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Application of the Development Village Index (IDM) Application to Bulang Village Infrastructure

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ABSTRACT

Objective: *This study aims to analyze the impact of the implementation of the Building Village Index (IDM) Application on infrastructure development in Bulang Village, Prambon District, Sidoarjo Regency. The main focus is on how these systems affect the effectiveness and efficiency of planning and implementing data-driven development.* ***Method:*** *The research uses a descriptive qualitative approach with data collection techniques through observation, in-depth interviews, and documentation. The informants consisted of village officials, IDM operators, and village development experts. Data analysis was carried out using the Miles and Huberman model which includes reduction, presentation, and drawing conclusions.* ***Results:*** *Based on the theory of information system application by Indrajit (2006), the success of the implementation of the IDM application is analyzed through four main indicators: (1) the readiness of the technological infrastructure, which is still experiencing obstacles in network and server stability; (2) human resource capabilities, where village officials show high adaptability and commitment, despite facing increased workloads; (3) implementation strategies, which involve active coordination between villages and local facilitators as well as flexibility in development planning based on the real needs of the community; and (4) the efficiency and effectiveness of the work process, which shows a systematic improvement in infrastructure planning and evaluation despite technical constraints. The final results show an increase in the status of Bulang Village from "Developing" (IDM 0.6314 in 2022) to "Independent" (IDM 0.8598 in 2023 and 2024), thanks to consistency in data input and improvements in social, economic, and environmental resilience indicators.* ***Novelty:*** *This study provides an in-depth overview of how the implementation of data-based digital systems can accelerate village infrastructure development, as well as emphasizing the importance of synergy between technological readiness, human resource competence, and local policy support.*

INTRODUCTION

Village infrastructure development is one of the key factors in improving the quality of life of people in the village. Adequate infrastructure can support accessibility, boost the economy, and accelerate equitable development. According to Dwi Budi Santoso (2023)[1], good infrastructure in villages can encourage increased community productivity and reduce the gap between villages and cities. In addition, the development of this infrastructure is also closely related to the improvement of social welfare such as the aces to better education and health. Therefore, a system is needed that can help villages in determining development priorities and facilitate resource management. One of the innovations implemented to support village development is the Developing Village Index (IDM) application. This application plays a role in measuring and classifying villages based on their level of development, so that it can help in planning infrastructure development that is more targeted. With the existence of a data-based system such as IDM, it is hoped that the development of village infrastructure will be more effective and efficient and provide real benefits for the community[2].

In accordance with the guidelines in village development in Indonesia, namely Law Number 6 of 2014 concerning Villages. This law gives the authority to villages to regulate and manage the interests of their communities independently. In addition, to measure and encourage village progress, the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration issued Village Minister Regulation Number 2 of 2016 concerning the Building Village Index (IDM). The implementation of IDM can help and prepare more systematic and data-based village development planning, so that the policies taken become more targeted. With regulations that support the use of IDM, it is an important instrument in building decision-making, especially in the aspect of village infrastructure [3]. This is also in accordance with the government's direction in the 2020-2024 National Medium-Term Development Plan (RPJMN) which emphasizes the importance of digitalization in village development. Therefore, the implementation of IDM is not only a necessity, but also a form of implementing policies that have been designed by the government to accelerate development in the village.

The implementation of the IDM application in Sidoarjo Regency received full support from the local government because it was considered to be able to increase the effectiveness of village development. With this application, villages in Sidoarjo can more easily identify sectors that need priority infrastructure development. The Sidoarjo Regency Government also provides technical assistance and training to village officials so that they can manage the IDM application optimally. Rahmawati et al. (2022) said that the digitization of village data is able to speed up the development planning process and reduce errors in decision-making [4]. One of the main benefits of implementing IDM is increased transparency in the management of village development budgets. The data generated from this application is real-time and can be accessed by various interested parties, thus minimizing the potential for budget abuse [5]. In addition, village development policies are more targeted because they are based on valid and up-to-date data.

The implementation of the IDM application in Bulang Village, Prambon District, Sidoarjo Regency has had a significant impact on more systematic village development planning. Through this application, the village government can monitor the development of village status based on predetermined development indicators such as social, economic, and ecological resilience. The use of this technology allows village devices to access and input data quickly and accurately, so that the mapping results produced from the IDM application help villages in formulating more targeted development policies [6]. In addition, transparency in data management is increasing because information related to village status can be accessed by various stakeholders. The Development Village Index (IDM) application in Bulang Village illustrates the high spirit of village officials in facing digital challenges. Despite being constrained by server disruptions and unstable networks, they still tried to complete data input even though they had to stay up late at night. This situation is certainly not an easy thing, because it takes up rest time and disrupts their life balance. However, their commitment to continue carrying out their duties should be appreciated. Various creative solutions were also implemented, such as

using Excel templates to fill in data offline before uploading. In addition, the support of local village companions is an important support that helps them when experiencing technical difficulties. This success is also inseparable from the willingness of village officials to continue to learn and adapt to the existing digital system [7]. Although it is not ideal, IDM has helped the development planning and evaluation process in a more structured manner. Bulang Village even managed to maintain the status of an Independent Village thanks to the consistency and accuracy of the data. Behind various obstacles, this story shows that the spirit of mutual cooperation and dedication remains the key to the success of village digitalization.

Table 1. Recapitulation of Development Village Index (IDM) Data

Year	IKS	IKE	IKL	IDM Value	Status IDM
2022	0,754	0,767	0,333	0,6314	Flower
2023	0,8629	0,85	0,8667	0,8598	Self-sufficient
2024	0,863	0,85	0,867	0,8598	Self-sufficient

Source: Processed from the Head of Kesra Bulang Village

From the recapitulation table of the Building Village Index (IDM) data, it shows the development of the status of villages in the last three years, in 2022, the IDM value is at 0.6314 which is categorized as a developing village. However, in 2023 there was a significant increase with the IDM value rising to 0.8598 so that the status of the village changed to an independent village. Although in 2024 the IDM value is still the same as in 2023, Bulang village can maintain the status of an independent village. The increase in IDM is influenced by three main indicators, namely the Social Resilience Index (SMI), Economic Resilience Index (IKE), and Environmental Resilience Index (IKL), all of which have improved from year to year. The fairly stable increase in IKE shows good economic growth in Bulang village. In addition, the high IKL value indicates that environmental aspects also receive attention in village development. With this positive thing, the village has a great opportunity to continue to develop and improve the quality of life of its people.

Several previous studies have discussed similar research, the first is a study written by (Affandi & Artika, 2023) entitled "Village Fund Management and Its Impact on the Building Village Index in East Nusa Tenggara", this study analyzes the impact of village funds on the Building Village Index (IDM) [8]. This type of research is used is quantitative, with a panel data regression analysis method using a fixes effect model. The theory used in this study is the theory of Sustainable Development, which emphasizes that the management of village funds can affect village development in the long term. The results showed that the percentage of village fund disbursement did not have a significant effect on IDM, but the percentage of village fund absorption and the speed of

village fund distribution had a significant impact on IDM after two to three years. This shows that the effectiveness of village fund management is only seen in several periods after the funds are disbursed.

Second, a study written by (Iwan & Rida, 2024) entitled "Analysis of the Relationship between Village Infrastructure Assessment Based on the Developing Village Index (IDM) and the Helmert Sintax Contrast Method in Wonogiri Regency"[9], this study analyzes the relationship between IDM status and the quality of village infrastructure development. The type of research used was quantitative, with a statistical analysis method using a contrast helmert syntax test. The theory used in this study is the Theory of Sustainable Infrastructure Development, which emphasizes that the sustainability of village development is highly respected by effective planning and resource management. The results showed that villages with independent IDM status had significant differences in the quality of infrastructure planning compared to villages with sustainable and advanced IDM status. Villages with independent IDM status are more capable of preparing Cost Budget Plans (RAB) and improving the quality of concrete in infrastructure projects than villages that are still developing.

Third, this study is entitled "The Influence of Village Funds and Infrastructure Development on the Building Village Index in Barabai District" written by Laras & Ahmad in 2023, this study aims to find out the influence of village funds and infrastructure development on the Building Village Index (IDM) simultaneously and partially [10]. The type of research used is quantitative, with a panel data regression analysis method that combines time sequence data and cross-data. The theory used in this study is the Sustainable Development Theory, which emphasizes that village development must show a balance between economic, social, and environmental aspects. The results of the study show that simultaneously, village funds and infrastructure development have a significant effect on IDM. However, partially, infrastructure development has a negative influence on IDM due to the imbalance between economic growth and equitable development.

Based on observations made in the field, there are several problems or challenges in the IDM Application in Bulang Village, First, there are often server interruptions during the data input process, which causes the person in charge of the village to have to input data at midnight or early in the morning in order to access the system smoothly. This not only hinders work efficiency but also has the potential to reduce the accuracy of the data input. Second, maintaining the category of independent villages every year, which can make villages have to adapt to changes in government policies and regulations, which sometimes require adjustments in village development planning.

Based on the above research issue, the author is interested in identifying the results of the research test entitled "Analysis of the Impact of the Application of the Building Village Index (IDM) Application on the Development of Bulang Village Infrastructure" by using the application theory according to (indrajit, 2006) [11] which explains that the success of the implementation of an information technology system depends on several indicators: 1) the readiness of technological infrastructure: This includes all forms of

hardware, software, networks, and other supporting facilities, 2) human resource capabilities: Knowledge and skills of users on the technology used, 3) implementation strategy: This strategy is the plan and stages in the implementation of information technology systems, 4) impact on the efficiency and effectiveness of work processes: The ultimate goal of implementing the system is to improve organizational performance, both in terms of time, cost, and service quality. Efficiency means that it can save resources, while effectiveness means that targets and objectives are better achieved. Using this approach, the research will identify the technical obstacles faced in the use of the IDM application, such as server and data input problems, as well as the challenge of village adaptation to changes in government policies.

RESEARCH METHOD

In this study, the author uses a type of descriptive qualitative research that aims to collect and elaborate in detail information, analyze and understand the phenomenon of the application of the Building Village Index Application (IDM) in depth and its impact on infrastructure development in Bulang Village. The descriptive method is used to describe the facts in the field systematically without generalizing [12]. The focus of this research is to analyze the impact of the application of idm in village infrastructure development planning, including the obstacles and benefits caused to the community and the village government [13]. The informants in this study consisted of village officials, IDM application operators, and village development experts.

Data collection techniques were carried out by direct observation, in-depth interviews, and analysis of documents such as village reports, and relevant previous research [14]. The interview technique aims to dig into in-depth information about the experiences and challenges in implementing the IDM application, while documentation is used to obtain primary and secondary data that strengthen the research findings. The data analysis technique uses Miles and Huberman (1984) [15], which consists of data collection, data reduction, data presentation, and conclusion making. Data collection is the collection of data on research results carried out by researchers while in the field. Meanwhile, data reduction is carried out by selecting data that has been obtained in the field during the data collection process. And next is the presentation of data, namely the power that we have selected and compiled until a conclusion is obtained, where the conclusion is the activity of concluding research data based on the problems that have been determined.

RESULTS AND DISCUSSION

Results

The application of the Building Village Index (IDM) refers to two main aspects, namely theoretically and practically. Theoretically, this application reflects a thoroughness and comprehensive approach in looking at the objective conditions of the village. Meanwhile, practically, IDM is an important tool in the planning and decision-making process of development. This application is designed to assess and map the level

of social resilience, economic resilience, and ecological resilience. Thus, the implementation of IDM is a measure that provides an overview of how far village development has progressed, especially in the aspect of infrastructure which is one of the important indicators of regional progress. This research was conducted through direct interviews with informants to obtain as much information as possible in accordance with the purpose of the research. Therefore, through interview activities, information was obtained as the author's expectations according to the theory of indrajit (2006) as follows:

1. Technology Infrastructure Readiness

The main problem faced by the Bulang Village apparatus in data input on the Building Village Index Application (IDM) lies in server interference that often occurs. Although the technological infrastructure is adequate with the existence of laptop devices, network quality and server stability are still major obstacles [16]. The results of interviews from KAUR Service respondents stated that:

"Server disruptions usually occur after socialization. So when many other villages also access the system, the servers become slow or even inaccessible. The solution is yes, we have to work overtime at night or early in the morning so that we can input data smoothly. There is no special assistance. The government only provides its website for data filling. For network and server matters, yes we have to be smart to find times when access is not crowded."That is why

This condition is clearly not ideal because in addition to disrupting work rhythms and personal life, it also risks the accuracy of data input because it is done when the physical and mental condition is tired. It is not only special support from the central and local governments to improve server performance that worsens this situation. The government only provides the web for charging, without adequate technical guidance or increased server capacity [17]. The dependence on quiet times for access also shows that there is no system that is inclusive and responsive to needs in the field. The village apparatus must also independently find solutions, such as using Excel tamplate to work on first, and then upload it when the server is stable. This condition reflects a serious challenge in the region's digital infrastructure infrastructure. It often happens that the uneven quality of network infrastructure is the main obstacle in the implementation of digital systems in rural areas [18].

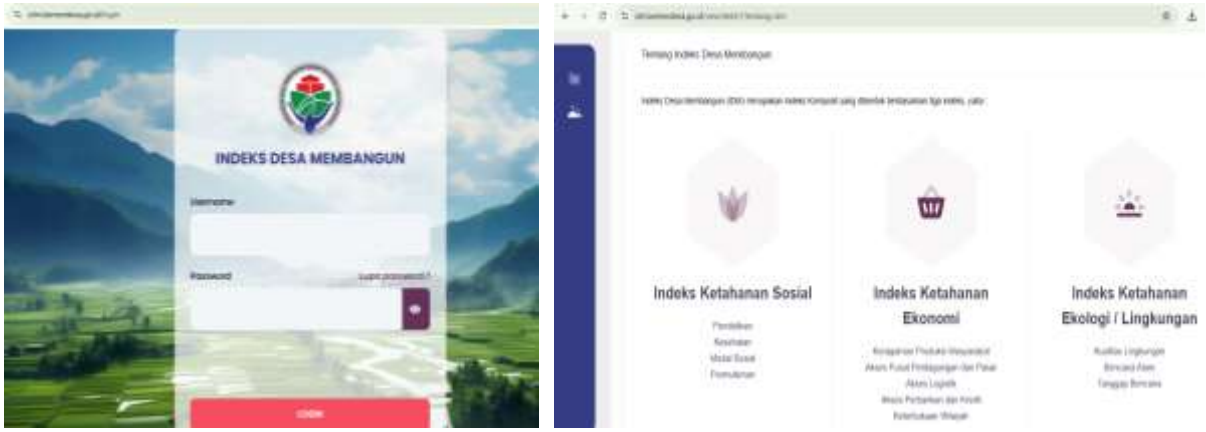

Figure 1. Developing Village Index Web
Source: kemendesa.go.id website

Although the village apparatus shows a high level of initiative in the face of technical obstacles, this situation shows the gap between the central system and the reality on the ground. In the context of digitizing village government, there should be a system that is designed to remain stable even in high access conditions. The reliance on night time for data input shows that there is a mismatch between official working time and effective working time that must be faced by field officers. On the one hand, the existence of Excel tamplate is a fairly helpful alternative solution, but this is only a short-term solution that does not touch the root of the problem. This kind of effort actually reflects the limitations of the system. Unfortunately, if left unchecked, it will cause chronic work fatigue and reduce the motivation of village officials in the long run. This condition shows the importance of the central government's role in providing technical support, such as increasing server capacity and strengthening networks in the regions [19]. The use of digital systems without adequate infrastructure readiness will only burden the implementing parties in the field. Policy interventions that are more in line with the reality of villages are needed so that digitalization is truly sustainable is very important to ensure the sustainability of the data input system. The success of technology implementation in village governments is greatly influenced by the readiness of infrastructure and the active involvement of local governments [20].

"*Yes, on the website Excel templates are provided. So the data can be done first in Excel, later when the server is smooth, just upload it to the system. But yes, we still have to wait for a quiet time to access.*"

Based on the above phenomenon if it is associated with Indrajit's theory of Technology Infrastructure Readiness, the results and discussion in the paragraph are quite appropriate. According to Indrajit, the readiness of technological infrastructure includes the availability of hardware, software, data communication networks, and adequate technical resource support. In the discussion above, it is indeed mentioned that hardware such as laptops is available, which means that physically the infrastructure already exists. However, other aspects of Indrajit's theory such as network quality and stability, server system capabilities, and central technical support are still very lacking.

This shows that the readiness of the overall technological infrastructure has not been met. The reliance on nighttime for data access, the lack of technical guidance, and the need for self-help solutions by village officials reflect the gap between infrastructure readiness and the demands of the digital system being implemented. Thus, the discussion fits in with Indrajit's theory because it highlights not only the availability of devices, but also the challenges in system stability, network capacity, and lack of technical support—all of which are integral parts of the readiness of the technological infrastructure according to the theory.

2. Human Resources Capabilities

The implementation of the Building Village Index (IDM) Application in Bulang Village shows that the understanding and skills of village officials in using the application are quite stable, especially if village operators do not change from year to year. Consistent experience allows operators to better understand the critical elements that need to be input into the system. This speeds up the charging process and minimizes technical errors. However, the process of adapting village apparatus to the use of digital technology is still influenced by the speed of individuals in understanding the system. In order to improve competence, the district has carried out simultaneous socialization shown by IDM operators in all villages. This socialization is not only in the form of delivering information, but also opening a technical assistance room from local village assistants. When difficulties are found, operators can get immediate assistance so that the data input process continues to run. This shows that collaborative work between the district government and village assistants greatly supports the improvement of human resource capabilities [21]. On the other hand, the willingness of village officials to learn independently also plays an important role in the smooth operation of the application. Continuous training and technical assistance have a significant influence on improving the digital competence of village apparatus [22].

"*Village operators who do not experience changes from year to year tend to already understand the data filling flow in the IDM Application, so that the input process runs more smoothly. Although they had faced technical problems such as server disruptions, the village team overcame it by entering data at night or first filling out the Excel template available on the IDM website.*"

In the face of technical obstacles such as server disruptions, village devices show high flexibility by entering data at night or early in the morning. This choice is made so that the work continues to run even though the system is experiencing a high access load. Another alternative used is to take advantage of the Excel template provided on the official IDM website, which allows the data to be filled in offline before uploading. This strategy is an effective solution for operators who have difficulty accessing the internet during peak hours. In addition, the readiness of human resources in dealing with changes in policies and regulations is also quite good. No significant obstacles were found in understanding changes in village categories, including the transition to independent village status. This is because the village apparatus understands that the increase in status will bring real benefits, such as the allocation of 10% of village funds for light

infrastructure improvements. This encouragement of economic benefits is a motivation for village officials to be more active in data updates. The role of active communication between village operators also helps in disseminating understanding related to new policies. Thus, the capabilities of human resources in Bulang Village are not only reflected in technical skills, but also in adaptive attitudes towards policy dynamics. Villages that have a good understanding of policies tend to be faster in implementing village digital programs [23].

"Usually, if the server fails during the day, we fill in the data at night or dawn. Or we use an Excel template first, later just upload it if the network is good, if there is a change in the rules, yes, we will just follow it. The problem is that if it becomes an independent village, you can get 10 percent of the village funds for light infrastructure improvements." Explained the village operator. This shows the awareness of the benefits of independent village status.

Based on the above phenomenon if it is associated with the theory of human resource capability according to Indrajit, the discussion on the application of the Building Village Index (IDM) Application in Bulang Village is in line with the concept put forward in the theory. Indrajit stated that human resource capabilities include three main aspects: knowledge, skills, and attitudes in dealing with changes and job demands. In the discussion paragraph presented, these three aspects seem to be fulfilled. The knowledge and skills of village devices are reflected in the technical understanding of operating the IDM application, especially for operators who consistently serve from year to year. In addition, adaptive attitudes are also reflected in their ability to overcome technical constraints, such as server outages, by entering data at certain times or using Excel templates as an alternative. Socialization and technical assistance carried out by the district government also show that there are efforts to improve capabilities systemically. On the other hand, the motivation of village officials to continue learning and understanding new policies reflects a positive attitude towards change, which according to Indrajit is an important part of superior human resource capabilities. Therefore, this discussion is in accordance with Indrajit's theory because it shows the increase in individual and organizational capacity through learning, technology adaptation, and collaboration.

3. Implementation strategy

In the implementation strategy of the Development Village Index (IDM) application in Bulang Village, one of the important aspects is how the village adjusts to the dynamics of policies and regulations that continue to develop. Interestingly, based on the results of interviews and filling out questionnaires, it is known that indicators in IDM tend to be static from year to year. This means that when there is no significant change in data input, the status of an independent village can be maintained. This shows that data consistency and accuracy of inputs are the key to the sustainability of the village IDM status. However, when villages update data that reflect the improvement of people's quality of life, such as education or economy, the status of IDM has the potential to increase. In other words, positive changes at the local level can directly impact the classification of villages. In addition, villages also need to be active in recording changes

that occur in the field, so that they are reflected in the IDM system. This is not only a matter of maintaining status, but also capturing the dynamics of village development in a fair and accurate manner. Bulang Village has shown a good understanding of this. So as to maintain the stability of independent status for the past few years. As explained by Mia Sari (2023)[24], timely and accurate data collection is one of the determining factors in evaluating the status of village IDM.

"*If the data inputted from year to year does not change much, the status of the village is usually fixed, because the indicators have not changed much. If there are technical problems or are confused about filling in IDM data, we usually directly consult with the local village assistants because they understand the procedures from the ministry better,*" said one of the Bulang Village officials.

Table 2. Status of Bulang Village according to the IDM application

Year	Score	Category
2022	0,6314	Flower
2023	0,8598	Self-sufficient
2024	0,8598	Self-sufficient

Source: Processed from the Head of Kesra Bulang Village

Coordination between the village government and other stakeholders is also a key factor in the IDM implementation strategy. In this case, Bulang Village does not work alone, especially when facing technical or administrative obstacles in inputting IDM data. One of the strategic steps taken is to establish intensive communication with local village assistants. The village local companion plays an important role as a liaison between the village government and the Ministry of Villages. When technical constraints arise, such as system access or indicator changes, they can provide direct guidance or help convey it to the central level. This coordination is part of effective synergy so that village development is not hampered by administrative obstacles. This proves that the existence of a village local companion is not only a formality, but an integral part of the village development system. The role of village assistants is vital in overseeing the accuracy of data and the effectiveness of village development reporters [25]. They also ensure that the data input process runs according to the procedure, and that there are no errors that can have an impact on the status of IDM. Bulang Village has made optimal use of the existence of this companion, creating a synergistic and solution-oriented working relationship.

"*If there are technical problems or confusion about filling in IDM data, we usually immediately consult with the local village assistants because they are the ones who better understand the procedures from the ministry,*" the resource person stated that the assistants helped especially when there was a change in the system or updating indicators from the center.

Although IDM is one of the tools to assess the status of village progress, the development planning of Bulang Village is not completely fixated on the standards

determined by the system. The village order prefers to prepare a development plan based on the needs and real conditions of the community. This reflects a participatory and contextual approach in the village development process. IDM does provide an overview of the position of the village, but it is not binding in the preparation of development programs. For example, even though education incentives affect IDM scores, villages still prioritize programs that are considered most urgent, such as disaster mitigation or improving the economy of citizens. This shows that although the IDM indicator is important, villages still need to be flexible in determining development priorities. Bulang Village has also implemented a disaster risk mitigation approach, which indirectly has a positive effect on the IDM score. Village development approaches based on local needs tend to be more effective than the technocratic model [26]. This proves that an adaptive development strategy not only improves the quality of life of residents, but also strengthens the status of village administration. Thus, IDM functions more as a tool for reflection, rather than the main reference for planning.

Based on the above phenomenon, the results and discussion on the theory of Implementation Strategy in the context of the implementation of the Development Village Index (IDM) application in Bulang Village are quite appropriate when associated with the theory of implementation strategy according to Indrajit. In Indrajit's view, the implementation strategy includes several key components such as organizational structure, human resources, processes, and technology that support the effective running of policies or programs. This is reflected in the discussion above, where Bulang Village actively adjusts to regulatory dynamics, maintains consistency and accuracy of data inputs, and establishes close coordination with local village assistants. The role of the companion as a liaison between the village and the ministry also strengthens the structure of the program's implementation, which is an important part of Indrajit's theory. In addition, Bulang Village shows that there is an adaptive process in the implementation of the program, such as updating data and adjusting development priorities based on local conditions, which is in line with the principle of flexibility in the implementation of the strategy according to Indrajit. In other words, the success of IDM implementation in Bulang Village does not only depend on the system or application, but also on the synergy between actors, the availability of information, and the response to local dynamics—all of which reflect elements in Indrajit's version of the implementation strategy theory.

Discussion

Impact on the efficiency and effectiveness of work processes

Server interference in the government's digital system is often the main obstacle in the data input process [27]. This also happens in Bulang Village, where server disruption in the IDM application has a direct impact on the work efficiency of village apparatus. The data input process that should be completed in a matter of minutes can slow down to hours due to an unresponsive system [28]. This delay has an impact on the accumulation of jobs and slows down the village infrastructure planning process [29]. In some cases, village officials even have to postpone other activities that are also important.

This technical disruption lowers work mobility and makes village officials work outside normal working hours. In the context of public services, time efficiency is crucial in supporting quality services [30]. Therefore, system stability and technical support are indispensable to maintain the smooth operation of the application. The implementation of cloud-based systems or improving village digital infrastructure is a solution that needs to be considered. So that the sustainability of the use of the IDM application can run optimally for the sake of effective development support [31].

"*Yes, it has a lot of influence, especially when the server is down or slow. Sometimes we are ready to input data from daytime, but because the system is not responding, we have to wait until late or even early in the morning. This is obviously disrupting the workflow as other work is delayed.*" Said the head of kesra

Data input policies at night are often implemented as a solution to avoid congested traffic for government application users. In Bulang Village, this is also applied, where village officials are directed to input data at midnight or early in the morning. Although this strategy is considered efficiency from a technical perspective, it has an impact on the welfare of village officials. They experience fatigue, sleep disturbances, and decreased productivity the next day. This policy also raises a dilemma between professional obligations and personal life balance. Some village officials even feel that this policy makes it harder and lowers work morale. In fact, the sustainability of village development is highly dependent on the enthusiasm and health of the human resources of the implementers [32]. Therefore, there needs to be a flexible and flexible work time arrangement, as well as an increase in the technical capacity of the application so that it can not only be accessed at certain hours. Technology policy planning needs to consider the social and psychological aspects of users. Thus, the productivity of village officials remains optimal without sacrificing their health and quality of life [33].

The IDM application is considered to have great potential in strengthening the data-based village development planning system. In Bulang Village, the benefits of using this application began to be felt when the Bulang Village category became the Independent Village Category where the village had a 10% share to renovate the village hall using village funds. Not only that, the planning process becomes systematic because of the existence of structured indicators in the application. The development evaluation process is also easier because all data is documented in a variety of ways. With accurate data, the village government can present the real condition of the village objectively to the district or provincial government. This also increases the chances of receiving budget support from the top level [34]. The effectiveness of this application can also be seen from the increased transparency in reporting development activities. Thus, the IDM application is able to be a more efficient evaluation instrument than conventional methods that are manual and less documented [35].

Based on the above phenomenon, the results and discussion on the theory of the impact on the efficiency and effectiveness of work processes as described in the paragraph have been aligned with the theory put forward by Onno W. Purbo and R. Indrajit, especially related to the role of information technology in improving

organizational performance, including in the government sector. According to Indrajit, the implementation of information technology in organizations should be able to increase the efficiency (saving time, cost, and energy) and effectiveness (optimal achievement of goals) of work processes. However, in the case that occurred in Bulang Village, server disruption and technical infrastructure limitations are the main obstacles that are contrary to the purpose of implementing the digital system. This shows that without adequate infrastructure support and work policies that favor human resource welfare, the potential efficiency and effectiveness of digital systems such as IDM applications cannot be fully achieved. The discussion critically reflects Indrajit's theory that technology is not the only factor, but must be accompanied by change management, human resource readiness, and alignment with the social and psychological aspects of users. Thus, this discussion is not only in accordance with Indrajit's theory, but also reinforces the importance of integration between technical and human aspects in the implementation of the digital system of government.

CONCLUSION

Fundamental Finding : Based on in-depth research, it can be concluded that the implementation of the Building Village Index (IDM) Application in Bulang Village has had a meaningful impact on the planning and execution of village infrastructure development. The readiness of technological infrastructure is evident through the availability of hardware, while human resource capacity reflects high adaptability, especially through consistent training participation and independent learning. Bulang Village has also demonstrated a strong implementation strategy by maintaining its Independent Village status through consistent data input and close collaboration with village assistants. The IDM application has improved the structure and transparency of planning processes despite some technical barriers. **Implication :** The village's IDM score increased significantly from 0.6314 in 2022 to 0.8598 in both 2023 and 2024, indicating progress in social, economic, and environmental resilience. This success stems from strong cooperation among village officials, strategic fund allocation, and attention to sustainability. The digitalization effort has led to more objective, real-time, and data-based planning, reinforced by the support of the district government in training and assistance. These improvements highlight the value of a responsive and inclusive digital system in rural governance. **Limitation :** However, recurring server issues and poor network quality have required village staff to work beyond regular hours, which poses a risk to efficiency and well-being. While workaround strategies like offline data entry help, the lack of reliable infrastructure still limits the system's optimal performance. These constraints can potentially reduce long-term motivation and strain human resources. **Future Research :** Future efforts should focus on aligning IDM implementation with local realities through improved policies and infrastructure investment. Exploring the integration of offline-compatible systems, flexible work protocols, and better server capacity can enhance sustainability. Bulang Village serves as a model for how participatory digital transformation can benefit village development,

but further study is needed to replicate and scale this success in other regions. In conclusion, the IDM application proves to be more than a monitoring tool—it represents a catalyst for transforming village governance towards a more sustainable and autonomous future.

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