

# ENTERPRISE RESOURCE PLANNING (ERP) IMPLEMENTATION AND PERFORMANCE ASPECTS IN HIGHER EDUCATION SECTOR

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**ABSTRACT:** *In present Scenario, the role of Information Technology plays a vital role in educational field and in higher education sector. This paper contributes to understand the basic phenomenon of adopting the ERP concept in Higher education sector and evaluating them with its root cause analysis. This paper also brings the drawbacks available in the existing implementation of ERP in Higher education and reports the way to overcome those issues by using System Application and Products in Data Processing (SAP). Also, it provides the conceptual analysis about the selection of ERP system, customization and integration of various modules in it, evaluation of assorted parameters through a common feedback mechanism, suggesting the best solution based on the analysis. This paper explains the vivid difference between the present Learning Management System (LMS) and adoption of SAP into the Learning ERP.*

**KEY WORDS:** *Enterprise Resource Planning (ERP), Higher Educational Institutes (HEI), Learning Management System (LMS), System Application and Products (SAP) in data processing.*

## INTRODUCTION

Advances in Information Technology (IT) redefine various business operations in many organizations which includes Higher Education Institutions (HEIs). The Affiliated colleges under the state and central universities need to stimulate their innovation in research, teaching capability and learning methodologies through the aggressive growing application and with the help of Information Technology. The usage of standard tools in contemporary organizational growth and analysis are being adopted and thereby applied in the Higher Education sector. One of the prominent trends is the adoption of Enterprise Resource Planning (ERP) application software. HEIs are making significant investments in ERP systems to improve institutional business processes. This research is motivated by the rapid and recent growth of the ERP market in HEIs; the increasing pervasiveness of ERP in the HE sectors; and the lack of scholarly publications discussing ERP implementations in HEIs.

This research derives from a larger effort that aims to contribute the understanding ERP adoption and evaluation in HEIs in Various Engineering colleges of Tamilnadu. This paper aims to address different areas of emphasis, including: (i) ERP adoption decisions, (ii) ERP selection, (iii) customization procedures, (iv) integration aspects, (v) role of consultants, and (vi) ERP system evaluation; each of which has been raised in the literature as an important area of interest, and all of which are among the most commonly reported challenges.

The study findings summaries influence on ERP adoption in HEIs and confirm the unique nature of ERP adoption in the HE

sectors. Review of the literature suggests a dearth of related research, while the case study offers a rich contextual account of ERP adoption and influences of the surrounding context.

## LITERATURE REVIEW

Klaus, Roseann describe ERP systems as “comprehensive packaged software solutions seek to integrate the complete range of a business's processes and functions in order to present a holistic view of the business from a single information and IT architecture” [1]. ERP systems used to link different areas of an organization, such as manufacturing, order management, financial systems, human resources, suppliers and customers, into a tightly integrated system with shared data and visibility [2]. ERP system holds the promise of improving business processes and decreasing costs as these systems facilitate communication and coordination, centralize administrative activities, improve ability to deploy new information system functionality, and reduce information system maintenance costs [3].

A successfully implemented ERP system can be the backbone of business intelligence for an organization, by giving managers an integrated view of the business processes [4]. This section summarizes literature reviewed to understand the context of ERP in the HE sectors; particularly, aspects that have influenced the rapid adoption of ERP in the sector, and any potentially unique aspects of the HE sectors [5]. It also includes a detailed review of studies on ERP specific to the HE sectors; to better understand the gaps in this area.

## UNIQUE NATURE OF HIGHER EDUCATION SECTOR

The similarity and differences between HEIs and business corporations have been discussed in the literature for several decades, it is tempting to see the HEIs as unique organizations that are different from other organizations. This uniqueness can be based on a combination of different characteristics, which includes:

- ✓ complexity of purpose,
- ✓ limited measurability of outputs,
- ✓ both autonomy and dependency from wider society,
- ✓ diffuse structure and authority,
- ✓ internal fragmentation.

These characteristics have contributed to create an environment for the sector that has been described as turbulent. Traditional ERP systems address basic business administrative functions such as HR (Human Resource), Finance, Operations & Logistics and Sales and Marketing applications. Yet, the HE sectors require unique systems for: Student Administration, Course/Unit Administration, Facilities (Timetabling) requirements, and other applications, not part of traditional ERP. Though, research on ERP systems in the HE environment is emerging, there has been relatively little specific attention to causes and measures of ERP success or failure in the HE sectors.

## RESEACH METHOD

With the objective of developing a grounded understanding of ERP Systems in the HE sectors; a single descriptive case study was conducted in various engineering colleges of Tamilnadu. The case study was conducted with the aim of description. Descriptive case studies are generally used to provide the researchers with a rich description of the phenomenon being studied.

Data was collected through semi-structured questionnaire. The sampling method employed for the questionnaire might be characterized to be the influential, the prominent, and the well-informed people in an organization.

The researcher commenced the data collection with the concerned professors, teaching and non-teaching staff members of various engineering colleges in Tamilnadu. Thus, different IT and business managers representing different systems were contacted for data collection.

A core list of themes related to ERP implementations were first identified from the literature. These themes were then used as the basic coding schema, where descriptive examples of how students dealt with these aspects were captured. Data analysis was predominantly done manually; using Excel spread sheets as a data management and summarizing tool.

This section reports on key findings identified from the questionnaire evaluation. While the responses were far-ranging and insights rich and many, distillation of the evidence surfaced the following six main areas of emphasis: (i) ERP adoption decisions, (ii) ERP selection, (iii) customization procedures, (iv) integration aspects, (v) role of consultants, and (vi) ERP system evaluation at Engineering colleges; each of which has been raised in the literature as an important area of interest, and all of which are among the most commonly reported challenges.

## IMPLEMENTATION

The implementation of this research has been categorized into the following phases of Enterprise Resource Planning.

- ✓ Adoption
- ✓ System Selection
- ✓ Customization
- ✓ Integration
- ✓ Evaluation

## ADOPTION OF ERP SYSTEM

Students from various engineering colleges of Tamilnadu decided that they would review the systems for Student Administration, Finance, and Human Resources. The review team consisted of primarily director-level executives and higher-level managers. Their recommendation was that current LMS replace its legacy systems with common integrated systems. It was felt that the new system should at a minimum (1) seamlessly integrates Finance, HR and student's functions, (2) be reliable and affordable and (3) have the flexibility to support unique business processes.

## SYSTEM SELECTION

The deployment of an ERP system entails two main issues, selection and implementation. ERP selection is a critical process that organizations often fail to consider whether the chosen system will fit their overall business processes and enable them to avoid or at least minimize software customization.

It is important that the selected ERP package fit organizational needs, and support the organization's business processes. Thus, a detailed requirements specification for ERP software selection will increase the probability that the ERP system will meet the organization's requirements and support the newly redesigned

operational processes. It has been suggested several factors to consider when selecting an ERP system, including: the stability and history of the ERP vendor, last 12month track record of ERP sales, implementation support from the vendor, and improvement in ERP software packages. The selection team commenced collecting the necessary information on which top management could base a sound decision for a package. They wanted to understand how well the various systems could support engineering college students need and what resources (e.g. time, money and expertise) it would take to install them.

## ERP SYSTEM CUSTOMIZATION

Like other organizations, Universities must decide how much customization should be done to the ERP system for it to fit the organization's needs, or conversely, to what extent the University should change its practices to suit the so-called 'best practices' of the ERP. One approach to implement an ERP system is to customize the ERP system package to fit the existing business processes. However, customization of the ERP software package should be avoided or at least minimized in order to achieve the full benefits of the ERP system. ERP system customization can increase the project time, introduce new bugs into the system, and complicate future upgrades to new versions from the vendor. ERP systems are based on "best business practices" which are "defined structures of doing business operations" that the implementing organization can choose to exploit. Further, ERP vendors promote these packages as having "Universal Applicability". These views argue for adapting the organization to the ERP. However, it is observed that ERP design assumptions do not always fit with university operations. Therefore, it is suggested that industry best practice standards in ERP packages are inappropriate for universities, due to the unique and impossible-to-model structures and decision-making processes that most of these institutions possess.

## ERP SYSTEM INTEGRATION

One of the main intangible benefits of ERP systems is their ability to provide tighter integration across different business functions. ERP are based in an organization-wide, process-oriented design which must be tightly integrated into an organization's daily operations to achieve full benefit from the system. Moreover, the integration of organization-wide data is essential to ensure the successful implementation of an ERP system. If successfully implemented, ERP systems can provide seamless integration of processes across functional areas with improved workflow, standardization of various business practices and access to real-time up-to-date data. However, as suggested earlier, a best-of-breed approach has limitations, an obvious potential complication being integration of different vendors' modules and legacy modules.

## ERP SYSTEM EVALUATION

Investments in contemporary Information Systems (IS), such as ERP, are particularly complex and costly, warranting scrutiny. Executives worldwide consider the evaluation of IS investments as a key issue and suggested value from methodical evaluation of IS and their impacts on both the organization and individuals; to justify their value and contribution to the productivity, quality, and competitiveness of the organization.

Assessing the impacts of ERP systems is difficult, as the impacts of ERP systems are often indirect and influenced by human, organizational, and environmental factors. It is evident that the given size of ES investments and uncertain related benefits are achieved through this implementation and there is need for an

economical and valid approach to the measurement of their impacts like many other organizations, do not employ a systematic approach to evaluate the success of systems they deploy.

## CONCLUSION AND FUTURE RESEARCH

The unique context of HEIs suggests unique challenges and risks of ERP implementation and evaluation, demanding sector-specific research. The descriptive case study of various engineering colleges of Tamilnadu provided details of the: (i) ERP adoption decisions and alternatives, (ii) ERP selection, (iii) customization procedures, (iv) integration aspects, (v) role of consultants, and (vi) ERP system evaluation perceptions.

The insights gained here align well with many issues raised in relation to ERP adoption in Higher education, globally, and provides some real-life examples that other universities may opt to follow. This research is a part of a larger study to better understand ERP adoption and evaluation in HEIs. In addition to providing rich descriptive details of the engineering students experience, the case sought to explore underlying issues warranting further attention that would benefit from systematic investigation. More qualitative data will be gathered through literature and accessible secondary data to identify ERP systems evaluation methods; identify and classify ERP systems users, and to document potential relationships between best of breed solutions, customization and systems impacts.

An open-ended survey, targeting a larger pool of relevant stakeholders from HEIs, is too planned, with the intent to collect a salient set of systems evaluation dimensions and measures from the higher education context, to further specify the stakeholder groups, and to identify possible causal relationships with selecting best of breed, customization, integration and systems impacts. The results from these studies will be used to operationalize a conceptual model for ERP evaluation in Higher education and will also assist in the derivation of a conceptual theoretical framework that shows the interrelationships between best of breed systems, systems customization, integration and overall systems success.

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