

## **Adopting Incremental Innovation Approaches in the Digitalization of Village Government Services**

**Jamaluddin Ahmad**

**Magister Administrasi Publik, Fakultas Ilmu Sosial dan Ilmu Politik, Universitas Muhammadiyah Sidenreng Rappang**  
[jahmadlado@umsrappang.ac.id](mailto:jahmadlado@umsrappang.ac.id)

**Hardianti**

**Magister Administrasi Publik, Fakultas Ilmu Sosial dan Ilmu Politik, Universitas Muhammadiyah Sidenreng Rappang**  
[hardianti@umsrappang.ac.id](mailto:hardianti@umsrappang.ac.id)

### **Abstract**

*Although much research has established the importance of digitalization in public services, in practice, village governments responsible for village community services often obscure public perceptions about the potential impact on digital-based public services. This study aims to provide a more detailed picture of the incremental innovation approach in the implementation of public services, especially the adoption of digital technology in the delivery of village government service. This research is a case study research that uses a qualitative research design. Study results underline the importance of the incremental innovation approach. Digitalization impacts public perceptions about transparency, speed, and accountability; willingness to accept changes, especially changes in the use of mobile phones (mobile phones) as needed; and resultant social impact. Thus, study results are an invaluable input into the decision-making process related to public services.*

**Keywords:** *incremental innovation; implementation; digitization; public service*

## **INTRODUCTION**

The delivery of digital-based public services as an integral part of local and village government programs that contribute significantly to improving the effectiveness and efficiency of community services and community empowerment. Digitalization of public services facilitates the development, implementation, controlling, and evaluation of public services in an efficient manner (Ricciardi et al., 2019); increase access (Sta, 2018); and enhances data verification (Soegiono, 2018).

Improving the quality public delivery systems requires adequate financial resources both directly and otherwise to support the development and sustainability of the program, as well as to ensure the availability of the requisite human resources with relevant skills (Shobaruddin, 2019). Many polities do not have requisite resources when needed, in both quality and quantity, and in the right time. Incremental innovation is also beneficial in situations where there is a huge disparity in the development and deployment of information and communications technology due to structural, social and geographical obstacles. One indicator of the large disparity is reflected in the 2019 data on internet access in the country that showed that 24,000 villages in Indonesia did not have access to internet connections. It is a problem that is not only confined to rural areas but also remains evident in urban areas.

Yet In practice, the incremental innovation strategy is often overlooked in the digitalization of public services. Yet, incremental innovation approach is very important in the development and deployment of digital public services, in both developing and developed country context. Moreover, by involving the public in the development and delivery of digital public services, the government can increase benefits of digitization by making use of open data platforms, which are readily accessible (Soegiono, 2018).

In any case, incremental innovation implementation approach, creates opportunities for the public to express their views about government, enhances the quality and inclusiveness of policy, leading to more accurate decisions and better quality of services. In order to enhance the quality of access to public service delivery, the Indonesian government is developing internet connections to villages that is based on the concept of a smart city.

However, digitalization and open data portals does not guarantee that citizens will directly benefit from data to which they have access (Soegiono, 2018). Access to data and information, which increasing digitalization has made possible, has the potential to become detrimental to society by for instance facilitating the perpetration of fraudulent activities. This is the case in point with respect to social media. There is no doubt that the general public is one of

the main stakeholders in digitization of services (Fishenden & Thompson, 2013).

Nonetheless, social media as one of key mediums to which that the public has easy access, while created immense opportunities, it has also been associated with social welfare issues that relate the content of information and news that sometimes is detrimental values and interests of society (Haryanti, 2019).

To that end, implementing digitalization of public services, should also entail efforts that raise public awareness about the importance of ascertaining the credibility of information sources and how to distinguish between deception and reliable information (Nisa', Rusfian, & Zaenab, 2019) is of crucial importance. In the context of a publicly funded service system and public decisions, the conduct of a participatory monitoring and evaluation of the public service delivery system is necessary and should ideally be carried out to determine the extent to which project objectives are achieved (Ricciardi et al., 2019).

The concept of sustainable smart city has been used in adopting and deploying digitalization public services delivery. Nonetheless, digitalisation in itself, does not guarantee the availability of services to users. This is because of several factors, including type of digital services that the community needs (Lindgren, Madsen, Hofmann, & Melin, 2019); interoperability and compatibility of the digitization of public services during the transition process from

analogue, single provider based technology to the multi-channel online with the continuation of some analogue services in parallel (Mergel, 2019); threats and potential dangers that still characterize various public service digitalization "traps" and cyberspace risks, and potential dangers of "digital totalitarianism" that poses a threat to humankind in the future (Semenova, 2019).

Some previous studies on the digitalization of public services underscore the benefits that arise from using the rapid growth of Information and Communication Technology (ICT) to strengthen bargaining power (Adi & Siregar, 2019; Ghosh, 2019); the difficulty of digitalizing discretionary practices because of the nature of professional motivations and public service provision (Busch & Eikebrokk, 2019); comparative study on the delivery of public services based on traditional and e-based approaches (Dalal & Sharma, 2019; Fishenden & Thompson, 2013); using digitization of public services to fight corruption and enhance tax compliance (Fanea-Ivanovici et al., 2019); the influence of digitalization of public services on interactions between citizens and government (Haryanti, 2019; Lindgren et al., 2019; Melhem, 2019; Mergel, 2019).

However, one of the crucial issues that previous studies do not tackle, is the nature and impact that strategies used in implementing digitalization of public services on type and quality of digital services that society needs, social order, including the potential of creating "digital totalitarianism".

**Table 1. Summary of how digitalization of public services affects the public encounter**

Aspect	Changes enabled by the digitalization of public services
Nature and purpose of encounter	Digitalization facilitates automatic exchange of information and citizen self-service.
Communication form and setting	Digitalization provides additional communication channels.
	The ‘place’ of government changes from an official setting to almost anywhere, but especially to citizens' homes.
Central actors involved	Digitalization changes the roles of the actors involved and adds new actors related to the technology that can affect the interaction.
Initiation, duration, and scope	Digitalization enables 24/7 access to government services and changes citizens' expectations of government response time. Digitalization also enables proactive services in which the initiation is performed by the technology.

Source: Lindgren et al. (2019)

In a study on e-Health implementation, study findings showed that obstacles the process faced were not limited to resistance, attitude, mentality, culture, and big digital divide across communities, but also technical problems that were related to the existence of a digital divide, knowledge and skill capacity gaps in accessing digital devices (Kusumasari et al., 2018). It is against that backdrop, this research attempts to assess the digitalization public services based on an incremental innovation approach. This research examines the implementation of digitalization of public service delivery based on the concept of incremental innovation in three village governments; determinants of the performance of the initiative; and the impact of on public service de-

livery and social welfare.

Adopting an incremental approach in implementing digitalization of public services faces an obstacle arises from the preoccupation of decision-makers with implementing current policies, leaving them limited time and effort to handle innovations in existing policies and practices. The benefits of incremental innovation approach, however, is that, it is easier to implement because of several factors, including, the gradual nature of the process that reduces potential resistance from within the organization; its piecemeal nature that implies that incremental innovations may not need approval from high up the organizational hierarchy as they do not require high expenditure outlays; and cause minimal disruption to routines and practices, making them easily acceptable.

One of the key determinants of public service delivery improvement is level of involvement of key stakeholders in the policy process. To that end, public participation in project process, by taking into consideration interests and aspirations of all key stakeholders in the design and implementation of digitalization of public services, contributes to reducing the negative impact that is likely to emerge.

Although several studies on digitalizing public services emphasize the importance of public participation in public services such as providing space for public involvement in decision making, implementation, monitoring and evaluation (Shobaruddin, 2019) (Ricciardi et al., 2019) (Sta, 2018)(Soegiono, 2018), no previous research focuses on the impact of developing and deployment of digitalization of public services using the incremental innovation approach. Some previous literature focuses on the effects of efficiency versus effectiveness and positive versus negative impacts, ignore aspects of the approach, especially the innovation approach.

What should be noted though, is that the availability of information technology network infrastructure does not guarantee the success of smart cities (Van der Graaf & Veeckman, 2014). To that end, rather than placing emphasis on polarized discourses about alternative models of smart cities, there need to appreciate the reality of a tangled web of hybrid, on-the-ground smart urbanisation and the co-existence of contrasting and complementary visions and

approaches (Trencher, 2019).

One of the major obstacles facing smart city development, is the existence of various technology architecture, platforms, and providers, which complicates cross-domain integration of smart city data (Table 1). The problem can be resolved by adopting a bottom-up publish/subscribe data sharing and integration model (Raghavan et al., 2020). This is possible, by among other approaches, using different toolkits that are aligned with the specific capacities and skills of the citizens to codesign public service delivery that is based on collaboration and involvement of the city and its citizens (Van der Graaf & Veeckman, 2014).

This has also been carried out in Surabaya with various agreed terms Surabaya Municipality's E-Government or Digital Government Service (DGS) is a representation of the grand design in the development of Surabaya Cyber City, which seeks to establish Surabaya as a Smart City. Surabaya administration's E-Government programs were categorized into 10 internet based digital service categories, namely: 1) Regional Finance Management System, consisting of: E-Musrenbang, E-Budgeting, E-Project, E-Procurement, E-Delivery, E-Controlling, E-Performance, E-SIMBADA, E-Payment, E-Tax, E-Audit, Fasum-Fasos; 2) E-SDM (Human Resource related) covering: Test of CPNS (Civil Servant Candidate), Periodic Salary, Promotion, Transfer, and Pension; 3) E-MONITORING covering: CCTV, Control of Advertisement (Billboards), tax and retribution, raid operations (Operasi Yustisi),

Garbage Monitoring, and Burial Monitoring; 4) E-EDUCATION covering: New Student Intake, Online Tryout, Online Report Cards, Online Employment of Principal, Radio Visual; 5) E-OFFICE consisting of E-Surat (e-letter) and E-Jadwal (e-schedule); 6) E-PERMIT comprising of SSW (Surabaya Single Window) Online dan E-Lampid; 7) E-HEALTH; 8) SIMPROLANAS or Sistem Informasi Program Layanan Masyarakat (Public Service Program Information System); 9) SISTEM SIAGA BENCANA-112 (disaster preparedness system); 10) MEDIA CENTER consisting of E-Sapawarga, surabaya.go.id, Twitter, Facebook, YouTube, Email, and Call Center/SMS (all accessible via [www.surabaya.go.id](http://www.surabaya.go.id)) (Kusumasari et al., 2018).

## **INCREMENTAL INNOVATION**

Incremental innovation improves performance through the use of knowledge and technology solutions (Barak & Usher, 2019; Berggren, 2019; Hervas-Oliver, Sempere-Ripoll et al., 2019). Moreover, from the perspective of the firm, the world is a complex environment that is characterized by episodes of , radical inventions and innovations that are often followed by incremental innovations that sustain firm improvement that leads to commercial success. This is especially true for products that have long development and usage spans (Berggren, 2019).

Incremental innovation, by

contributing to piecemeal improvements to the organization, has significant impact on organizational performance (Thi et al., 2019); Lennerts et al., 2019; Thi et al., 2019). Besides, incremental innovation contributes to providing solutions to existing problems (Barak & Usher, 2019). However, the existence of a stable and just business climate that allows the sharing of benefits and risks of doing business with partners is imperative for incremental innovation on customer experience enhancing products and services (Thi et al., 2019).

Nonetheless, there is need to differentiate between radical and incremental innovation. . The perspective of innovation this study used is based on the manufacturer's standpoint (Johansson et al., 2019).

Radical innovation is discontinuous or disruptive in nature , hence reflects and represents a fundamental change or shift, while incremental innovation represents a continuous process to existing products/services, processes and business models (Hervas-Oliver et al., 2019; Johansson et al., 2019)). Thus the two constructs of incremental and radical innovation are distinct but complementary in contributing to firm performance (Lennerts et al., 2019).

In other words, while previous literature considers incremental and radical innovation performance as two distinct constructs of innovation performance (Lennerts

et al., 2019), conceptualizes the two forms of innovation are two ends of a continuum. The level of novelty determines whether an innovation falls into the incremental (low level of novelty) or radical category (high level of novelty).

One of the key drivers of performance for both radical and incremental innovation is collaboration (Kobarg et al. 2019). Radical innovation brings changes in the drivers and pattern of competition among companies in the industry, hence success is premised on investing heavily in research and development. On the contrary, incremental innovation is more common, continuous, and gradual in nature, requires small investments over time that generate small rewards that accumulate over time (Kim & Yoon, 2019). The concept of incremental innovation, which this paper uses, refers to gradual, small changes in products, services, production process that contribute to better organizational performance.

Local government innovations by improving quality of services, ease of access, community empowerment and participation contribute to the betterment of community welfare of the community and enhance the local government competitiveness. Government Regulation No. 38/2017 defines regional innovation to entail all forms of renewal in the implementation of local government, while the forms of innovation, are described as encompassing government governance, public service

delivery, and other regional innovations in the realm of government affairs that fall under the remit of regional government authority (Sholeh et al., 2019).

Considering the state of public service delivery, incremental innovation approach is imperative in enhancing efficiency, effectiveness, and responsiveness in providing quality and easily accessible and affordable services (Kusumasari et al., 2018). However, to sustain innovation requires the existence of need for master plan that serves as the reference and guidance on the goals, objectives, scope, and strategy. A good example is the Information and Communication Technology (ICT) master plan, which aims to promote good governance as way to enhance the effectiveness and efficiency of public service delivery (Sholeh et al., 2019). The ICT master plan specifically is tailored to increasing quality of public services through the development and deployment of smart governance in various ways, including bureaucratic reform and development of e-government (Sholeh et al., 2019). The Surabaya city e-government or Digital Government Service (DGS) master plan represents a good example of a local government that aims to enhance public service governance through the development of smart city capabilities and facilities (Kusumasari et al., 2018).

## **METHODS**

Adopting an incremental approach is

the most effective way to improve public service delivery in rural area, which is the objective of this research. This is the objective of this research. The research is based on case study research design, that used qualitative methods to collect, analyze and interpret data and information. Qualitative research methods as used in this study, involve the exploration and understanding of the meaning that individuals or groups of individuals ascribe to social or humanitarian problems (Ahmad, 2015). Meanwhile, the case study approach was selected because of its ability to provide answers to various interrelated and interdependent factors that relate to the policy implementation, output, outcome, and impact.

The research was conducted on Timoreng Panua and Akakae, Sidenreng, Rappang district, and Cemba Village Enrekang district. The main focus of the research is to assess the impact of the implementation of digitalization of public services on performance. The choice of Cemba Village, Timoreng Panua Village, and Akakae Village as the focus of the research was based on the consideration that the three villages have implemented digitalization of public services. Respondents included the Village Head, Chairperson and Members of the Village Representative Body (BPD), and Community Leaders (Table 2).

Cemba Village, Timoreng Panua Village, and Akakae Village have been the centerpiece of University of Muhammadiyah

Sidenreng Rappang village partnership program that involves collaboration with the aim of improving community services. The program involves the sending of students to villages where they conduct activities that are related to Information and Communications Technology, such as helping villages in developing village websites.

Meanwhile, data collection techniques included conducting interviews, a survey of the perceptions of respondents. Data analysis involved the description, tabulation, assessment, and interpretation of data and information obtained from documents, interviews, and surveys. Interpretation of data analysis was based on the identification of patterns among issues and factors relating to public services that underscored the existence of general themes. The general themes served as guidance in drawing conclusions and policy implications.

## **RESULT AND DISCUSSION**

### **The Digitalization of Village Government Services**

The digitalization of government services in Cemba, Timoreng Panua, and Akakae Villages is based on a Memorandum of Understanding (MOU) between the Rector of Muhammadiyah University Sidenreng Rappang with the Heads of Cemba, Timoreng Panua, and Akakae Villages.

The village digitalization program is a two-tier arrangement that on one hand constituted the implementation of a MOU between the Muhammadiyah Sidenreng

**Table 2. List of Respondents Interviewed**

Location	Subject/Respondent	Position of Research Subject
Cemba Village, Enrekang Regency	Village head	Source
Timoreng Panua, Sidenreng Rappang Regency	Village head	Source
Akakae, Sidenreng Rappang Regency	Village head	Source
Enrekang Regency	Members of the Cemba Village Representative Body	Sources and Respond-
Sidenreng Rappang Regency	Members of the Representative Body of Timoreng Panua and Akakae villages	Sources and Respond-ents
Enrekang and Sidenreng Rappang Regency	Head of Hamlet and Community Figure	Respond-ents

Rappang University and the Ministry of Villages, Disadvantaged Regions, and Transmigration of the Republic of Indonesia and the Indonesian Association for Public Administration (IAPA) (Muhammadiyah University Sidenreng Rappang is a member of the IAPA institution), in empowering communities through community service activities, and MOUs ). between Enrekang and Sidenreng Rappang district Governments and and Muhammadiyah Sidenreng Rappang University, on the other. The terms of the MOU specifically focus on fostering collaboration in areas of human resource development, community empowerment, and academic development.

Digitalization of public services entailed the use of internet in delivering services. The scope of this study is on the digitalization of public services in areas of civil records and demography, village potential services, and village profile. The digitalization of civil records and demography services involves the e provi-

sion of digital permits processing of certificates of residency domicile certificate, business certificate, business ownership certificate, , certificate of permit. Services that relate to village potential consist of data on the website about agricultural resources, land ownership, rice ownership, and so on, while village profile is the description of the geographical position, demographics, tourism activities, and so on. Such data has been digitized and digitalized by including them on the village website.

### **The Impact of Digitizing Village Government Services**

This section discusses the public perception about the impact of the digitalization of civil and demographics records management, transparency and speed of public service delivery, and social welfare.

1. Public Perception civil records and demographics management.

The digitalization of demographics

data and information for the village population, involved visits to households to register family cards, interviews to obtain information about social and economic identity of village residents including education attainment status and employment, which were subsequently uploaded on village websites. Visits to village households also provided village government officials the opportunity to explain to community members about the importance of digitalizing data and information in accelerating data management for better public service delivery and administration. The collection of data on the social and economic indicators of the village population, generated a vital data and information pool, which could the village government can use in village communication and dissemination exercises, as well as in improving the effectiveness of development planning, program targeting and efficiency

Nonetheless, the process of collecting data faced key obstacles. The obstacle related to the fear by village residents that data that was collected could be misused

for purposes other than those for which it was collected. Village members were reluctant to provide truthful information for the fear that their private data and information could be used to serve political ends.

Nonetheless, based on interview results, showed in table 3, 81%, 70%, and 85% of the respondents in Cemba, Timoreng Panua, and Akakae Villages, expressed support for the digitalization program, respectively. Meanwhile, 18.5%, 30%, and 14% of respondents in the three villages (Cemba, Timoreng Panua, and Akakae) expressed opposition to the program, respectively; were were opposed to the process, while 0.5%, 0%, and 1% of respondents in Cemba, Timoreng Panua, and Akakae village, respectively, did not while express their opinion either way (were noncommittal with respect to their on digitalization of village services).

It is worth noting that residents of Cemba Village and Akakae Villages were more supportive of the digitalization program (positive perception was above 80%), which may be attributable to the immense benefit that the program generates for the population because of the remote

**Tabel 3. Public Perception About Population Data Collection**

	Cemba Village (%)	Timoreng Panua Village (%)	Akakae Village (%)
<b>Support</b>	81	70	85
<b>Opposite</b>	18,5	30	14
<b>Abstain</b>	0,5	0	1
<b>Total</b>	100	100	100

Source: Primary Data

**Table 4. Public Perception After Digitizing Public Services**

	Transparency of Activities	Fast service (%)
<b>Support</b>	97	99
<b>Opposite</b>	3	1
<b>Total</b>	100	100

Source: Data Analysis

and mountainous location that is far from urban areas. On the contrary, the population of Timoreng Panua Village, which is in close proximity to Rappang and Maccorawali Urban hamlets were opposed to the program, with 30% of residents in the village showing objection.

2. Public Perception on Transparency of Activities and quick / Speedy Services

This section presents the results of public perceptions about the digitization program's impact over the last three years. The benefit is that there is a key difference between digitization (converting data and information from analog (hard text for example) into a format that can be recorded and entered into a computer, which understands numbers (1 and 0), and digitization (the technology that makes data digital. Accessible, manipulated, easy to store, update, share, and disseminate Table 5 presents the perception survey results. Results showed that 97% of respondents were supportive of the digitalization initiative because of its contribution to enhancing transparency of village government activities, and only 3% were opposed to it. Skepticism about both those who supported and opposed digitalization of village government services

was the fear that the process would have adverse effects on village governance as the potential danger on the uninterrupted delivery of village services.

Prior to digitalization initiative in the village governments, enhance the quality and transparency of reporting of village government activities to the public was limited by the fact that village head used his private Facebook as the medium to convey government reports. The implication is that only those village community members who were 'friends' with the village head on his private Facebook profile could benefit from any information that he posted on it. It is such a problem, that underscores the importance of developing a village website, on which village government information can be posted and easily accessible to all village community members who have access to internet.

In the aftermath of adopting digitalization, letter printing became easier and quicker. Digitalization leverages civil records search, which makes identifying names of the resident in the village database, leading to easier and quicker printing of letters that are requested by village residents. Moreover, given the existence of templates

for different purposes, information system operators are only required to search for village resident name, which the application uses as input in creating the letter that is required. Table 4 depicts the overwhelmingly positive perception of village residents about the digitalization of mail services with 99% expressing support and 1 percent opposed largely due to limited access to internet connections.

In other words, respondents support the digitalization of public services, despite fears that services may be hampered by limited access to internet that affects some areas especially those that are remote. This is because digitalization of public service delivery process is expected to enhance transparency and accountability, and lower service charges. This is reflected in the comment by one village community member who noted that :

“We support the digitization of public services because of its potential contribution to improving transparency and quick service delivery that minimizes unnecessary costs.”

Nonetheless, not a few village members were worried that the digitalization of public services will make it for village governments to collect taxes because of easy access to data on village member incomes in the village government database. To that end, support for the digitalization of public services, while strong, it is tempered by individual concerns that enhanced transparency

will enhance the long arm of the local government to demand village member compliance with their expected obligations as members of society. One of the root causes of such fears is lack of sufficient information and socialization of the goals, objectives and scope of digitalization of village public services. In fact, it is not only members of the public who not well informed about the scope and remit, hence benefits of the digitalization of village public services, but also village government officials. Thus, to reduce uncertainty and doubts about the objectives and scope of digitalization of public service delivery in the village government, socialization of the program should be enhanced through dissemination of information to the effect to all stakeholders state and non-state actors alike.

### 3. Social Impact of digitalization of village government services

Results of the field study showed that digitalization of public services by reducing the need to interact physically with other village community members during the service delivery process, has contributed to the widening of the social distance among village community households. Such a view was confirmed in an excerpt of an interview with one of the respondents who noted that :

“Digitalization has limited the need for direct interaction between people because access to public services is done through mobile phones and internet.

Close relations among residents, which had evolved overtime due to direct physical contacts among village members in the process of obtaining public services has been disrupted.”

Thus, while village community members still have an opportunity to interact directly with other members through other events that bring them together, physical interaction through the process of accessing public services, which was also one of the ways to relate socially with others, has been adversely affected by digitalization.

In other words, while the digital revolution and information technology have generated benefits that include prevented the to wait for long hours for public services, reduced service charges, higher transparency and accountability of service providers to users, and increased the integration of villages with other villages and society (Octastefani & Rum, 2019), it has also had disruptive effects on social cohesion and solidity of village community members and households as a social unit.

### **The Incremental Approach in Implementing the Digitalization of Village Government Services**

Prior to the development of village websites, discussion forums were convened. The forums, which were conducted in village government offices, provided village members the op-

portunity to participate in the design phase of village websites. The forums comprised 1-5 meetings and were conducted using direct communication with the public on issues that related to the digitalization of records of village residents and subsequent phases that included data collection, drafting of certificates, developing village websites, and establishing Standard Operating Procedures (SOPs).

Nonetheless, the failure of implementers of the digitalization program who included students and village government officials, to involve village residents in data collection and village website development meant that village community members remained skeptical about the benefits of the program. The participation of village residents in discussion forums was limited to listening to what village government officials and students presented without being given the opportunity to ventilate their views, perspectives and concerns about the digitalization program.

Besides, the long interval between data collection and village website development, led to disconnection in the understanding and knowledge of village residents about village government digitalization program. That in turn became a source of resistance against the program. Absence of sufficient socialization of the goals of the digitalization program, generated concerns in the public that data collection was tailored toward serving interests other than those stated, including elections of village, dis-

trict, and provincial administration heads, presidential and national legislature member elections.

Nonetheless, concerns about the motives of data collection did not degenerate into conflicts during the data collection process, which underscores the fact that had the village government involved village residents actively in the design, development, and implementation of the digitalization program, such skepticism and resistance against it would have been avoided. Based on information obtained, socialization of digitalization of public services, did not involve village residents who were directly impacted by the implementation of the program, rather village community leaders and government officials. It is thus not surprising that the program faced strong opposition from village residents, simply because they had limited knowledge about its benefits and impact on their lives.

Besides, program implementation phases were characterized by high turnover government officials at the village, sub-district and district levels. Consequently, at any point in time, program implementation lacked officials who were knowledgeable about the program history, purposes, and interests, aspirations, and concerns of the local communities about the program. That may explain the minimal incorporation of interests and concerns of the local village community members in the design and implementation of the village service digitali-

zation program. In other words, the village service digitalization program lacked sufficient village public ownership to such an extent that village members perceived as not belonging to them.

The results of this study demonstrated that an incremental innovation approach, because of its non-transformational nature and occurs in small steps and changes to the existing systems, processes, and procedures (Kim & Yoon, 2019; Johansson et al., 2019; Lennerts et al., 2019), has the ability to deliver effective and efficient improvement in public service delivery. Nonetheless, to achieve its goals, incremental innovation programs, both program design and implementation must be participatory and inclusive to ensure that interests and concerns of all stakeholders are taken into consideration in all facets of the program.

## **CONCLUSION**

The digitalization of village government services increases transparency, responsiveness, and accountability. Some of the benefits of the village public service digitalization program include creating opportunities for the young generation to leverage information and communications technology in developing and disseminating content and information about their activities through websites and social media. That way, the village youth contribute to village development. Easily accessible data of village residents enhances the effectiveness and efficiency of village program de-

sign and targeting.

Nonetheless, such gains can only translate into higher welfare of the society if the design and implementation of the program is both participatory and inclusive of all key stakeholders in village communities. Perception of users of public services about the benefits of the program is not only influenced by promises of higher transparency, responsiveness, and accountability, but also what such the improvement means for their interests. Lack of enough information about the role that private data collection played in implementing the program, raised concerns among users of potential its misuse for interests that would harm their goals. Thus, public perception about digitalization of government services in the three villages while positive did not mean that they considered it as not serving their interests, hence suffered from low ownership. The low participatory nature of the program, meant that program deployment created social disconnect among village members, leading to low social cohesion. Resistance against the program became unavoidable, which raised fears about its long-term sustainability.

To that end, adopting an incremental innovation approach in improving public service delivery can achieve its ultimate goal of contributing to enhancing the welfare of society if its design and implementation phases are participatory, and iterative to ensure that the negative impact on society once identified during program implemented can be mitigated prior to program completion.

## REFERENCES

- Adi, Y., & Siregar, M. R. A. (2019). OPTIMIZING THE UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY TO INCREASE FARMERS BARGAINING POWER IN CIASMARA VILLAGE. *Journal Of Community Engagement, 01* (01), 5–10.
- Ahmad, J. (2015). Metode Penelitian Administrasi Publik; Teori dan Aplikasi. In *Gava Media, Yogyakarta* (1st ed., pp. 1–232). Yogyakarta: Gava Media.
- Barak, M., & Usher, M. (2019). The innovation profile of nanotechnology team projects of face-to-face and online learners. *Computers and Education, 137*(September 2018), 1–11. <https://doi.org/10.1016/j.compedu.2019.03.012>
- Berggren, C. (2019). The cumulative power of incremental innovation and the role of project sequence management. *International Journal of Project Management, 37*(3), 461–472. <https://doi.org/10.1016/j.ijproman.2019.01.014>
- Busch, P. A., & Eikebrokk, T. R. (2019). Digitizing Discretionary Practices in Public Service Provision: An Empirical Study of Public Service Workers' Attitudes. *Proceedings of the 52nd Hawaii International Conference on System Sciences, 6*, 3130–3139. <https://doi.org/10.1016/j.procs.2019.05.014>

[doi.org/10.24251/hicss.2019.379](https://doi.org/10.24251/hicss.2019.379)

- Dalal, V., & Sharma, S. (2019). Redesigning Public Services Delivery: A Comparative Study of Delivery of Manual Conventional Public Services and Delivery of Public E-Services. *The IUP Journal of Supply Chain Management*, XVI(1), 37–51.
- Fanea-Ivanovici, M., Muşetescu, R.-C., Pană, M.-C., & Voicu, C. (2019). Fighting Corruption and Enhancing Tax Compliance through Digitization: Achieving Sustainable Development in Romania. *Sustainability*, 11(5), 1480. <https://doi.org/10.3390/su11051480>
- Fishenden, J., & Thompson, M. (2013). Digital government, open architecture, and innovation: Why public sector it will never be the same again. *Journal of Public Administration Research and Theory*, 23(4), 977–1004. <https://doi.org/10.1093/jopart/mus022>
- Ghosh, S. K. (2019). Indigenously developed digital handheld Android - based Geographic Information System ( GIS ) - tagged tablets ( TABs ) in malaria elimination programme in Mangaluru city , Karnataka , India. *Malaria Journal*, 1–11. <https://doi.org/10.1186/s12936-019-3080-8>
- Haryanti, S. (2019). Government Public Relations and Social Media: Bridging the Digital Divide on People with Social Welfare Problems. *JKAP (Jurnal Kebijakan Dan Administrasi Publik)*, 22 (2), 128–145. <https://doi.org/10.22146/jkap.34602>
- Hervas-Oliver, J. L., Sempere-Ripoll, F., Estelles-Miguel, S., & Rojas-Alvarado, R. (2019). Radical vs incremental innovation in Marshallian Industrial Districts in the Valencian Region: what prevails? *European Planning Studies*, 27(10), 1924–1939. <https://doi.org/10.1080/09654313.2019.1638887>
- Johansson, A. E., Raddats, C., & Witell, L. (2019). The role of customer knowledge development for incremental and radical service innovation in servitized manufacturers. *Journal of Business Research*, 98(September 2017), 328–338. <https://doi.org/10.1016/j.jbusres.2019.02.019>
- Kim, H. C., & Yoon, W. (2019). Study on types of technology cooperation partner and innovation performance: Focusing on incremental and radical innovation. *International Journal of Innovation Management*, 23(1). <https://doi.org/10.1142/S1363919619500051>
- Kobarg, S., Stumpf-Wollersheim, J., & Welp, I. M. (2019). More is not always better: Effects of collaboration breadth and depth on radical and incremental innovation performance at the project level. *Research Policy*, 48(1), 1–10. <https://doi.org/10.1016/j.respol.2018.07.014>

- Kusumasari, B., Setianto, W. A., & Pang, L. L. (2018). A Study on Digital Democracy Practice: Opportunities and Challenges of e-Health Implementation in Indonesia. *Jurnal Ilmu Sosial Dan Ilmu Politik*, 22(1), 1. <https://doi.org/10.22146/jsp.28863>
- Lennerts, S., Schulze, A., & Tomczak, T. (2019). The asymmetric effects of exploitation and exploration on radical and incremental innovation performance: An uneven affair. *European Management Journal*, (xxxx). <https://doi.org/10.1016/j.emj.2019.06.002>
- Lindgren, I., Madsen, C. Ø., Hofmann, S., & Melin, U. (2019). Close encounters of the digital kind: A research agenda for the digitalization of public services. *Government Information Quarterly*, 36(3), 427–436. <https://doi.org/10.1016/j.giq.2019.03.002>
- Melhem, S. (2019). Assessing Country Progress Towards Digitization. *World Bank Group*, (February), 2018–2019.
- Mergel, I. (2019). Digital service teams in government. *Government Information Quarterly*, 36(4), 101389. <https://doi.org/10.1016/j.giq.2019.07.001>
- Nisa', K., Rusfian, E., & Zaenab, Z. (2019). Managing Government Digital Reputation through Big Data Processing. *JKAP (Jurnal Kebijakan Dan Administrasi Publik)*, 22(2), 72. <https://doi.org/10.22146/jkap.31810>
- Octastefani, T., & Rum, M. (2019). Millennials' Contribution in Disaster Risk Reduction: Case Study of Tidal Flooding in Semarang. *Jurnal Ilmu Sosial Dan Ilmu Politik*, 23(1), 14. <https://doi.org/10.22146/jsp.43727>
- Raghavan, S., Simon, B. Y. L., Lee, Y. L., Tan, W. L., & Kee, K. K. (2020). Data Integration for Smart Cities: Opportunities and Challenges. *Lecture Notes in Electrical Engineering*, 603, 393–403. [https://doi.org/10.1007/978-981-15-0058-9\\_38](https://doi.org/10.1007/978-981-15-0058-9_38)
- Ricciardi, W., Pita Barros, P., Bourek, A., Brouwer, W., Kelsey, T., & Lehtonen, L. (2019). How to govern the digital transformation of health services. *European Journal of Public Health*, 29(3), 7–12. <https://doi.org/10.1093/eurpub/ckz165>
- Semenova, A. (2019). Digital transformation of public services: leading trends, opportunities, and threats. *Advances in Social Science, Education and Humanities Research*, 318(Icseal), 403–409. <https://doi.org/10.2991/icseal-19.2019.63>
- Shobaruddin, M. (2019). Critical Factor Influencing Electronic Government Capacity Building in Sragen Municipality Government Public Service Delivery. *JKAP (Jurnal Kebijakan Dan Administrasi Publik)*, 22(2), 98–116. <https://doi.org/10.22146/jkap.34105>

- Sholeh, C., Sintaningrum, S., & Sugandi, Y. S. (2019). Formulation of Innovation Policy: Case of Bandung Smart City. *Jurnal Ilmu Sosial Dan Ilmu Politik*, 22(3), 173. <https://doi.org/10.22146/jsp.33698>
- Soegiono, A. N. (2018). Investigating Digital (Dis)engagement of Open Government: Case Study of One Data Indonesia. *JKAP (Jurnal Kebijakan Dan Administrasi Publik)*, 22(1), 36. <https://doi.org/10.22146/jkap.31848>
- Sta, H. Ben. (2018). Organisational structure for the e-government coordination and interoperability framework: A case study of Tunisia. *Electronic Government*, 14(1), 51–77. <https://doi.org/10.1504/EG.2018.089540>
- Thi Mai Anh, N., Hui, L., Khoa, V. D., & Mehmood, S. (2019). Relational capital and supply chain collaboration for radical and incremental innovation: An empirical study in China. *Asia Pacific Journal of Marketing and Logistics*, 31(4), 1076–1094. <https://doi.org/10.1108/APJML-10-2018-0423>
- Trencher, G. (2019). Towards the smart city 2.0: Empirical evidence of using smartness as a tool for tackling social challenges. *Technological Forecasting and Social Change*, 142(July), 117–128. <https://doi.org/10.1016/j.techfore.2018.07.033>
- Van der Graaf, S., & Veeckman, C. (2014).