International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Comprehensive Assessment of IT Systems Integration at A Local State Universities and Colleges (SUCs)

Maricris L. Ramizares

Assistant Professor I, College of Computer Studies, Camarines Sur Polytechnic Colleges, Philippines

Abstract

The integration of Information Technology (IT) systems in State Universities and Colleges (SUCs) is crucial for enhancing efficiency, data management, and service delivery. This study assesses IT infrastructure gaps and proposes strategies for modernizing digital systems at a local SUCs to support the United Nations Sustainable Development Goal (SDG) 9, which emphasizes resilient infrastructure and sustainable innovation. Findings reveal significant challenges, including system incompatibilities, data silos, and resistance to change, all of which hinder seamless operations and affect data accessibility. Technical limitations, such as insufficient network bandwidth and outdated software, further complicate integration efforts. To address these issues, this study proposes strategies, including adopting standardized software platforms, creating a centralized data repository, strengthening cybersecurity protocols, and developing targeted training programs for staff. By fostering an integrated digital environment, SUCs can reduce redundancy, improve administrative processes, and improve stakeholder engagement. This integration supports SUCs in building a sustainable educational framework aligned with SDG 9, ultimately fostering a skilled, digitally literate workforce prepared for evolving technological demands.

Keywords: IT System Integration, State Universities and Colleges (SUCs), SDG 9

1. Introduction

Technological breakthroughs have revolutionized industrial and organizational operations, requiring the smooth integration of systems and technologies. Integration is a technological challenge and a strategic necessity in modern business practices (Dharmananda & Defalla, 2024). Businesses depend on many applications, platforms, and technologies that must interact efficiently to attain best outcomes. The integration of many systems and technologies remains complicated, frequently presenting substantial obstacles in achieving compatibility, usefulness, and cost-effectiveness.

A primary reason for the need of integration is the growing dependence on digital technologies across various industries. Organizations of all sizes are adopting various software solutions for functions including customer relationship management, data analytics, and enterprise resource planning (Nadkarni & Prügl, 2020). These solutions frequently originate from diverse vendors, function on distinct platforms, and possess differing technical specifications. When these systems fail to integrate, it results in operational inefficiencies, data segregation, and elevated expenses. Therefore, identifying efficient

integration techniques is essential for sustaining operating efficiency and maximizing technological potential (Whyte & Davies, 2021).

Integration is a complex process that includes more than merely linking systems. It involves aligning technology infrastructure with corporate objectives, ensuring integration supports long-term goals, and establishing a framework for continuous maintenance and updates (Shaheen & Németh, 2022). Integration strategies must encompass both technical and organizational dimensions, considering scalability, security, data management, and user experience (Damsten, 2023). This underscores the significance of a methodical approach to integration that considers the various components involved. This integration is crucial for organizations to optimize operations, refine decision-making, and elevate overall performance. Organizations can enhance efficiency, minimize manual labor, and boost output by integrating diverse IT systems efficiently (Zaharova & Zaharchenkov, 2020). Furthermore, it facilitates real-time data interchange and communication among different departments, improving collaboration and innovation inside the organization. Moreover, efficient IT systems integration can significantly impact organizational agility and responsiveness to market changes and encourage collaboration (Abdullah, 2022). Organizations are effectively equipped to respond to changing client demands and competitive challenges by optimizing procedures and facilitating seamless data integration across many platforms (Alirezae & Parsa, 2020). The strategic implementation of integrated information systems enhances operational efficiency and promotes innovation by allowing organizations to utilize shared insights for problem-solving and product development. As organizations increasingly depend on digital transformation, integrating diverse systems becomes crucial in attaining enduring competitive advantage in a constantly evolving environment (Gabriel, 2020).

The integration of Information Technology (IT) systems has become essential for enhancing the efficiency and effectiveness of organizations including educational institutions, particularly the State Universities and Colleges (SUCs). SUC's have been aligning their actions directly with the United Nations Sustainable Development Goal (SDG), in particular with the SDG No.9: Industry, Innovation, and Infrastructure which emphasizes building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation (United Nations, 2018).

SDG No.9 emphasizes the creation of resilient and sustainable infrastructure to drive economic development and societal well-being. In the context of State Universities and Colleges (SUCs), this research assesses current IT infrastructure gaps and proposes modernization strategies to ensure reliable, secure, and efficient digital systems. Strengthening IT infrastructure in SUCs enhances their ability to withstand technological challenges, cybersecurity threats, and shifts in educational demands, especially in times of crisis. By addressing the digital gaps and proposing a unified IT system, the research promotes inclusivity and sustainable use of technology, reducing redundancy and optimizing resources. It fosters innovation in education and research by enabling the adoption of e-learning platforms, cloud-based tools, and data-driven decision-making processes. Additionally, integrated IT systems enhance academic administration and cross-institutional collaboration, fostering a culture of innovation. The research supports SDG No.9's broader goal of sustainable industrialization by equipping SUCs to produce a digitally skilled workforce.

However, integrating different IT systems comes with its own set of challenges. Technical barriers, such as system incompatibilities and data security concerns, are common. Additionally, organizations often struggle with resistance to change, where faculty and staff may be hesitant to adopt new systems or processes. These obstacles can make IT integration a complex and lengthy process. Therefore, a

thorough assessment is required to understand both the existing gaps in the current systems and the possible ways to overcome these challenges.

Despite these problems, the opportunities presented by IT system integration are infinite. A well-executed integration project can reduce manual data entry, prevent duplication of efforts, and enhance data accuracy. Such improvements could lead to more efficient academic and administrative operations, enabling quicker responses to both internal and external stakeholders. Furthermore, integrating systems can improve the institution's ability to generate and analyze comprehensive reports, which are critical for informed decision-making. As educational institutions increasingly embrace digital transformation, the pressure to integrate systems and leverage technology grows. For SUCs, this presents an opportunity to strengthen its technological backbone, improve operational efficiency, and enhance the user experience for students and faculty alike. This research will explore how SUCs can take advantage of these opportunities by assessing its current IT systems and identifying a roadmap for future integration.

Some SUCs currently operates multiple IT systems that handle various functions such as student records, faculty management, financial operations, and academic data. However, these systems are not fully integrated, resulting in challenges such as data silos, inefficiencies in workflows, and difficulties in producing consolidated reports for decision-making. The absence of a unified IT infrastructure creates inconsistencies in data management and forces departments to rely on manual processes for tasks that could otherwise be automated. This fragmentation impairs the institution's ability to function at its full potential and delays the timely delivery of services.

The core problem this research seeks to address is the lack of integration between existing IT systems. By identifying the specific gaps in the current IT infrastructure, this research aims to develop a strategic plan for integrating these systems into a cohesive, efficient, and scalable platform. Addressing this issue is critical to improving SUCs overall operational efficiency and enhancing the institution's ability to deliver high-quality educational and administrative services.

The main objective of this research is to conduct a comprehensive assessment of the IT systems of an SUC in Bicol Region, identifying both technical and operational challenges in system integration. Specifically, the research aims to:

1. Evaluate the current IT infrastructure and systems in use.
2. Identify key barriers that hinder system integration.
3. Assess the potential impact of integration on institutional efficiency, data management, and service delivery.

2. Methodology

The methodology section outlines the research design, data collection, analysis techniques, and ethical considerations that will be used to assess the current state of IT systems integration in the SUC. It provides a detailed roadmap for conducting the research, ensuring the findings are not only accurate but also reliable and relevant. The chosen methodology ensures that the research is comprehensive and that it addresses the technical, organizational, and financial aspects of IT systems integration within the academic environment.

Research Framework

The conceptual framework strengthens research by offering a systematic method to investigate the relationships among various variables and guiding the analysis of the research. This research on IT systems integration at the SUC will use the Input-Process-Output (IPO) model as its conceptual

framework. The IPO model is a popular tool in system analysis, providing a clear and systematic approach for assessing complex processes. Figure 1 shows the Input-Process-Output (IPO) model of this research.

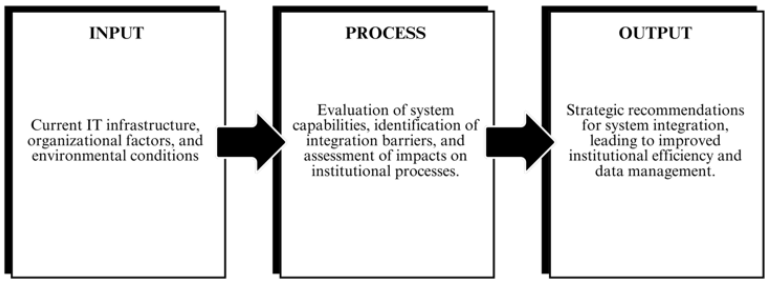

Figure 1. Input-Process-Output (IPO) Model

This conceptual framework combines technical, strategic, and user-oriented perspectives to provide a holistic approach to IT systems integration. This model is an effective approach for understanding system integration. In this context, the input represents the existing conditions including its current IT infrastructure, organizational factors, and environmental conditions. The process focuses on evaluating system capabilities, identifying integration barriers, and assessing the impacts on institutional processes. Finally, the output refers to the anticipated results, such as strategic recommendations for enhancing IT systems integration, which will lead to improved institutional efficiency and data management. By structuring the research within the IPO model, the study is able to holistically assess the integration challenges and propose practical, data-driven solutions.

Research Design

A case study design was employed in this research. This approach is particularly appropriate for the project because it allowed for an in-depth examination of the SUC's unique IT environment, encompassing the complexities of its existing systems and their interactions. The case study design facilitates a comprehensive exploration of how various components, such as technology, organization, and environment, influence the integration of IT systems within the specific context of an SUC. This design utilized a mixed-methods approach, integrating qualitative and quantitative data to enrich the findings' depth and scope.

Data Collection

Data collection is a crucial step in any research process, as it involves gathering information that will help answer the research questions and meet the study objectives. The quality and relevance of the collected data directly influence the validity and reliability of the findings. In this research, data collection focused on gathering insights about IT systems integration at a state universities and colleges in Bicol Region. A combination of methods, including survey, interview and document analysis was used to obtain both qualitative and quantitative data. These methods are designed to capture a comprehensive understanding of the current IT infrastructure, the challenges of integration, and potential solutions from various stakeholders. This ensured that the data collected provides a robust foundation for analyzing the state of IT systems and informing strategic recommendations for improvement.

Table 1 presents the questionnaire response scale, mean ranges, and corresponding interpretations used to assess respondent agreement levels.

Table 1: Questionnaire Scale and Interpretation

Scale	Range	Interpretation	Description
4	3.26-4.00	Strongly Agree (SA)	This response means that respondents **STRONGLY BELIEVE** with the statement
3	2.51-3.25	Agree(A)	This response means that respondents **BELIEVE** with the statement
2	1.76-2.50	Disagree (D)	This response means that respondents are somewhat **DOUBT** the statement
1	1.00-1.75	Strongly Disagree (SA)	This response means that the respondents **STRONGLY DOUBT** with the statement

The scale in Table 1 categorizes responses from "Strongly Agree" to "Strongly Disagree," providing a clear framework for interpreting participant beliefs. A response of "Strongly Agree" indicates a strong conviction in agreement with the statement, while "Agree" suggests general acceptance. In contrast, "Disagree" and "Strongly Disagree" reflect varying degrees of skepticism or doubt about the statement.

3. Results and Discussion

This section presents a detailed analysis of the findings from the comprehensive assessment of IT systems integration at the SUC.

IT Infrastructure

IT infrastructure serves as the backbone for application deployment, influencing performance, availability, and security. Effective IT infrastructure integrates both hardware and software, ensuring seamless operation and management of processes like incident and change control (Watson & Jones, 2024). For local state universities and colleges, this infrastructure is critical to support educational goals, administrative efficiency, and the overall student experience. Table 2 shows the current state of IT infrastructure based on respondents' agreement with various statements.

Table 2: Current State of IT Infrastructure

Statement	Mean	Interpretation
The IT infrastructure at my institution is reliable and consistently meets the institution's needs.	3.00	Agree
The current IT systems in place are up-to-date with modern technological standards.	3.00	Agree
The institution has sufficient network bandwidth and capacity to support all academic and administrative functions.	1.75	Strongly Disagree
Data management systems (e.g., databases, storage solutions) are well-organized and easy to access.	2.25	Disagree
The SUCs' IT infrastructure is scalable to accommodate future technological advancements.	2.75	Agree
AVERAGE	**2.55**	**Agree**

The overall mean rating of 2.55, which aligns with "Agree", indicates moderate satisfaction with the current IT infrastructure within the institution. Respondents generally agree that the IT infrastructure meets many institutional needs, such as reliability and scalability. However, concerns are evident regarding specific areas like network bandwidth and data management systems, where ratings of "Disagree" and "Strongly Disagree" highlight potential gaps in capacity and organization.

The findings provide partial support that while there is some level of agreement about the reliability and scalability of current systems, the low ratings on network capacity and data management suggest limitations in supporting seamless integration. Furthermore, the results points to organizational factors, including leadership support and IT competency among staff, as significant influences on integration success factors that may need further enhancement to fully support IT infrastructure development at the SUC.

IT Systems in Use

The evaluation of existing IT systems shows that none of the current systems are integrated with each other. While certain systems are fully developed, others are in various stages of enhancement, evaluation, or active development. Key areas like student information, financial management, records management, human resources, and learning platforms are functional but need enhancement or completion to meet the organization's evolving demands. Some systems are in ongoing development, while one (1) system is specifically flagged for enhancement.

The current status of the IT systems highlights a focus on completing and enhancing foundational systems rather than establishing integrated solutions. The lack of integration may hinder operational efficiency, as information is likely siloed across various systems. Key systems related to student information, finance, and records management require enhancement, suggesting they may lack full functionality or up-to-date features. This non-integrated approach limits the organization's ability to have a unified, real-time overview of data across departments, which could impact decision-making, reporting, and resource allocation.

Integrated IT systems have been shown to enhance efficiency, reduce redundancy, and improve data accuracy across organizations. Studies suggest that integration can optimize workflows, reduce manual data entry, and facilitate better data-driven decision-making (Zayas-Cabán, 2021). The current non-integrated systems observed here may therefore lead to higher operational costs, time delays, and potential inaccuracies in cross-departmental data handling. Moreover, the ongoing need for enhancement suggests that the organization may face issues related to system scalability, security, or adaptability to changing user needs.

The findings imply that while the organization has established several key systems, a shift toward integration could significantly improve the efficiency and reliability of data management. Integrating these systems could enable a more streamlined workflow, minimizing data silos and potentially leading to more comprehensive insights for decision-making. Additionally, focusing on systems enhancements and integration may help future-proof these systems against technological changes, ensuring scalability and responsiveness to organizational needs.

The review of existing IT systems within the organization reveals a mix of completed, in-progress, and enhancement-required systems, all of which currently operate independently without integration. System integration and enhancement are necessary to facilitate better data flow, improve operational efficiency, and align with best practices in IT systems management. The organization would benefit from an integrated approach to unify data management, which can support effective resource management and

real-time insights. However, a detailed understanding of each system's functionalities and challenges will be essential to guide successful integration and enhancement efforts.

Factors Influencing IT Systems Integration

Table 3 presents the technical, organizational, and environmental factors influencing IT systems integration in the SUC, along with their mean ratings and interpretations.

Table 3: Factors Influencing Integration

Factors	Mean	Interpretation
Technical Factors	2.90	Agree
Organizational Factors	2.50	Disagree
Environmental Factors	3.35	Strongly Agree
AVERAGE	**2.92**	**Agree**

The overall mean score of 2.92, interpreted as "Agree" suggests that respondents perceive general support for IT systems integration, with varying degrees of influence across the three main factors.

In the technical domain, compatibility and regular maintenance of IT systems received moderate agreement, indicating that while the current infrastructure facilitates integration, there are gaps in technical support, with a low score of 1.75 ("Strongly Disagree"). This points to a need for more robust technical support systems, as a lack of immediate support could hinder timely issue resolution during integration efforts.

Organizational factors received an average rating of 2.50 ("Disagree"), highlighting areas such as training, policy clarity, and collaboration that may require improvement. Leadership support and basic IT skills are present, but the findings suggest a need for clearer policies and more frequent training opportunities. This implies that while foundational organizational support exists, strengthening policy guidance and collaborative practices could significantly boost integration success.

Environmental factors showed the highest influence with a score of 3.35 ("Strongly Agree"), underscoring the importance of external drivers such as government regulations, industry standards, and funding opportunities. This indicates that external factors strongly shape the SUCs' approach to IT integration, suggesting that proactive alignment with regulatory requirements and leveraging funding sources could provide a strategic advantage.

The findings indicated that external environmental factors like regulations, industry trends, and funding are significant in preparing SUCs for IT integration. Respondents agreed that government compliance, industry standards, and external funding have a positive impact, suggesting these factors encourage SUCs to align with best practices and invest in infrastructure. However, the reliance on external funding implies that continued support from government or partnerships may be necessary to maintain and advance integration efforts.

The findings also highlighted the interoperability issues and outdated technology as challenges in IT integration. Respondents strongly agreed that the lack of standardized software is a major obstacle, pointing to compatibility issues across units. The disagreement with adequate technical support and sufficient training for staff underscores that gaps in both technology and human resource readiness may slow integration. Addressing these issues through standardized platforms, increased technical support, and improved training could alleviate these barriers, enhancing IT systems' integration and overall functionality at SUCs.

The findings imply that to optimize IT systems integration, SUCs should not only address internal technical and organizational needs but also leverage environmental opportunities and requirements.

Key Barriers to IT Systems Integration

Table 4 outlines key barriers to IT systems integration highlighting technical, financial, and organizational challenges.

Table 4: Key Barriers in IT Systems Integration

Statement	Mean	Interpretation
Technical challenges, such as compatibility issues, hinder the integration of IT systems at my institution.	3.50	Strongly Agree
Financial limitations significantly affect the SUCs' ability to integrate new IT systems.	4.00	Strongly Agree
SUCs' resistance to change is a major barrier to IT systems integration.	3.75	Strongly Agree
Lack of staff expertise in IT integration is a key challenge for our institution.	3.75	Strongly Agree
The absence of clear strategic planning is a barrier to effective IT systems integration.	3.00	Agree
AVERAGE	**3.60**	**Strongly Agree**

The findings in Table 4 show that respondents "Strongly Agree" (average mean of 3.60) that several key barriers make IT system integration difficult at SUCs. Financial limitations are the biggest challenge (4.00), suggesting that a lack of funding prevents SUCs from acquiring the necessary IT resources. Other major obstacles include resistance to change (3.75), insufficient staff expertise in IT (3.75), and technical issues like compatibility problems (3.50). Together, these barriers create a challenging environment where both human factors and technical issues slow progress. The rating of "Agree" (3.00) for the lack of clear strategic planning suggests that without a solid plan, it's harder for SUCs to address these issues effectively.

These results suggest that SUCs need to prioritize overcoming financial and resource limitations, develop clear plans for IT integration, and invest in staff training to improve IT skills. Addressing these barriers can help SUCs create a smoother path for IT system integration, ultimately helping them keep pace with technological advancements and improve institutional efficiency.

The findings support the idea that effective IT system integration can greatly improve efficiency and data management at SUCs, as shown by current challenges like limited bandwidth, unorganized data management, and the lack of system integration. These issues suggest that integration could simplify workflows and improve data handling. A well-connected IT setup strengthens system reliability and better matches IT functions with institutional needs, which could greatly benefit SUCs (Kahwema & Hameed, 2023).

At present, SUCs have separate systems for key areas like student information, HR, and finance, which operate on their own. Integrating systems across departments cuts down on repeated data, reduces mistakes, and allows quick data access, all of which support better decision-making. Without integration, SUCs may lose out on these benefits. Institutions with integrated IT systems achieve higher data accuracy and productivity because of reduced inefficiencies and better data access.

By focusing on integration, finding ways to address funding limits, and making a clear plan, SUCs can create IT systems that support efficient data management and reach institutional goals. Investing in these changes could align IT capabilities with educational objectives, boosting overall performance and enabling more informed academic and administrative decisions.

Impact of IT Systems Integration on Efficiency Data Management, and Service Delivery

The findings support the idea that effective IT system integration can greatly improve efficiency and data management at SUCs, as shown by current challenges like limited bandwidth, unorganized data management, and the lack of system integration. These issues suggest that integration could simplify workflows and improve data handling. A well-connected IT setup strengthens system reliability and better matches IT functions with institutional needs, which could greatly benefit SUCs (Kahwema & Hameed, 2023).

At present, SUCs have separate systems for key areas like student information, HR, and finance, which operate on their own. Integrating systems across departments cuts down on repeated data, reduces mistakes, and allows quick data access, all of which support better decision-making. Without integration, SUCs may lose out on these benefits. Institutions with integrated IT systems achieve higher data accuracy and productivity because of reduced inefficiencies and better data access.

By focusing on integration, finding ways to address funding limits, and making a clear plan, SUCs can create IT systems that support efficient data management and reach institutional goals. Investing in these changes could align IT capabilities with educational objectives, boosting overall performance and enabling more informed academic and administrative decisions.

4. Conclusions and Recommendations

The study evaluated the current IT infrastructure of a State University and College (SUC) in the Bicol Region, findings stated that while the system is moderately reliable and scalable, it lacks integration across key areas such as student information, human resources, finance, and academic records. This separation causes information to remain isolated in different departments, which slows down decision-making, complicates data handling, and limits collaborative work. Addressing these issues could allow the SUC to have a more unified view of data, which would help in making faster and more accurate decisions.

Several challenges prevent effective system integration. Technical issues like incompatibility between software programs make it hard for systems to work together smoothly. The SUC also faces a shortage of technical support, which can delay issue resolution and slow down integration progress. Financial limitations and a lack of clear organizational policies on IT integration add further obstacles. Additionally, resistance to change among staff, combined with limited training, means that some staff members may feel unprepared or hesitant to adopt new integrated systems. Addressing these human and technical factors is essential for creating a more efficient IT environment.

Despite these challenges, integrating IT systems could significantly benefit the institution’s efficiency, data management, and overall service quality. A well-integrated IT setup would make information more accessible, reduce repetitive tasks, and minimize data entry errors. Removing these data silos would improve operations, response times, and reduce costs. In turn, this would allow the SUC to deliver services more effectively to students, faculty, and staff, supporting a higher standard of education and administration.

To achieve successful integration, a set of strategic recommendations is proposed. These include adopting standardized software, building a central data repository for easy access across departments, strengthening cybersecurity to protect data, and forming cross-departmental teams to oversee integration efforts. Training programs for staff on new systems and workflows would also help reduce resistance to change. Implementing integration in phases, with clear milestones and ongoing monitoring, would make the transition smoother and allow adjustments based on feedback. Lastly, securing external funding is essential to support the resources needed for long-term sustainability.

In connection with the United Nations' Sustainable Development Goal (SDG) 9, which emphasizes building resilient infrastructure and fostering innovation, integrating IT systems in SUCs would support a sustainable and modern educational framework. A resilient digital infrastructure can withstand technological changes and reduce waste by minimizing duplicate processes and better utilizing resources. Additionally, an integrated IT system fosters an innovative learning environment, encouraging SUCs to use advanced technologies in teaching and management. This integration also prepares students with valuable digital skills, contributing to the SDG 9 goals of promoting sustainable industrialization and innovation. Through these changes, the SUC can advance in efficiency and sustainability, positively impacting the community it serves.

5. References

1. Dharmananda, M., & Defalla, B. (2024). Strategic integration: Exploring the intersection of technology, finance, and management in today's business environment. *Journal of Infrastructure Policy and Development*.
2. Nadkarni, S., & Prügl, R. (2020). Digital transformation: a review, synthesis and opportunities for future research. *Management Review Quarterly*.
3. Whyte, J., & Davies, A. (2021). Reframing Systems Integration: A Process Perspective on Projects. *Project Management Journal*.
4. Shaheen, B. W., & Németh, I. (2022). Integration of Maintenance Management System Functions with Industry 4.0 Technologies and Features—A Review. *Manufacturing Industry 4.0: Trends and Perspectives*.
5. Damsten, E. (2023, October 19). *Building a Robust Integration Strategy for Digital Transformation*. Retrieved from Omnitas Consulting: https://www.omnitas.com/building-a-robust-integration-strategy-for-digital-transformation/
6. United Nations. (2018). *Goals 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*. Retrieved from Department of Economic and Social Affairs Sustainable Development: https://sdgs.un.org/goals/goal9#targets_and_indicators
7. Zaharova, A., & Zaharchenkov, K. (2020). Integrated system approach to improving the efficiency of IT projects management based on evolutionary modeling. *CEUR Workshop Proceedings*.
8. Abdullah, A. A. (2022). The Impact of IT on Knowledge Sharing Environment and Management Practice. *2022 International Conference on Cyber Resilience (ICCR)*.
9. Alirezae, E., & Parsa, S. (2020). Adaptable Cross-organizational Unstructured Business Processes via Dynamic Rule-based Semantic Network. *Inf Syst Front 22*, 771–787.
10. Gabriel, J. (2020). Critical Success Factors of Data Integration on Digital Human Capital Information System to Support Digital Transformation - A Case Study at PTXYZ. *2020 8th International Conference on Cyber and IT Service Management (CITSM)*, 1-7.

11. Watson, D. L., & Jones, A. (2024). Chapter 7 - IT infrastructure. In D. L. Watson, & A. Jones, *A Blueprint for Implementing Best Practice Procedures in a Digital Forensic Laboratory (Second Edition)* (pp. 261-364). Academic Press.
12. Zayas-Cabán, T. (2021, July 28). Identifying Opportunities for Workflow Automation in Health Care: Lessons Learned from Other Industries. *Applied Clinical Informatics, 12*(3), 686–697.
13. Kahwema, P., & Hameed, T. (2023). Review of the IT Integration Framework for a University's Institutional Performance Setting in Zimbabwe. *International Journal of Academic Research in Business and Social Sciences*, 353-384.