



## Implementation of academic information systems at Lumajang University

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### Abstract

Digital transformation in higher education governance requires an academic information system that integrates administrative services, learning processes, and academic supervision in a practical, structured manner. This study aims to analyze the implementation of the Academic Information System (SIKAD) in accordance with Rector's Regulation Number 221/071055/AKD/VIII/2025 on Academic Guidelines for the Agribusiness Study Program at the Faculty of Agriculture, Lumajang University. This study used a qualitative approach through interviews, observations, and documentation, involving five informants the Vice Rector 1 for Academic Affairs, the Dean of the Faculty of Agriculture, the Head of the Agribusiness Study Program, one lecturer, and one student. The results show that all actors have uniformly understood the objectives of the SIKAD policy. In terms of resources, faculty and study program operators play a central role in supporting the limited digital literacy of some lecturers and educational staff. Infrastructure is available, but network stability and device availability remain obstacles. Inter-unit communication occurs through formal and informal mechanisms, though a standardized communication system does not yet support it. The institutional structure is collaborative, but a layered bureaucracy often delays the system adjustment process. Externally, social conditions and national policy support also influence implementation, while variations in users' digital capabilities remain a challenge. In general, the implementers' disposition shows an adaptive attitude towards the system. This study concludes that the implementation of SIKAD still requires strengthening in terms of SOPs, ongoing training, and infrastructure improvements so that system performance is more focused and consistent.

**Keywords:** SIKAD, policy implementation, public administration, educational technology, Lumajang University

### Introduction

Not all educational staff at the Faculty of Agriculture, University of Lumajang, have sufficient digital literacy. Although several training sessions on SIKAD use have been conducted, their implementation is often unsustainable. As a result, even though educational staff have mastered the system, they remain confused when faced with feature updates or procedural changes initiated by the University. This is exacerbated by the lack of a consistent support system for users experiencing technical difficulties. The impact of these problems is reflected in the decline in the quality of academic services. Students experience delays in obtaining the latest lecture schedule information or changes to lecture rooms, which should be accessible in real time. The process of lecturers entering final grades also often encounters delays, making it difficult for students to learn about their academic progress.

From a management perspective, poorly integrated academic data makes it difficult for faculties to conduct comprehensive analyses for strategic decision-making. As a result, curriculum development programs and education quality improvement strategies designed by faculty leaders become less effective because they are not grounded in reliable, real-time data (Hargreaves & Fullan, 2012). From a global perspective, many studies show that implementing an effective academic information system improves the quality of education. Naranjo *et al.*, (2019) <sup>[12]</sup> revealed that integrating information technology into academic management can improve the performance of educational institutions by up to 35%, particularly in data accuracy, stakeholder satisfaction, and time efficiency. In addition, effective SIKAD integration will strengthen the education ecosystem through inter-faculty collaboration, inter-departmental data exchange, and the formation of a digital

work culture responsive to the dynamics of science and technology development (Rodríguez & García, 2020) <sup>[15]</sup>.

In the face of intense competition and rising demands for higher-quality education, the implementation of the Academic Information System (SIKAD) is crucial. This aligns with Permendikbudristek No. 53 of 2023, which emphasizes quality assurance in higher education. The Faculty of Agriculture at Lumajang University can reap significant benefits from applying SIKAD to improve the quality of education. Given the various challenges faced by the Faculty of Agriculture at Lumajang University, the implementation of SIKAD is an important issue that warrants in-depth study. National regulatory support, as outlined in Permendikbudristek No. 53 of 2023 on quality assurance in higher education, emphasizes the need to develop modern, digitally integrated education management. This is not only important for the institution's internal interests, but also serves as a benchmark for the accreditation and reputation of higher education institutions at the national and international levels.

This research is highly urgent because it can yield empirical guidelines for implementing academic information systems, including strategies, models, and best practices. In addition, this research can make a theoretical contribution by enriching the literature on change management and technological innovation in higher education. The objectives of this study are to identify and analyze the implementation of the Academic Information System (Siakad) in accordance with Rector Regulation Number 221/071055/AKD/VIII/2025 on Academic Guidelines for the Agribusiness Study Program, Faculty of Agriculture, Lumajang University. To identify and analyze the supporting and inhibiting factors in the implementation of the SIKAD based on Rector Regulation Number

221/071055/AKD/VIII/2025 concerning Academic Guidelines in the Agribusiness Study Program, Faculty of Agriculture, Lumajang University.

This study contributes to the theoretical development of public policy and educational administration studies by enriching the conceptual understanding of the implementation of the Academic Information System as outlined in Rector Regulation Number 221/071055/AKD/VIII/2025. Theoretically, this study is expected to expand the application of the Van Meter and Van Horn policy implementation model in the context of higher education academic governance, as well as serve as a conceptual reference for further research examining the implementation of academic information system policies in higher education. This research is expected to contribute to and benefit the Faculty of Agriculture, Lumajang University, particularly by improving the effectiveness of management of the Academic Information System (Siakad). The results of this research can serve as a reference for evaluating and developing Siakad in accordance with the standards set by SN Dikti, thereby optimally supporting the learning process, academic administration, and student services.

### Literature Review

Public policy is a decision or regulation made by the competent government to address public issues. Through this policy, the government seeks to address issues related to society's interests. Public policy is a set of actions or decisions taken by authorized government agencies that affect society's broader interests. Thomas (1981) defines public policy as a decision-making process in which the government has the authority and right to make authoritative decisions. This includes decisions to allow or permit something to happen to address a public issue.

Public policy involves government decision-making to address public issues or problems. This approach includes the use of mandatory or authoritative decisions in order to resolve the problem (Tangkilisan, 2003: 1). An example of the above statement is that if there is a pothole on a highway, whether or not the road is repaired is part of government policy. If the government decides to repair the road, it is repaired; conversely, if the government decides not to repair it, that can be interpreted as a policy not to repair it.

Islamy (2009:19) defines public policy as "whatever the government chooses to do or not to do." This definition emphasizes that public policy is about the realization of "actions" rather than merely a statement of the government's or public officials' wishes. The government's decision not to do something is also public policy because it has an impact (just as the government's decision to do something does). Mulyadi (2015:47) states that implementation is a general process of administrative action that can be studied at a specific program level. Mulyadi (2015: 24) explains that implementation relates to various activities aimed at program realization.

Grindle's opinion can be interpreted as follows: Implementation, in relation to various activities aimed at program realization, is the process of carrying out a series of planned actions to achieve the established program objectives. These activities include specific, systematic operational steps, ranging from detailed planning and resource organization to task execution and the monitoring

and evaluation of results. During the implementation phase, it is important to ensure that all elements involved, including human resources, funds, and equipment, are used efficiently and effectively. This involves good coordination among the various parties, both from the government and the private sector. Periodic monitoring and assessment of program progress are also an important part of implementation to ensure that program objectives are achieved as planned.

Policy implementation is a critical phase in the policy structure that determines whether government policies can be implemented in the field and produce outputs and outcomes aligned with the targets set. To achieve the desired results, public policy implementation needs to be carried out optimally (Sasmito & Nawangsari, 2019). This opinion can be interpreted to mean that the government must implement policies as well as possible, ensuring that every step in the implementation is carried out efficiently and effectively in accordance with the predetermined objectives. Successful policy implementation will create the expected impact on the community or sector concerned.

Van Meter and Van Horn define policy implementation as the efforts of public organizations to achieve predetermined objectives (Winarno, 2005). Policy implementation is a series of steps and actions taken by a public organization to achieve predetermined goals or objectives. The implementation process involves executing and operationalizing policies to achieve the desired impact in line with the vision and mission set by the government or relevant institutions. Policy implementation is a critical step in executing and realizing the decisions or policies of a public entity.

The Academic Information System (SIKAD) is an information technology-based system designed to support effective and efficient academic data management in higher education institutions. This system enables the integration of various academic administrative activities, including student registration, lecture scheduling, grade recording, and digital diploma issuance. According to Laudon and Laudon (2018), an information system is a combination of hardware, software, data, networks, and procedures used to generate relevant information for decision-making. In the context of higher education, SIKAD plays an important role in improving the quality of academic services in accordance with the Minister of Education and Culture Regulation No. 3 of 2020 on the National Standards for Higher Education (SN Dikti).

The main components of SIKAD include hardware, software, databases, networks, and users. Hardware, such as computers and servers, serves as the medium for running the system, while software provides applications that support academic operations. Databases are systems for storing structured academic data, enabling fast, accurate information retrieval. Networks enable access to the system from various locations, supporting flexibility in its use. Finally, the successful implementation of SIKAD depends heavily on users, such as administrative staff, lecturers, and students, who must understand how the system works in order to maximize its benefits.

### Research Method

#### 1. Type of Research

The research method chosen for this study is a descriptive, qualitative approach. Mukhtar (2013) states

that researchers use a qualitative descriptive research method to discover knowledge or theory at a given point in time.

## 2. Research Location

The research location was set at the Agribusiness Study Program, Faculty of Agriculture, Lumajang University, considering that the implementation of SIAKAD in this faculty is still relatively new, namely around two years, so that there are still various shortcomings that do not meet the academic quality assurance standards of DIKTI.

## 3. Data Sources

In relation to this, the data in this section is divided into words and actions, written data sources, photos, and statistics that are relevant to the topic and focus of the research. In this study, two data sources were used: primary and secondary data.

## 4. Research Informants

In selecting informants related to the implementation of the Academic Information System (SIAKAD) at the Faculty of Agriculture, Lumajang University, the researcher determined the informants, namely the Vice Rector I of Lumajang University, the Dean of the Faculty of Agriculture, the Head of the Agribusiness Study Program, Faculty of Agriculture, Lumajang University, Lecturers of the Agribusiness Study Program, Faculty of Agriculture, and Students of the Faculty of Agriculture.

## 5. Research Focus

This study focuses on the process of implementing the academic information system (SIAKAD) at the Faculty of Agriculture, Lumajang University in terms of the objectives and standards of public policy, resources, communication and monitoring activities, characteristics of the implementing agency, economic, social, and political conditions, the disposition or attitude of the implementers, and the supporting and inhibiting factors in the implementation of the academic information system (SIAKAD).

## 6. Data Analysis

Data analysis in this study uses qualitative descriptive techniques, which describe existing data based on field facts, presented in qualitative form, to provide a clear picture of the research results and accurate conclusions on the issues raised. The steps in data analysis are data collection, data reduction, data compilation, data categorization, and data validity.

## Results & Discussion

### 1. Results

#### 1.1 Objectives and Policy Standards

From the university level to the student level, it appears that the objectives of the SIAKAD policy are understood relatively uniformly, namely to develop modern, efficient, and transparent academic management; to facilitate academic services (KRS, KHS, attendance, grades) for lecturers, educational staff, and students; and to support digital transformation as the strategic policy direction of the University. Formally, this objective is reinforced by the

Rector's Regulation on Academic Guidelines, which requires integrated academic processes through a reliable information system. At the implementation level, this objective has been "passed down" to faculties, study programs, lecturers, and students. All actors cite ease of service, speed of process, and openness of information as reasons for the importance of SIAKAD.

In terms of implementation standards, there is still a gap in the absence of detailed written SOPs and technical guidelines at the University, faculty, and study program levels; many procedures are carried out based on habits, verbal instructions, and informal agreements, rather than official documents; as a result, the working methods between units and between study programs are not uniform, even though the objectives are the same. This means that, in substance, the policy objectives are clear and relatively well understood, but the operational implementation standards have not been formulated. This makes implementation highly dependent on the initiative of each unit and individual.

#### 1.2 Human Resources

Human resources (HR) indicates that the University has assigned special operators in each faculty and study program, who act as technical implementers and liaisons between levels (university-faculty-study program-users). Lecturers, academic staff, and students have adapted quite well, but training is not routine, tending to only occur at the beginning of implementation or at certain moments; there is a digital literacy gap, especially among senior lecturers and some students; some lecturers still rely on program operators/admins for things they should be able to do themselves. This indicates that the number of human resources available for implementation is sufficient and that their roles are clearly defined, but the quality of their digital competencies is not yet uniform. Policy implementation is ongoing, but operators largely support performance.

Infrastructure and budgets from various levels of actors show the same pattern. Universities and faculties allocate budgets for servers, networks, and system development. However, the internet is often unstable, especially during peak hours and at specific points on campus, and some units have limitations on computer equipment. Students rely heavily on personal devices and campus networks, which can be slow. This illustrates that the infrastructure is available but not yet fully reliable. Budgets support policies, but have not yet achieved optimal performance technically.

Communication and monitoring activities are consistent at the university and faculty levels. Policy information and system updates are conveyed through official letters, coordination meetings, the campus portal, institutional emails, and WhatsApp groups. In study programs, communication is more direct and operational, using announcements, WhatsApp groups, and face-to-face meetings. Students find that information on course registration, academic transcripts, schedules, and grades is relatively easy to obtain, though they sometimes need to ask the operator directly. This means that vertical and horizontal communication works, both formally and informally. Its effectiveness still depends on the initiative of the actors, not on a fully standardized and documented communication system.

Supervision at the University has an internal control team and an IT unit that monitors system performance and

compliance with procedures. Faculties and study programs conduct periodic evaluation meetings (generally monthly or every semester) to identify obstacles to implementation in the field. At the operational level, supervision is evident in monitoring student KRS/KHS, correcting input errors, and following up on user complaints. However, supervision is not always responsive when problems arise outside of working hours or when decisions on solutions must be escalated to the university level. This shows that a supervision mechanism is in place, but it is not yet fully agile and real-time.

The structural characteristics of the implementing institutions at the University have divided roles between leaders, academic units, IT centers, faculty operators, and study program operators. At the faculty and study program levels, the roles of operators, academic departments, lecturers, and administrators are well defined: who handles technical aspects, who handles administrative aspects, and who is responsible for academic processes. The data shows several important characteristics of the implementing agency: Its organizational structure is relatively straightforward and functional, with a chain of coordination from the University → faculty → study program → lecturers/students. The work culture tends to be collaborative: system problems are handled jointly through group communication, meetings, and rapid coordination.

There are bureaucratic obstacles: changes to SOPs, system updates, or certain decisions require multiple layers of approval, which can delay the improvement process. The characteristics of the implementing agency are pretty supportive of policy implementation (the structure is in place, and coordination is functioning). However, flexibility and decision-making speed remain weak points. Economic, social, and political conditions in the implementation of SIAKAD are greatly aided by the University's budget commitment to strengthening IT and human resource training. Faculties and study programs play a greater role in proposing needs, while the University handles the majority of funding. For students, economic capacity affects device ownership and the quality of home internet access. Overall, economic conditions are supportive, but they have not eliminated all limitations in facilities and access.

Socially, there are variations in digital literacy among lecturers, students, and operators. However, there is also a culture of mutual assistance (lecturers assist each other, students teach each other, operators help users). Attitudes towards digitalization tend to be positive and accepting, despite initial confusion and slight resistance, especially among generations less familiar with Technology. This means that, from a social perspective, the campus environment is well-positioned to adapt, though it requires ongoing support. The political situation (within the campus) saw a change in leadership that actually strengthened the commitment to digital transformation. National policies on the digitization of education and support from the Higher Education Coordination Agency (LLDIKTI) also provided external legitimacy for SIAKAD.

Internally, the policy direction is relatively consistent: SIAKAD is prioritized. Thus, economically, socially, and politically, the external and internal contexts tend to support policy implementation, although social aspects such as digital capability gaps remain a challenge. The disposition or attitude of data implementers from various actors shows a fairly straightforward pattern. University and faculty leaders

show strong commitment, provide policy support, budget support, and input space. Operators, academic staff, and lecturers initially felt difficulties and doubts, but after experiencing the benefits (work efficiency, ease of data access), their attitudes changed to become more accepting and even proactive; there was enthusiasm for independent learning, mutual assistance, and providing input for improvement.

Students initially experienced confusion and a lack of socialization; after receiving guidance and becoming accustomed to the system, they tended to feel helped and became proactive in using it. Overall, the implementers' disposition is positive and constructive. Resistance existed, but it was temporary and decreased as understanding increased. Implementers feel involved (able to give advice and participate in evaluation forums), thereby developing a sense of ownership of SIAKAD. This is one of the main strengths in policy implementation, because even though the system is not yet technically perfect, it can still run thanks to the commitment and cooperative attitude of the implementers.

**Supporting and Hindering Factors.** Overall, the main supporting factors include the commitment of leaders (University, faculty, study program) to digital transformation and to strengthening SIAKAD. The availability of an implementing structure and human resources (operators at every level, lecturers, academic staff) with a clear division of tasks. A collaborative work culture and fluid communication, both formally and informally. An increasingly positive attitude among implementers and users, as they experience the benefits of SIAKAD. National policies and external support that encourage the digitization of higher education services.

There are several consistent obstacles at all levels, including the lack of detailed, uniform SOPs and written guidelines, leading to inconsistent implementation practices that depend on habits. Unstable internet networks and infrastructure limitations, especially during peak hours, in specific locations, or for students with limited access. Non-sustainable training results in uneven digital literacy among lecturers and students. Rigid and layered bureaucracy in changing SOPs or updating systems, resulting in delayed responses to new problems or needs. High dependence on operators, which could become a bottleneck if not balanced by strengthening the competencies of other users.

## 2. Discussion

### 2.1 Implementation of the Academic Information System

Based on observations and interviews conducted by researchers, the implementation of the Academic Information System (SIAKAD) at Lumajang University has reflected the interrelationships among these six indicators. This policy is carried out as part of the University's digital transformation agenda, which aims to build an efficient, transparent, and integrated academic governance system. In general, the implementation of SIAKAD has been running well thanks to the support of university leaders, the commitment of the implementing staff, and the entire academic community's awareness of adapting to the information technology-based system. However, the study's results also show that several obstacles remain, particularly in the uniformity of implementation standards, infrastructure

limitations, and differences in digital capabilities among implementers.

The findings show that an understanding of the objectives of the SIAKAD policy has been well established at all levels of implementation, from the university level to the faculty and study program levels. Implementers understand that SIAKAD is not just an administrative system, but an instrument to strengthen transparency and efficiency in academic work. The implementation of this policy still faces limitations in terms of operational standards. To date, there are no Standard Operating Procedures (SOPs) that detail the implementation procedures, division of responsibilities, and coordination mechanisms among implementers. As a result, the system's implementation in the field still largely depends on verbal instructions, individual experience, and previously established work habits. Overall, the implementation of the SIAKAD policy at Lumajang University has shown consistency between normative objectives and field practices. However, it still needs to be strengthened in terms of implementation standards. A good understanding of the policy direction by implementers is an important asset for the long-term success of this system.

Field findings indicate that two-way communication between the University, faculties, and study programs is quite effective. Policy information from the University is well communicated through coordination meetings, while reports from faculties and study programs are openly received as feedback. This communication pattern creates a mechanism that is both hierarchical and collaborative. Study programs can convey their needs, constraints, and recommendations directly to the University through the official communication channels provided.

The Agribusiness Study Program has a simple but effective implementation structure. A study program administrator is assigned to handle SIAKAD operations daily, including academic data entry and validating student attendance. On the other hand, lecturers play a role in entering grades and attendance, and in monitoring student learning outcomes. Coordination between administrators and lecturers runs smoothly, though there are still occasional differences in technical understanding, especially among new lecturers who are not yet familiar with digital systems. To overcome this, the study program actively provides technical assistance and guidance so that each implementer can carry out their role with confidence.

Based on the research results, the implementers' attitude towards the application of SIAKAD in the Faculty of Agriculture shows a very positive trend. Operators, lecturers, and academic staff generally show strong enthusiasm to adapt to this digital system. They understand that SIAKAD is a strategic step by the University in realizing efficient, transparent, and integrated academic management. Although many parties were still confused or unfamiliar with the system at the beginning of its implementation, over time, this attitude began to change. Now, most implementers can operate the system with confidence and feel that SIAKAD helps ease the administrative burden previously handled manually.

## 2.2 Supporting Factors and Obstacles

Human resource readiness is also an important factor in the successful implementation of this policy. Operators,

lecturers, and administrative staff in the Agribusiness Study Program have demonstrated a high level of adaptation to digital systems. Although there were technical difficulties and confusion in the early stages, over time, the implementers have become more accustomed to and confident in using the system. The spirit of mutual assistance among employees, as well as the support provided by operators to new or less proficient lecturers using SIAKAD, is clear evidence that a collaborative work culture has been successfully established within the faculty. Another supporting factor is the availability of technological facilities and infrastructure. The faculty has provided computers, an internet network, and access to a reasonably stable university server system. Although the campus network occasionally experiences disruptions, especially during peak hours, the existing facilities are generally capable of supporting the implementation of digital academic activities. The existence of these facilities also makes it easier for students to access academic services, especially for those without adequate personal devices. Another obstacle arises from the internet network, which is not yet stable, especially when many users access the system, such as during the course registration period or when entering grades. Although temporary, these disruptions still hamper academic activities. Additionally, the lengthy bureaucratic process of reporting issues from the program to the faculty and then to the University often results in delayed technical resolutions.

Based on an analysis using the theory of Van Meter and Van Horn (1975), the successful implementation of the SIAKAD policy in the Agribusiness Study Program, Faculty of Agriculture, Lumajang University, is the result of the institution's ability to balance supporting and inhibiting factors. Supporting factors such as visionary leadership, adaptable human resources, and adequate infrastructure can overcome the technical obstacles that still arise in the field. Obstacles such as network limitations and digital literacy gaps do not become significant barriers when addressed with a responsive, collaborative approach.

## Conclusion

The implementation of the Academic Information System (SIAKAD) in the Agribusiness Study Program, Faculty of Agriculture, Lumajang University is influenced by six policy implementation indicators according to Van Meter and Van Horn's theory, namely policy standards and objectives, resources, interorganizational communication, characteristics of implementing agents, socio-economic-political conditions, and the disposition of implementers who are interrelated in a policy implementation system. The standards and objectives of the SIAKAD policy have been understood as an effort to realize modern, efficient, and transparent academic governance. However, the standards for policy implementation have not been fully translated into detailed technical documents or SOPs at the faculty and study program levels, so that implementation still relies on verbal instructions and informal agreements.

In terms of resources, the implementation of SIAKAD is supported by operators, lecturers, and academic staff who can adapt to digital systems, as well as by available technological facilities. However, network stability and device limitations at certain times remain technical obstacles to policy implementation. Inter-organizational communication between universities, faculties, and study

programs occurs through formal and informal mechanisms that enable rapid policy coordination and problem-solving. However, a standardized communication system does not yet support it.

The characteristics of the implementing agents show a relatively simple, adaptive, and participatory organizational structure. Collaborative working relationships among implementing actors allow policies to be implemented flexibly without relying on lengthy, formal bureaucracy. Internal social, economic, and political conditions on campus influence the implementation of SIAKAD policies. Economic stability and university leadership support strengthen policy sustainability, while differences in users' digital literacy levels pose a challenge that must be managed continuously.

The disposition or attitude of implementers demonstrates acceptance and commitment to the SIAKAD policy. The adaptive attitudes of operators, lecturers, and students are an important factor supporting the sustainability of digital-based academic policy implementation. Factors supporting SIAKAD implementation include support from university and faculty leaders, human resource readiness, availability of technological infrastructure, open communication between units, an adaptive implementation approach, and internal campus policy stability. Factors that hinder the implementation of SIAKAD include the lack of detailed technical SOPs, digital literacy gaps among users, inconsistent network stability, and a relatively layered bureaucracy for reporting and system adjustments.

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