Digital Transformation: An Emphasis Analysis of Enterprise Resource Planning (ERP) Modules in Higher Education

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ABSTRACT

Industry, and educational institutions in particular, regard digital transformation as a critical information technology. This is due to the fact that educational institutions are required to effectively respond to a multitude of changes, including those associated with digital transformation. This study aims to empirically analyze to the challenges associated with the process of digital transformation, this study examined pertinent scholarly publications, books, and journals. The utilization of the Enterprise Resource Planning (ERP) system in this research endeavors to assess ERP system modules that may be implemented in academic establishments to facilitate the digital transformation process while increasing the efficiency and effectiveness of information resource and technology management. In pursuit of global educational excellence and benchmarks. ERP modules implemented in educational institutions include Competency and Certificate Management, Career Service Management, Student Information Management, Financial and Accounting Management, Asset Management, and E-Learning Management. It is anticipated that the implementation of an ERP system in academic institutions will improve visibility, adaptability, and the capacity to strategize, plan, and operate more effectively. It is crucial to note, however, that many factors must be considered when implementing ERP system modules in academic institutions, including elevated costs, adequate resources, and stakeholder support..

1. Introduction

Innovation, technological advancements, globalization, and global competition have all contributed to the heightened significance of information technology [1]. However, "student transformation" is one of the concerns that educational institutions must confront in regards to digital transformation. This issue acknowledges the cognitive transformations that students will undergo as the educational setting transitions from face-to-face interaction to technologically mediated individual interaction [2]. In educational institutions, the quantity of access to information technology that is required is influenced by the establishment of a robust infrastructure for the implementation of information technology, specifically digital transformation. As a result, it is imperative for academic establishments to construct a proficient framework and implement systemic elements to support teaching, learning, and educational service systems [3]. Furthermore, the educational institution sector often encounters challenges pertaining to financial resources, competition with other academic establishments at both domestic and global levels, and, above all else, the persistent escalation in student enrollment [4].

Standardization of the implementation of digital transformation in educational institutions is imperative in order to generate novel educational technology products that align with the requirements and preferences of students in the era of globalization. This standardization is crucial for facilitating enhanced efficiency and effectiveness in both learning and teaching, as well as in academic and administrative procedures [5].

In a separate study conducted by a researcher (6), the objective of the research is to construct a model for the digital maturity profile of universities. This model will serve to ascertain the existing level of digitization within educational institutions. Currently, the integration of information technology within educational institutions is catalyzing a transformative shift in the pedagogical approach to teaching Management in higher education. Nevertheless, the absence of well-defined scientific theoretical frameworks throughout the period of revolution led to other challenges, such as the absence of coordinated planning and the inability to allocate resources effectively due to limited availability [7]. Hence, in order to enhance the value offered by educational institutions, the use of Enterprise Resource Planning (ERP) emerges as a viable trend within the education sector, namely among educational institutions [4].

The utilization of an Enterprise Resource Planning (ERP) system allows users, whether they are individuals, small organizations, or enterprises, to optimize the allocation of their existing resources [8]. Nevertheless, the implementation of Enterprise Resource Planning (ERP) in educational institutions exhibits variability among different organizations. Furthermore, it should be noted that corporate operations, organizational framework, and educational endeavors at the tertiary level, including student management and curriculum development, possess distinct and precise characteristics [4].There are three primary factors that impede the successful implementation of Enterprise Resource Planning (ERP) systems in educational institutions. These factors include the challenges associated with transitioning technology to a new educational environment, the insufficient support from relevant stakeholders involved in the system, and the complexities surrounding the integration and adoption of technology as an innovative solution within the educational setting [5].

This study examines the analysis and modules used by educational institutions for the implementation of Enterprise Resource Planning (ERP) systems as a means of digital transformation. The implementation of Enterprise Resource Planning (ERP) systems in educational institutions can address the challenges encountered during digital transformation. This can facilitate the adaptation of educational institutions to their environment, enhance operational efficiency, and effectively address dynamic work challenges. Consequently, this study aims to investigate the digital transformation process as a means of innovation and transformation within educational institutions.

2. ERP as a Digital Transformation in the Educational Institution Sector

The Enterprise Resource Planning (ERP) system is a management tool employed by organizations to effectively manage the balance between supply and demand. It achieves this by integrating consumers and suppliers into a cohesive supply chain, facilitating informed decision-making regarding various business operations [9]. The incorporation of information technology is poised to revolutionize the perception of educational institutions, shifting them from being regarded as "traditional educational institutions" to being recognized as "technological educational institutions." This transformation will entail a fundamental alteration in the manner in which educators, students, staff, and institutional resources operate, leading to enhanced flexibility and efficiency [10].

Enterprise Resource Planning (ERP) systems have the potential to yield both business and technical benefits within the educational institution sector. An illustration of the potential benefits of system integration across campuses includes the reduction or elimination of manual processes, hence fostering a self-serving environment. Additionally, this integration can enhance the availability of administrative systems and facilitate simple access to student and administrative support services [11].

The present investigation [12] examines a hybrid framework that has been devised by prior researchers. To construct this framework, the authors evaluated published books on enterprise resource planning (ERP), analyzed case studies, and examined research articles that discussed its

application. Additionally, the study takes into account the distinctive characteristics of higher education institutions as an environment in which the framework is used. Furthermore, this study presents case studies on the implementation of Campus ERP in private universities in Malaysia, as well as survey findings about perceptions and obstacles to ERP implementation in higher education institutions.

ERP can generate business and technical advantages in the educational institution sector. For example, system integration across campuses will reduce or eliminate manual processes to create a self-serving environment, availability of administrative systems, and easy-to-access student and administrative support services [11]. In the study [12], the hybrid framework developed by previous scholars (published ERP books, case studies, and research articles were reviewed for its implementation) and the constraints of higher education institutions as a unique environment. In addition, case studies of Campus ERP implementation developed in private institutions in Malaysia and survey results on perceptions and barriers to ERP implementation in higher education institutions are presented.

3. Results and Discussion

This section begins with analyzing ERP core modules in the context of Educational Institutions. It then moves on to analyze the most common additional modules for educational institutions obtained from several literature reviews from various journals, articles, books, and other sources related to the application of ERP as a digital transformation in educational institutions.

ERP in the educational institution sector is different from ERP, which in general, business organizations apply. The college has its commercial model, organizational structure, and activities such as educational facilities collecting a great deal of information about students, graduates, professors, staff, courses, fees, assets, course schedules, etc. Without the right school ERP system, it is almost impossible to take advantage of this information [13].

Educational Institutions generally consist of several entities such as Teaching Staff/Lecturers, Students, and educators. Meanwhile, for other entities such as Alumni, companies that cooperate with institutions, or vice versa.

In Fig 1, the author will explain that the implementation of ERP systems in educational institutions contains ERP modules that are fundamental in terms of various studies and conditions in the world of education, especially in Indonesia. The ERP modules suggested by the author are Student Information Management, Financial and Accounting Management, Asset Management, E-Learning Management, Human Resource Management, Competency and Certificate Management, and Career Service Management. In addition, suggestions on implementing the module were obtained from the literature review and questions and answers from several entities in educational institutions.

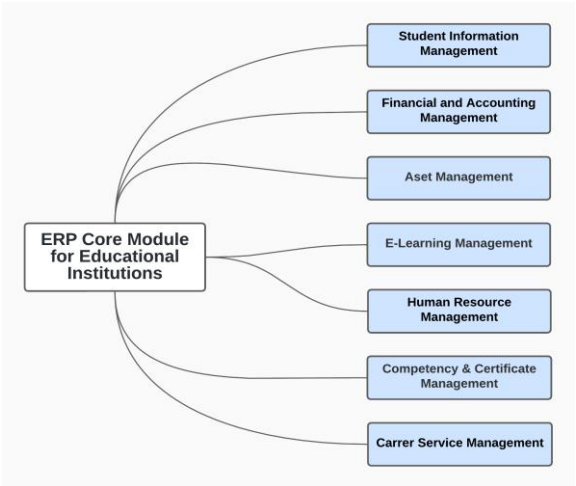

Fig. 1. ERP Core Module for Educational Institutions, Source: Author work

3.1. Student Information Management

Student Information Management is the most diverse module because the nature of an organization's operations is determined by its operations. Consequently, the Student Information Management module includes numerous sub-modules and functions, such as student management (student registration and admission, student registration, graduation, and alums) and curriculum management (academic learning scheduling planning, student attendance management, classrooms, etc.). In addition, although the Student Information Management module is one of the most critical administrative systems in the educational institution sector due to its close integration with other systems with the Financial and Human Resources Management module, the Student Information Management module becomes essential for moving to a system like ERP, as it integrates various services. Furthermore, this system into an integrated ecosystem, and all Student Information Management module activities can be carried out online to facilitate digitization and transformation.

3.2. Finance and Accounting Management

The Financial Management and Accounting module is responsible for recording budgeting, setting accounts to initial balances, and obtaining comprehensive financial reports, such as balance sheets, income statements, transaction reports, multi-period comparisons, and general ledgers. Moreover, the Financial Management and Accounting module can manage the payment of tuition fees; if applied to universities, automatic payment notifications are generated, and payments can be made at any time.

3.3. Aseet Management

The Asset Management module plays a role in facilitating the data collection of assets owned by the company, calculating asset depreciation, and scheduling maintenance which helps to gain better control over asset health [14]. In addition, the Asset Management module can also provide asset cost reports and monitor all movements, auctions, reductions, and additions to fixed assets.

3.4. E-Learning Management

In research [11], E-Learning Management is a complex data system whose primary purpose is to facilitate a collection of learning activities. Such activities involve not only the study but also the Management and administration of the study program. Therefore, several things can be applied to the E-Learning Management module. For example, the system can manage online teaching materials, student databases, and student attendance reports to evaluate and monitor student.

3.5. Human Resources Management

Based on the findings of a study [15], universities categorize Human Resource Management Modules into several distinct areas, including planning and scheduling of recruitment activities, formulation of employment contracts, assessment of employee performance, determination of employee compensation, and management of payroll processes. Furthermore, it is imperative for the Human Resources Management module to provide the capability to produce the necessary reports as assessment materials for Human Resources Management.

3.6. Competency and Certificate Management

The implementation of the Competency and Certification Management module will facilitate the effective administration of personnel management processes. The Competency and Certificate Management module is capable of overseeing the registration process for training materials, managing the expenditures associated with certification, and generating comprehensive reports pertaining to the competence and certification of individuals, including staff, teachers, and students inside educational institutions.

3.7. Career Service Management

Career Service Management is responsible for overseeing various aspects of career services, which encompass the management of job opportunities among other functions. In order to adequately equip students for the workforce, institutions of higher education must recognize that the workplace presents challenges beyond the mere acquisition of skills. Hence, the provision of career services plays a crucial role in offering students direct support as they embark on their professional journeys [11].

4. Conclusion

Educational institutions must swiftly implement information systems as digital transformations because they will face numerous funding and support challenges. Moreover, as the number of students continues to rise every academic year, the institution must improve its operations. Efficiency, competition between educational institutions, and policymaker conflicts of interest Enterprise Resource Planning (ERP) is a trend that can be adopted in the education sector, especially by educational institutions, to create and provide more value for educational institutions. Several studies conclude that implementing an ERP system is the most effective solution for resolving common issues in educational institutions. Integration of shared systems across campuses, reduction or elimination of manual processes, creation of an environment where employees can serve themselves, Increasing the availability of administrative systems, and making administrative and student support services accessible and user-friendly are some of the benefits of implementing ERP in educational institutions as part of their digital transformation. Therefore, educational institutions want to implement an ERP system. Certain ERP modules are recommended in this study: Student Information Management, Financial and Accounting Management, Asset Management, E-Learning Management, Human Resources Management, Competency and Certificate Management, and Career Service Management.

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