


Information system and business governance in the Politeknik Negeri Medan business unit

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ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received Dec 9, 2024 Revised Dec 11, 2024 Accepted Dec 25, 2024</p> <hr/> <p>Keywords:</p> <p>Business Governance; Information Systems; Politeknik Negeri Medan.</p>	<p>Politeknik Negeri Medan (Polmed) has various business units that support academic and non-academic activities. However, performance management and business governance of these units face various challenges, especially due to the use of manual and non-integrated systems. The main problems faced include inaccurate data, information delays, difficulties in monitoring and evaluation, and inefficient document management. This research aims to develop an integrated Performance and Business Governance Information System to collect data, manage and present business reports in the Polmed business unit. This system is expected to increase the accuracy and speed of data processing, facilitate access and presentation of information for management, and increase efficiency in monitoring and evaluating business unit performance. Apart from that, this system is also expected to optimize the management of business documents and reports. Through a research and development (R&D) approach, this system was designed and implemented by utilizing the latest information technology. The research results show that the implementation of this information system is able to overcome various existing problems, as well as support improved performance and governance of the Polmed business unit. Thus, this research makes a significant contribution in supporting the vision and mission of Polmed as a superior educational institution.</p> <p><i>This is an open access article under the CC BY-NC license.</i></p> 

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1. INTRODUCTION

Politeknik Negeri Medan (Polmed) as a vocational higher education institution has various business units that support academic and non-academic activities. This business unit plays an important role in providing practical experience for students and increasing institutional income. However, as business units develop, various challenges arise in managing performance and effective and efficient business governance (Hayati et al., 2021).

Currently, data management and business reports in Polmed units are still done manually or using separate systems. This results in several major problems, such as manual processes that are often prone to human error, both in inputting and processing data. This can cause inaccuracies in business unit performance and financial reports. With a system that is not integrated, the data collection and reporting process becomes slow. Important information needed by management for decision making is often received too late (Widjanarko et al., 2023).

The absence of an integrated information system makes it difficult for management to monitor and evaluate the performance of each business unit in real-time. This can hinder problem

identification and improvement opportunities. Business units produce many important documents such as financial reports, contracts, and other operational documents. Without a structured system, document management becomes inefficient and there is a risk of document loss or damage (Francis et al., 2023). Manual data entry and processing increase the risk of errors, which can lead to inaccurate performance evaluations and financial reports. Small errors in input can compound over time, resulting in flawed decision-making and potential financial losses. The lack of an integrated system slows down the reporting process. Management often receives critical data after significant delays, limiting the ability to make timely decisions and adjustments. Without real-time data access, monitoring business unit performance is reactive rather than proactive. Problems are identified only after they manifest, reducing the opportunity to address issues promptly. Business units produce a large volume of operational documents, including contracts and financial records. In the absence of a structured system, document storage is inefficient, increasing the risk of loss, misplacement, or damage to critical files (Salahuddin et al., 2023).

In this context, the development of Performance Information Systems and Business Governance is very important to overcome existing problems. This system is designed to collect data, manage and present business reports on Polmed business units in an integrated manner. Thus, the development of the Performance Information System and Business Governance in the Politeknik Negeri Medan business unit is a strategic solution in supporting improved performance and better governance, as well as supporting the vision and mission of Polmed as a superior educational institution (Maryani et al., 2023).

2. RESEARCH METHOD

The background to this research highlights the importance of information systems and effective business governance to support the operations of the Politeknik Negeri Medan business unit. This research aims to analyze the role of information systems in business unit governance, identify the strengths and weaknesses of current governance, and design information system models that can increase efficiency (Waruwu, 2024). With a qualitative and quantitative approach, this research uses data collection methods through interviews, surveys and document analysis, as well as analyzing data using the SWOT method.

The theoretical framework used includes the concept of management information systems with the Enterprise Resource Planning (ERP) model and Total Quality Management (TQM) principles. Expected results include the design of an integrated information system model and recommendations for more efficient and adaptive business governance. This research also provides benefits in the form of recommendations for developing information systems that support improving service quality and business unit profits. The expected conclusion is an increase in transparency and efficiency of governance, with positive impacts in the form of improved work processes, customer satisfaction and increased revenue (Apriati et al., 2022). As a follow-up, it is recommended that there be collaboration between academics, business managers and system developers to implement the prototype that has been designed (Purnomo, 2017).

To develop and evaluate the Performance Information System and Business Governance in Business Units at the Politeknik Negeri Medan (Rawat & Purnama, 2021), the appropriate research model is action research which combines qualitative and quantitative approaches (Bushe & Nagaishi, 2024). The first step is to identify problems, namely identifying needs and problems in performance management and business governance in the Politeknik Negeri Medan business unit. Next, system design was carried out with the aim of designing a prototype of a Performance and Business Governance Information System based on the findings from the identification stage. The method used in this stage is system development with an Agile or approach, involving repeated testing and feedback from end users (Ma'arif et al., 2019).

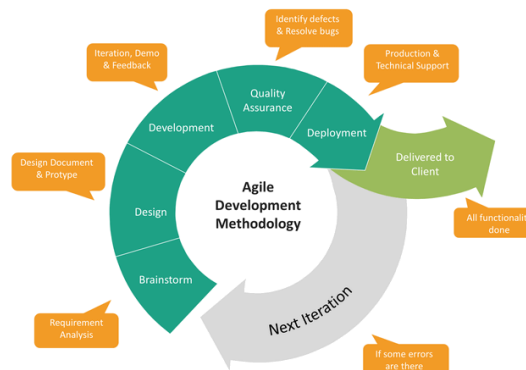


Figure 1. Agile cycle

The next stage is system implementation, with the aim of implementing a system within the Politeknik Negeri Medan to manage activities, this process includes user training, limited system testing (pilot testing), and widespread system deployment after a successful trial phase (Mercy, 2022). After implementation, an evaluation and assessment is carried out to evaluate the effectiveness and efficiency of the system that has been implemented (Ansyori et al., 2022). The methods used include user satisfaction surveys, system usage data analysis, interviews, and direct observation (Mukhtar et al., 2020).

The final stage is repair and refinement, which aims to identify weaknesses and areas that require improvement in the system, as well as making improvements based on feedback (Mely et al., 2022). The methods implemented include continuous feedback collection, data analysis, and implementation of necessary changes to improve the quality and functionality of the system (Okpatrioka, 2023).

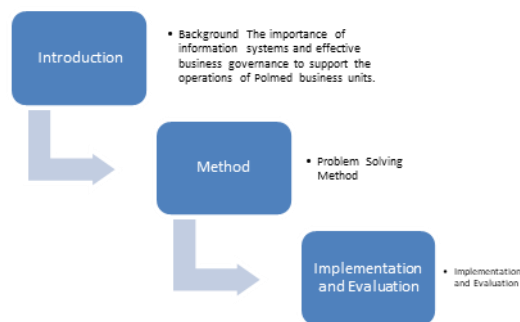


Figure 2. Research design

3. RESULTS AND DISCUSSIONS

Based on the design method and development results using the Laravel framework, the design results are as follows :

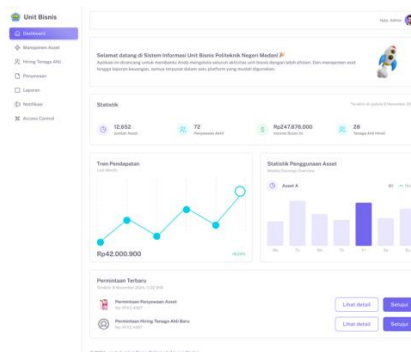


Figure 3. Dashboard system

The system dashboard is designed to provide a user-friendly display with various key features well organized (Fridayanthie et al., 2021). This dashboard includes a welcome message, user display, and easy-to-access main menu. The main menu consists of a sidebar menu which contains several important features, including the Dashboard as a highlighted section to display a summary of the latest information (Nursyanti Reni, 2019). Other features include Asset Management for asset management, Hiring Experts for the process of recruiting experts, leasing for managing rental activities, and Reports for presenting various operational reports (Madre et al., 2021). In addition, there is a Notification feature to ensure users stay informed, and Access Control to manage access permissions and manage user roles efficiently (Pratama & Rahayu, 2022). This dashboard design is expected to increase productivity and overall user experience.

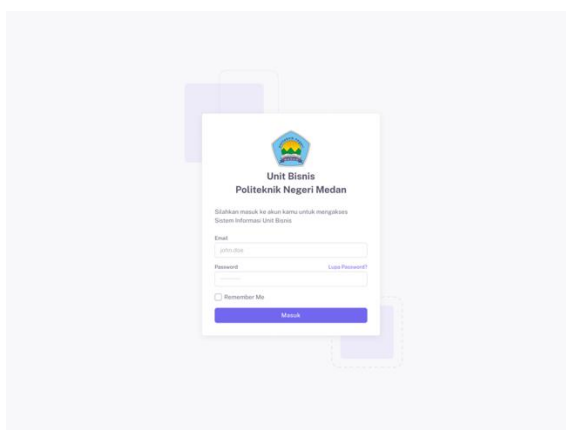


Figure 4. System login

Through a simple and secure login process. Admin can enter the application by filling in the registered username and password. This mechanism ensures that only authorized users can access the system, thereby maintaining data security and application functionality. This login process is also the first step in managing the various features and modules available in the application.

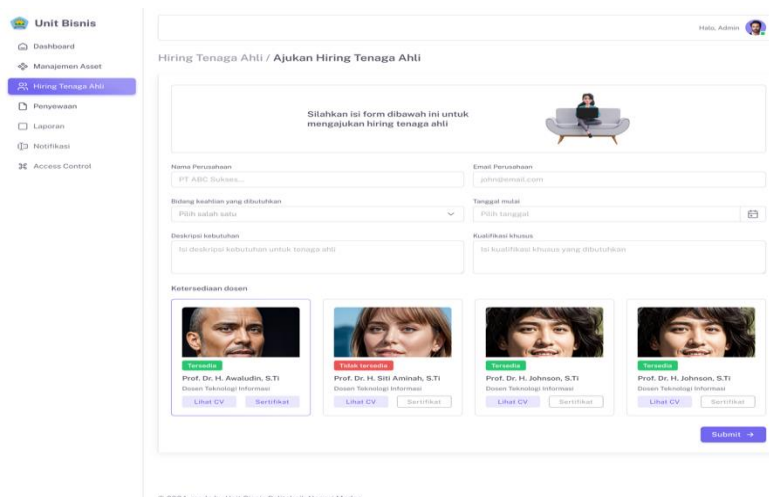


Figure 5. Hiring experts

The Hiring Experts feature is designed to provide complete information regarding experts at the Politeknik Negeri Medan (Gkoulalas-Divanis et al., 2019). This feature includes expert profiles, which include information such as educational background, skills and work experience (Ilham & Yuniarti, 2022). All of this data is integrated with the needs of business units at the Politeknik Negeri Medan, thereby facilitating the process of selecting and managing expert staff in

accordance with operational needs. This system also supports transparency and efficiency in managing human resources in the institutional environment.

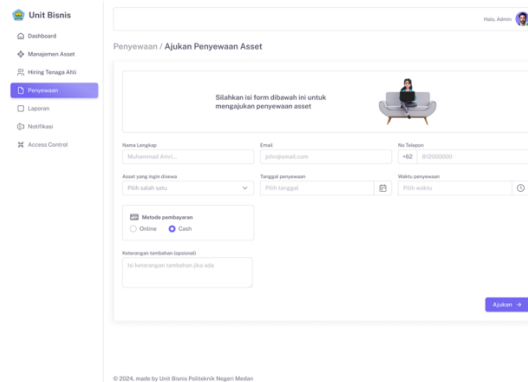
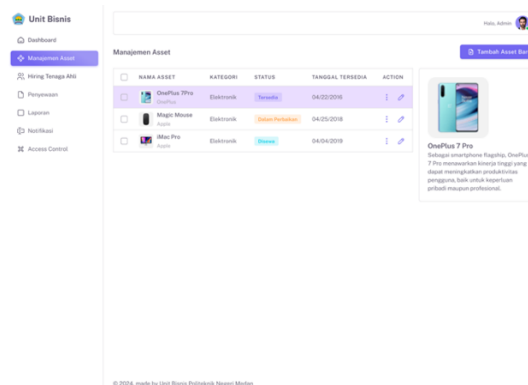


Figure 6. Asset leasing

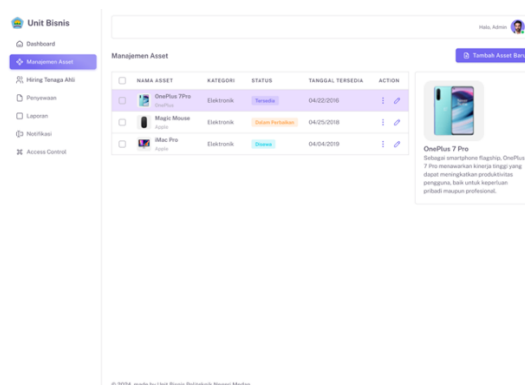
Feature is designed to manage various assets leased by the Politeknik Negeri Medan Business Unit. This feature includes detailed information about the types of assets available for rental, including descriptions, conditions, and rental rates (Husain et al., 2023). This system is an important part of supporting business unit operations, enabling a more organized and transparent rental process. Additionally, this feature helps improve asset management efficiency and contributes to overall business unit revenue (Defriani et al., 2022).



NAMA ASSET	KATEGORI	STATUS	TANGGAL TERSEDIA	ACTION
OnePlus 7 Pro	Elektronik	Tersedia	04/22/2018	[Edit] [Hapus]
Migo Mouse	Elektronik	Tersedia	04/25/2018	[Edit] [Hapus]
Mac Pro	Elektronik	Tersedia	04/04/2019	[Edit] [Hapus]

Figure 7. Asset management

Asset Management feature is designed to summarize and manage asset data owned by the Politeknik Negeri Medan (Suprapti et al., 2022). This feature is an important part of ensuring that asset-related information is always up to date and accurate. With structured management, this system helps in effective monitoring, management and maintenance of assets, thereby supporting operational sustainability and better decision making in the institutional environment (Mumtahana, 2022).



The screenshot shows a web application interface for 'Unit Bisnis'. The main content area is titled 'Manajemen Aset' and contains a table with the following data:

NAAMA ASSET	KATEGORI	STATUS	TANGGAL TERSEDIA	ACTION
OnePlus 7 Pro	Elektronik	Tersedia	04/02/2018	[Edit] [Hapus]
Apple Mouse	Elektronik	Belum Tersedia	04/05/2018	[Edit] [Hapus]
Mac Pro	Elektronik	Tersedia	04/04/2019	[Edit] [Hapus]

Below the table, there is a card for 'OnePlus 7 Pro' with a description: 'Salah satu smartphone terbaik. OnePlus 7 Pro menawarkan kinerja tinggi yang akan meningkatkan produktivitas program. Ada untuk keperluan pribadi maupun profesional.'

Figure 8. Statistical report

The Statistical Reports feature provides comprehensive statistical reports regarding the assets owned by the Politeknik Negeri Medan. This report includes important data such as number, category, status and use of assets, which is presented in graphical or tabular form to make analysis easier. This feature helps management monitor asset conditions, identify trends, and support strategic decision making regarding asset management in the institutional environment.

4. CONCLUSION

Contains Research Conclusions, namely that the Politeknik Negeri Medan Business Unit System currently provides basic features that are very helpful in asset management, rental management and recruiting experts. The dashboard is designed with a user-friendly interface and provides quick access to important statistical data as well as the latest demand information. However, there are several aspects that can be improved to maximize system efficiency, security and flexibility. Efficiency enhancements can be achieved by implementing AI-driven automation for repetitive tasks, which reduces manual errors and increases productivity. Ensuring seamless interoperability between the integrated system and existing academic and administrative platforms will help eliminate data silos and enhance overall efficiency. Additionally, developing intuitive, user-friendly interfaces will minimize training requirements and encourage broader adoption across various departments.

To enhance security, applying end-to-end encryption will protect sensitive data from unauthorized access, while role-based access control (RBAC) will ensure that users only have access to information relevant to their roles. Conducting regular security audits is essential to proactively identify vulnerabilities and mitigate risks, safeguarding system integrity. Flexibility and scalability can be addressed through a modular system architecture that allows for upgrades or expansions without disrupting core functions. Integrating cloud-based solutions will enable remote access and ensure data availability from multiple locations. Furthermore, providing customizable dashboards and reporting tools will allow users to tailor the system to meet specific operational needs, enhancing adaptability and responsiveness to evolving requirements.

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