ISSN: XXXX XXXX(e)
Volume 1 (1) 2026
Page. 1-15
DOI: XXXXXX
Journal of Social Governance and Public Administration : **SOGPA**
https://ojs.prosperalumina.com/index.php/si/index

Digital Police Service Innovation and Inclusion: Unpacking the Relative Advantage Complexity Tension in Indonesia's Polri Super App

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Received: Feb 7, 2026; Reviewed: Marc 7, 2026; Approved: April 25, 2026
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Abstract

Digital transformation is reshaping police public services, yet the integration of technology does not necessarily ensure inclusive access for all citizens. This study examines the implementation of the Polri Super App at the Tulungagung Police Resort as a digital public service innovation through Rogers' Diffusion of Innovations framework. Using a qualitative case study approach, the study draws on institutional records and empirical observations of seven service features implemented in 2023. The findings show 989 reported uses, with SKCK (25.3%), SIM (22.2%), and STNK (21.5%) accounting for the largest shares. The application demonstrates clear relative advantage and compatibility by consolidating previously fragmented services into a single digital platform, while trialability and observability are strengthened through system testing, public communication, and user feedback. However, complexity remains a significant constraint, particularly for citizens with different levels of digital literacy, preferences for face-to-face assistance, and exposure to technical disruptions. The study's main novelty is the identification of a "relative advantage complexity tension," whereby digital integration simultaneously increases service convenience while potentially creating new barriers to access. This finding extends the application of Diffusion of Innovations theory from a linear explanation of innovation adoption toward a more human centered understanding of how innovation attributes can simultaneously enable and constrain digital inclusion. The study concludes that successful digital police transformation should be assessed not merely by technological integration or service utilization, but by its capacity to deliver accessible, reliable, responsive, and citizen centered services.
Keywords: Digital Transformation; Digital Public Service; Polri Super App; Diffusion of Innovations; Indonesia.

How to Cite: Nadia Aulia, Nashuwa Alyvia, Linda Wahyuning H & Lutfiyah. (2026). Digital Police Service Innovation and Inclusion: Unpacking the Relative Advantage Complexity Tension in Indonesia's Polri Super App. *SOGPA.* 1 (1): 1–15.

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INTRODUCTION

Digital transformation has become an important driver of public sector reform, reshaping how governments organize administrative processes, interact with citizens, and deliver public services. Recent scholarship emphasizes that digital transformation is not simply the replacement of conventional procedures with digital technologies; rather, it involves substantial changes in organizational processes, institutional arrangements, service delivery, and citizen government relationships (Mergel et al., 2019; Scupola & Mergel, 2022). In this context, digital government is increasingly understood as a broader transformation of public sector practices in which technological innovation must be accompanied by organizational capacity, institutional adaptation, and citizen oriented service design (Kraus et al., 2021; Palmié et al., 2025) . Public sector innovation is likewise shaped by organizational conditions, institutional contexts, leadership, and users' perceptions of the innovation, meaning that technological availability alone does not determine successful adoption or service outcomes (de Vries et al., 2018; Tangi et al., 2021). Recent evidence further suggests that digital public services generate meaningful value when they are designed around accessibility, responsiveness, transparency, and citizens' actual needs rather than technological sophistication alone (Panagiotopoulos et al., 2019; Scupola & Mergel, 2022). Consequently, the existence of a digital platform does not necessarily guarantee effective, trusted, or inclusive public service delivery; its impact depends on how technology is embedded within organizational practices and experienced by citizens.

This issue is particularly relevant to police organizations, whose services require frequent and direct interaction with citizens. Digitalization can improve accessibility, administrative efficiency, transparency, and convenience, while also creating new challenges related to usability, technical reliability, digital capability, and public trust. Previous research has demonstrated that innovation diffusion in policing is influenced by organizational and contextual conditions rather than technological availability alone (Gayadeen & Phillips, 2014; Bullock et al., 2022). Consequently, understanding digital police services requires attention not only to what technology provides, but also to how the innovation is implemented and experienced by users.

In Indonesia, the Indonesian National Police (Polri) has responded to this transformation through the Polri Super App, an integrated digital platform designed to provide multiple police services through a single application. The platform includes services related to driver's licenses (SIM), vehicle registration (STNK), police clearance certificates (SKCK), traffic services, complaints, and other public information.(Ananda & Anggalini, 2024; Hikmiyah, 2024; Cahyono, 2026). At the local level, the Polri Super App has been implemented at the Tulungagung Police Resort. The available 2023 records in this study include E Survey, SP2HP, DUMAS, SIM, STNK, E Tilang, and SKCK services, indicating the practical relevance of the platform in local police service delivery.

Nevertheless, the implementation of an integrated digital platform does not automatically demonstrate successful innovation adoption. The central problem is whether digital integration actually creates perceived benefits while remaining accessible to citizens with different levels of digital capability. An integrated platform may provide a relative advantage by reducing the need to access separate service channels, but it may simultaneously increase complexity, particularly for users who are less familiar with digital services. Technical disruption, maintenance, and the continuing preference for face to face assistance may further affect the accessibility and continuity of digital police services. This creates an important tension between digital integration and inclusive public service delivery.

Rogers' Diffusion of Innovations (DOI) theory provides a relevant framework for examining this issue. (Rogers, 2003) identifies five perceived attributes that influence innovation adoption: relative advantage, compatibility, complexity, trialability, and observability. These attributes have been widely used to explain technology adoption, while research on public sector innovation emphasizes that their effects are embedded within organizational and institutional contexts (de Vries et al., 2018). However, much of the application of DOI tends to examine these attributes separately, rather than considering how they may interact during the implementation of an integrated public service platform.

This constitutes the theoretical gap addressed by this study. Although DOI provides a useful explanation of innovation adoption, limited attention has been given to the tension between the benefits of digital integration and the complexity that may emerge from such integration, particularly in police public services. The empirical gap concerns the limited evidence on how a nationally developed digital police service innovation is translated into practice at the local police resort level in Indonesia. Existing studies have examined e government diffusion and police innovation (Korteland & Bekkers, 2007; Bullock et al., 2022) , but the implementation of the Polri Super App at the local level remains insufficiently examined.

Accordingly, this study addresses three research questions: (1) How is the Polri Super App implemented as a digital public service innovation at the Tulungagung Police Resort? (2) How are the five DOI attributes relative advantage, compatibility, complexity, trialability, and observability manifested in its implementation? and (3) What challenges constrain its adoption and inclusiveness at the local level?

This study contributes in two ways. Theoretically, it extends the application of Rogers' DOI framework to integrated digital police services by highlighting that innovation attributes may operate simultaneously, particularly where relative advantage coexists with perceived complexity. Empirically, it provides evidence from the Tulungagung Police Resort, illustrating how a nationally designed digital innovation is translated into local public service practice. More importantly, the study argues that digital transformation should not be evaluated solely by the availability of technological features or the volume of service use, but also by usability, technical reliability, accessibility, and the capacity to accommodate citizens with different levels of digital competence. This perspective positions digital inclusion as an essential condition for meaningful innovation in police public services.

LITERATURE REVIEW

Digital Public Service Innovation

Digital public service innovation refers to the use of digital technologies to redesign how public organizations create and deliver services to citizens. It goes beyond simply converting conventional procedures into online formats; it involves changes in service processes, organizational practices, and patterns of interaction between government and citizens (Mergel et al., 2019). In this context, digital platforms can create public value by improving accessibility, coordination, responsiveness, and the convenience of service delivery (Cordella & Paletti, 2019; Panagiotopoulos et al., 2019). However, innovation should not be judged solely by the availability of technology. Its public value depends on whether the technology responds to users' needs and can be effectively integrated into existing organizational and institutional arrangements.

Research on public sector innovation shows that innovation is shaped by multiple factors, including organizational capacity, institutional conditions, innovation characteristics, and the

wider environment in which adoption takes place (de Vries et al., 2018). This perspective is particularly relevant to digital public services because technological integration can simultaneously create opportunities and new forms of exclusion. A digital service may reduce administrative burdens for technologically confident citizens while creating difficulties for users with limited digital skills or access. Therefore, digital public service innovation should be understood as a socio technical process, in which technological capability and human experience develop together.

Digital Transformation in Police Services

Digital transformation has increasingly influenced policing by changing how police organizations manage information, communicate with citizens, and provide public services. Digital technologies can support more accessible, efficient, and transparent interactions between police institutions and communities. Studies of police innovation indicate that the diffusion of new practices is influenced by organizational structures, institutional environments, professional practices, and the capacity of police organizations to adapt to change (Gayadeen & Phillips, 2014; Bullock et al., 2022).

The Indonesian National Police (Polri) has pursued this transformation through the Polri Super App, an integrated platform intended to provide multiple police services through a single digital channel. At the Tulungagung Police Resort, the platform has been used for services including SIM, STNK, SKCK, E Tilang, DUMAS, SP2HP, and E Survey. The available 2023 records in the manuscript demonstrate the presence of actual service use across these features.

Nevertheless, digital transformation in policing involves more than technological integration. Police services are highly sensitive to reliability, accessibility, security, accountability, and citizen trust. The integration of multiple services may increase convenience, but it can also introduce complexity when users have different levels of digital competence or when technical problems interrupt access. Thus, the success of digital police services should be considered in terms of both technological integration and human accessibility.

Diffusion of Innovations Theory

Rogers' Diffusion of Innovations (DOI) theory provides an established framework for understanding how innovations are perceived and adopted. Rogers (2003) identifies five attributes that influence the adoption of an innovation: relative advantage, compatibility, complexity, trialability, and observability. Relative advantage concerns whether an innovation is perceived as better than an existing practice, while compatibility refers to its consistency with users' values, experiences, and needs. Complexity reflects the perceived difficulty of understanding or using the innovation. Trialability concerns the opportunity to experiment with an innovation before full adoption, whereas observability refers to the visibility of its results.

The five attributes are particularly useful for examining digital public services because adoption is influenced not only by technical functionality but also by users' perceptions of usefulness, compatibility, and ease of use. However, public sector innovation differs from private sector technology adoption because implementation takes place within formal organizations and institutional constraints. (de Vries et al., 2018) demonstrate that public sector innovation diffusion is affected by organizational and environmental conditions as well as characteristics of the innovation itself. (Kaur Kapoor et al., 2014) likewise show that Rogers' attributes provide a useful basis for explaining innovation adoption but should be applied with attention to the specific context and outcome being examined.

For police digital services, DOI therefore provides a useful lens for asking not simply whether an application is available, but why citizens and service providers perceive the innovation as useful, compatible, manageable, testable, and visible. Importantly, the attributes may operate simultaneously. For example, integrating several services into one platform may strengthen relative advantage while also increasing perceived complexity.

Research Gap and Analytical Framework

Previous studies have examined digital government, public sector innovation, and police innovation, but three issues remain insufficiently addressed. First, research on digital public services often emphasizes adoption or technological implementation without sufficiently examining the interaction between innovation characteristics and users' different capabilities. Second, studies of police innovation have demonstrated the importance of organizational and institutional contexts, yet empirical evidence concerning integrated digital police service platforms at the local level in Indonesia remains limited (Gayadeen & Phillips, 2014; Bullock et al., 2022). Third, the five attributes of Rogers' DOI theory are often treated as separate characteristics, leaving less attention to the possibility that the advantages of digital integration may coexist with complexity and accessibility barriers.

This study addresses these gaps by examining the Polri Super App at the Tulungagung Police Resort through Rogers' five innovation attributes. The analytical framework assumes that the implementation of the application can be understood through the relationship between relative advantage, compatibility, complexity, trialability, and observability, while recognizing the local organizational and user context in which the innovation operates. The framework is used not to assign a simple success score to the application, but to explain how the innovation is experienced and what conditions support or constrain its adoption.

Accordingly, the study advances the argument that digital integration alone does not guarantee inclusive public service innovation. The contribution of the study lies in connecting innovation diffusion theory with the practical realities of local digital police services, particularly the tension between the convenience created by an integrated platform and the complexity that may remain for some users. This perspective provides a more human centered understanding of digital transformation in policing and offers a basis for assessing whether technological innovation can translate into meaningful improvements in public service accessibility.

RESEARCH METHODS

Research Design

This study employed a qualitative descriptive design to examine the implementation of the Polri Super App as a digital public service innovation at the Tulungagung Police Resort. A qualitative approach was considered appropriate because the study focuses on understanding the meaning, characteristics, and implementation context of an innovation rather than statistically estimating its causal effects. The study was structured as a document based qualitative inquiry, drawing on scientific literature, official regulations, policy documents, and available institutional information concerning the Polri Super App. Document analysis is particularly useful for examining public sector practices because documents provide contextual evidence of policies, institutional arrangements, and service implementation (Bowen, 2009). The analysis was guided by Rogers' Diffusion of Innovations (DOI) framework, particularly the five attributes of relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003).

Research Setting

The study focused on the Tulungagung Police Resort (Polres Tulungagung), East Java, Indonesia, as a local implementation context for the nationally developed Polri Super App. The application integrates several police related services within a single digital platform, including SIM, STNK, SKCK, E Tilang, DUMAS, SP2HP, and E Survey. The 2023 institutional records presented in the study provide contextual evidence of the use of these service features at the Tulungagung Police Resort. The site was selected because it provides an appropriate context for examining how a nationally designed digital innovation is translated into local public service delivery.

Data Sources

The study relied on secondary documentary data. The sources consisted of three main categories: (1) peer reviewed academic literature concerning public service innovation, digital government, police innovation, and DOI theory; (2) official regulations and policy documents relevant to police digital services; and (3) institutional information and service use records concerning the Polri Super App at the Tulungagung Police Resort. The available institutional data include service records for seven application features in 2023, which are used descriptively rather than as a measure of unique individual adoption. Following (Bowen, 2009), documents were treated as sources of evidence that could be examined, compared, and interpreted in relation to the research questions.

Informant Selection

Because the present study uses documentary rather than interview based qualitative research, no human informants were recruited. Accordingly, the unit of analysis is the documentary evidence concerning the implementation of the Polri Super App rather than individual respondents. This distinction is important because the original study design does not provide interview transcripts, respondent characteristics, or sampling procedures. Claims concerning users' experiences are therefore interpreted cautiously and are limited to what is supported by the available documentary evidence. If future research incorporates interviews with police personnel or service users, purposive sampling and explicit informant criteria should be reported.

Data Collection

Data were collected through systematic identification, selection, and review of relevant documents. Academic publications were examined to establish the theoretical and empirical context of digital public service innovation and police technology adoption. Regulations and institutional documents were reviewed to understand the policy and organizational basis of the Polri Super App. Available service records were examined to identify the types and distribution of services accessed through the application. The documentary evidence was then organized according to the five DOI attributes: relative advantage, compatibility, complexity, trialability, and observability. This process enabled evidence from different sources to be compared rather than relying on a single document or claim.

Data Analysis

The data were analyzed inductively and thematically. First, relevant information was extracted from the selected documents and organized according to the research questions. Second, recurring evidence and meanings were identified and grouped into the five DOI attributes. Third, the findings were interpreted by comparing the documentary evidence with Rogers' theoretical propositions and relevant public sector innovation literature. Particular

attention was given to the relationship between the perceived benefits of service integration and potential barriers related to complexity and accessibility. The analysis therefore does not treat the five attributes as a numerical scoring system; rather, they function as analytical categories for explaining how the innovation is implemented and what conditions may support or constrain its adoption.

Trustworthiness and Ethics

Trustworthiness was strengthened through source triangulation, whereby information from academic literature, regulations, policy documents, and institutional records was compared to identify consistency and potential discrepancies. Documentary analysis also requires attention to the credibility, relevance, and context of each source (Bowen, 2009). The study did not involve direct interaction with human participants or the collection of personal information; consequently, no participant level ethical procedures were required within the documentary design. Institutional information is presented at an aggregated level, and interpretations are restricted to evidence available in the reviewed sources. The study also recognizes that documentary evidence cannot fully capture individual users' perceptions or experiences; therefore, conclusions concerning adoption and service quality are presented cautiously.

RESULTS AND DISCUSSION

The Polri Super App as a Digital Public Service Innovation

The Polri Super App represents an important shift in the way the Indonesian National Police (Polri) organizes its relationship with citizens. Rather than requiring citizens to interact with separate service channels, the application brings several police services and information functions into a single digital environment. Its functions include public safety notifications, police information, service requests, digital application tracking, a help center, and access to public information. In this respect, the application reflects the broader movement from isolated e government applications toward integrated digital public services, in which technology is expected not only to improve administrative efficiency but also to reshape the experience of citizens when accessing government (Mergel et al., 2019; Panagiotopoulos et al., 2019).

The implementation at the Tulungagung Police Resort provides an empirical illustration of this transformation. The 2023 records show reported use across seven service features, with a combined 989 recorded users. SKCK recorded the highest figure (250), followed by SIM (220) and STNK (213). These three services account for the largest share of recorded use, while E Survey, SP2HP, DUMAS, and TILANG recorded lower levels of use.

Table 1. Reported Use of Polri Super App at Tulungagung Police Resort, 2023

No.	Service feature	Reported users	Share (%)
1	E Survey	100	10.1
2	SP2HP	50	5.1
3	DUMAS	67	6.8
4	SIM	220	22.2
5	STNK	213	21.5
6	TILANG	89	9.0
7	SKCK	250	25.3
Total		**989**	**100.0**

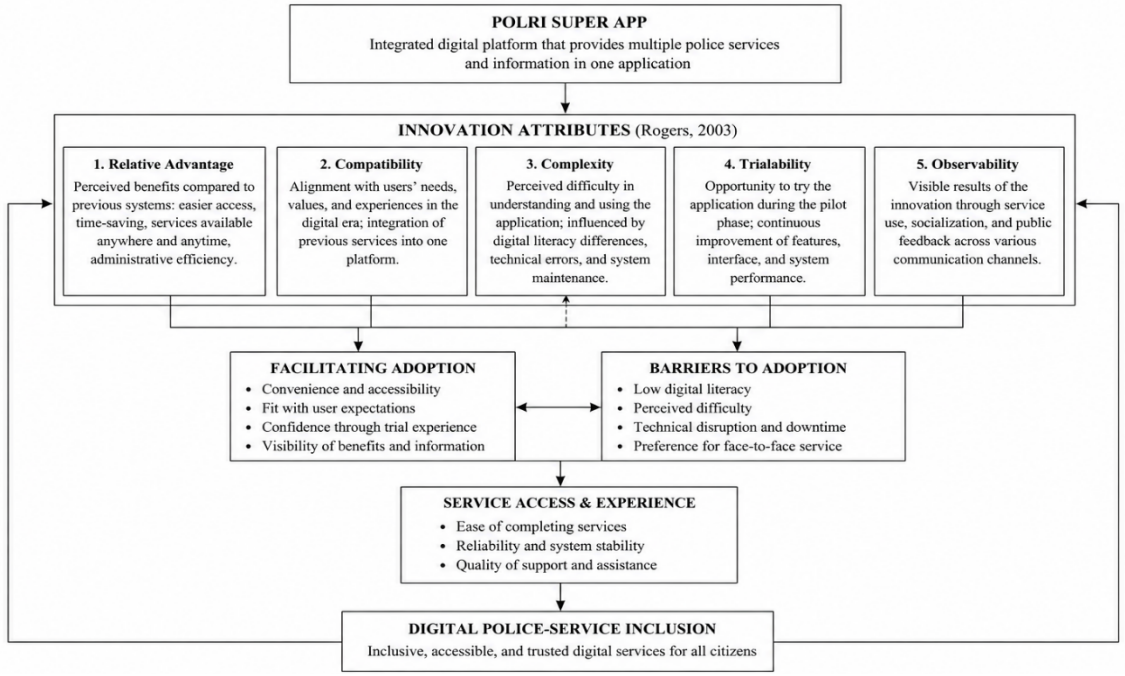
Source: Tulungagung Police Department; percentages calculated from the reported figures.

The distribution suggests that citizens engage most strongly with the platform when its digital functions are directly connected to concrete and recurring administrative needs, particularly SKCK, SIM, and STNK services. Conversely, the lower figures for SP2HP, DUMAS, and E Survey should not automatically be interpreted as evidence of weak technological acceptance, since these services address more specific circumstances and may naturally generate fewer transactions. The available records therefore indicate differentiated patterns of service use rather than overall adoption, satisfaction, or service effectiveness. They also do not establish whether the same individual accessed more than one service.

From a public service perspective, this pattern is consistent with the argument that digital government creates public value when technological innovation is closely connected to citizens' practical needs (Panagiotopoulos et al., 2019). The value of the Super App therefore lies less in the number of functions it contains than in its capacity to provide a coherent access point for services that were previously more fragmented. This interpretation is also consistent with public sector innovation research, which emphasizes that innovation becomes meaningful when it addresses existing problems and fits the organizational and social context in which it is implemented (de Vries et al., 2018).

Importantly, however, integration should not be equated automatically with inclusion. Bringing multiple services into one platform may increase convenience for digitally confident users while creating difficulties for citizens with lower digital literacy or limited familiarity with online services. This tension provides the basis for interpreting the empirical findings through (Rogers, 2003)Diffusion of Innovations (DOI) framework. As illustrated in Figure 1, the five innovation attributes relative advantage, compatibility, complexity, trialability, and observability do not operate in isolation. Rather, they collectively shape how a digital innovation is experienced, accepted, and accessed by different groups of citizens.

Figure 1. The Dynamic Relationship Between Innovation Attributes and Digital Police Service Inclusion



Source: Authors' elaboration based on (Rogers, 2003) and empirical findings from the Polri Super App implementation at Tulungagung Police Resort.

Figure 1 illustrates how the five perceived attributes of innovation proposed by (Rogers, 2003) relative advantage, compatibility, complexity, trialability, and observability interact in shaping the implementation and accessibility of the Polri Super App. The findings indicate that relative advantage and compatibility facilitate adoption by providing integrated, convenient, and smartphone based access to multiple police services, while trialability and observability strengthen confidence through system testing, public dissemination, and visible service use. At the same time, complexity emerges as a critical countervailing condition because differences in digital literacy, preferences for face to face assistance, and temporary technical disruptions may constrain access for some citizens. These interacting conditions shape citizens' service access and experience and ultimately determine whether digital transformation produces genuinely inclusive police services. Thus, the framework extends the conventional application of Diffusion of Innovations by emphasizing that technological integration does not automatically result in inclusion; rather, public value depends on the ability of the digital innovation to balance efficiency and convenience with accessibility, reliability, and human support.

Diffusion of Innovation Attributes in the Polri Super App

(Rogers, 2003) Diffusion of Innovations (DOI) theory provides the analytical basis for interpreting the implementation of the Polri Super App. Rather than treating the five attributes as a simple checklist, this study considers how relative advantage, compatibility, complexity, trialability, and observability interact in the local implementation context.

Table 2. Analytical Interpretation of the Polri Super App Based on Rogers' DOI Theory

DOI attribute	Evidence from the Tulungagung case	Interpretation
Relative advantage	Multiple police services are accessible through one application; users can initiate services without always visiting a police office	Integration provides potential gains in convenience, accessibility, and administrative efficiency
Compatibility	The application responds to smartphone based service expectations and integrates previously separate service channels	The innovation is broadly consistent with contemporary patterns of digital interaction
Complexity	Older or less digitally experienced users may require assistance; temporary technical disruption may interrupt access	Digital integration does not eliminate usability and digital literacy barriers
Trialability	The application reportedly underwent an extended testing and optimization phase before wider implementation	Iterative testing provides an opportunity to identify and address technical and usability problems
Observability	Socialization through digital and conventional communication channels, together with visible service use	Public awareness and feedback can strengthen recognition and continued development of the innovation

Source: Authors' analysis based on the Tulungagung Police Department data and Rogers (2003).

Relative Advantage: From Multiple Channels to One Service Environment

Relative advantage refers to the degree to which an innovation is perceived as better than the practice it replaces (Rogers, 2003). In the Tulungagung case, the strongest advantage of the Polri Super App lies in service integration. Citizens can access several police related services through one application instead of navigating separate applications or relying exclusively on physical visits.

This finding is consistent with the broader literature on digital transformation, which emphasizes that the value of digital government lies in redesigning service processes rather than merely placing existing procedures online (Mergel et al., 2019). The Super App can therefore be understood as an attempt to reduce institutional fragmentation from the citizen's perspective.

The reported use of 989 across seven service features provides additional evidence that the platform is being used for concrete administrative purposes. However, these figures should not be interpreted as proof that the application has increased efficiency or satisfaction. Such conclusions would require additional evidence, such as processing time, user satisfaction, completion rates, or comparison with pre digital service performance.

Theoretically, this distinction is important. Perceived relative advantage is a condition that may facilitate adoption, not evidence of effectiveness by itself. Rogers' framework focuses on how an innovation is perceived, while public value research asks whether those perceptions are ultimately translated into meaningful outcomes (Panagiotopoulos et al., 2019).

Compatibility: Digital Service and Everyday Citizen Expectations

Compatibility concerns the extent to which an innovation is consistent with existing values, experiences, needs, and practices (Rogers, 2003). The Polri Super App demonstrates compatibility by responding to the increasingly common expectation that public services should be accessible through smartphones.

The registration process described in the case downloading the application, registering a telephone number, verifying the account through OTP, and completing personal information also reflects familiar digital service practices. More importantly, the application brings previously separate services into a single platform. This reduces the need for citizens to learn several different applications for related police services.

The finding supports (de Vries et al., 2018) argument that public sector innovation must be understood in relation to its organizational and environmental context. Compatibility is therefore not simply a technical property of the application. It also depends on whether citizens recognize the application as a natural extension of how they already access information and services.

At the same time, compatibility should not be assumed to be uniform across the population. A platform that feels intuitive to digitally experienced citizens may not be equally compatible with the routines of older citizens who continue to value direct assistance. This observation leads directly to the issue of complexity.

Complexity: The Human Side of Digital Transformation

Complexity is perhaps the most important counterpoint to the advantages offered by the Polri Super App. (Rogers, 2003) argues that innovations perceived as difficult to understand or use are generally less readily adopted. The evidence provided in the Tulungagung case indicates differences in users' ability to adapt to digital services. Younger users who are familiar

with smartphones may encounter fewer difficulties, whereas some older users continue to prefer direct interaction with police personnel.

This finding illustrates an important limitation of technology centered approaches to public service reform. A technically integrated service is not necessarily a socially inclusive service. Digital transformation can remove geographical and administrative barriers while simultaneously creating cognitive or digital literacy barriers.

The issue becomes more significant when technical disruption or system maintenance affects access. Maintenance is necessary for system improvement and security, but temporary unavailability may leave citizens who depend on digital channels without an immediate alternative. Thus, complexity in this case is not limited to interface design. It also includes the user's ability to complete a service when the technological environment is uncertain.

This finding contributes to DOI theory by showing that relative advantage and complexity can coexist. The same integration that makes the application attractive can also make the digital environment more demanding. Research on police innovation similarly demonstrates that technological innovation is shaped by organizational and professional contexts rather than by technical characteristics alone (Gayadeen & Phillips, 2014; Bullock et al., 2022).

Trialability: Learning Before Scaling

Trialability refers to the extent to which an innovation can be experimented with before full adoption (Rogers, 2003). The case material reports that the Polri Super App underwent an approximately one year trial and optimization process before broader implementation, with adjustments to the interface, service features, and system performance.

This process is significant because digital public services operate in environments where technical problems can directly affect citizens. Iterative testing allows an organization to identify usability problems and adjust the innovation before and during implementation. In this sense, trialability represents more than a technical testing procedure; it reflects an organizational willingness to learn from implementation.

The finding is consistent with the broader understanding of public sector innovation as an adaptive process. (de Vries et al., 2018) emphasize that public sector innovations develop within organizational environments in which implementation capacity and contextual conditions matter. Trialability can therefore reduce uncertainty for both the organization and users.

However, the available evidence does not permit the effectiveness of the trial period to be quantified. Future research should examine whether changes made during testing actually reduced user difficulties, technical failures, or service processing time.

Observability: Making Innovation Visible and Meaningful

Observability concerns the extent to which the results of an innovation are visible to others (Rogers, 2003). In the Tulungagung case, observability is supported through public dissemination via social media, radio, and direct outreach. These activities are important because citizens cannot adopt an innovation that they do not understand or recognize as relevant.

More importantly, observability is strengthened when users can see the practical consequences of the innovation. The reported use of SKCK, SIM, and STNK services demonstrates that the application has become a channel through which citizens interact with police services. The application also provides mechanisms for feedback and complaints, allowing citizens to participate in the continued improvement of the service.

This dimension is particularly relevant to police organizations because digital transformation is also a process of rebuilding the relationship between institutions and citizens.

Police innovation is more sustainable when technological change is accompanied by communication and public engagement(Delle Donne & Fortin, 2018). In this respect, observability connects Rogers' adoption perspective with a broader public value perspective: citizens need not only to see that a technology exists, but also to understand why it matters to their everyday lives.

Discussion: Digital Integration Does Not Automatically Mean Inclusive Innovation

Taken together, the findings suggest that the Polri Super App exhibits the five characteristics identified by Rogers, but not with equal strength or without tension. Relative advantage and compatibility are particularly visible in the integration of multiple police services and the alignment of the application with smartphone based patterns of interaction. Trialability and observability are supported by iterative development and dissemination activities. Complexity, however, remains an important constraint because users differ in digital capability and because technical interruptions can affect access.

Table 3. Synthesis of Findings and Theoretical Implications

Finding	DOI interpretation	Broader implication
Seven services are available through one platform	Relative advantage	Integration can reduce fragmented access to public services
SIM, STNK, and SKCK show the highest reported use	Relative advantage/compatibility	Citizens appear to engage strongly with services linked to concrete administrative needs
Digital registration and smartphone access	Compatibility	The innovation fits established digital interaction patterns
Older users may prefer direct assistance	Complexity	Digital transformation can create new forms of exclusion
Technical maintenance can interrupt access	Complexity	Reliability is part of the citizen experience of innovation
Extended testing and optimization	Trialability	Innovation benefits from iterative organizational learning
Socialization and feedback channels	Observability	Adoption requires communication and visible relevance

Source: Authors' analysis based on the Tulungagung Police Department data and Rogers (2003).

The central theoretical insight is therefore that the five DOI attributes should not be interpreted independently. An innovation may be advantageous and compatible while still being complex for particular groups. This finding is especially relevant for public sector digitalization because the ultimate objective is not adoption for its own sake, but improved public service.

The Tulungagung case consequently suggests a more human centered understanding of digital police innovation. The application brings services closer to citizens in a technical sense, but genuine accessibility depends on whether citizens can understand, navigate, and complete those services. This is consistent with the broader public sector innovation literature, which

cautions against treating technological adoption as synonymous with innovation success (de Vries et al., 2018).

The service use data also reveal an important distinction between availability and adoption. The existence of seven digital services demonstrates technological integration, while the different levels of reported use suggest that citizens engage with the platform selectively according to their service needs. The data therefore provide evidence of differentiated use rather than a uniform level of adoption. This is particularly important for evaluating digital public services because high usage of one feature does not necessarily imply broad acceptance of the entire platform.

Overall, the Polri Super App can be understood as a promising institutional innovation whose value depends on the interaction between technology, organization, and citizens. Its strongest contribution lies in creating a single access point for multiple police services. Its principal challenge lies in ensuring that integration does not leave behind citizens who require greater assistance. For this reason, future development should combine technological improvement with user assistance, alternative service channels, clear communication, and continuous evaluation of accessibility.

Theoretical and Practical Implications

Theoretically, this study extends the application of Rogers' DOI framework to digital police services by demonstrating that innovation attributes may operate in a mutually reinforcing but sometimes contradictory manner. Relative advantage can encourage adoption, while complexity can constrain it; observability can increase awareness, while trialability can reduce uncertainty. This interpretation moves beyond treating Rogers' five attributes as a simple five item checklist and instead views them as interacting dimensions of the implementation process.

Practically, the findings suggest that Polri should evaluate the Polri Super App not only through the number of available features or users but also through successful service completion, system reliability, accessibility for digitally vulnerable groups, user satisfaction, and responsiveness to feedback. Maintaining assisted or hybrid service channels is particularly important because digital inclusion should complement, rather than replace, human assistance.

The evidence also suggests that public trust should be treated as a consequence that requires empirical measurement rather than an automatic outcome of digitalization. Although the application creates channels for information, feedback, and service interaction, future research should directly examine whether these functions improve perceived transparency, satisfaction, and trust.

CONCLUSION

This study concludes that the Polri Super App represents a meaningful form of digital public service innovation by consolidating multiple police services into a single platform, with 989 reported uses across seven service features at the Tulungagung Police Resort in 2023. The findings show that relative advantage, compatibility, trialability, and observability support the diffusion of the innovation, while complexity remains a significant constraint arising from differences in digital capability, preferences for face to face assistance, and occasional technical disruption. The central novelty of this study is the identification of a "relative advantage–complexity tension": the same digital integration that increases convenience and reduces fragmented access can simultaneously create new barriers for citizens who are less digitally prepared. This finding extends the application of Rogers' Diffusion of Innovations theory

beyond a linear assessment of adoption attributes by demonstrating that innovation attributes may operate simultaneously in enabling and constraining inclusive public service delivery. The study therefore argues that successful digital transformation in policing should not be measured solely by technological integration, feature availability, or recorded usage, but by its capacity to translate innovation into accessible, reliable, responsive, and human centered services. In practical terms, the Polri Super App should be developed alongside digital assistance, reliable technical infrastructure, continuous user feedback, and alternative service channels so that digitalization expands rather than narrows citizens' access to police services.

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