

Query Details

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1. Please check and confirm if the author names and initials are correct.

Yes the Author names are correct and have added their title .

Kindly help add the below for the affiliation

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2. Please check and confirm if the inserted citation of Figs. 1 and 2 are correct. If not, please suggest an alternate citations. Please note that figures should be cited sequentially in the text.

Figure 1: Proposed Methodology to improve ERP System of SCM Integration in Higher Education (Aroba and Mnguni 2023)

Reference to be added to the Reference list

Aroba, O.J., Mnguni, S.B. (2023). An Enterprise Resource Planning (ERP) SAP Implementation Case Study in South Africa Small Medium Enterprise Sectors. In: Motahhir, S., Bossoufi, B. (eds) Digital Technologies and Applications. ICDTA 2023. Lecture Notes in Networks and Systems. Springer, Cham. 668, p348-354 https://doi.org/10.1007/978-3-031-29857-8_35,

3. Please provide caption for Table 1, as it is mandatory.

Table 1: ERP SAP Supply Chain Management Integration (Aroba et. al., 2023)

Reference to be added to the Reference list below:

Aroba, O.J., Chinsamy, K.K. and Makwakwa, T.G., (2023), May. An ERP Implementation Case Study in the South African Retail Sector. In Hybrid Intelligent Systems: 22nd International Conference on Hybrid Intelligent Systems (HIS 2022), December 13–15, 2022.p.948-958. Cham: Springer Nature Switzerlandsmart, https://doi.org/10.1007/978-3-031-27409-1_87

4. Please provide a definition for the significance of asterisk in Table 2.

The asterisk meant No and kindly use only **Yes or No** on the entire **Table 2**

Yes: meant it is covered

No: meant it can not be covered

Higher Education Enterprise Resource Planning System Transformation of Supply Chain Management Processes

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Abstract

The goal of this study AQ1 was to outline the impact of the enterprise resource planning (ERP) system digital transformation of supply chain management (SCM) processes in higher education by using the desk research technique to gather information from other sources that we reviewed to build our study and identify gaps that were detailed in the discussions and results. This study concentrated on higher education, and observation was made that ERP systems do not fully cover all business operations, including supply chain management procedures such as price fixing, bid rigging, and collusion between employees and suppliers; yet the study satisfied all three research objectives by providing a recommended key methodology to enhance the ERP system of SCM integration in higher education.

Keywords

ERP systems
Digital transformation
Supply chain management integration
Higher education

1. Introduction

In 1990s, Michael E. Porter introduced the "supply chain management" (SCM) to optimize the operations of supply chain management processes [1]. According to Nzama [2], "the improvement and the upgrading of the ERP program to advance the competitive advantage in the organizations might be presented with the new emerging risks due to the IT transformation".

The supply chain digital transformation results in a more advanced automation and inter-system integration application, this implies that all machines and equipment in production are coordinated via the Internet and sensors to produce at the same time, and all necessary data is stored with the cloud system during this process [3].

The most common software used by institutions is *enterprise resource planning* (ERP), which requires a significant financial investment to set up and compared to other applications, and little research has been conducted on ERP systems in a university setting regarding keeping up with the constantly shifting expectations of the industry [4].

2. Problem Statement

The main purpose of these study is to evaluate the effects of transforming supply chain management processes using a higher education ERP system. These are following challenges that experienced by the higher education ERP systems and need be addressed by this study:

- Inability to adhere to the business requirements results poor evaluation and selection of ERP systems;
- Non-compliance with the legislative environment;
- Inadequate IT infrastructure; and
- Inadequate transfer of knowledge to embrace new technologies.

2.1. Research Objectives

The objectives of the study focus more to address the above challenges.

- Describe the pro-active planning provided by the ERP system to improve the supply chain management processes.
- Determine the effectiveness of the digital transformation in higher education supply chain management processes.
- Determine whether the ERP systems meet all the business requirements to promote the efficiency of business processes.

2.2. Research Questions

The study questions are prepared as follows, and the answers from these questions will depend on the research methodology;

- How does the ERP system enhance the supply chain management processes in higher education?
- What is the significance of digital transformation in higher education?
- What is the status of ERP system regarding compliance with all of the business requirements outlined in higher education policies, procedures, laws, and regulations?

3. Literature Review

ERP systems have been widely employed by major corporations worldwide, and they have recently supplanted management, financial, and administrative computer systems in higher education. ERP has played an important role in higher education's IT management, but it has been far from the core discipline of higher education [5].

Higher education institutions have failed to recognize the importance of the ERP system [6]. This is because there are very few successful implementations and adoptions of these applications, for example, in Australia, a recent study in 2020 found few institutions successfully implemented ERP system projects [7].

4. The Research Methodology

The study uses the qualitative research design to assess the impact of the higher education ERP systems in "digital" transformation of supply chain management processes. According to Rizkiana et al. [8], the qualitative method is a naturalistic research approach that employs a triangulation (combined) data collecting strategy with the researcher as the essential instrument.

4.1. Data Collection

The study uses the desktop research approach where we collected sources from the search engines to gather the existing journals or the work of other researchers to gain information that is relevant to our topic such as google search, DUT library search, google scholar, blogs, and any other online tracking tools.

4.2. Data Analysis

In this study, we reviewed the existing papers to identify gaps in the field, used the relevant information to build up our research, and achieved our research objectives. It involves discovering relevant patterns, pulling meaning from data, and establishing a logical chain of evidence—i.e., understanding how information is stored, processed, and interpreted. AQ2

4.3. Proposed Methodology to Improve ERP System of SCM Integration in Higher Education

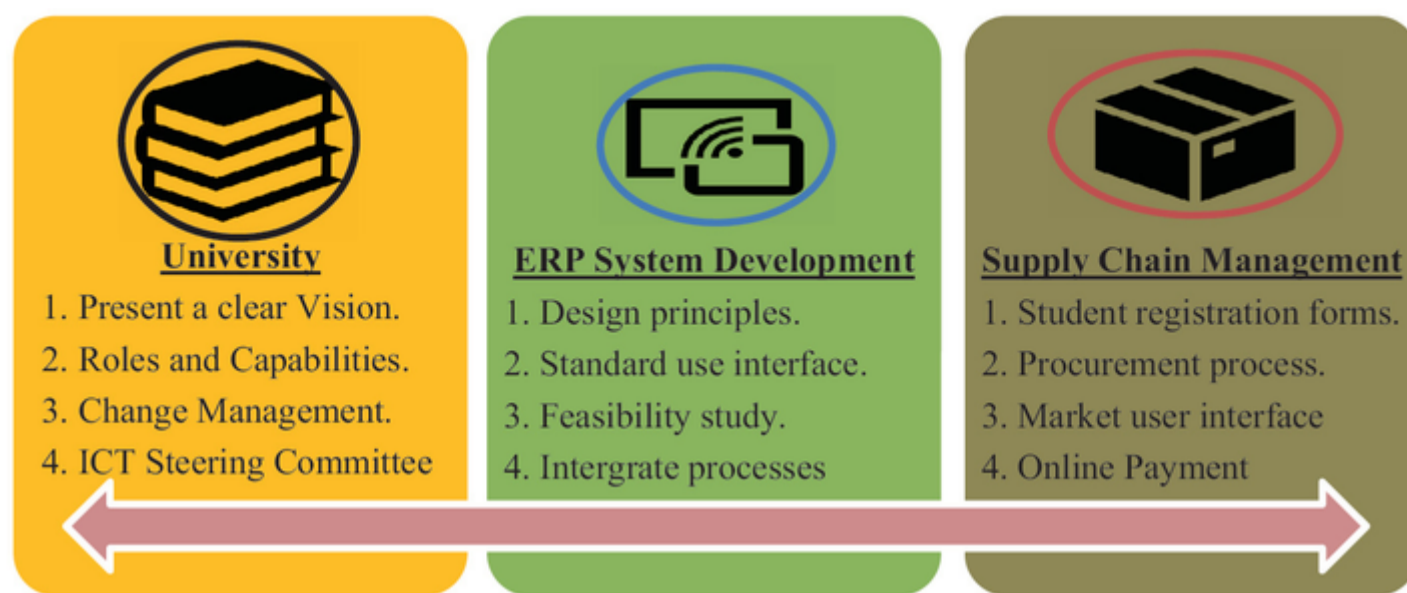
Table 1 AQ3 provides a detailed explanation of our prototype; ERP SCM integration (Fig. 1).

Table 1

University	ERP system development	Supply chain management
<p>1. Present a clear vision Management needs to have a clear vision in terms of how to integrate their business processes into digital transformation in support of our higher education. It is critical to communicate a clear vision of what the digital transformation will do for supply chain now and the future</p>	<p>1. Design principles: Clear principles must be configured on the system with the aim to automate the business processes according to policies and producers implemented by management</p>	<p>1. Student registration forms: Higher education must insert parameters for students to fill out the forms online without any manual interference and must be easy to use</p>
<p>2. Roles and capabilities: Clear roles must be delegated to proficient users to take these new technologies and embrace it, to the advantage of higher education</p>	<p>2. Standard user interface: The higher education must provide specifications that are clear and suite the business processes of supply chain management</p>	<p>2. Procurement processes: Automated requests of goods and services, sourcing of quotations, creation of purchase orders, instruction on deliver terms and invoicing</p>
<p>3. Change management: Awareness must be conducted for staff to adapt to the new change by gradually introducing the new ERP system in procurement of goods and services. Also, an on-going training is necessary</p>	<p>3. Feasibility study: The study must be conducted to understand the compactible modules to be used to improve the processes of supply chain management</p>	<p>3. Market user interface: The higher education must link their systems with the market related prices for demand management and supply of goods and services. This section will avoid price fixing and bid rigging as the system with reject over pricing and projects exceed the final budget</p>
<p>4. ICT Steering Committee: Higher education needs to have a strong ICT committee to deal and assess every system procured by the organization with aim of value for money and return on investment. The committee must lead in the implementation of projects</p>	<p>4. Integrated processes: Seamless integration is required to ensure that the system is compactible to work with other systems within the organization</p>	<p>4. Online payment: All purchase orders must be paid after comparing the invoice against the order in the system, and the system must provide a proof of all goods delivered. Payment must be made as per two authentication signatories</p>

Fig. 1

Proposed seamless ERP SCM integration



5. Business Process Integration

ERP is a system that can support several functions and merge them into a single database such as human resources, supply chain management, customer relationship management, finance, manufacturing functions, and warehouse management functions [8].

5.1. Evaluation of ERP System in Higher Education to Meet Business Processes

This study indicates that ERP is not simply an application but also a collection of other fundamental methodological issues.

Table 2 illustrate AQ4 s what is covered or/and not by the ERP solution for higher education [9].

Table 2

illustrates solutions covered or/and not covered by the ERP systems

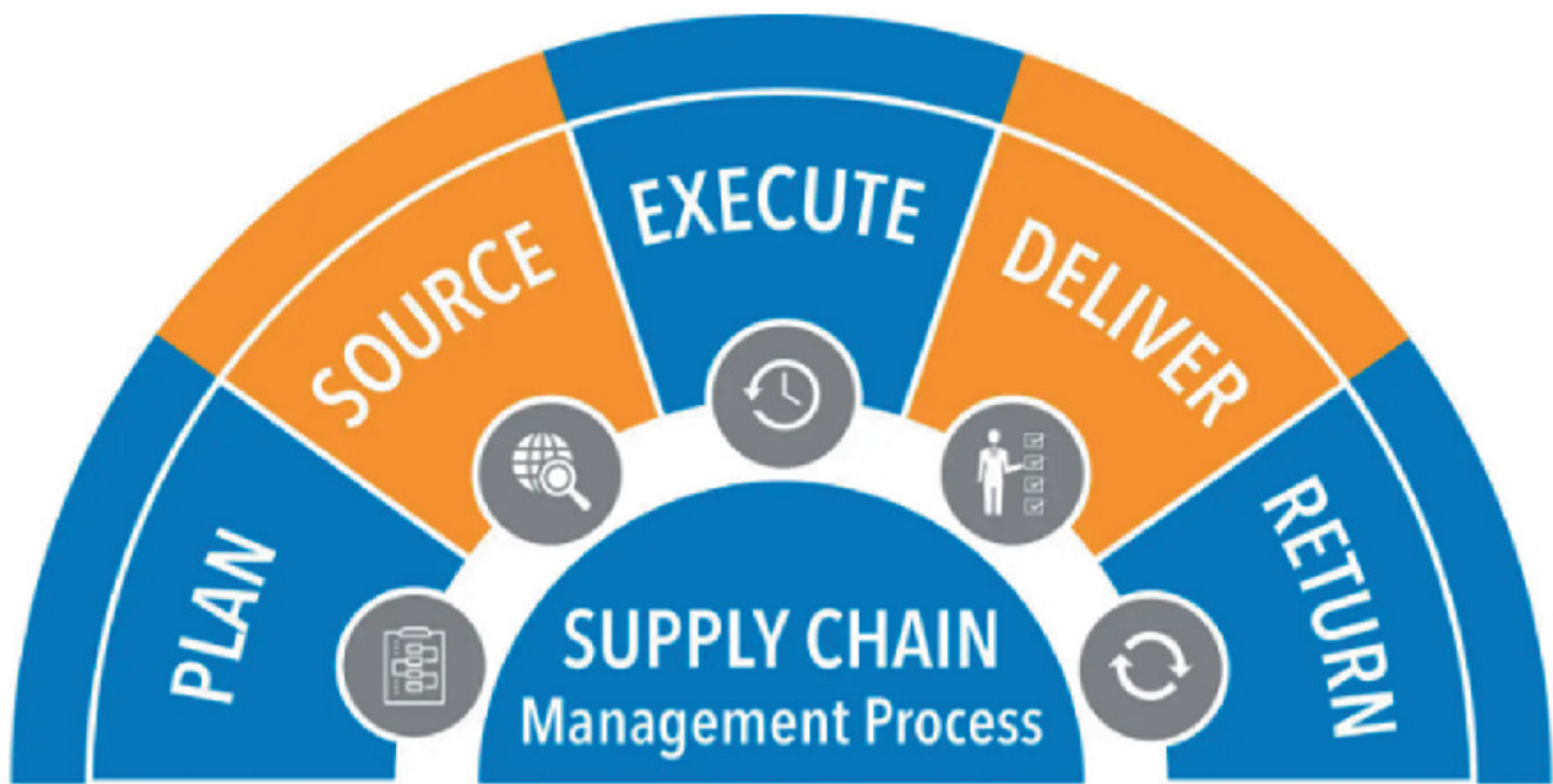
Seq.	Item	Description	Tasks covered by ERP	Tasks NOT covered by ERP	Impact factor%**
1	Strategy	Vision, mission, strategic, objective, goals	No	✓	15
2	Business	Corporate policies, operating model, business process, bylaws important	No	✓	10
3	Data structure	Data models: conceptual, logical, and physical	✓	✓	10
4	ERP application	Application software pool of data and knowledge	✓	No	35
5	Workforce	Employee assessment	x	✓	5
6	Facilities	IT infrastructure assessment			
		Clients	x	✓	
		Network	x	✓	
		Storage	x	✓	
		Application	✓	x	
		Data	✓	x	
		Security	x	✓	
		Change	x	✓	
Project management	x	✓			
IT administration	x	✓			
7	Services	SLA/SLM "service level management" to secure the corporate investments	x	✓	10
8	Training	On-going training plan for the whole staff in different levels	x	✓	N/A

5.2. How Does the ERP System Improves Supply Chain Management Processes?

ERP software can generate a bill of materials for all goods, track resources, and shipping paperwork and keep track of any last-minute modifications, this reduces "human mistake" and allows for speedier manufacturing, and ERP systems may help with packing procedures and quality inspections, as well as data management for customer shipments and invoicing [10] (Fig. 2).

Fig. 2

Image illustrates the ERP system enhancing the SCM processes [10]



5.3. Digital Transformation in Supply Chain Management Processes

Companies with greater end-to-end visibility into the complexity of their supply chains and logistics operations, as well as digitally transformative processes and systems, provide accurate, timely, and incomplete access and transparency to events and data for transaction, content, and related supply chain information, both within and across organizations, and support the effective planning and execution of supply chain operations [11].

Supply chain management in “digital” transformation is more than just deploying new technology; it is about leveraging new technologies to radically change how your company runs and provides value to its customers, potential benefits of a fully realized digital supply chain include savings across the board, such as reduced time, resources, money, and environmental footprint [12].

5.4. Advantages and Disadvantages of Using ERP Solutions in SCM Processes

The advantages of employing ERP solutions in SCM processes to improve the functions implemented by the institution of high education as listed below:

- ERP functional modules all serve various business functions, but the most beneficial system feature for supply chains is unquestionably simple integration.
- Provides business with automation of purchasing product or services with a strong competitive advantage.
- Embrace the new technologies that are coming to the market and meet customer needs.

Disadvantages of using the ERP solution in the SCM processes are listed below:

- ERP solution failure to be compatible with the business processes and complicate the functions of the organizations.
- Businesses need to adapt on the EPR solution which results the EPR system not in compliance with the company’s policies, procedures, laws, and regulations.
- ERP systems are not fully utilized due to the fact that they become more complex to the users.
- Business do not have the owning rights toward their information archived to ERP solutions.

6. Results and Discussion

The findings of our study are based on the research questions which will inform our recommendation and conclusion. There have been several good studies that address strategic planning concerns, when evaluating a stymied or failed ERP installation and determining the factors that caused it to fail. Frequently, the university administration will determine that the program does not work or is too complicated to apply in their specific setting [13].

Table 2 indicates that the organizations purchase ERP solutions for the sake of buying it but not utilizing for its full capacity. The current corporate ERP systems offer a distinct set of features that range dramatically from the academic functionality required by higher education institutions, which are not compactible from the business processes employed by higher education as a result ERP for higher education does not specially address academic functions; therefore, ERP for higher education should begin with the organization structure, which includes strategy/policy, data flow, business process structure, and academic functions.

ERP system improvements in supply chain management lack features that prevents improper behaviors' such as price rigging, specification fixing by end users, and collusion between suppliers and administrators for personal gain or fraud, resulting in organizations losing a lot of money due to poor supply chain management, and the ERP system does not cover all of that.

Another issue of digitalizing the supply chain process is poor of technical support within the organization as the EPR system applications are outsourced and results the higher education incur excessive expenditure due to lack of capacity skills. In this study, we also discovered that almost all organizations do not have full ownership of their data communicated in the ERP system because they do not have all of the system's rights, saved by the service providers in case where the organizations failed to pay their monthly subscriptions.

7. Recommendations and Conclusions

Based on our conclusion for this study, we should not underestimate the significance and quick expansion of digital revolution in higher education. In our literature review, it emphasized that the ERP systems have been employed by the biggest corporations worldwide, but the higher education has failed to recognize its importance; therefore, this study developed the methodology which present a clear strategy that need to be employed to improve ERP systems of SCM integration in higher education.

The methodology applied addressed the findings identified on the study, which shows that the ERP systems play a huge role in the development of transforming in supply chain management systems, and even though the implementation of the ERP systems has encountered some challenges such as features that are not compatible to the business processes and issue of non-compliance with the company's policies, laws, and regulations. Universities should define clear vision and goals in deploying ERP systems to achieve seamless integration and improve supplier chain management processes.

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