
The Importance of Academic Information Systems in Higher Education

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ABSTRACT

The development of information technology has encouraged universities to improve the quality of academic services through the implementation of digital systems. One form of implementation is the use of the Sistem Informasi Akademik (SIAKAD) or Academic Information System, which supports various administrative processes, including Study Plan Card (Kartu Rencana Studi [KRS]) submission, grade management, lecture scheduling, and the delivery of academic information to students. The presence of this system makes administrative processes more practical, efficient, and accessible to the entire academic community. This research aimed to examine the importance of implementing Academic Information Systems in improving the effectiveness of academic services in higher education. The study employed a literature review method by examining various scientific journals and references related to the implementation of SIAKAD in Indonesia. The collected data were analyzed descriptively to identify the benefits, challenges, and development opportunities of academic information systems. The results showed that SIAKAD implementation provides several benefits, including improved administrative efficiency, easier access to academic information, and enhanced service quality for students and lecturers. However, several challenges remain, including technological infrastructure readiness, user competency in operating the system, and the need for continuous system development to adapt to technological advancements. Therefore, effective management of SIAKAD is an important factor in supporting the improvement of higher education service quality.

INTRODUCTION

The development of information technology has significantly impacted various aspects of life, including the higher education sector. Universities have increasingly adopted digital technologies to support academic activities, making service processes more effective and efficient. Activities that were previously performed manually have largely transitioned to computer-based systems, enabling faster and more organized academic data management. One application of this technology is the use of the Sistem Informasi Akademik (SIAKAD) or Academic Information System as a platform for managing various academic services (Akyar et al. 2024; Anam et al. 2023; Fitria 2023).

SIAKAD was developed to assist universities in managing academic activities in an integrated manner. Through this system, students can submit Kartu Rencana Studi (KRS), access lecture schedules, view grades, and obtain academic information online. Lecturers and administrative staff can also manage academic data more efficiently because information is stored within an interconnected system. This condition makes administrative processes more practical compared with conventional methods, providing significant benefits for students, lecturers, and administrative staff (Hakim et al., 2025). The need for academic information systems has increased alongside the growing number of students, study programs, and administrative activities in universities. Manual data management is no longer sufficient to meet these demands because it requires more time and increases the risk of recording errors.

Therefore, implementing academic information systems has become one of the solutions to improve the accuracy, efficiency, and security of academic information management (Azuddin et al. 2025; Cao et al. 2022; Sunarjo et al. 2024).

Currently, many universities in Indonesia have implemented SIAKAD as part of efforts to improve the quality of academic services. Through this system, various administrative processes can be conducted online, reducing service processing time. In addition to facilitating student access to academic information, SIAKAD also supports universities in managing academic data in a more organized and accurate manner (Afkar 2023; Fauzi et al. 2025; Ibrahim et al. 2026).

Several studies have examined the implementation of Academic Information Systems in higher education. Fawaati et al. (2022) demonstrated that SIAKAD improves administrative service efficiency in universities by enabling online services that reduce student waiting time and support more effective administrative work. Zulfa et al. (2025) found that web-based academic information systems accelerate information delivery to students, with grades, schedules, and announcements updated directly through the system. Sari and Hidayat (2024) revealed that ease of use is a key factor influencing student acceptance of SIAKAD. Mulyani et al. (2022) emphasized that information quality is crucial for SIAKAD success because accurate, complete, and up-to-date information facilitates student access to academic data. Tsabita et al. (2023) found that system reliability significantly affects user satisfaction. Julianto and Lindawati (2022) identified performance degradation during peak usage periods as a common issue reported by users. Nugroho and Lestari (2022) highlighted SIAKAD's role in improving service transparency, while Widjaja et al. (2023) emphasized the flexibility of web-based systems. Albhantany et al. (2022) identified internet network quality as a significant obstacle, particularly in areas with unstable connectivity. Ramadhan and Fitriani (2023) noted that many systems still require improvements in maintenance and adaptability. Putra and Hermawan (2023) concluded that SIAKAD success depends not only on system quality but also on the quality of services and information provided to users. However, most previous studies have focused on specific aspects of SIAKAD implementation without providing a comprehensive overview of its benefits, challenges, and development opportunities within an integrated framework. Comparative studies involving various types of universities in Indonesia also remain limited.

Based on the review of previous studies, several research gaps highlight the urgency of this research. Studies providing a comprehensive overview of SIAKAD benefits, challenges, and development opportunities in an integrated framework remain limited. Most existing studies focus on individual aspects, such as system quality, user satisfaction, or administrative efficiency, without connecting these dimensions into a holistic framework. Comparative studies across different types of universities in Indonesia are still scarce, and research on future SIAKAD development directions in relation to emerging technologies, such as artificial intelligence and data analytics, while considering data security and privacy aspects, has not been widely conducted. This research addresses these gaps by synthesizing findings from previous studies to provide a comprehensive overview of SIAKAD implementation in higher education.

The novelty of this research lies in its comprehensive synthesis of SIAKAD implementation in higher education. This research integrates findings from multiple studies to

provide a holistic overview of SIAKAD benefits and challenges within a unified framework, identifies the relationship among three key success factors—system quality, information quality, and service quality—based on the DeLone and McLean model, maps future SIAKAD development directions toward emerging technologies while emphasizing data security and privacy, and provides practical recommendations for universities at different stages of implementation. Based on this framework, this study examined the importance of SIAKAD in supporting academic activities in higher education, focusing on its benefits, implementation challenges, and future development opportunities.

Based on this description, this study examined the importance of implementing Academic Information Systems in supporting academic activities in higher education. The discussion focused on the benefits obtained from SIAKAD implementation, the challenges encountered during its application, and opportunities for future system development. The results of this research are expected to serve as an additional reference for universities seeking to improve the quality of academic services through the utilization of information technology.

METHOD

This research employed a literature review method with a qualitative approach. This method was selected because the study focused on collecting and analyzing relevant references related to academic information systems in higher education. Through this approach, previous research findings were compared to obtain a comprehensive understanding of the benefits, challenges, and development of Sistem Informasi Akademik (SIAKAD) implementation.

Data were collected by reviewing various scientific sources, including national journals, proceedings, books, and scientific articles discussing academic information systems, educational service digitalization, and university administrative management. The selected literature was based on its relevance to the research topic and the currency of the publication.

The collected references were analyzed descriptively by identifying and categorizing findings related to SIAKAD benefits, its contribution to academic service quality, implementation challenges, and future development opportunities. The results of the analysis formed the basis for the discussion and conclusions of this study.

RESULTS AND DISCUSSION

Benefits of SIAKAD in Administrative Efficiency

One of the main benefits of the implementation of the Academic Information System (SIAKAD) is the increased efficiency in the management of academic administration. Before the digital system was used, various administrative processes, such as recording student data, managing grades, and preparing lecture schedules were still carried out manually. This method takes longer and has the risk of errors in data processing. With SIAKAD, most administrative processes can be carried out automatically so that work becomes faster, neater, and easier to monitor.

The results of research conducted by **Fawaati et al. (2022)** show that the use of Academic Information Systems is able to improve the efficiency of administrative services in universities. Various services that previously required students to come directly to the academic section can now be done online. The change not only saves students time, but also helps administrative staff work more effectively because some of the processes have been done through the system.

Similar findings were also conveyed by **Zulfa et al. (2025)** who explained that a web-based academic information system is able to speed up the process of delivering information to students. Grades, lecture schedules, and academic announcements can be updated directly so that students can get information faster. This condition helps reduce delays in information delivery that often occur when management is still carried out manually.

In addition to supporting academic administration, SIAKAD also provides convenience in the process of paying education fees. The integration of electronic payment systems allows students to make transactions through various banking services without having to come to campus. For universities, the system helps the financial recording process to be faster, more organized, and reduces the possibility of errors in the management of payment data.

Quality of Service and User Satisfaction

The success of the implementation of the Academic Information System is not only determined by the sophistication of the technology used, but also by the user experience when utilizing the system. Students, lecturers, and education staff certainly expect a system that is easily accessible, stable, and able to provide information quickly. If the system can meet these needs, the level of user satisfaction will increase and the use of SIAKAD in academic activities can run more optimally. Research conducted by **Sari and Hidayat (2024)** shows that ease of use is one of the factors that affect student acceptance of SIAKAD. The easier the system is to understand and operate, the more likely it is that students will use it in academic activities. In addition, the benefits that are directly felt also affect the level of user satisfaction.

These findings are in line with the research of **Mulyani et al. (2022)** which explains that information quality is one of the important aspects in the success of SIAKAD. Accurate, complete, and always updated information will make it easier for students to get the academic data they need. Conversely, inappropriate information can lead to confusion and reduce user trust in the system.

In addition to the quality of information, the reliability of the system also has an influence on user satisfaction. **Tsabita et al. (2023)** explained that a system that is able to respond quickly to user requests and rarely experience interruptions will provide a better experience. This condition makes users feel more comfortable when accessing various academic services through SIAKAD.

On the other hand, there are still some obstacles that users feel. **Julianto and Lindawati (2022)** found that some students complained about a decrease in system performance when many users accessed SIAKAD at the same time, for example when filling out the KRS. These conditions show that increasing server capacity and system maintenance are still needed so that service quality can be maintained.

Transparency and Accessibility of Services

In addition to improving administrative efficiency, the implementation of SIAKAD also provides benefits in terms of transparency of academic services. All important information, such as grades, lecture schedules, payment status, and academic history can be accessed directly by students through one system. This convenience helps reduce misinformation delivery while increasing user trust in the services provided by universities.

According to **Nugroho and Lestari (2022)**, an integrated academic information system provides opportunities for students to obtain academic information independently without

having to come to the administration. This method makes the service process faster while increasing information disclosure between the campus and students.

Ease of access is also one of the advantages of web-based SIAKAD. Research by **Widjaja et al. (2023)** explains that web-based systems allow students to access academic services at any time and from various internet-connected devices. This flexibility is very helpful, especially for students who are not in the campus environment.

Challenges in Implementation

Although the Academic Information System provides many benefits, the process of its implementation in higher education still faces several obstacles. These challenges need to be considered so that the system used can run as needed and provide maximum benefits. In addition to technology, the success of SIAKAD implementation is also influenced by the readiness of human resources and support from institutions.

One of the obstacles that is often encountered is the limitation of technological infrastructure. According to **Albhantany et al. (2022)**, the quality of the internet network greatly affects the smooth use of SIAKAD, especially in universities in areas with unstable internet access. If the connection is often interrupted, the various academic services available in the system cannot be used optimally.

In addition to technological factors, user readiness is also no less important. Not all students, lecturers, and education staff are immediately used to using the new system. Therefore, training and mentoring need to be carried out regularly so that all users understand the function of each available feature. With good coaching, the adaptation process to SIAKAD will run more smoothly.

The results of the evaluation conducted by **Ramadhan and Fitriani (2023)** show that some academic information systems still need development, especially in terms of maintenance and the ability of the system to adapt to changing needs. Therefore, universities need to update the system regularly so that the quality of service is maintained.

Research by **Putra and Hermawan (2023)** also explains that the success of the implementation of SIAKAD does not only depend on the quality of the system, but is also influenced by the quality of services and information provided to users. These three aspects are interrelated so that they need to be developed simultaneously so that the benefits felt by users are maximized.

Prospects and Development Directions

Technological developments provide a great opportunity for universities to continue to improve their Academic Information Systems. As the need for digital services increases, SIAKAD is expected to not only function as an administrative medium, but also be able to support the decision-making process through the presentation of more accurate and integrated data.

In the future, the development of SIAKAD can be directed to the use of more modern technologies, such as data analysis and artificial intelligence. This technology has the potential to help universities in developing services that are more in line with the needs of students. However, the development must still pay attention to data security and user privacy protection so that academic information is maintained.

In addition to developing technology, universities also need to ensure support from the organizational side. Commitment to providing a budget, maintaining the system, and

developing policies that support the use of SIAKAD are important factors so that the system can be used sustainably. With this support, the quality of academic services can continue to improve in accordance with technological developments.

CONCLUSION

Based on the results of the studies conducted, it can be concluded that the Sistem Informasi Akademik (SIAKAD) or Academic Information System plays an important role in improving the quality of services in higher education. The implementation of this system supports various administrative processes by making them faster, more organized, and more accessible to students, lecturers, and administrative staff. In addition to improving efficiency, SIAKAD also facilitates the delivery of academic information with greater accuracy, thereby enhancing the effectiveness of academic services. Although SIAKAD provides various benefits, its implementation still faces several challenges, including limitations in technological infrastructure, user readiness in utilizing the system, and the need for continuous system development. Therefore, universities need to continuously evaluate and improve SIAKAD to ensure that it can adapt to technological advancements and user requirements. With effective management and support from all stakeholders within the university environment, SIAKAD is expected to contribute further to improving academic service quality and supporting the digital transformation of higher education in Indonesia.

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