Conference Paper



Implementation of a Management Information System for the Permanent Vendor List to Enhance Accountability

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* <i>Corresponding author:</i> E-mail:	ABSTRACT
*Corresponding author: E-mail: agung.mustika.if@upnjatim.ac.id	In the digital era, which demands higher transparency and accountability, managing a permanent vendor list has become a crucial element in the procurement of goods and services. This study aims to implement a management information system focused on managing the permanent vendor list to improve accountability in the procurement process. The system is designed to provide better transparency in vendor data management, strengthen the verification process, and increase administrative efficiency. By leveraging information technology, the system enables structured recording, monitoring, and evaluation of vendors in real time. The methodology used in this research includes user needs analysis, system information system can enhance accountability in managing the permanent vendor list, reduce the risk of administrative errors, and accelerate decision-making processes related to vendor performance. In conclusion, this system offers an effective solution for organizations to ensure more transparent, efficient, and accountable vendor management.
	Keywords: Management information system, permanent vendor list, accountability, procurement, administrative efficiency

Introduction

In the digital era, which constantly demands higher levels of transparency and accountability, the implementation of Management Information Systems (MIS) has become increasingly vital across various sectors, including government, education, and business. One of the critical aspects that often requires enhanced efficiency is the management of a permanent vendor list in the procurement of goods and services. The use of MIS offers an effective solution by providing a more structured, efficient, and transparent system for managing data and information.

For instance, the application of the Scrum Framework in the implementation of MIS in the office of Wangunsari Village demonstrates how this system can effectively and efficiently manage work processes (Nugraha et al., 2023). The Scrum Framework enables the organization to manage workflows in a structured manner, respond flexibly to changes, and increase the productivity of teams involved in data and information management tasks.

In the education sector, the implementation of an MIS-based mobile application at the high school level has significantly impacted student information management, school administration, and communication between the school, students, and parents (Sahara & Firdaus, 2024). This

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aspect is especially relevant during the COVID-19 pandemic, where teaching activities had to be conducted online. The implementation of MIS in this context has not only ensured the smooth running of the teaching and learning process but also allowed real-time information access, which greatly aids decision-making related to education.

The research from Loryana and Haq (2022), Alfaini et al. (2021) specifically highlight how the implementation of MIS became crucial in improving educational services during the COVID-19 pandemic. An example is the implementation of SMAN 1 Gondang Mojokerto, which demonstrated that MIS could enhance the efficiency and quality of educational services (Article 4). With MIS, the school could manage various data regarding students, learning activities, and evaluations more efficiently, thereby maintaining the quality of education even amidst the limitations imposed by the pandemic.

In the business sector, the benefits of implementing MIS are evident in supporting more accurate and efficient decision-making processes (Puspita & Nasution, 2024). MIS facilitates the structured management of data, ensuring that information needed for decision-making can be accessed quickly and accurately. In a competitive business environment, the ability to manage information effectively becomes a distinct advantage, enhancing a company's competitiveness.

MIS implementation is not limited to education and business sectors; it is also crucial in public services. For instance, the seventh article discusses how MIS implementation in public services significantly improves service quality by providing more transparent, swift, and accurate information to the public (Abdulloh, 2020). This supports government efforts to enhance accountability and efficiency in delivering services to the community.

Moreover, MIS plays an essential role in managing formal educational or social institutions, allowing for more structured and efficient data management (Sarumpaet & Firdaus, 2024). By implementing MIS, these institutions can better manage work programs, operational activities, and administration, thus delivering more optimal services to the public.

In terms of human resource management, the Personnel Management Information System (Simpeg) serves as an effective form of MIS implementation (Tomonob & Apriani, 2022). Simpeg enables integrated management of employee data, including work history, attendance, and performance. This capability provides convenience for government agencies or organizations in managing their employees more efficiently and in a structured manner, ultimately improving the organization's overall performance.

This study also focuses on implementing a management information system designed to manage the permanent vendor list to improve accountability in the procurement process. The system is developed to provide better transparency in vendor data management, strengthen the verification process, and enhance administrative efficiency. By leveraging information technology, the system enables structured recording, monitoring, and evaluation of vendors in real-time, thus improving the quality of data management and services. This is highly relevant to the needs of data management in the current dynamic digital era, where fast and accurate decision-making is crucial for success.

The integration of MIS in permanent vendor list management, as described in this study, demonstrates how MIS can significantly enhance efficiency and accountability in the procurement of goods and services. This concept aligns with the application of MIS in other sectors, such as education and business, where MIS plays a pivotal role in supporting more efficient and accountable work processes (Sahara & Firdaus, 2024; Puspita & Nasution, 2024; Abdulloh, 2020). Implementing MIS in vendor management also ensures that procurement activities are conducted more transparently and in a structured manner, reducing the potential for errors and increasing the trust of all parties involved.

Overall, previous studies indicate that the implementation of Management Information Systems (MIS) plays a vital role in improving efficiency, transparency, and accountability across various sectors, including government, education, business, and public services. In today's era of digitalization, MIS functions not just as a supporting tool but as a strategic component driving innovation and progress in different fields. The adoption of MIS has become an indispensable requirement, offering comprehensive solutions to address the challenges of data and information management in the modern era.

Material and Methods

The methodology used in this research consists of three main stages: user needs analysis, system implementation, and prototype testing in a simulated environment.



Figure 1 Research methodology

- 1. User Needs Analysis: In this initial stage, the research focuses on understanding the specific requirements of the end-users. This involves gathering data through interviews, questionnaires, and observations to identify the functional and non-functional requirements of the system. The objective is to gain a comprehensive understanding of the users' expectations, workflows, and challenges to ensure that the system design aligns with their needs.
- 2. System Implementation: Based on the insights gained from the user needs analysis, the system is developed using appropriate programming languages and frameworks. This stage involves coding the system's core functionalities, developing the user interface, and integrating necessary features according to the design specifications. The implementation process ensures that all requirements identified in the previous stage are translated into a functional prototype.
- 3. Prototype Testing in a Simulated Environment: The final stage involves testing the developed prototype in a controlled, simulated environment. This testing aims to evaluate the system's performance, usability, and functionality under realistic conditions. Feedback from this testing phase is used to identify any issues or areas for improvement, ensuring that the final system is both reliable and effective in meeting user requirements.

This research methodology is designed to ensure a comprehensive and systematic approach to developing a user-centered system. The user needs analysis phase is crucial for identifying and understanding the specific requirements and expectations, ensuring that the system addresses real-world problems effectively. The system implementation stage translates these requirements into a functional prototype, leveraging appropriate technologies to create a robust and userfriendly interface. Finally, the prototype testing in a simulated environment allows for thorough evaluation and refinement, ensuring that the system performs optimally before full deployment. This iterative process guarantees that the final product is both functional and aligned with user needs, providing a reliable solution that meets the research objectives.

Results and Discussion User needs analysis



Figure 2. Use case diagram

The use case diagram illustrates the various interactions between different types of users (actors) and the system, highlighting the functionalities required to meet their needs. This diagram serves as a fundamental component of the User Needs Analysis, identifying the essential features and tasks that the system must support.

Actors and Their Roles

- 1. **Superadmin**: The Superadmin plays a central role in managing the system, with access to several critical functionalities. This user is responsible for overseeing User Management, which involves adding, editing, and deleting user profiles within the system. The Superadmin also manages the DPT (Daftar Pemilih Tetap) Management, overseeing registration, acceptance, and updates to the DPT list, ensuring data accuracy and integrity. Additionally, the Superadmin controls Specification Management and Announcement Management, indicating their role in managing system-wide settings and notifications.
- 2. **Penyedia Tetap (Permanent Provider)**: This actor interacts with the system mainly for tasks such as viewing, filtering, and searching within the DPT Table. These functions

suggest that the Permanent Provider has an essential role in maintaining or verifying data within the DPT list, ensuring that the list remains current and relevant.

- 3. **Operator**: The Operator's primary interaction is with the Job (Pekerjaan) module, indicating their involvement in managing or handling work-related tasks within the system. This suggests that the system includes functionalities for tracking job statuses, assignments, or completions.
- 4. **User**: The User has access to basic system functions, such as Login, Viewing the Homepage (Lihat Beranda), and Viewing their Profile. These features imply that the User's role is more limited in scope, focusing mainly on accessing personal data and navigating the system.
- 5. **PPK (Commitment Making Official)**: The PPK interacts with the system in tasks related to View Profile, Complete Job Review (Isi Review Pekerjaan), and View DPT List (Lihat Daftar DPT). This indicates that the PPK has responsibilities in reviewing job activities and managing aspects of the DPT data, possibly for decision-making or validation purposes.

Use cases and system functionalities

The system is designed to cater to various functions that meet the needs of these different actors:

- **User Management**: Allows the Superadmin to manage user access, roles, and information, ensuring that only authorized individuals can interact with the system.
- **DPT Management**: Provides capabilities for managing the DPT list, which is critical for maintaining accurate records.
- **Specification Management and Announcement Management**: Enable the Superadmin to control system-wide settings and disseminate important information or updates.
- **Job Management**: Allows users such as Operators and PPKs to interact with work-related tasks, indicating the system's capability to manage job assignments and reviews.

The diagram also shows several use cases involving View Profile, Change Password (Ganti Password), Search DPT Table, and Filter DPT Table, which represent typical user actions to maintain or retrieve information.

System implementation

SIDITA			Home Pengumum	ran Berita	Login
Selamat datang di SIDITA Siatem Informasi Daftar Penyedia Tetap	6	A A A			•
— Da	iftar F	Pengadaan			
10 ventries per page			Search:		
Paket		Metode	Status	Persyaratan	
Pengadaan Mobil Operasional SUV		Pengumuman	Sedang Berjalan	Libat Detail	
Penyedia Jasa MICE EO UT Deerah Bandung		Undangan	Selesai	Lihat Detail	
Showing 1 to 2 of 2 entries				e e 1 e	3

Figure 3. Interface system

The system implementation was carried out by developing a web-based application using the CodeIgniter framework. CodeIgniter was chosen for its lightweight structure, ease of use, and

efficient handling of web functionalities, which allowed for rapid development and deployment of the system. This framework facilitated the integration of essential features such as user management, DPT handling, job management, and profile management, ensuring a structured and organized approach to the application's architecture. By leveraging CodeIgniter's MVC (Model-View-Controller) design pattern, the system achieved a clear separation of concerns, enhancing maintainability and scalability, which is crucial for adapting to future requirements or modifications.

Prototype testing in a simulated environment

The prototype testing phase was conducted in a simulated environment to evaluate the functionality, performance, and usability of the web-based application. This environment closely replicated real-world conditions, allowing for comprehensive testing of all system features as identified in the functional testing cases. The simulated environment enabled testers to interact with the system as different types of users, such as Superadmin, Operator, User, and PPK, to verify that each use case operated as expected. By testing in this controlled setting, we identified and resolved any potential issues, such as data handling errors, interface inconsistencies, or access control vulnerabilities, ensuring that the system could handle real-life scenarios effectively. This phase ensured that the system's functionalities, including DPT management, user authentication, job reviews, and data search/filtering, were performed reliably and met the requirements defined during the user needs analysis. Through iterative testing and refinement, the prototype was optimized, ensuring readiness for deployment in a live environment.

Conclusion

In conclusion, this system provides an effective solution for organizations aiming to achieve more transparent, efficient, and accountable vendor management. By integrating structured processes, real-time data management, and user-friendly interfaces, the system not only streamlines the vendor registration and evaluation process but also enhances overall procurement operations. This comprehensive approach ensures that organizations can maintain accurate records, improve decision-making, and foster stronger relationships with their vendors, ultimately contributing to improved operational efficiency and accountability.

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