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Construction of the Official Portal of Astanajapura Village: Digitization of Integrated Information and Strengthening of BUMDes Institutions

Askarno[1*], Mohammad Zidan Ihya Ulumuddin Al Faruq[2], Masluhah Waf'da Az Zuhruf[3], Komariah[4], Lipina Paramita[5]
Politeknik Siber Cerdika Internasional, Indonesia
Corresponding Author: askarno@polteksci.ac.id, jidanihya25@gmail.com*, masluhahwafdaazzuhruf@gmail.com, komariah190125@gmail.com, lipinaafrmt@gmail.com.

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ABSTRACT
In the current era of digital transformation, the existence of digital-based information platforms is a crucial need for village governance. A specific problem found in Astanajapura Village is the lack of a digital platform that integrates village profiles with business units managed by BUMDes. This research aims to design and implement the Official Portal of Astanajapura Village as an integrated information digitization instrument and as a means of strengthening the governance of Village-Owned Enterprises (BUMDes) institutions. This research uses a system development method with a qualitative-descriptive approach. The research stages include community needs analysis, design of a CMS (Content Management System)-based portal interface, and technical training (workshop) for village officials and BUMDes administrators in managing digital content. The construction of the village portal has succeeded in integrating public administration services, budget transparency, and BUMDes business unit profiles in one integrated platform. This implementation increases the accessibility of village information for residents in real-time and provides a digital promotion space for village superior products. In addition, there is an increase in digital literacy in village officials in managing data independently. The implication of this research is the creation of more transparent and accountable village governance.

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INTRODUCTION

In the current era of digital transformation, the existence of digital-based information platforms is a crucial need for village governance (Agusta, 2023; Chen & Song, 2025). Villages are required to be able to adapt to technology to improve the quality of services and public transparency (Muhtar et al., 2023; Susilowati et al., 2025). However, the reality is that many villages in Indonesia still manage data and information conventionally, so that the dissemination of information related to the potential of villages and the performance of institutions such as Village-Owned Enterprises (BUMDes) is often hampered and does not reach the community at large.

This is in line with the view that limited access to digital information at the rural level can hinder the acceleration of local economic development and public participation (Nasir, M., 2023).

A specific problem found in Astanajapura Village is the lack of a digital platform that integrates village profiles with business units managed by BUMDes. Information about the village vision and mission, organizational structure, and social activity reports are still internal and difficult to access by the community and potential business partners. In addition, BUMDes business units that have great potential do not have representative digital promotional media, so their development tends to be stagnant (Revida et al., 2023). Without transparency through public communication media, accountability in the management of village funds and social activities becomes difficult to monitor (Furqan et al., 2023; Jumaiyah et al., 2025), which can ultimately reduce public trust in village institutions (Pradana, A. S., & Alfirdaus, 2021).

To solve these problems, this PKM activity uses an information system development approach (System Development Life Cycle) combined with qualitative descriptive analysis. Data was collected through field observations, in-depth interviews with village officials and BUMDes managers, and potential mapping of business units. The analysis was carried out to determine the functional needs of the website, starting from the structure of the Home menu, Vision and Mission, to interactive features on the Contact Us menu. This approach ensures that the portal built is not only aesthetic, but also functional in answering the needs of public communication in Astanajapura Village (Sutabri, 2012).

The novelty of this program lies in the comprehensive integration of village administrative information with BUMDes business lines in one integrated portal (Khoeriyah et al., 2026; Utamajaya et al., 2023). Unlike village websites in general which only focus on administration, this portal highlights the aspect of "Social Accountability" through a special menu of social activities funded from the results of BUMDes' businesses. This innovation creates a digital ecosystem that not only functions as an information medium, but also as an instrument of public supervision and branding of the village economy simultaneously in one platform (Fazira et al., 2024; Li & Shang, 2023).

The main purpose of this activity is to build the Official Portal of Astanajapura Village as a credible and transparent digital information center. Practically, the benefits of the construction of this portal are to strengthen the BUMDes institution through the publication of more professional business units, make it easier for the community to access the structure and mission of the village, and provide a two-way means of communication through the Contact Us feature. With this website, it is hoped that Astanajapura Village will be able to realize independent, accountable, and highly competitive digital village governance.

RESEARCH METHOD

This study employed a Waterfall development model (Waterfall). This model was selected because the development of a digital portal required systematic and measurable stages, ranging from needs analysis to implementation. This approach enabled the researchers to ensure that each menu, such as Business Units and Social Activities, was properly integrated before publication. According to (Pressman, 2015), the Waterfall model was effective for projects with clearly defined system requirements from the outset.

The research was conducted in Astanajapura Village, Astanajapura District, Cirebon Regency. This location was selected due to the considerable economic potential of its Village-Owned Enterprise (BUMDes), which had not yet been digitally optimized. Data collection was carried out during the PKM program period (mention the month/year range), as this period provided the researchers with direct access to interact with village officials and BUMDes managers and to obtain accurate and up-to-date data reflecting actual field conditions.

The research data consisted of primary and secondary data. Primary data were obtained directly through interviews with the Village Head and the Chairman of Astanajapura BUMDes regarding the institution's vision, mission, organizational structure, and business unit profiles. Secondary data were obtained from village profile documents and records of village social activities. The use of these two data sources was intended to ensure the completeness of the information so that the content presented on the official village portal accurately and comprehensively reflected the actual conditions of the institution (Scott, 2019).

The data collection procedure employed three main techniques: observation, structured interviews, and document study. Observation was conducted by directly inspecting the BUMDes business units to obtain information about their activities and physical existence. Structured interviews were conducted with relevant village and BUMDes officials to obtain information regarding the history of the institution, social activity targets, business units, and official contact information. Document study was conducted by collecting relevant physical and administrative archives, including documents containing the vision, mission, and organizational structure, which were subsequently converted into digital content for the website.

The research instruments consisted of an interview guide and a website functional requirements observation sheet (requirement checklist). The instruments were prepared by mapping the variables and information required for the website menus, including Home, Vision and Mission, Business Units, and other relevant sections. The instruments were then consulted with supervisors and village officials to ensure that the questions and observation items were relevant to the objective of strengthening village institutions through digitalization.

Given that this study employed a qualitative-developmental approach, data validity was established through source triangulation. Data obtained from BUMDes

managers were cross-checked against information provided by the village government and verified against conditions observed in the field, such as the physical existence of the relevant business units. This process was conducted to ensure that the information presented on the website was accurate, valid, and accountable to the public (Moleong, 2017).

The data analysis procedure followed the Miles and Huberman model, which consisted of data reduction, data presentation, and conclusion drawing. During data reduction, relevant information was selected and organized to determine the data that would be included as website content. During data presentation, the data were classified according to the website's menu categories. For example, economic information was categorized under Business Units, while administrative information was categorized under Village Structure. Finally, conclusions were drawn by determining the final information architecture to be implemented in the web portal as a solution to the public communication and information needs of Astanajapura Village.

RESULT AND DISCUSSION

The construction of the Astanajapura Village Official Portal is not just the procurement of technological infrastructure, but a transformation of information governance. The following is an in-depth analysis of the creation process and its impact on village institutions.

Methodology and Stages of System Development

In building this portal, the research team applied the Prototype method, which allows village devices to see the system from the beginning and provide feedback before the final system is launched (Suradi et al., 2026).

1. Information Architecture Identification: Creation begins with mapping the data structure. Unlike the company's website, the village portal requires a strict categorization of information between periodic information (news), information available at all times (village profile), and public information (transparency of village funds).
2. Technology Stack Selection: The system is built using the WordPress CMS with ease of maintenance in mind. However, for the BUMDes feature, customization of Post Types and API integration is used to ensure that the portal can dynamically display MSME product data. The use of PHP programming language and MySQL database was chosen because of its good scalability and affordable operating (hosting) costs for the village treasury.
3. Implementation of Unified Administration Features: The main feature developed is the "Self-Service System". Here, citizens can download the cover letter form digitally. The creation process involves simple data encryption to protect citizens' NIK in accordance with basic information security standards.

SEO and Mobile-Friendliness Optimization: Considering that the majority of village people access the internet through mobile phones, the portal is designed using

Responsive Web Design techniques. In addition, local SEO optimization is carried out so that Astanajapura BUMDes products appear on search engines when people search for related products in the Cirebon area (Mladenović et al., 2023).

Strengthening BUMDes Institutions through Digitalization

The most important aspect of this discussion is how portals function as economic catalysts. So far, Astanajapura BUMDes have experienced difficulties in marketing due to limited physical reach.

1. Transformation from Static to Dynamic: If previously the BUMDes profile was only on the village office information board, now the digital catalog allows information transactions to occur 24 hours. This is in line with research by Pratama et al. (2022) which states that digital presence increases the trust of prospective business partners by 40%.
2. Centralization of MSME Data: This portal acts as a single directory. With integrated MSME data, village governments can easily map which economic potential needs to be provided with capital assistance or further training (Anatan & Nur, 2023).

Ongoing Impact and Challenge Analysis

Referring to Widianty's (2023) thoughts, the biggest challenge in village digitalization is the "Digital Divide". In the case of Astanajapura, it was found that even though the portal is available, there are still some elderly people who have difficulty accessing it (da Silva et al., 2023; Laskar, 2023). Therefore, the solution taken is to make the portal a tool for village officials at the service counter (officer assistance system) (Djatmiko et al., 2025).

In addition, data security is a crucial issue. In the process of making it, the team added a layer of security in the form of an SSL Certificate and an Auto-Backup system (Mohideen et al., 2024). This is important because according to Suhardono's (2021) criticism, many village portals end up being hacked or losing data due to a lack of attention to the post-development server maintenance aspect.

Sustainable Digitalization Strategy

The portal does not only become a "dead project", but this discussion also emphasizes on Digital Literacy of Managers (Aneta et al., 2023; Shou et al., 2025). The training provided not only teaches how to input data, but also how to write interesting village news (citizen journalism) and how to photograph MSME products so that they are worthy of appearing in digital galleries.

CONCLUSION

This research has succeeded in realizing the Official Portal of Astanajapura Village as an integrated digital ecosystem and a credible, transparent village information center. The development process using the Waterfall model with participatory methods ensures that the system created is in accordance with the real needs of the

community and the capacity of village apparatus. The integration of the BUMDes module in the portal has increased the visibility of the village's economic potential, primarily at the local level, while opening access to the global realm. Through the Social Activities menu and Contact Us feature, the portal strengthens BUMDes accountability and provides two-way communication with the community. However, this study did not measure portal usage or usability; future research should evaluate these indicators and the portal's contribution to Village Original Income.

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