

## Co-creating public value into digital-based public service innovation in the village governance

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### Abstract

*Digital technology is a solution in improving public services and governance, such as in administrative services with open access information. In organizing public services, the Hamparan Perak village government uses web-based applications, which aim to prevent corruption, increase transparency and reduce administrative costs in governance. This research uses a survey method, and is processed through smart PLS software. The results of this study indicate that digital-based public service innovation has a t value of 138.059 and a p value of 0.000. In addition, the results show that digital-based public service innovation has a significant positive effect on public value creation, which is 1.96. Thus, by implementing an electronic system in governance, Hamparan Perak Village can co-create public value by fulfilling the strategic triangle and relating to the main components that can differentiate services provided by public and private organizations. The form of innovation in optimizing digital-based public services in Hamparan Perak Village is the application of web applications. This will strengthen the co-creation of public value derived from the level of community satisfaction through community trust and support for the implementation of web-based governance in Hamparan Perak Village.*

**Keywords:** co-creation, public value, innovation, digital-based, public service

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### Introduction

During the Industry 4.0 era, the government sector faces many challenges to change and adapt to technological advancements. One focus of these technological advancements is the use of IT as an alternative to improve public services. Within a government system that aims to achieve a better quality of life than before, there is a tendency to improve public services through technological development. According to (Hashim, 2024; Li et al., 2023) The main goal of today's technological advancement is to create a better government and not only faster and more effective but also more transparent and accountable, because modern society needs a government that is responsive and ready to help quickly without many complex processes or long times. In this instance, technology serve as bridge to realizing a government that is focused on public services. Overall, technological advancements in the government sector during Revolution 4.0 are rooted in the need to build systems that are more sophisticated, open, efficient, and adaptable to the evolving needs of society. Technology can help governments become more inclusive and ready to face future challenges.

The government is currently considering the idea of industrial revolution 4.0, which is a transformation in the production process of goods and services characterized by various features, such as the use of the Internet of Things (IoT), big data, automation, robotics, cloud computing, and artificial intelligence. As explained by (Benaddi et al., 2021; Tini, 2019), answering the challenges In order to provide excellent service in the era of industrial revolution 4.0, the government must be able to adapt its delivery of public services using technology-based (digital) services. This is because technology, transparency, speed, and convenience are critical to a servicewill be realized. Then, (Basyriah et al., 2020; Muharam, 2019; Zhu et al., 2024) shows that technology cannot be separated from innovation in government administration, which has a significant impact on ASN performance in providing public services. Thus, in the era of industry 4.0, bureaucratic performance is very much needed to facilitate the provision of public services. Thus, in the era of industrial revolution 4.0, public services are closely linked to technology in the management of basic and administrative services, so that there are no time or space limits in the service process provided to the community. This is because the greatest need of the community is high-quality public services. Therefore, the central and provincial governments are carrying out various public electronic innovations to be able to reach every remote area in Indonesia (Andersson et al., 2022; Indama, 2022).

The application of technology that focuses on digitalization and industrial revolution 4.0 can be achieved through the implementation of national laws that involve interaction between various stakeholders. Then (Almazrouei et al., 2024) The development of public service innovations that focus on technological advancements through digitalization is becoming increasingly important. This is especially true at the village level. This is because digital initiatives at the village level are expected to provide more efficient, transparent, and engaging solutions to meet community needs. During the industrial revolution 4.0 era, advances in information and communication technology have brought many opportunities and challenges to improve government efficiency, effectiveness, transparency, and accountability. This is seen in Hamparan Perak Village and Deli Serdang Regency. Therefore, the Hamparan Perak village government is also looking for ways to meet the demands of the times by using new technology. They strive to help the community by providing easy access to information, providing easily accessible services, and giving more opportunities for direct participation.

Hamparan Perak Village, located in Deli Serdang Regency, is one of the villages that has started various initiatives to implement digital technology in various aspects of public services that are closely related to very broad aspects of government and community life. This village is adaptive to the development of information technology and science, especially in the era of industrial revolution 4.0. Hamparan Perak Village has started with new digital public services based on mail and general information. This is an innovation that provides a broader solution and is adaptive to future technological developments. Digitalization provides easier access to the community to obtain administrative services through digital devices such as computers, tablets, or even smartphones connected to the internet.

In addition, public service innovations implemented in Hamparan Perak Village can reduce high levels of bureaucracy, complicated administrative procedures for correspondence, and lack of information known to the public about Hamparan Perak Village. However, problems continue to arise when implementing this system, such as lack of technical facilities, lack of manpower, and lack of funds, which make the

development of the system not optimally utilized by the community. This is mainly due to the different levels of digital literacy in the community. In addition to Hamparan Perak Village, many villages in Indonesia also experience technical infrastructure limitations, as shown by the results of the study (Saputra, 2021; Singh et al., 2022), namely the lack of adequate technological infrastructure, so that they still experience difficulties in stable internet access because without strong infrastructure. However, they do not have sufficient technological infrastructure, so they still struggle to get stable internet access due to the lack of strong infrastructure. Furthermore, the lack of resources, especially human resources, has a significant impact on the implementation of digital-based public innovations. In particular, the level of digital literacy in the community is very influential, because many people are not yet familiar with using information technology (Bozhikin et al., 2024; Minguijón et al., 2024). Therefore, there needs to be a social services model that can utilize digital technology to reduce the limitations of human resource capacity. In addition to human resources, budget constraints are another obstacle to the implementation of digital innovation at the village level. This is because budgets can have an effect on the ability to adopt new technologies, which will hamper the development of digital systems at the village level. In addition, the problem of budget constraints is in accordance with research findings (Andersson et al., 2022; Madan & Ashok, 2023), the study explains that budget is very important in the development of digitalization of services so that the process can be carried out dynamically and avoid the threat of declining service quality.

An alternative to improving the quality of services provided to the community is to implement public service innovation through a digital-based village public service process through the official website of the Hamparan Perak Village government. Therefore, the program implemented to support this policy is the digital village program in Hamparan Perak Village. This is in line with the research results of (Afzal & Panagiotopoulos, 2024) that digital-based public services are ideally able to provide equal access for all levels of society, regardless of age, education, or economic conditions, and in addition this system is expected to have a high level of data security to protect the privacy and personal information of the community. Furthermore, (Gjaltema et al., 2020; Herizal et al., 2020), public services often focus on innovation in governance of information technology. This is a big challenge but also an opportunity to improve efficiency, effectiveness, transparency, and accountability to provide high-quality services. Thus, public sector innovation is necessary to provide public services that better reflect the availability of public choices with the goal of creating diversity in service methods (Ali & Saputra, 2020; Hajar, 2021). This is an innovation that aims to increase public value through the provision of faster, more focused and more accountable services to the farming community.

While technological advancements are supposed to expand access, they frequently lead to new problems, leading to disparities related to limited access to digital services, especially in rural areas without internet access. In addition, this problem hampers the implementation of the digital village program which is not yet optimal. As a result, the quality of administrative services still needs to be improved, especially the ability of village officials to manage the village website.

In addition, this problem hampers the implementation of the digital village program which is not yet optimal. As a result, the quality of administrative services still needs to be improved, especially the ability of village officials to manage the village website. Currently, the village website in Hamparan Perak Village is being prepared for use of information and communication technology. The main focus of this website is to

provide government information to the public in one direction. In addition, the focus is on selecting the right technology for web-based village digitalization with the aim of increasing efficiency, efficiency and quality of public services. The digital village program can then be put into place as a new innovation in public services in the Hamparan Perak village government. However, there are still obstacles in the way of implementing it, especially regarding the availability of both internal and external resources. To improve public services in Hamparan Perak Village, the government builds and creates applications that support these services, such as web-based village applications.

Through the village website, this village application aims to provide intensive services to the community, business actors, and government environments. It aims to reduce corruption, increase transparency, increase convenience, increase income, and lower government organizational costs. One of the solutions to improve public services in Hamparan Perak Village is a web-based digital village program, because poor administrative services have led to poor services. With the aim of improving public services in government administration and supporting good governance, the web-based digital village program has been developed with the aim of facilitating public access to the program. In addition, it also aims to increase the effectiveness of services (Benaddi et al., 2021; Kurniawan et al., 2022). Consequently, it is essential for the implementation of this public service innovation to be supported by sufficient resources and indicators of success for the implementation of the digital village program based on the web. This is so that it is able to create public value in accordance with the objectives of information technology-based services. As shown by the research results (Almazrouei et al., 2024; Kassen, 2022) service quality plays an important role in helping to solve problems related to the implementation of public innovation. This is helped by the reliability and capability of the organization and its performance which is based on public values. Therefore, the digital village program in Hamparan Perak, which is based on the web, is an innovation in public services that can be implemented so that it has public value as a valuable public service framework and is in line with community needs. Public value is closely linked to public policy and performance indicators. According to (Benington & Moore, 2011) It is possible to achieve public value through an integrated decision-making process with organizational, political, and business elements. This will ensure that all parties involved are committed fairly and in harmony to achieving common goals. Moore also states that public value refers to the value created by government through service regulations, laws, and other actions.

Then, Kassen (2022); Muhaimina (2017) states that public value is related to customer satisfaction and the implementation of laws as the implementation of public organizations, namely the government. In addition, public value is an important indicator in government that has the ability to produce political innovation based on technological and scientific progress (Ribeiro & Shapira, 2020; Twizeyimana & Andersson, 2019). Therefore, to achieve public value in public services, resources are needed that have the ability to provide effective and efficient updates and improvements, as well as to provide useful and valuable results. One example is the quality of services provided to the community. In government, public value is an important indicator that has the ability to produce policy innovation based on technological and scientific advances. According to (Benington & Moore, 2011) triangle strategies for public sector organizations consists of legitimacy and support; operational capabilities; and substantive value. To create innovative services that are in line with the goals to be achieved, three strategies must be implemented simultaneously, then to

achieve public services oriented towards technology and information, the strengthening of public values in web-based digital village programs must be able to fulfill elements of the strategic triangle, which is the main symbol of public values. Thus, through the strategic triangle, the implementation of web-based digital village programs in the era of industrial revolution 4.0 is expected to improve the quality of public services to the community based on technology and information.

Innovative public services, like the web-based digital village program in Hamparan Perak, are created by the strategic triangle, which plays a vital role in the formation of public value. Therefore, the public becomes a benchmark in evaluating the performance of policies in structuring and strengthening government administration in the era of the industrial revolution 4.0. Based on problems, is interested to explore web-based digital village public services in the context of analyzing public value co-creation of web-based digital villages as an innovation in Hamparan Perak Village public services.

### **Research Methods**

The survey method and data analysis in this study use smart PLS software that is run with computer media. PLS (Partial Least Square), a variant-based structural equation analysis (SEM), has the ability to check both model dimensions and structure models at the same time (Liang et al., 2019). Predictive models are used in structural models to test hypotheses for causality. On the other hand, measurement models use reliability and validity.

In business sector research, SEM is known as causal modeling, causal analysis, and confirmatory factor analysis. In addition, since PLS is a soft modeling analysis technique, a minimal number of samples can be used (less than 100 samples). In addition, PLS does not require data of a specific scale (Arbolino et al., 2021). PLS is used in research for a variety of reasons (Brandler & Roman, 2007; Li et al., 2019). The reasons for this study are as follows: First, PLS (Partial Least Square) is a data analysis method based on the assumption that samples do not have to be large, that is, samples of less than 100 can be analyzed and the residual distribution can be calculated. In addition, PLS (Partial Least Square) can be used for prediction because it can analyze theories that are still considered weak. In addition, PLS (Partial Least Square) allows the use of logarithms through ordinary least square (OLS) series analysis to obtain efficiency in calculating logarithms. Fourthly, it is assumed that all variance measures can be used to explain the creation of public value in the PLS approach. Therefore, this quantitative data analysis is used to determine and measure the impact of the digital village web based on the creation of public value in Hamparan Perak Village. Primary and secondary data are used in this study. Data collected directly from sources or respondents' answers are referred to as primary data (Strauss, 2016). It uses data from surveys and interviews, the variables studied are measured by the research instrument. For the purpose of this study, the research tool used was a questionnaire designed according to Joshi's metrics for conceptual model variability, as well as instrument preparation using a Likert scale. According to (Joshi et al., 2015) Likert scala is a measurement technique used to measure a person's attitude, opinion, or perception of a statement or object:

**Table 1.** Answer Options Used in the Questionnaire

<b>Answer Choice Value</b>	<b>Explanation</b>
1	Very Dissatisfied
2	Not Satisfied
3	Neutral
4	Satisfied
5	Very Satisfied

*Source: Joshi et al., (2015)*

## **Results and Discussion**

### **Co-creating public values in public services ; an overview**

The main focus of this research is the web-based digital village to improve public principles, especially the web-based digital village program in Hamparan Perak Village. Not only in Indonesia, but every country must find a solution to implement public law. This is because providing optimal service is not an easy task. Regulation of an area is related to the implementation of public services. In general, public service problems can be seen from the inability to optimize service quality through the service provision process. To get the excellent service that the community wants, it must go through a long process, which is through the state, where there are two institutions for politicians and policymakers. These include making government services easier to access, improving interactions between work units, and streamlining government administration (Kurniawan et al., 2022; Pananrangi et al., 2023). E-Government, which aims to: 1) make it easier for the public to access government information and services; 2) improve the quality of services by increasing speed and completeness of information.

To help and provide convenience to the community, both directly and indirectly, is the goal of the topic of public services. In the current era of globalization, public services must be able to meet the state and society's demands and needs and to keep up with the changes in science and technology, especially the 4.0 industrial revolution. Government service delivery policies must be adjusted to the community's interests, desires, expectations, and demands in accordance with relevant laws and regulations. There is an argument that there is a paradigm shift in the provision of public services towards a more transparent, accountable and involved pattern (Hamirul, 2018; Hashim, 2024). They claim that these difficulties are caused by both government officials and the community, who do not fully believe in the government's efforts to improve things. Furthermore, to provide public services, one must be able to overcome the challenges faced by public institutions so that they can help develop government administration innovations that impact government performance consistently with strong public principles (Cordella & Paletti, 2019; Madan & Ashok, 2023).

The presence of new innovations in public services is a result that has value and provides benefits for effectively and efficiently enhancing the quality of services to the community. Through the implementation of the digital village-based web program in 2023, public services in Hamparan Perak Village have been implemented through the electronic system in the preparatory stage. Therefore, innovation in the public sector is essential for the development of public services with the principle of novelty. This will allow for the creation of public value, which will allow for the development of electronic systems in a good governance. Moore to argue (Almeida et al., 2017; Pakarti, 2018) that a decision-making process based on a relationship that is closely related to the

institutional, political, and corporate aspects can achieve public value. This ensures that there is a consistent and aligned commitment in order for the process to produce useful and worthwhile results. Therefore, public value serves as a benchmark for the success of government administration, particularly in terms of public services, and in accordance with its objectives: to ensure that public services are provided in line with the general principles of good governance and corporate practices, as well as to ensure protection and legal certainty.

One of the legal beliefs related to the use of digital village based web as technology and data for public services to support the effectiveness and efficiency of government administration is that there are three dimensions—economic, social, and socio-governmental. As explained by (Dewi et al., 2022; Ribeiro & Shapira, 2020) e-Government benefits in development can be seen in several dimensions, including economic, social, and government. Each of these dimensions plays a significant role in the effectiveness of government services and the welfare of society. From an economic perspective, e-Government plays an important role in reducing transaction costs, enabling the government to provide more specific and efficient services to the public. By implementing e-Government, the number of recipients and the quality of services can be increased. . Furthermore, this system allows the government to address poverty issues more quickly and effectively, potentially increasing revenue by increasing efficiency and reducing government administration waste. Nevertheless, e-Government has a significant impact on the social dimension by creating new employment opportunities, especially in the third sector related to technology and information services. In addition, the implementation of e-Government encourages the improvement of education and health systems, ensures equal distribution of public services, and improves public safety and security. By using this technology, the government can provide accurate and responsive information to the public, which in turn improves the overall quality of life of the community. E-Government plays a significant role in improving governance through increased transparency, transparency, and accountability. The e-Government system allows the government to increase public participation, allowing the community to actively participate in the governance and decision-making process. This not only strengthens the existing democratic system but also fosters trust between the people and the government, which makes the government more responsive, effective and democratic compared to conventional systems.

Overall, e-government has benefits spread across all three dimensions. It not only improves the efficiency of public services but also creates a stronger society and a government that is more responsive to the needs of the people. Indrajit to argue (Axelsson & Granath, 2018) that in addition to the economic, social, and government dimensions, the implementation of e-government aims to improve the quality of government services to its stakeholders, including the public, business world, and industry, with a focus on effectiveness and efficiency in various areas of national life. With the help of this system, the government can provide services that are faster, more accurate, and more responsive to the needs of the community. In addition, e-Government encourages increased transparency, oversight, and accountability of government. This is in accordance with efforts to implement the principles of good corporate management. With more transparency, the public and other stakeholders can see the government operating more accurately. This increases public trust. Therefore, e-government can reduce administrative costs and relationships and interactions

between the government and the community. This has an impact on budget savings while reducing costs that often limit public access to public services. Furthermore, the government has the opportunity to acquire new revenue by engaging in digital partnerships with a variety of interested parties, such as by providing paid digital services or forming partnerships with the private sector. In addition, the implementation of e-Government creates a community environment that is responsive and adaptive to various emerging issues, both at the local and international levels. The community can respond to various global changes and emerging trends with fast and accurate information. This accelerates the adaptation process in the face of new challenges.

This system allows the government to provide services that are faster, more precise, and more responsive to public needs. In addition, e-Government encourages increased transparency, supervision, and accountability in government administration. This is in line with efforts to implement the principles of good corporate governance. (Colombelli et al., 2019) With better transparency, the public and other stakeholders can monitor government performance more objectively, thereby strengthening public trust, so through e-Government, administrative costs, as well as the costs of relations and interactions between the government and the public can be significantly reduced. This has an impact on budget savings, while reducing the burden of costs that have often limited public access to public services. In addition, the government also has the opportunity to obtain new sources of income through digital interactions with various stakeholders, for example through paid digital services or partnerships with the private sector. The implementation of e-Government also creates a responsive and adaptive community environment to various emerging issues, both at the local and global levels. With fast and accurate access to information, the community can respond to various global changes and emerging trends, accelerating the adaptation process in facing new challenges.

On the other hand, e-Government provides the ability for citizens and other groups to participate as partners of government in the relevant public decision-making process. This increases the sense of citizen participation in the governance process because this participation is carried out fairly and democratically. Ultimately, this system will build a community-based, high-quality information community where all citizens will have access to pertinent and accurate information. This will encourage the formation of smarter societies and enhance their collective capabilities to support sustainable progress. According to, (Andersson et al., 2022) The main objective of implementing e-Government is to improve the quality of services provided by the government to its stakeholders, including the general public, the business world, and the industrial sector. This aims to improve effectiveness and efficiency in various aspects of national life so that services provided by the government can be faster, more accurate, and more in line with stakeholder needs. In this way, the government can provide responsive and high-quality solutions to support economic and social progress. E-Government is also important for improving government transparency, oversight, and accountability. By strengthening these elements, the government can implement the principles of good governance, which support transparency of information and more responsible financial management. By using this system, the public and other stakeholders can monitor and assess government performance. This increases public trust in government through e-Government reduces administrative costs and interactions between the government and the public. Automation and digitalization of services have allowed the government to save daily expenses that had been limited by



long and complicated bureaucratic procedures. This not only reduces government operating costs, but also makes public access easier and cheaper.

E-Government opening up new opportunities for the government to gain alternative sources of revenue. Governments can create inventive services that generate additional income through digital interactions with stakeholders like private partners and businesses. Technology-based services, public-private partnerships, and integrated digital licensing programs are examples of these revenue opportunities. In addition to improving services, e-Government also helps create a community environment that is flexible and responsive to global changes and trends. With quick access to information and rapid response capabilities, communities can address challenges that arise over time. In doing so, communities can be better prepared to deal with dynamic social, monetary and political changes. Equally important, e-Government empowers communities and others to participate as government partners in the public decision-making process. By actively and democratically involving citizens, the law-making process becomes more equitable and representative, meeting the needs and desires of the general public. In addition, it strengthens the foundation of democracy and the relationship between government and its citizens. Finally, e-Government creates a better community-based information community. Every citizen has equal access to vital information, which allows them to become more educated, responding, and actively involved in the development of the community. This not only drives social progress but also creates a more inclusive and competitive society.

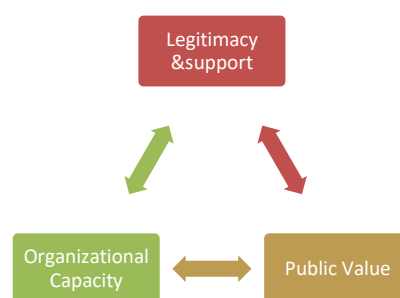
In general, there are three parties involved in the implementation of e-government: government (formal politics), administrative services (administrative services), and society (civil society). But, (Abdalla et al., 2024; Cordella & Paletti, 2019) said that there are two ways to explain the implementation of e-government: first, information technology already exists on the digital village-based web; kedua, rapid technology growth is something that needs to be considered when implementing e-government, which requires the right strategy to integrate information technology by creating a process related to effective government. And then, (Singh et al., 2022; Velasco, 2020; Zakariya, 2020) It is explained that, in order to meet the needs of the community, the government must pay attention to automated systems related to how to organize, change, and improve administrative processes so that they can provide the best quality of services provided to the community. In addition, it has been found (Challies et al., 2017; Heriawati, 2018; Liang et al., 2019) that public value is related to consumer satisfaction and the implementation of laws as a result of public operations, namely the government.

The above statement answers the demand for government organizations to be competent because e-government information technology now connects with local governments and other public sectors both nationally and internationally. Thus, with the idea of public value, which refers to the value created by the government through the provision of services based on applicable laws and regulations, the government can help an effective and efficient democratic system by involving public participation. In the process of creating public value, public satisfaction is considered very important. As a result, the three keys to public value are service, results, and trust. No one other than the community can determine whether a value is truly the value that the community intended. According to, (Arbolino et al., 2021; Hofmann et al., 2019; Twizeyimana & Andersson, 2019), e-government has six public values. The implementation of e-Government brings many important benefits to modern government, one of which is improving the quality of public services. With the help of this system, public services

become more accessible, faster, and more targeted. Technology allows the government to handle data and public requests more efficiently, which allows the government to meet the needs of the people more quickly. This makes public services more responsive and relevant to every individual, group, and sector in need. In addition, e-Government increases the effectiveness of administration at various levels of government. Digital systems reduce complex bureaucracy and operational costs by replacing many manual procedures that used to be tedious. Government resources can be allocated more efficiently, which makes it easier to carry out daily administrative tasks and makes the government more responsive in dealing with emergency or urgent situations.

In addition, the e-Government system allows for the development of a more transparent government. People can easily access important information, political data, and progress in government operations, which supports the principles of transparency and openness. With this transparency, the public can participate in viewing and monitoring government actions, resulting in a more accountable government. E-Government improves moral behavior and professionalism of government officials. Because every activity is recorded more accurately and can be tracked at any time, the use of digital technology reduces the possibility of irregularities and corruption. Thus, government employees become more professional, responsible and moral, which results in a clean and reliable work culture. According to (Minguijón et al., 2024) increased public trust and public confidence in government are additional benefits of implementing e-Government. Citizens will have more confidence in the integrity and ability of the government to run the country when they feel the direct benefits of fast and transparent services. To build a good relationship between the government and the people and to support sustainable social and political stability, this trust is very important. Ultimately, the implementation of e-Government also has an impact on improving social principles and the prosperity of the people. It is a system that makes it easier for the government to find and meet social needs in the fields of health, education, and general welfare. With more access to essential services, people will feel more valued and protected. As a result, the quality of life and social welfare will increase.

To create public value in public services, resources are needed that can provide useful and valuable results (Almazrouei et al., 2024). These resources can include novelties and improvements that are effective and efficient, such as the quality of services provided to the community. According to the research results, e-Village Hamparan Perak was built using a three-pronged strategy approach. This approach is used to support success factor indicators for a public-based digital village web. Furthermore, Moore confirm (Bryson et al., 2017) that the formation of public values is described **figure 1** :



**Figure 1.** Strategic Triangle dari public value  
*Source: Bryson et al (2017)*

Maintaining a balance between the three main points is very important for a manager. By tracking the performance of the organization regularly, the public hopes to help the mobility and development of operational capacity. Self-evaluation of value refers to the difference or disparity between the community's contribution to the government and the benefits enjoyed by the community. A public value can usually be measured by identifying the causal factors; a service can be measured by satisfaction and perception of fairness. However, trust, legitimacy and level of self-confidence can be measured from the performance of all levels of government. The public value concept itself serves as a standard for performance and policies implemented by public and government institutions when making decisions about resource allocation and determining the appropriate system for providing a service. This strategic triangle approach was developed by Moore, including:

### **Legitimacy and Support**

The policy of co-creating value in public service innovations using technology and information in the era of the industrial revolution 4.0 demands government organizations to be best because the digital village-based web program in Hamparan Perak Village connects to the local government and community and connects to other sectors. Therefore, support is needed from all sectors, especially from the government and the community, to implement a web-based digital village. The e-village program receives legitimate support. The village website serves as both a means of communication between the local government and the community as well as a link to other areas, such as education, agriculture, and economics. Additionally, this digital village website aims to facilitate and enhance cross-sector communication and make administrative services accessible for the community. The government provides regulations that support the implementation of digital technology and adequate budget allocation, but the village's human resources are limited, so this has not been built optimally. Then, the community can contribute to the system's continued improvement so that the village website can be adapted to local requirements. The private sector can also act as a strategic partnership that provides technological solutions and supports the village website's implementation. Therefore, it can be concluded that the development of public services through digital web villages such as Hamparan Perak Village is a strategic step to support contemporary governance in the industrial revolution 4.0 era. (An et al., 2021) However, the success of its implementation does not only depend on technology; collaboration and active support from the government, community, and related industries are also needed. In addition, support for programs such as e-kelurahan supports the transformation of digital-based public services, which enables the provision of fast, open, and community-oriented services.

### **Operational Capabilities**

Strengthening public values through web program for public services based on digital villages is closely related to performance measurement, which can lead to better governance. To manage the government electronic system, improving operational capabilities is essential to oversee the organization's performance. This is related to the development of the public administration paradigm in the local system, especially in the field of public services. (Arsid et al., 2019; Benington & Moore, 2011) In the new paradigm of public administration related to the New Public Service (NPS), public

administration is primarily responsible for assisting citizens in expressing and fulfilling their interests instead of attempting to control or guide them. This opinion was also expressed by Denhard & Denhardt (Paskaleva & Cooper, 2018) who argued that there were 7 (seven) characters of the New Public Service (NPS) principle, namely; First, the main role of public servants (state civil apparatus/ASN) is to help people fulfill their interests and needs, not to control or direct society in new directions; Second, Public administrators agree on the idea that the public interest is paramount; Three, Government policies and programs must be able to meet the needs of the community with collective efforts and collaborative processes to be more effective and responsive; Four, The public interest is the result of a dialectic of shared values rather than private/individual interests; Five, Public servants (ASN) must uphold morals, applicable laws and regulations, constitutional law, social values, political norms, professional standards and the interests of the community; Six, Government organizations and stakeholders work together in processes of collaboration and shared leadership; Seven, The public interest should be served by public servants (ASN) and the community together rather than being carried out by private parties who act as if public money is their own money.

Based on these 7 (seven) principles, it can support the implementation of digital village based web program for public service transformation (e-Government) including by Hamparan Perak Village as a follow-up to the implementation of the electronic system. It is crucial to have the government, the community, or other parties ready to implement the digital village-based web program in Hamparan Perak Village. This is because the task of providing public services is expected to strengthen public values in the programs that are run. According to, (Arsid et al., 2019; Jaung et al., 2019; Kusnadi & Baihaqi, 2020) increasing public value can be achieved if organizations in the public sector provide services that meet the needs of the community. Thus, the higher the happiness of the community, the higher the public value generated. However, according to, (Benington & Moore, 2011) Public organizations can create public value if the benefits to society outweigh the costs incurred, including the application of legal elements that force service users to comply with regulations. Therefore, public service organizations must be able to work seriously and strive to provide good and correct services so that the demands and needs of the community can be responded to and followed up properly by paying attention to things that can have a negative impact on creating public value in society, including the digital village-based web program for public service delivery in Hamparan Perak Village.

### **Substantively valuable**

The beginning of the process of the birth of public services that are in accordance with principles, principles, and standards is the result of the paradigm shift in government management from centralized to decentralized. This will ensure that public services are of high quality and that good governance is achieved. As a public organization, the government is increasingly required to provide high-quality public services that promote and boost economic activity. These public services are provided by the state civil apparatus (ASN) as state servants aimed at the welfare of the community. As stated by (Afzal & Panagiotopoulos, 2024; Shin & Lee, 2017) there is a close relationship between public accountability in public services and improvement of public performance. This is due to the fact that the issue of accountability must be the main issue when creating public services. And then, (Hajar, 2017; Kamaluddin, 2019; Reza Fahlevy et al., 2023) public accountability shows how much political officials

elected by the people influence the policies and activities of public organizations. The assumption is that these political officials are chosen by the people because accountability is one way to measure the quality of public services.

To meet the needs of the community and face the challenges in the industrial revolution 4.0 era, or the era of advanced technology, the government provides several services. In the 4.0 era, the implementation of public services has become a strategic issue because it is related to the interaction between the government and its citizens. Based on Law No. 25 of 2009 on Public Services, public service refers to activities or a series of actions aimed at fulfilling the service needs of every citizen and resident through the provision of goods, services, or administrative support by public service providers. In the era of industrial revolution 4.0, technology and information continue to develop rapidly and rapidly. These advances have had an impact on government, especially public systems that operate via the internet, known as e-government. E-government is defined as the use of information and telecommunications technology to manage effective and efficient government administration in order to provide convenient and transparent services for the community. Additionally, this digital village website for public service, based on the concept of e-government, is implemented in Hamparan Perak Village in order to make it easier for the community to manage administration or documents that are needed by the people of Hamparan Perak. According to the Mayor's government policy instructions regarding the implementation of the electronic system, this is being done.

Not everyone in Hamparan Perak Village has used e-Village and enjoyed the benefits of this program, such as ease of administration and required documents. As a result, the implementation of the web-based digital village for public services has not gone well. The implementation of the digital village-based web is strongly supported by many parties, not only the government but also the community and other parties. Therefore, the preparation and manufacture of the digital village-based web is also supported by government-funded Village funds. The Hamparan Perak digital village web program is a solution to public service issues. It also becomes a transformation for The government engages with communities in the management process to achieve governance that is both effective and appropriate. According to the research results (Hajar, 2021; Velasco, 2020) To produce good and quality results, the implementation of good governance must be supported by resources owned by the region, including components involved in government. Furthermore, (Supriyanto, 2016) states that there are two (2) management processes in government. The first aspect is internal, involving the use of information technology for automation, collaboration, and integration among government institutions to support the decision-making process. The second is external, which is related to the provision of information via the internet. Thus, one of the service innovation products that support governance through an electronic system focused on technology and information is the creation of a digital village based on the web in Hamparan Perak Village.

Electronic systems that aim to provide excellent service to the community are built on advancements in technology and information. Therefore, the support and available resources are very important to optimize online public services, especially in Hamparan Perak Village. In the era of the industrial revolution 4.0, governance is a challenge for good and correct governance. Because of this, careful planning for the

implementation of government electronic systems is necessary, which includes government support, community support, other parties, availability of human resources, and optimal financing. To overcome the challenges posed by the web digital village, efforts to solve these problems are adjusted to the use of information technology. This technology functions as a replacement or revitalization of the local government system. Thus, it can be concluded that using the digital village based on the web requires both support and careful planning to provide or recruit reliable human resources and facilities to maximize the use of online services. An effective solution to deliver excellent community services and enhance service quality in Hamparan Perak Village is the development of a web-based digital village.

The digital village implemented by Hamparan Perak Village is an information dissemination system carried out by adopting digital technology so that it provides benefits to all users of public services. This is what is called the diffusion of technological innovation, as expressed by (Madan & Ashok, 2023; Zhu et al., 2024), the diffusion of technological innovations does not only include the physical spread of technology, but also includes how society understands, accepts, and uses technology in an optimal way. Innovation is referred to as a digital public service application, methods, or communication media used to disseminate information about innovation, and there are time and community groups that are the targets of diffusion. Therefore, the diffusion of technological innovations is an important step in accelerating social and economic transformation. However, to be successful, an approach is needed that considers the needs of the community, the accessibility of the technology, and effective communication techniques.

**Table 2.** Measurement Model

<b>Construct</b>	<b>Item</b>	<b>Loadings</b>	<b>AVE</b>	<b>CR</b>
Digital Village based Web	X1	0,986	0.821	0.982
	X2	0,875		
	X3	0,894		
	X4	0,857		
	X5	0,889		
	X6	0,893		
	X7	0,877		
	X8	0,947		
	X9	0,930		
	X10	0,931		
	X11	0,941		
	X12	0,867		
	X13	0,883		
Towards Public Value	Y1	0,847	0.695	0.960
	Y2	0,814		
	Y3	0,843		
	Y4	0,859		
	Y5	0,838		
	Y6	0,842		
	Y7	0,864		
	Y8	0,826		
	Y9	0,830		
	Y10	0,794		
	Y11	0,758		
	Y12	0,883		

*Source: processed data by researcher, 2024*

The loadings, AVE, and CR indicators presented in the table above demonstrate that all loading indicators utilized in this study have surpassed the recommended threshold of 0.708 (Kultar Singh, 2007). In addition, The five constructs have satisfied the minimum criteria for CR and AVE, with all CR values exceeding 0.7 and all AVE values surpassing 0.5. This indicates that the constructs in this study fulfill the requirements for convergent reliability and validity. The next step is to assess the discriminant validity of the constructs, ensuring that each indicator's value is higher for its corresponding construct than for others in the model. Additionally, the average variance shared between each construct and its indicators must be greater than the variance shared with other constructs (Joshi et al., 2015; Minguijón et al., 2024). The table below shows the results of the discriminant validity of the research results.

**Table 3.** Discriminant Validity menggunakan Fornell and Lacker Criterion

	Public Value	Digital Village based web
Public Value	0,834	
Digital Village based web	0,960	0,906

*Source: processed data by researcher, 2024*

**Table 4.** Cross-Loadings

	Public Value	Digital Village based web
X1	0,938	<b>0,986</b>
X2	0,831	<b>0,875</b>
X3	0,873	<b>0,894</b>
X4	0,843	<b>0,857</b>
X5	0,836	<b>0,889</b>
X6	0,869	<b>0,893</b>
X7	0,892	<b>0,877</b>
X8	0,900	<b>0,947</b>
X9	0,873	<b>0,930</b>
X10	0,880	<b>0,931</b>
X11	0,887	<b>0,941</b>
X12	0,819	<b>0,867</b>
X13	0,852	<b>0,883</b>
Y1	<b>0,847</b>	0,805
Y2	<b>0,814</b>	0,813
Y3	<b>0,843</b>	0,804
Y4	<b>0,859</b>	0,816
Y5	<b>0,838</b>	0,814
Y6	<b>0,842</b>	0,798
Y7	<b>0,864</b>	0,826
Y8	<b>0,826</b>	0,828
Y9	<b>0,830</b>	0,788
Y10	<b>0,794</b>	0,780
Y11	<b>0,758</b>	0,681
Y12	<b>0,883</b>	0,835

*Source: processed data by researcher, 2024*

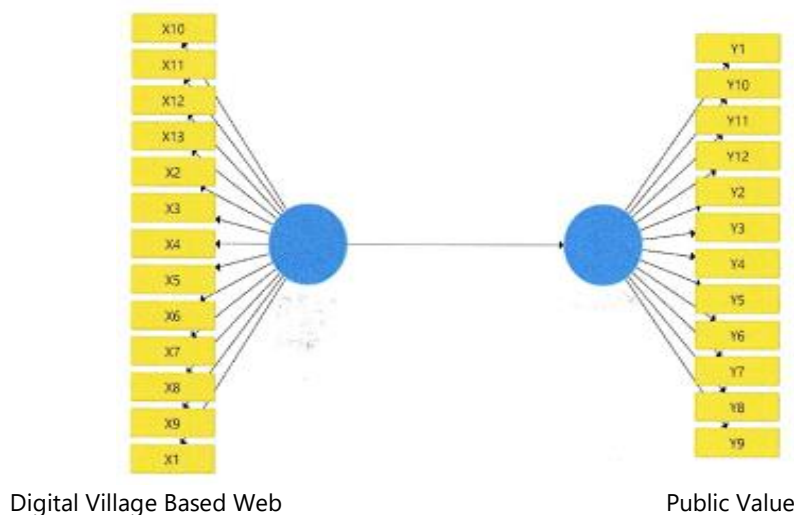
As shown in the table above, all cross-loadings indicators are larger than other constructs. This indicates that discriminant validity has been achieved because the constructs that have been prepared are different from each other. The third approach for evaluating discriminant validity is the HTMT technique introduced by Henseler, Ringle, and Sarstedt (Creswell, 2014). As shown in the following table, all values have met the HTMT criteria. In addition, the results of HTMT interference show that the confidence interval does not show a number more than 1 in any of the constructs. It can be concluded that this research instrument has met the discriminant validity requirements.

**Tabel 5.** HTMT Criterion

	Public Value Creation
Digital Village based Web	0,987

*Source: processed data by researcher, 2024*

The following is the model obtained from the analysis using SmartPLS 3.2.9.



**Figure 2.** Model obtained from the analysis using SmartPLS 3.2.9

*Source: processed data by researcher, 2024*

### Structural Model Evaluation

According to Kock and Lynn, ensure that there are no collinearity problems in the structural model before conducting an evaluation (Gorard, 2018). Despite the fact that the requirements for discriminant validity have been met, the problem of lateral collinearity sometimes causes the research results to be wrong, with the size of the collinearity value being less than 5 and 3.3. The results of this study are shown in the following table:

**Table 6.** Test Coefficient of Determination

	R Square
Public Value	0,921

*Source: processed data by researcher, 2024*

According to the table above, the test of the coefficient of determination of the forming variable or which affects the dependent variable has an R-square value of 0.921. These findings suggest that the digital village-based web has the ability to have a significant impact on the public value variable with a value of 92.1%, while other



variables affect the rest. Next, the research hypothesis is tested. The results of the testing are shown in the table below:

**Table 7.** Hypothesis Testing

No	Influence	Path Coefficient	t-statistik	p-value
H0	Digital Village Based Web > Public Value Creation	0.960	138,059	0,000

*Source: processed data by researcher, 2024*

Implementation of digital village based web for public services in the Hamparan Perak Village efforts to support the implementation of the Deli Serdang Regency electronic system so that the public has convenience in administrative management, but in Hamparan Perak Village, special assistance must be provided for the community in utilizing digital village based web. The limited ability of the community to utilize the web application is one of the obstacles that must be faced by the government in implementing an electronic system in government administration. The web-based digital village program in Hamparan Perak Village can be seen from <https://hamparanperak.desa.id/>.

In accordance with the above opinion (Bryson et al., 2017) theory of public value needs to change. Specifically, the strategic triangle framework is designed to adapt it to a developing world where managers and policymakers from public, private, voluntary, and informal spheres can work together to create public value. Furthermore, public value is an important indicator in governance, (Mangani & Bassi, 2019; Ortt & Kamp, 2022; Ribeiro & Shapira, 2020). It has the ability to produce political innovation based on technological and scientific advances. Therefore, the application developed to implement the electronic system in Hamparan Perak Village, known as Digital Village, is an advancement in the development of science and optimization of administrative services.

The results of this study differ from those of other studies (Abdalla et al., 2024; Cordella & Paletti, 2019) in that an e-government application called GaaP can have an effect on government performance implemented on public values, which is a challenge for public institutions, so that the modularity of platforms and ecosystem configurations are different. To support effective public valiance, public institutions need to be organized. The results show that managing GaaP configuration features can enable Italian public administration to generate public value. However, if GaaP is not properly regulated, it can also hinder the enhancement of public value. Similar to the findings of research (Liang et al., 2019; Singh et al., 2022) The absorption of the e-Government cloud affects the creation of public value during the stages of popularization and adoption of e-Government. Based on the theory of information technology assimilation, this e-government cloud application is expected to create public value. One of the results is that the operational value of the public exists directly and that the operational value of the public has an indirect impact on the strategic value of the public. In addition, this strategy helps to understand the assimilation of the e-Government cloud. So, it is hoped that the digital village web based in Hamparan Perak Village will be one of the e-government developments that will be done in structuring management systems and work processes in a government environment that includes two interrelated activities. The implementation of electronic data processing, information management, and management systems, as well as efficient

work processes, are important elements of the digital transformation that is taking place in the government and By using electronic data processing, the government can manage, store, and process large amounts of data more quickly and accurately than manual methods. With good data management, the collected data can be easily accessed and used effectively in the decision-making process. On the other hand, using an integrated management system allows collaboration between different state agencies or divisions to work more efficiently and smoothly. A work process that is well organized through the use of this technology reduces errors, speeds up services, and improves public resource management quality. In addition, public services become more accessible to people across the country thanks to advances in IT. A technology-based system makes it possible to access services that once required face-to-face interaction or lengthy bureaucratic procedures more quickly and at a lower cost. This helps people in cities with more infrastructure, but also people in rural areas who often have difficulty accessing government services. Information technology enables online systems that connect governments with communities, regardless of geographic location, resulting in more equitable and inclusive services. Thus, public services become not only more efficient, but also more affordable and fair for all levels of society.

Therefore, based on the test results, it was decided that the web based on the digital village for public services has a significant influence on the formation of public value, with a value of more than 1.96. In addition, the findings of previous studies (Paskaleva & Cooper, 2018) shows that the implementation of e-government has a significant positive impact on public value ( $\beta = 0.384$ ,  $p = .01$ ). By implementing an electronic system in Hamparan Perak Village, public value can be created by fulfilling the triangle strategy and understanding the main components that differentiate between public organizations and private companies. However, there are still obstacles to implementing a digital village-based web program in Hamparan Perak because there are still some individuals who are not ready to accept and use a digital village-based web program as an administrative service program in Hamparan Perak Village, even though the digital village-based web has legitimate legitimacy. However, not only legitimacy is needed, but also several elements that must be met, such as the readiness of human and financial resources. The ability of human resources to use the electronic system correctly and to give the public a good understanding of the usefulness of digital village-based web programs for public service are the main elements that need to be addressed in the application of digital village-based web to strengthen public values.

## **Conclusion**

The biggest challenge for Hamparan Perak Village is the scaling up and capacity building of the web-based digital village for public services and governance. It requires optimal time and readiness from the government and the community, especially the capacity of village employees. Implementation of public services by public organizations, particularly the government, based on applicable laws and regulations, creates public value. Salah satu contoh e-government services that have been implemented in Hamparan Perak Village is the digital village-based web, which is used as a solution for optimizing digital village-based web for public services so that they can generate public value strengthening that comes from the level of community satisfaction through public trust and support for the implementation of e-government systems in Hamparan Perak Village. The implementation of the digital village based on

the web is not only a legitimacy element that needs support from the government but also from the community because they trust the services that are provided so that public values are strengthened. The ability of human resources village officials to use the electronic system correctly and to give the public a good understanding of the usefulness of the digital village based web is the main element that needs to be addressed in the application of digital village based web in order to strengthen public values. Therefore, there is a need for socialization with the community and special training for village officials who are responsible for deploying the digital village, which is a public service innovation based on the internet.

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