government needs a strategic step that is directed at the management and institutional system in using this technology, namely the existence of an electronic-based government or what is usually called Electronic Government (E-Government) (Masyhur, 2017). E-Government is a technological system developed by the government to improve public services by giving the public options to get easy access to public information (Dewi et al., 2012). One of the regional governments that has implemented E-Government in its public service process is the City of Yogyakarta through the launch of the Jogja Smart Service application (Rijal et al., 2023).

The Yogyakarta City Government has implemented E-Government initiatives through the Jogja Smart Service (JSS) application, developed by the Department of Communication, Information, and Cryptography. JSS functions as a unified digital platform that integrates services from various regional offices (OPD), to improve efficiency, accessibility, and coordination across public service sectors.

According to the 2020 United Nations E-Government Survey, Indonesia ranks 88th globally with an EGDI score of 0.6612, placing it in the High EGDI category but below the Very High threshold achieved by neighbouring Southeast Asian countries. Despite this national classification, aggregate EGDI scores obscure significant variation in the quality and accessibility of digital services at the local government level. This gap between national-level e-government aspirations and local implementation realities underscores the importance of systematic empirical investigation into how regional digital service platforms operationalise e-government principles in practice.

According to the 2020 United Nations E-Government Survey, Indonesia was categorized at the High E-Government Development Index (EGDI) level with a score of 0.6612. The EGDI assessment reflects several dimensions of digital governance readiness, including the quality of online public services, digital infrastructure development, and human resource capacity in supporting E-Government implementation. Therefore, EGDI not only represents a country's digital governance performance but also indicates the readiness of government institutions to provide effective and sustainable digital public services.

Albeit Indonesia has shown progress in implementing E-Government, challenges related to service integration, infrastructure readiness, and service effectiveness remain important issues, particularly at the local government level. This condition highlights the importance of examining how regional governments

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operationalize E-Government initiatives in practice. One example is the Yogyakarta City Government through the Jogja Smart Service (JSS) application, developed by the Yogyakarta City Department of Communication, Information, and Cryptography as an integrated digital public service platform to improve service accessibility, efficiency, and coordination through information technology utilization.

The reason for the existence of the Jogja Smart Service application is that the previous services provided by each Regional Apparatus Organization (OPD) were still separated into various service applications, making them less practical (Yusuf Assidiq, 2018; Sudirman & Saidin, 2022). However, since the Jogja Smart Service application has been introduced, the public can easily get access to the services they need since the entire information system for every OPD in Yogyakarta City has been integrated into this application. Jogja Smart Service is an example of a digital application that is constantly mentioned in E-Government outreach in Indonesia (Yusuf Assidiq, 2018). Based on this fact, it can be seen that as an embodiment of E-Government, the Jogja Smart Service application must, of course, be able to adopt the concept of E-Government. Adoption itself is a process of accepting innovation and/or changing behavior in the form of knowledge (cognitive), attitudes (affective), and skills (psychomotor) in a person after receiving the innovation presented by the instructor to the target community (Mardikanto & Totok, 2009). Therefore, in this case, the adoption of E-Government in the Jogja Smart Service application is a crucial thing to do because the concept of E-Government has become a reference in realizing electronic-based government governance, especially in the form of digital application development. Thus, in this case, in order to make the Jogja Smart Service application operate according to E-Government principles, the researcher examines how to implement E-Government.

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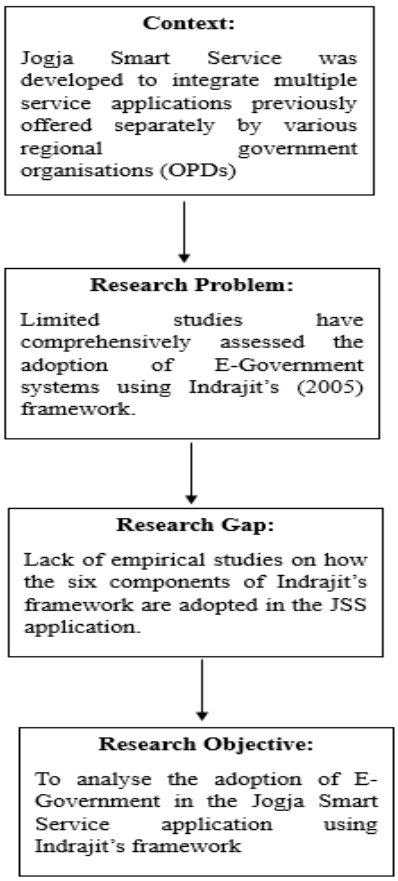
Figure 1. Logical Flow of The Research



Source: Researcher Observations, 2023

Prior scholarship on e-government in Indonesia has predominantly focused on three areas: Technology Acceptance Model (TAM)-based user adoption studies (Masyhur, 2017), policy-level assessments of e-government readiness (Oktavya et al., 2015), and infrastructure evaluations of digital service platforms (Sri Hariyati et al., 2022). While these contributions advance the field, they share a common limitation: they tend to examine individual dimensions of e-government adoption in isolation, rather than assessing the full ecosystem of factors required for sustained implementation.

Indrajit's (2005) six-component framework—comprising Competency Building, Capital, Cyber Laws, Connectivity, Content Development, and Citizen Interfaces—addresses this gap by providing a holistic analytical lens that captures both supply-side (infrastructure, legal framework, funding) and demand-side (interface, user experience, access channels) dimensions simultaneously. Despite the framework's analytical breadth, it has been applied in only a limited number of empirical studies on regional

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government applications in Indonesia, and none to date have examined the Jogja Smart Service (JSS) platform using this comprehensive approach. This study, therefore, represents a timely contribution by systematically applying Indrajit's framework to evaluate JSS adoption, offering an empirically grounded assessment of how Yogyakarta City's e-government initiative operationalises each of the six components.

Thus, this study aims to analyse the adoption of E-Government within the Jogja Smart Service application through the lens of Indrajit's (2005) six-component framework, providing a comprehensive understanding of how the Yogyakarta City Government has integrated the essential elements of E-Government adoption. The findings are expected not only to contribute to the body of knowledge on digital governance practices in Indonesia but also to offer practical insights for policymakers and local governments seeking to enhance the effectiveness of their smart service initiatives.

METHODOLOGY

This study employed a descriptive qualitative research design to examine the adoption of E-Government within the Jogja Smart Service (JSS) application developed by the Yogyakarta City Department of Communication, Information, and Cryptography (DISKOMINFO). A qualitative approach was selected to obtain an in-depth understanding of how the six components of E-Government adoption proposed by Indrajit (2005) were implemented in the operational context of JSS.

The research was conducted in Yogyakarta City between January and June 2023. Fieldwork was carried out at the DISKOMINFO office, the Public Service Mall (Mal Pelayanan Publik/MPP), and several public service access points connected to the JSS ecosystem. Data collection techniques consisted of semi-structured interviews, non-participant observation, and documentary analysis. Informants were selected using purposive sampling based on their involvement, experience, and knowledge regarding the implementation and use of the JSS application. A total of eleven informants participated in this study, consisting of six DISKOMINFO officials and technical personnel involved in JSS development and management, and five members of the public who actively used JSS services.

Interview data were used to explore institutional practices, infrastructure readiness, service management, and user experiences related to the six components of E-Government adoption. Observational data were used to examine operational activities, digital infrastructure facilities, and service accessibility, while documentary analysis focused on regulations, institutional reports, Smart City master plans, operational

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procedures, and application-related documents. The collected data were analysed using framework analysis based on Indrajit's (2005) six E-Government adoption components: Competency Building, Capital, Cyber Laws, Connectivity, Content Development, and Citizen Interfaces. The analysis process included data reduction, coding, categorisation, interpretation, and comparison across data sources. Methodological triangulation was conducted by comparing interview findings, observational evidence, and documentary data to ensure the validity and consistency of the research findings.

To maintain research ethics, all informants participated voluntarily and were informed about the purpose of the research prior to the interview process. Informant confidentiality and anonymity were maintained throughout the study.

RESULTS AND DISCUSSIONS

Jogja Smart Service (JSS) is a digital public service application developed by the Yogyakarta City Government for employees and the public. JSS can be interpreted as a virtual City Hall or virtual portal for the Yogyakarta City Government because the public seems to be brought to the City Hall to get complete services with just the touch of a finger. Based on Yogyakarta Mayor Regulation (Perwali) Number 100 of 2018 concerning the 2018-2022 Yogyakarta Smart City Development Masterplan with the Smart Governance Roadmap, this application is a form of implementing E-Government. Therefore, the adoption process of E-Government is necessary to realize Smart Governance. In this case, the adoption of E-Government in the JSS application needs to be done. The application of E-Government in the JSS application explained using the theory of E-Government adoption by (R Eko Indrajit et al., 2005) with 6 components, namely: Competency Building, Capital, Cyber Laws, Connectivity, Content Development, and Citizen Interfaces.

1. Competency Building

The Competency-building component can be interpreted as developing the competency or expertise of all levels of Human Resources, in this case, the Human Resource of the Yogyakarta City Communication, Informatics, and Cryptography Department, as the JSS application developer. We can look at the following aspects to see how HR development works.

a. Employee Placement

The corridor for placement of Yogyakarta City *DISKOMINFO* staff or employees has been designated, marked by the competency or qualifications of each employee who has been placed, following the characteristics in each field in the *DISKOMINFO of* Yogyakarta City. The data regarding this can be seen in the following Table.

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Table 1. Employee Qualifications for Each Communication and Information Services Sector in Yogyakarta City

No	Sector	Characteristics	Employee Qualifications	Amount Employee
1.	Informatics and Communication Sector	Functions as the public relations department of the Yogyakarta City *DISKOMINFO*, which is responsible for publication and outreach.	Bachelor of Communication Science Bachelor of Government Science	13 persons
2.	Information Systems and Statistics Sector	In general, the responsibility for implementing SPBE, in this case, is the operation of the Jogja Smart Service application.	Bachelor of Computer Science Bachelor of Statistics	7 persons
3.	Telematics Infrastructure Sector	Guarantee the availability of infrastructure such as data centre space and network services.	Bachelor of Information Engineering	10 persons
4.	Coding and Telecommunications Sector	Focuses on developing digital ecosystems and security networks and servers.	Bachelor of Information Engineering	14 persons

Source: (Communication and Information Services DISKOMINFO of Yogyakarta City, 2022)

Based on this data, it is known that the placement of employees with certain educational background qualifications has been adjusted to the characteristic conditions in each field so that later the activity process at the *DISKOMINFO* of Yogyakarta City including the development of the JSS application, can run optimally because

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the duties and functions of Human Resource are focused and structured.

b. Special Recruitment

In general, the majority of employees in the government sector are from the State Civil Apparatus (ASN), whose recruitment is under the authority of the Civil Service Agency. However, at *DISKOMINFO* in Yogyakarta City itself, there is a special recruitment for non-ASN employees who hold the status of contract workers, specifically as technical personnel focusing on application management and system development. The Yogyakarta City *DISKOMINFO* recruits technical personnel through individual services outside the civil service agency.

Table 2. Yogyakarta City *DISKOMINFO* Employees 2023

No.	Employee	Amount
1.	State Civil Apparatus (ASN)	80 persons
2.	Individual Services (Technical Personnel)	40 persons

Source: DISKOMINFO Yogyakarta City, 2023

Based on this data, it is known that the technical personnel responsible for developing the JSS application come from the involvement of third parties outside ASN who are recruited through the procurement of individual services with certain qualifications, namely with a competency background in information and communication technology whose duties are in application development and management JSS.

c. Employee Training

In supporting human resource development, *DISKOMINFO of* Yogyakarta City holds employee training activities where these activities are divided into two areas, namely the operational sector and the system development sector. In the field of system development, this is done through employee training, although it is not carried out routinely but only situationally.

Figure 2. Yogyakarta City *DISKOMINFO* Staff Technical Training

Source: Researcher Observations, 2023

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Meanwhile, human resource development in the operational sector is handed over to each OPD with the concept of Training Trainers (TOT). With the concept of Training of Trainers (TOT), *DISKOMINFO* provides training to those who are admins and system operators in the OPD so that later these employees can carry out their duties independently and retrain other employees in the OPD environment without the help of *DISKOMINFO.*

2. Capital

The Capital component refers to the funding and resource allocation required to support the development, operation, and sustainability of an E-Government project, including application maintenance and system development. In this study, the Capital component focuses on the financial resources used to develop and maintain the Jogja Smart Service (JSS) application. The primary source of funding for JSS development originates from the Regional Revenue and Expenditure Budget (APBD) of Yogyakarta City. This budget allocation supports operational activities, system maintenance, and the development of electronic-based government services."

In addition to government funding, the development of the broader digital ecosystem surrounding JSS is also supported by third-party involvement through Corporate Social Responsibility (CSR) initiatives. However, CSR contributions do not directly finance the core operational development of the JSS application. Instead, these contributions primarily support complementary digital facilities, such as public hotspot services and co-working spaces that enhance public accessibility to digital services. Therefore, the sustainability of the JSS application itself remains primarily dependent on institutional capacity and regional government budget allocations, while external support functions as a complementary element in strengthening the digital service environment.

Table 3. Jogja Smart Service Application Budge

No.	Work Program/Activities	DPPA Budget (IDR)
1.	Development of Electronic-Based Government Applications and Business Processes	969,125,600
2.	Implementation of Regency/City Regional Government Information Security Based on Electronic and Non-Electronic	435,840,000

Source: LKIP DISKOMINFO Yogyakarta City, 2023

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Apart from that, according to Mayor Regulation Number 15 of 2015 and Mayor Regulation Number 142 of 2021, it is stated that it is possible that the budget source for developing the JSS application can also be obtained through other sources outside the APBD by statutory regulations. In this case, there is involvement of a third party in the form of capital facilities provided to support the JSS application development ecosystem, namely in the form of CSR (Corporate Social Responsibility.

Figure 3. Co-working Space by CSR G-Media

Source: Researcher Observations, 2023

The third party involved in providing capital is CSR from the G-Media company, which operates in the internet service provider sector by providing free hotspot space for the community. This company, together with *DISKOMINFO* Yogyakarta City, is developing a digital ecosystem to support a smart society by facilitating public Wi-Fi for co-working space activities in every area in Yogyakarta City.

3. Cyber Law

The Cyber Laws component is related to the availability of legal frameworks and instruments that have been implemented, related to the intricacies of E-Government activities. This component focuses on the existence of legal instruments or frameworks that have been implemented by the Yogyakarta City Communication, Information, and Cryptography Department related to the procurement of JSS applications and E-Government activities, both regulations coming from the central government and regional governments.

The procurement of the JSS application is based on Presidential Regulation Number 95 of 2018 concerning Electronic-Based Government Systems (SPBE) which was then refined by Presidential

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Regulation Number 132 of 2022 concerning Electronic-Based Government System Architecture (SPBE). Meanwhile, the Ministry of State Apparatus Empowerment and Bureaucratic Reform (PANRB) as the coordinator of the implementation of SPBE has ensured that the government's digital transformation can be carried out in an integrated and comprehensive manner by drafting the Regulation of the Minister of State Apparatus Empowerment and Bureaucratic Reform Number 59 of 2020 concerning Monitoring and Evaluation of Electronic-Based Government Systems and Regulation of the Minister for Empowerment of State Apparatus and Bureaucratic Reform Number 7 of 2022 concerning Work Systems in Government Agencies to Simplify Bureaucracy.

Apart from having national legal certainty, the JSS application, as a regional public service application, of course, also needs to be regulated by local regional regulations, in this case, namely the Yogyakarta City Government through Yogyakarta Mayor Regulation No. 15 of 2015 concerning E-Government and Yogyakarta Mayor Regulation No. 142 of 2021 concerning the Master Plan for Electronic-Based Government Systems for 2022-2026. Apart from that, based on the results of researchers' observations on the Yogyakarta City JDIH page, there are also other PERWALI that also regulate the development of JSS applications, namely Yogyakarta Mayor Regulation No. 131 of 2021 concerning the Yogyakarta City Smart City Development Masterplan for 2022-2026 and Yogyakarta Mayor Decree No. 431 of 2018 concerning Determination of Standard Operational Procedures for Jogja Smart Service in the Yogyakarta City Government.

4. Connectivity

The Connectivity component refers to the availability and capability of information and communication technology infrastructure in supporting sustainable E-Government implementation. In the Jogja Smart Service (JSS) application, this component includes the technological infrastructure managed by the Yogyakarta City Department of Communication, Information, and Cryptography (DISKOMINFO), such as hardware, software, servers, backup systems, firewalls, and optical fiber networks that support service operations and accessibility.

However, infrastructure availability does not automatically indicate optimal connectivity performance. The increasing number of users and integrated digital services require continuous adjustments in server capacity, bandwidth allocation, and system scalability. Therefore, although the existing infrastructure generally supports JSS operations, continuous

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system optimization and infrastructure improvement remain necessary to maintain service responsiveness and accommodate growing public service demands.

a) Hardware

Yogyakarta City *DISKOMINFO* has a data-centre room (Data-Centre) which functions as a place to store and manage data, including a JSS application hosting server. The data centre space at *DISKOMINFO* Yogyakarta City itself measures 9 x 24 meters with a rack capacity of 14 units. This data centre space is sufficient in terms of existing standards. For example, in the room, there is a UPS (Uninterruptible Power Supply) with 60 KV power and 2 generator units. This second thing is related to a backup power supply if there are problems with electricity availability. Apart from that, *DISKOMINFO*, Yogyakarta City, has prepared Precision Air Conditioning (PAC), which is a cooling system specifically designed for data centres and server rooms. The number of ACs in the data centre room is 2 units, and they work alternately.

Figure 4. Data Centre Space

Source: Researcher Observations, 2023

Apart from that, there are also various other supporting facilities such as a fire detector for fire detection, an FM 200 gas fire extinguisher, a goods lift with a maximum capacity of 800 kg, a loading room before the goods are installed in the server room, and a panel room with an area of 6 x 3 meters. So, it can be seen that the supporting infrastructure facilities in the data centre space are quite adequate. Yogyakarta City *DISKOMINFO* also thinks about business continuity in its activities. In this sense, because the data centre is the core of all Communication and Information Services DISKOMINFO activities, so that data remains safe if problems occur, backup efforts are needed by collaborating with third parties (private sector) in terms of providing and renting servers. Apart from that, they also use data back-up facilities from the National Data Centre, which is being developed by the Ministry

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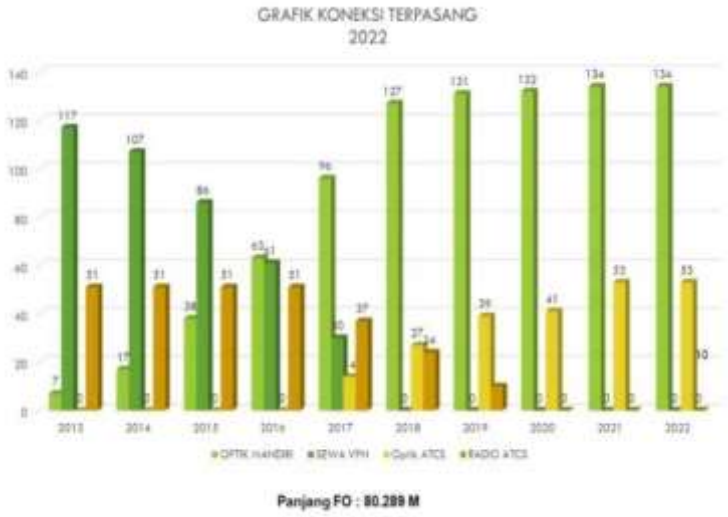
of Communication and Information. Sustainability or other business continuity is also demonstrated by routine maintenance and checking of infrastructure equipment.

b). Software

Yogyakarta City *DISKOMINFO* also pays attention to the availability of software. The software itself is a collection of electronic data that is programmed, stored, and formatted digitally to carry out certain functions. Software availability is marked by the presence of Hyper-Converged Infrastructure (HCI) technology and firewalls in operating JSS applications. Hyper-converged infrastructure (HCI) functions so that the server no longer has to be one physical server, and then all the basic information is there, but in one server there is a collection of resources for computing, including memory, hard disk, and storage, which have been managed with software. This results in an integrated system that combines computer networking and storage in one easy way to manage virtual systems. Meanwhile, the Fortigate Firewall software functions for server protection and security. All software used by the Yogyakarta City *DISKOMINFO* has been licensed so that it can support JSS application development activities optimally. Then in terms of network, Yogyakarta City *DISKOMINFO* has installed an independent optical fiber which plays a role in transmitting data from one place to another. Optical fiber itself is a technology in the form of a cable that functions to convert electrical signals into light through glass or plastic fibers. For more details on the availability of network infrastructure as indicated by the installation of fiber optics by the Yogyakarta City *DISKOMINFO*, you can see the following graphic

Figure 5. Installed Connection Graph 2022



Source: DISKOMINFO Yogyakarta City, 2023

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The graph shows that installing fiber optics, both independent optics, VPN rental, ATCS optics, and ARTS radio, is adequate. Apart from that, several points in the city of Yogyakarta have also been facilitated with free hotspot services to access the internet for free. The internet connection that has been distributed is 5,618 Mbps, with distribution details as follows.

Table 4. Free Hotspot Internet Connection Bandwidth

No.	Location	Bandwidth
1.	City Hall, outside the complex, and free WiFi	2000 Mbps
2	Subdomain Services	624 Mbps
3.	Library Services	124 Mbps
4.	Schools (Primary and Middle Schools)	1350 Mbps
5.	DPRD Building	220 Mbps
6.	RW Hall Internet (310 locations)	1800 Mbps

Source: DISKOMINFO Yogyakarta City, 2023

5. Content Development

The Content Development component in E-Government adoption relates to the development of digital applications and service features that support public accessibility and usability. This component includes the User Interface (UI), which refers to the visual design and system appearance developed by the application provider, as well as the User Experience (UX), which reflects users' experiences in accessing and utilizing digital public services. In this study, the analysis of Ul and UX was explored qualitatively through observations and user narratives regarding application accessibility, interface design, ease of use, and service responsiveness within the Jogja Smart Service (USS) application.

a) User Interface (UI)

User Interface is a visualization display of an application that determines how users interact with the application product. User Interface combines several concepts, including interaction design, visual design, and information infrastructure, to increase the ease of use of applications. Good interface design should make the application more comfortable when used by its users. On this basis, *DISKOMINFO* Yogyakarta City, as the JSS application developer, uses Flutter-type UI system design materials. Flutter is a type of framework that is used to help developers create multi-platform mobile applications that use one codebase, meaning that the resulting application can be accessed on various platforms, including Android mobile, iOS, web, and desktop. Flutter

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has two important components, namely, the Software Development Kit (SDK) and the User Interface (UI) Framework. A Software Development Kit (SDK) is a collection of tools that function to create applications that can be run on various platforms. Meanwhile, the UI Framework is a UI component, such as text, buttons, and navigation, that can be customized according to the developer's needs. The JSS application itself has gone through 4 upgrade versions. In the latest version, there is a customization feature in the menu bar that can be adjusted to the user's needs, as shown in the following image.

Figure 6. Jogja Smart Service Mobile Display

Source: Researcher Observation, 2023

Furthermore, to fulfill the characteristics of public service applications with a simple, consistent, and responsive design, the JSS application provides two platforms, namely web view and native. For the web, JSS services can be accessed via a browser with the domain jss.jogjakota.go.id. The JSS service web display is specifically designed to be accessed easily and quickly by displaying the most frequently accessed services on the home page.

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Figure 7. Jogja Smart Service Web View Display

Source: jss.jogjakota.go.id. 2023

The characteristic of a simple application itself is that it minimizes interaction, the principle of integrating all services in each agency into one in the JSS application, one of which is to support this simple principle, simplification starting from simplifying procedures to simplifying the display interface in the application. Then, in terms of brevity and structure, JSS application services are displayed based on categorization, where within these categories there are various types of services needed.

Figure 8. Jogja Smart Service Categorization Display

Source: Research Observation, 2023

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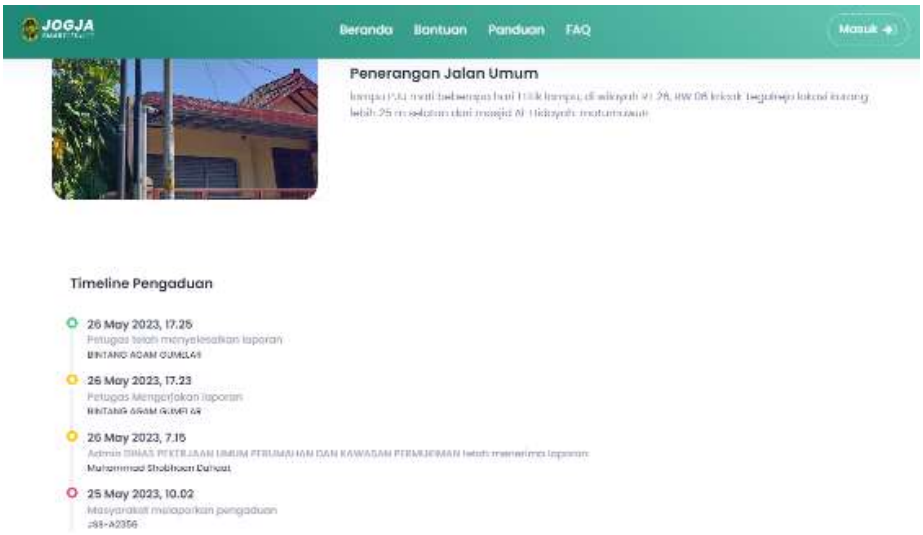
Furthermore, the consistency of this application can also be seen from the complaint service side. In the complaint service, there is a complaint progress timeline that can be accessed publicly to find out how far the complaint has been handled, starting from the public reporting the complaint, whom the officer handled, worked on, and resolved the complaint, to a map of where the complaint was found. All of this information is consistently displayed on the complaint menu, including if the complaint is forwarded to the relevant OPD responsible for complaints.

Figure 9. Jogja Smart Service Complaints Page Display



Source: jss.jogjakota.go.id , 2023

b) User Expererience (UX)

User Experience or what is known as user experience, is a concept that focuses on the user's experience in interacting with the product or service used, especially digital products. This experience is seen from the ease and efficiency of users in getting what they want from the product. For example, when accessing an application, user experience is an experience in exploring all its features, seeing the appearance of the application, and carrying out procedures until it successfully produces output. In this case, researchers used the User Experience Questionnaire (UEQ) scale by Andreas Hinderks, Martin Schrepp, and Jorg Thomaschewski to see to what extent the UX of JSS applications can be assessed as good by looking at several indicators, including attractiveness, efficiency, clarity, dependability, stimulation, and novelty. felt by the JSS user community.

One of the JSS application users revealed that so far the services and

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information displayed on this application are quite clear and easy to understand so it does not make it difficult to use. Especially for ASN employees in Yogyakarta City, where employee attendance is carried out using the JSS application which is quite innovative because of the auto check-in feature, namely when an employee approaches or enters the office zone, attendance will automatically be fulfilled because the JSS application already uses the GPS feature for detection. automatic location. On the other hand, regarding the complaint service itself, one JSS user stated that the complaints reported had not been handled responsively.

Apart from that, other users also expressed their experiences in registering for *Izin Mendirikan Bangunan*-IMB (Building Construction Permit) through this application. This user explained that by using JSS there is no longer a need to attach requirements on the desk, everything can be more practical through online submissions in the application. Based on this, it can be concluded that using the JSS application is quite easy and clear. This is also supported by the existence of a JSS stand at the Public Service Mall *(Mal Pelayanan Publik*-MPP) to facilitate if there are questions or obstacles in using the JSS application where the public can come to meet the officers located in this MPP.

Figure 10. JSS Stand at Public Service Mall

Source: Research Observation, 2023

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6. Citizen Interfaces

The citizen interfaces component is a component of E-Government implementation that is related to the development of multiple access channels. In the application context, a multi-access channel refers to a feature to be able to access or share the same communication channel simultaneously by several users or devices. Multi-access channels are designed to allow users to communicate simultaneously and in real time through certain systems. It is known that the multiple access found in JSS can be demonstrated by the live chat feature on the help desk service, where there is two-way communication between operator officers and service users during certain working hours.

Figure 11. JSS Help Desk Service Live Chat Feature

Source: jss.jogjakota.go.id, 2023

This feature indicates that JSS supports multiple access by demonstrating simultaneous and real-time communication with the operator on duty. Users can exchange messages with operators simultaneously via the live chat feature as a communication channel. Apart from that, multiple access to the JSS application can also be seen in the complaint service.

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Figure 12. JSS Complaint Timeline

Source: jss.jogjakota.go.id, 2023

From the timeline of the development of the complaint, it can be seen that information related to this complaint can be accessed by all users, not just the public who reported the complaint. This shows the existence of multiple access, which is characterized by the distribution of information simultaneously in one channel. Apart from that, indications of maximum multiaccess performance are shown by server specifications in terms of good capacity and speed. Yogyakarta City *DISKOMINFO* continues to update server-side scalability and performance in line with the increasing number of users and continues to make regular improvements to the core of the application. Apart from the performance side which must always be improved in response to increasingly high application traffic, the application security or security side also needs to be improved to avoid threats such as surveillance or data theft. In response to this, Yogyakarta City *DISKOMINFO* has guaranteed the security of the server data they use by forming a special team tasked with Quality Control regarding application security. Yogyakarta City *DISKOMINFO* optimized the security of its application through security tests before the application was released. Apart from that, they also regularly collaborate with BSSN (National Cyber and Crypto Agency) for security tests. So that the security efforts carried out are not carried out haphazardly, but are carried out routinely as a preventive measure.

CONCLUSION

The Jogja Smart Service (JSS) application generally reflects the implementation of E-Government principles in public service delivery

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within Yogyakarta City. Based on Indrajit's six-component framework, the findings indicate that Competency Building, Capital, Cyber Laws, Connectivity, Content Development, and Citizen Interfaces have been implemented to varying degrees, although several aspects remain only partially fulfilled and require continuous improvement. Competency Building has been supported through employee placement and technical training, although more systematic and continuous capacity development remains necessary. The Capital component shows that JSS sustainability primarily depends on regional government funding (APBD), while CSR initiatives function as complementary support for the broader digital ecosystem. In terms of Connectivity, DISKOMINFO has provided technological infrastructure to support digital services, although continuous system optimization and scalability improvements remain important as service demands increase. Content Development demonstrates that JSS has provided integrated and accessible digital services, while improvements in user experience and complaint service responsiveness are still needed. Citizen Interfaces indicate the availability of multi-access communication channels that facilitate interaction between users and service providers, although ongoing adaptation is necessary to maintain service effectiveness and responsiveness.

These findings suggest that the successful adoption of local E-Government initiatives is influenced not only by technological infrastructure but also by institutional readiness, regulatory support, sustainable resource management, and the government's ability to continuously adapt digital services to public needs. The study also highlights the importance of continuous evaluation and system improvement in maintaining the effectiveness and sustainability of digital public services.

The novelty of this study lies in its application of Indrajit's (2005) six-component E-Government adoption framework as a holistic analytical approach to evaluate a regional digital public service platform in Indonesia. Unlike previous studies that tend to focus on specific dimensions of E-Government adoption, this study integrates institutional, legal, infrastructural, and participatory dimensions into a broader evaluation of local digital governance implementation. As such, the findings contribute both theoretically and practically to the development and evaluation of E-Government initiatives at the regional government level.

CREDIT AUTHORSHIP CONTRIBUTION STATEMENT

Kristina Setyowati: writing the concept of the article, methodology, preparing the research framework, and directing the flow of the research.
Salsabila Inas: writing the article draft,

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developing data instruments, collecting data, and analyzing data from the respondents.

Septyanto Galan Prakoso: reviewed the results of the research draft, supervised, edited the research flow framework, and arranged the preparation of the research paragraph.

Berlian: adding significant data to support the findings of the article, revising, and reformating the article itself.

Frida Ananta: contributed to editing, layout, and document templating during the finalization and revision phase.

DECLARATION OF COMPETING INTEREST

We certify that there is no conflict of interest with any financial, personal, or other relationships with other people or organizations related to the material discussed in the manuscript.

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