E-government and Public Financial Management reform: An examination of SAKTI implementation

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ABSTRACT

The digitalisation of public financial management in Indonesia has advanced through the Integrated Financial Management Information System (IFMIS), particularly the mandatory Sistem Aplikasi Keuangan Tingkat Instansi (SAKTI) for all central government work units. This article analyses SAKTI's implementation at the Immigration Polytechnic, a strategic vocational institution under the Ministry of Law, expected to strengthen efficiency, transparency, and accountability in managing state funds. Using DeLone and McLean's (2003) Information Systems Success Model, the study assesses system quality, information quality, service quality, use, user satisfaction, and net benefits. A case study design was employed, combining a survey of end-users with semi-structured interviews and document analysis. The findings show that SAKTI has improved standardisation and traceability of financial transactions, yet several socio-technical challenges persist, including unstable connectivity, system slowdowns during peak periods, limited user training, and varying levels of digital literacy. These constraints reduce user satisfaction and hinder the full realisation of organisational benefits. The study contributes to e-government and IFMIS literature in developing country bureaucracies and proposes practical recommendations to strengthen leadership commitment, capacity-building, and technical infrastructure to optimise SAKTI implementation in education-sector work units.

Keywords: *IFMIS; E-Government; Information Systems Success; Public Financial Management*

INTRODUCTION

In recent decades, information and communication technology (ICT) has become a critical component of public administration reform worldwide, particularly in the domain of public financial management. Digital platforms promise greater efficiency, transparency, and accountability in managing public resources (Eggers & Bellman, 2015). In Indonesia, this transformation is reflected in the development of the Integrated Financial Management Information System (IFMIS), including the Sistem Perbendaharaan dan Anggaran Negara (SPAN) at the national treasury level and the Sistem Aplikasi Keuangan Tingkat Instansi (SAKTI) at the work-unit level.

SAKTI was introduced to address problems typical of manual or fragmented systems such as unreliable budget data, delays in reporting, and weak expenditure control (Diamond & Khemani, 2005; Hasanah & Sriyani, 2021). By integrating all financial modules budgeting, commitment, payment, treasury, accounting, fixed assets, and inventory into a single database, SAKTI is expected to support more timely, accurate, and auditable financial information. Its implementation also aligns with broader national policies on Sistem Pemerintahan Berbasis Elektronik (SPBE) as mandated by Presidential Regulation No. 95 of 2018.

Despite these ambitions, empirical studies highlight that the implementation of SAKTI and other e-government systems in Indonesia has not been uniformly successful. Research in various ministries and agencies reveals technical instability, insufficient user training, and resistance to change as recurring issues (Amriani & Iskandar, 2019; Novel et al., 2023; Rahman et al., 2023). These findings resonate with Heeks' (2003) observation that e-government projects in developing countries often experience partial or complete failure due to socio-technical misalignments.

The Immigration Polytechnic (Politeknik Imigrasi) is a key vocational higher education institution under the Ministry of Law of the Republic of Indonesia. It is responsible for preparing professional human resources in the immigration sector while managing substantial public funds for education, training, and institutional operations. As such, the effective implementation of SAKTI at this institution is strategically important, not only for financial accountability but also for modelling good governance practices within the ministry. Preliminary observations indicate that SAKTI at the Immigration Polytechnic has been formally implemented but still faces technical and organisational challenges, including unstable connectivity, performance degradation during peak workload, limited training, and uneven levels of digital literacy among staff.

To evaluate the extent to which SAKTI implementation at the Immigration Polytechnic has achieved its intended objectives, this study adopts the Information Systems Success Model proposed by DeLone and McLean (2003). This model assesses system success across six dimensions such as system quality, information quality, service quality, use, user satisfaction, and net benefits.

Based on this background, this study is guided by three main research objectives. First, it examines how the implementation of the SAKTI policy is carried out at the Immigration Polytechnic in practice. Second, it explores the technological and organisational obstacles that influence the effectiveness of SAKTI implementation within this institution. Third, it seeks to identify the strategic measures needed to enhance the overall success of SAKTI implementation in the specific organisational context of the Immigration Polytechnic.

LITERATURE REVIEW

Public administration has evolved from a narrow focus on bureaucratic efficiency towards broader concerns about democratic accountability, citizen participation, and public value. Early perspectives, influenced by Wilson (1887) and Weber (1922), emphasised hierarchy, formal rules, and impersonality. Subsequent paradigms such as New Public Management (NPM) introduced market-oriented reforms and performance-based approaches (Hood, 1991), while the New Public Service paradigm advocated citizen-centred governance, collaboration, and co-production of public services(Denhardt & Denhardt, 2003; Dwiyanto, 2006).

E-government and in Indonesia, SPBE sits at the intersection of these paradigms. It utilises digital technologies to enhance service delivery, transparency, and participation (Ndou, 2004; Wibowo & Purwanti, 2018). Presidential Regulation No. 95/2018 defines SPBE as the use of ICT in governance to realise clean, effective, transparent, and accountable government while delivering high-quality and trusted public services. The SPBE master plan emphasises integrated infrastructure, interoperable systems, and enhanced human resource capacity as critical components of success.

IFMIS refers to integrated platforms that support the entire cycle of public financial management, including budgeting, execution, accounting, and reporting (Diamond & Khemani, 2005). IFMIS aims to overcome the weaknesses of fragmented systems by creating a single source of financial truth, reducing errors, and enabling real-time monitoring. However, IFMIS projects in developing countries often face technical and institutional challenges, including inadequate infrastructure, weak change management, and limited user capacity (Chaltseva, 2023; Heeks, 2003).

In Indonesia, the Integrated Financial Management Information System (IFMIS) is represented by two key systems: SPAN, which operates at the national treasury level, and SAKTI, which functions at the work-unit level. SAKTI plays a crucial role in consolidating various previously separate financial applications into a unified platform. This integration covers essential financial management modules such as budgeting, commitment, payment, treasury, accounting, fixed assets, and inventory management (Diamond & Khemani, 2005).

The primary objectives of SAKTI include enforcing accrual-based accounting standards, which ensure more accurate and timely financial reporting. It also aims to strengthen internal control mechanisms, thereby reducing the risk of financial mismanagement. Furthermore, SAKTI enhances transparency and accountability in financial reporting, making it easier to track and audit government funds. Lastly, SAKTI supports the implementation of performance-based budgeting, which aligns financial resources with the achievement of specific outcomes, fostering better resource allocation and management in government work units (Setyaningrum, 2024).

Previous empirical studies on SAKTI show mixed results. Some research reports positive impacts on user satisfaction and financial reporting effectiveness when system quality, information quality, and service quality are high (Alcivar & Abad, 2016; Anjaningrum et al., 2024; Pramono et al., 2024). Others highlight persistent gaps between system design and implementation realities, with significant socio-technical misalignments (Amriani & Iskandar, 2019; Ramadhan & Gultom, 2020). These divergent findings suggest that SAKTI's success is context-dependent and influenced by organisational capacity, infrastructure, and change management.

The DeLone and McLean Information Systems Success Model, first introduced in 1992 and updated in 2003, is widely used to assess the performance of information systems across various sectors (DeLone & McLean, 2003). The updated version of the model comprises six key dimensions, each contributing to the overall evaluation of an information system's success. The first dimension, System Quality, focuses on attributes such as reliability, usability, response time, and flexibility. These factors determine how well the system functions and how easily users can interact with it. Information Quality is the second dimension, which evaluates the system's accuracy, relevance, completeness, and timeliness. This dimension ensures that the data provided by the system meets the needs of its users and is suitable for decision-making. The third dimension, Service Quality, considers the support, responsiveness, and assurance provided by the system's service team. This dimension is vital for determining how well the service meets users' needs and resolves any issues that may arise. Use/Intention to Use is the fourth dimension, assessing how frequently and willingly users engage with the system. It reflects the extent to which users find the system valuable and are motivated to use it. User Satisfaction, the fifth dimension, measures the overall contentment of users with the system's performance. High user satisfaction indicates that the system meets or exceeds user expectations in terms of functionality and usability. Finally, Net Benefits focuses on the individual and organizational impacts of the system. This dimension evaluates whether the system contributes to achieving its intended outcomes, such as improved efficiency, better decision-making, and increased organizational performance. Together, these six dimensions provide a comprehensive framework for evaluating the success of information systems across different contexts (DeLone & McLean, 2003).

The model posits that system, information, and service quality influence use and user satisfaction, which together determine net benefits (DeLone & McLean, 2003). Numerous studies in public-sector contexts have validated parts of this model. For example, Livari (2005) found that system and information quality significantly affect user satisfaction in mandatory financial systems. Other studies show that user satisfaction is a strong predictor of perceived net benefits (Halawi et al., 2007). Nonetheless, some research reports inconsistent relationships, especially regarding information quality and satisfaction, indicating the need for further empirical testing in diverse contexts, including SAKTI implementation.

A systematic review of previous studies shows that most SAKTI research has been conducted in ministries such as Finance, Religion, and Education, or at the level of treasury offices (KPPN) (Amriani & Iskandar, 2019; Rahman et al., 2023). Relatively few studies focus on vocational higher education institutions within sectoral ministries, despite their strategic role in public sector capacity-building. To date, no study has specifically examined SAKTI implementation at the Immigration Polytechnic.

This article fills that gap by applying the DeLone and McLean model to evaluate SAKTI at the Immigration Polytechnic, while situating the analysis within broader public administration and e-government debates (DeLone & McLean, 2003). The conceptual framework links six dimensions of system success with contextual factors such as organisational culture, leadership support, and user capacity (DeLone & McLean, 2003).

METHOD

This study adopts a case study design focusing on the Immigration Polytechnic as a single, bounded system (Creswell, 2018). Given the mandatory nature of SAKTI and the need to understand both technical and organisational factors, a mixed-methods approach is used, quantitative survey data are complemented by qualitative interview and document data (Creswell & Clark, 2018). This combination allows for triangulation and richer interpretation of system success dimensions.

The research was conducted at the Immigration Polytechnic, a vocational higher education institution under the Ministry of Law of the Republic of Indonesia. The study focused on staff who are directly involved in financial management and the operation of the SAKTI system. This includes personnel from the finance and accounting unit, budget and planning officers, as well as treasurers and SAKTI operators working at the work-unit level.

To gather data, a structured questionnaire was distributed to users of the SAKTI system. A purposive sampling strategy was employed to ensure that participants from key roles within the organization were represented (Creswell & Clark, 2018). Additionally, semi-structured interviews were conducted with selected key informants, including the head of the finance department, SAKTI administrators, and policy-level officials who oversee financial management. This approach allowed for a deeper understanding of the system's implementation and its impact on financial operations at the Immigration Polytechnic (Creswell & Clark, 2018).

The study employed three main data collection techniques to gather comprehensive insights into the implementation of the SAKTI system. First, a survey was conducted using a questionnaire based on the DeLone and McLean dimensions, which included system quality, information quality, service quality, use, user satisfaction, and net benefits. The questionnaire used a Likert scale to capture responses, and the items were adapted from previously validated instruments used in studies on SAKTI and other public-sector information systems, such as those by Pramono et al (2024) and Amriani & Iskandar (2019). Second, semi-structured interviews were conducted with key participants to explore their experiences with the system, the obstacles they faced, the organizational support they received, and the change management processes that were in place. These interviews were recorded with consent, transcribed, and anonymized to ensure the privacy and confidentiality of the respondents.

Lastly, document analysis was performed, reviewing relevant regulations, such as PMK No. 223/PMK.05/2015 and PMK No. 131/PMK.05/2016, along with internal guidelines, training materials, internal reports, and audit findings. This document review helped to contextualize the data collected from the surveys and interviews, providing a deeper understanding of the challenges and successes in the implementation of SAKTI at the Immigration Polytechnic.

Quantitative data from questionnaires are analysed using descriptive statistics and, where applicable, inferential techniques such as correlation or structural equation modelling to test relationships among DeLone and McLean constructs (Creswell & Clark, 2018). Reliability and validity of construct measures are assessed using Cronbach's alpha and composite reliability (Creswell & Clark, 2018).

Qualitative data from interviews and documents are analysed using thematic analysis (Creswell & Clark, 2018). Codes are derived both deductively from the conceptual framework (e.g., system quality, service quality, resistance to change) and inductively from the data (e.g., specific local practices at the Immigration Polytechnic) (Creswell & Clark, 2018). Triangulation is used to compare and integrate quantitative and qualitative findings (Creswell & Clark, 2018).

RESULT AND DISCUSSION

Survey results indicate that system quality is rated at a moderate-to-high level. Users appreciate that SAKTI integrates multiple financial functions into a single platform and supports standardised reporting. However, they frequently report performance issues, particularly slow response time and occasional system downtime during peak periods such as fiscal year-end. These findings are consistent with earlier studies that identified connectivity and stability issues during SAKTI's piloting stages (Amriani & Iskandar, 2019; Rahman et al., 2023).

Information quality is generally perceived as adequate in terms of accuracy and completeness. Users acknowledge that SAKTI generates consistent data that align with treasury requirements. Nonetheless, some users note difficulties in extracting customised reports or specific analytical data required for internal decision-making, suggesting that the system is optimised primarily for compliance rather than managerial analysis.

Regarding service quality, respondents express mixed perceptions. On the one hand, they appreciate the availability of helpdesks and occasional training events. On the other hand, they highlight that support is often slow during critical periods and that training is not always tailored to varying levels of user expertise. This resonates with studies emphasising the importance of sustained and context-sensitive support for complex public information systems (Lumbanraja P. et al., 2024; Ramadhan & Gultom, 2020).

Given the mandatory nature of SAKTI, use is high in terms of frequency and coverage: all key financial processes at the Immigration Polytechnic are processed through SAKTI. However, high use does not automatically translate into high satisfaction. Many users indicate that they use SAKTI because they are required to do so, not necessarily because they perceive it as user-friendly. This is consistent with literature noting that "use" in mandatory contexts is not always an accurate indicator of success (Livari, 2005).

User satisfaction is moderate. Users acknowledge SAKTI's strengths in standardisation and compliance but express dissatisfaction with system performance, the complexity of some interfaces, and the limited alignment of reporting functions with local management needs. Lack of continuous training and uneven digital literacy also reduce confidence and comfort in using the system.

In terms of net benefits, SAKTI has clearly improved traceability and auditability of transactions. Financial reports can be produced more quickly and are better aligned with national standards. These benefits contribute to stronger accountability and facilitate external audits. However, from a broader public administration perspective, some potential benefits such as advanced data analytics for strategic planning or more flexible budget monitoring are not yet fully realised.

Discussion

The findings affirm that the success of SAKTI implementation is not determined solely by technical design, but also by socio-technical factors such as organisational culture, leadership support, and human resource capacity. At the Immigration Polytechnic, a traditional bureaucratic culture with strong procedural orientation coexists with the need for innovation and digital transformation. This can generate ambivalence or resistance, especially among staff who are more comfortable with manual processes.

From a public administration theory lens, the case illustrates the tension between New Public Management's emphasis on efficiency and the New Public Service paradigm's emphasis on participation and capacity-building (Denhardt & Denhardt, 2003; Hood, 1991). While SAKTI supports efficiency and control, its success depends on inclusive processes that engage users, build competencies, and address concerns about workload and change (Denhardt & Denhardt, 2003; Hood, 1991).

From the perspective of information systems, the DeLone and McLean model proves to be a valuable tool for diagnosing both strengths and weaknesses in system implementation (DeLone & McLean, 2003). The findings from the study, which show moderate ratings for system and service quality, alongside only moderate user satisfaction and partial net benefits, indicate that there are areas requiring significant improvement. Specifically, three key areas need attention like upgrading the infrastructure to address connectivity and performance issues, implementing continuous and tiered training programs that accommodate varying levels of digital literacy, and aligning the system's outputs more closely with the managerial information needs, moving beyond simple compliance reporting (DeLone & McLean, 2003).

These findings align with the international literature on Integrated Financial Management Information Systems (IFMIS) and e-government, which highlights the importance of sustained leadership, effective change management, and user engagement as critical factors for success, on par with the technological aspects (Diamond & Khemani, 2005; Heeks, 2003; Ndou, 2004).

CONCLUSION AND SUGGESTIONS

This study examined the implementation of the Sistem Aplikasi Keuangan Tingkat Instansi (SAKTI) at the Immigration Polytechnic using the DeLone and McLean Information Systems Success Model. The analysis shows that while SAKTI has contributed positively to standardisation, transparency, and accountability in financial management, several challenges remain in terms of system performance, service support, and user capacity.

Theoretically, the study extends the application of the DeLone and McLean model to a vocational higher education setting within a sectoral ministry in a developing country context. It also reinforces the argument that mandatory public information systems should be evaluated not only by usage indicators, but also by user satisfaction and net organisational benefits.

Practically, the findings emphasize several key areas that require attention to improve the overall effectiveness of the SAKTI system. First, there is a need to strengthen the technical infrastructure to ensure the system remains stable and provides acceptable response times, especially during periods of high demand. Additionally, continuous and differentiated training programs should be designed for SAKTI users to accommodate varying levels of digital literacy and ensure that all users are equipped to effectively utilize the system. The findings also point to the importance of enhancing service quality by establishing responsive support mechanisms, particularly during peak workloads, to address user concerns and minimize disruptions. Finally, it is crucial to improve the alignment of SAKTI's reporting capabilities with the local managerial and strategic needs at the Immigration Polytechnic, ensuring that the system not only meets compliance requirements but also supports informed decision-making and efficient management at the institution.

Future research could expand this case study by comparing SAKTI implementation across multiple vocational education institutions or other units within the Ministry of Law and related ministries. Longitudinal studies would also be valuable to examine how improvements in infrastructure, training, and support affect system success over time.

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