A study on the impact of ERP implementation and Adoption in the Higher Education Institutions

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Abstract

Technology is extremely important in the educational and higher education sectors. The educational sector is quickly adapting the ERP system to streamline its operations. ERP systems in higher education have a wide range of applications, tracking a variety of activities such as human resource systems, administrative student information systems, and financial systems. ERP implementation in the higher education (HE) sector has been increasing globally, with universities under pressure to improve their performance and efficiency. This paper contributes to understanding the fundamental phenomenon of ERP adoption in the higher education sector and evaluating it through root cause analysis. The authors conducted a literature review on adoption of ERP among users of higher education institutions in this work. The research is primarily descriptive in nature. The study considered both academic and non-academic personnel. A total of 167 people were considered for the study. To collect primary data, the questionnaire method is used. To assess the impact of one variable on the other, both independent and dependent variables are used. The study's findings shows that the adoption of ERP in higher education institutions makes their work easier, and no difference was found among respondents based on different demographic variables.

Keywords:- ERP, Higher Education Institution, Adoption, ERP Implementation.
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1.Introduction

Enterprise Resource Planning (ERP) is a software-based integrated management tool that is used in organizations to integrate all of the existing organizational systems and functions (Von Hellens 2005). ERP implementation has been one of the most pervasive change activities that organizations have implemented over the last decade. The outcome of any technology implementation is dependent on a number of factors, including the activities of decision makers and how end users respond to those activities (Lewis 1993). Using and implementing ERP systems can be beneficial to any size organization. The ERP system's features of automating updates and providing real-time information are excellent. The reasons for implementing an ERP system are the same; however, the system can be tailored to the needs of the organization. Another outstanding feature of the ERP system is its usability (Esteves 2001).

ERP systems are used by large corporations all over the world, and they have recently replaced management, financial, and administration computer systems in higher education (Pollock and Conford 2005). ERP has played a significant

role in higher education IT management, but it has been – to some extent – removed from the core discipline of higher education. It is critical to define ERP systems in higher education as having a wide range of scopes, tracking a variety of activities such as human resource systems, administrative student information systems, and financial systems. Despite the challenges of implementing ERP systems, organizations in the corporate sector, which likely operate in more financially competitive environments than those in the nonprofit sector, such as most higher education institutions, have seen numerous benefits from ERP systems over the last two decades, primarily on the management, financial, and administrative levels. Higher education has always been a sector with distinct organizational models, core processes, and objectives when compared to other businesses. The higher education system supports academic activities in colleges by providing some basic processes such as scheduling, learning process - advising and follow up, and performance indicators-, and examination process.Previous research has found many parallels between implementing ERP system software in educational institutions and other organizations (Pollock and Cornford, 2005). In order to address the role of ERP in changing educational organizations and the implications of its use in similar organizational cultures, it is important to study the implications of using ERP systems in higher education and the necessary information required to avoid the problems caused by older systems.

Advances in information technology have reshaped many business operations, including those in higher education institutions. Affiliated colleges under state and central universities must stimulate innovation in research, teaching capability, and learning methodologies through aggressive application growth and with the assistance of information technology. Standard tools for modern organizational growth and analysis are being adopted and applied in the Higher Education sector. One notable trend is the use of Enterprise Resource Planning application software. HEIs are investing heavily in ERP systems to improve institutional business processes. The rapid and recent growth of the ERP market in HEIs, the increasing pervasiveness of ERP in the HE sectors, and the scarcity of scholarly publications discussing ERP implementations in HEIs all motivated this research (Vijaya 2018).

1.1Reasons for Implementing ERP Systems in Education Institutions

ERP systems have been introduced into the higher education (HE) sector in order to improve and integrate management and administration processes in student registration, human resource systems, and financial processing. However, ERP system implementation in educational institutions has been difficult due to a lack of ERP implementation expertise and IT resources.

Globally, ERP adoption in higher education institutions has increased, and the HE ERP market has experienced rapid growth and consolidation in recent years.

Some of the most important reasons for implementing ERP Systems in the education sector are to improve customer service because students are stakeholders in the institution. Managing their data correctly from attendance to results will improve data quality and transparency, which can be shown to college officials and parents if necessary. To keep the institution competitive, the efficiency of teaching syllabus coverage can be increased as per syllabus, and other activities can be carried out, which will assist the institution in receiving good grades from various government authorities. Improved teaching and learning processes as some learning management software's allow students to upload teaching materials and slides (shreedhar 2014).

2.LITERATURE REVIEW

- **Gartner (2008)**Implementation Success is determined by groups such as Top Management, Academic

Administration, Financial Administration, Human Resources, Academic Departments, and their direct supervisors but the impact is also determined by third-party service providers such as vendors or consultants and their specific groups such as – Top Management, Domain Experts, Project Executors, Human Resource, and Financial Administration who are involved in the success of implementing ERP in Colleges / Institutes / Universities.

- **Abugabah&Sanzogni (2010)**Despite the challenges, ERP has always proven to be beneficial to students, faculty, and administrative personnel, where faculty and staff commonly interact for core institutional activities via ERPS, and students find it beneficial for more information and E-learning environments. ERP systems are defined as standard platforms for improved decision-making, information, and institutional services.
- **Goel et al. (2011)**, one factor that contributed to ERP system implementation failure was a lack of knowledge about the system. The benefits were limited due to a lack of resources and technology personnel. As a result, training is critical to achieving success. Aside from that, certain perceptual factors, such as perceived relative advantage and perceived compatibility with his or her sociocultural values, beliefs, needs, and past experiences, improve ERP usage.
- **Goel (2012)**The need for ERP in educational institutions also considered from the standpoint of mapping the student feedback of two geographically separated students, as well as addressing the issues of new e-centric business practices. The benefits of any ERP implementation should be evaluated at three levels: researcher, university, and the larger business community.
- **Shroff et. al (2013).** The majority of ERP implementation in India has occurred in technical educational institutes (TEI). ERP is used in higher education to improve and integrate the management and administration of student registration, student activity, human resource system, and financial processing.

- **Bhat et al. (2013),** age is an important factor in ERP acceptance. ERP is widely accepted by young employees, as evidenced by their eagerness to learn the software.

- **Nizamani&Khoumbati (2014)** However, implementing ERP in universities is a difficult task because ERP has very few core modules that differ from the functions of TEI, making it difficult for universities to adopt these packaged systems because they must change their business processes to fit into these systems.

- **John (2015)** Differences in ERP acceptance have also been discovered among people with computer anxiety and computer experience. ERP is readily accepted by those who have high computer self-efficacy.

- **Karia& Solomon (2015)** ERP system is the most widely accepted option for universities seeking to gain a competitive advantage while also increasing efficiency and transparency through the integration of all information flowing through the various departments.

- **Shatat and Dana (2016)** the operation of universities differs greatly from that of other organizations. With the growth

in the size of universities, the implementation of ERP has become a must factor, as it will reduce the additional work load of data maintenance and administrative tasks, allowing for better service to staff and students.

- **Sowan (2017)** ERP is increasingly being used in the educational sector to improve the quality of academic and administrative services. An ERP system is defined in universities as a "information technology solution" that integrates all business units and functions and automates activities such as recruitment, admissions, financial aid, student records, and the majority of academic and administrative services. Human resources, billing, accounting, and payroll are examples of university administrative services. Academic services, on the other hand, include deployment, admission, registration, and all aspects of student records. University ERP systems, on the other hand, that are implemented for academic purposes, provide all administrative and academic functions. Universities have made significant investments in ERP implementation in order to improve the planning of their business operations.

- **Geron-Pinon et al. (2020),**ERP systems in HEIs are designed to streamline almost every aspect of how schools and colleges operate. Some of the motivations for HEIs or universities to adopt ERP systems include quality standards requirements, an increase in student numbers, higher student expectations, global trends, and a competitive educational environment.

3.Research Methodology

The primary goal of this research is to examine the major factors that influence an education sector's decision to select an Enterprise Resource Planning Application. The research methodology employed is of the qualitative variety. Because ERP selection is a part of decision making, which includes brainstorming and in-depth discussion, a qualitative study is preferred over a quantitative study. For this study, a cross-sectional survey was used. Because an online survey was chosen as the research medium, questionnaires were distributed via e-mail. In this study, automated data collection methods were used to demonstrate/speed up the functionality of automatic data tabulation and manipulation. The chosen medium offered features and benefits such as broad reach, speed and response time, convenience, and low cost. This sampling technique is the same as simple random sampling. Because the email addresses of the general population are not available on the web, this sampling method suggests emailing the link to the survey to all addresses available because there is no cost associated with sending an email to the entire list or a portion of a list.

3.1Objectives of the study

1) To study the ERP implementation in higher education Institutions.
2) To identify the factors of ERP adoption among the Staff in Higher Education Institutions.
3) To identify the effect of demographic variables on the factors of ERP adoption among the staff of higher Education Institutions.

3.2Hypothesis formation

H_1:- there is no significant difference between the gender of respondent and ERP adoption in higher education institution

H_2:- there is no significant difference between the age of respondent and ERP adoption in higher education institution

H_3:- there is no significant difference between the staff category of respondent and ERP adoption in higher education institution

H_4:- there is no significant difference between the educational qualification of respondent and ERP adoption in higher education institution

3.3Variables of the Study

Both independent and dependent variables are taken for the study. Dependent variable is adoption among user, which are identified on the basis of literature review. Independent variables are gender, age, staff category & educational qualification.

3.4Questionnaire development

The questionnaire is divided into three sections. Section one includes a list of demographic questions such as age, gender, education qualification, academic and non-academic staff at university. Section two lists the questions on behalf of the measures included in each success dimension. all questions in this section were graded on a five-point Likert-type scale, with values ranging from' strongly disagree' to'strongly agree.

3.5Sample and Population

This survey's population includes ERP end-users with hands-on experience (such as teaching faculty, IT faculty, and other administrative staff) from the universities of central India (C.G & M.P) listed below. Universities are pseudo-named A1, A2, to maintain confidentiality. These universities were chosen because the ERP had already been implemented and was operational. All active users who access the ERP to perform routine tasks at these universities are included in the target population. Students and others are not included in the exclusion criteria. Total 250 questionnaires were distributed out which only 186 were received. 167 questionnaires were completely filled and 19 were not considered for the study as they were partially filled.

3.6Data collection

The study employs both primary and secondary data collection methods. The primary method of data collection is through questionnaires, while secondary sources of data are used for the literature review and introduction section.

3.7Reliability of data & Content Validity

Relaibility of data was found to be high. Cron-bachs alpha method is used to find the reliability of data, the value found is 0.72 (Table 1). Twenty people were chosen to test the survey instrument. Many participants were senior department heads as well as a few ERP experts. Participants completed the survey via email, as requested by the researchers. In doing so, the participants checked the survey for inconsistencies, errors, and omissions. No scale items were added or removed.

(table 1) Reliability Statistics

Cronbach's Alpha	N of Items
.720	13

4.Data Analysis& Interpretation

Table 2 (Demographic Information)

Demographic Characteristics	Respondents	Frequency	Total	Percentage
Gender	Male	75	167	45%

	Female	92		55%
Age	18-35 yrs	80	167	48%
	36-45 yrs	48		29%
	46-60 yrs	33		20%
	60 & above	06		3%
Staff Category	Academic	103	167	62%
	Non- Academic	64		38%
Educational Qualification	UG	27	167	16%
	PG	140		84%

4.1Demographic Information

For the study, we consider four demographic variables: gender, age, staff category, and educational qualification. There were 75 men and 92 women among the total of 167 respondents. For the study, four age criteria were used: respondents aged 18-35 years were 80, respondents aged 36-45 years were 48, respondents aged 46-60 years were 33, and respondents aged 60 years and above were 6. In terms of staff, because our study is limited to higher education institutions, we include academic staff (103) and non-academic staff (64) in our analysis. Under graduate respondents are 27 and 140 respondents are post-graduate. In our study, we only consider ERP users.

4.2Hypothesis Testing

H_1:- there is no significant difference between the gender of respondent and ERP adoption in higher education institution

(Table 3) Descriptives

Adoption

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1(Male)	75	27.2133	5.98939	.69160	25.8353	28.5914	13.00	44.00
2 (Female)	92	26.8152	7.31689	.76284	25.2999	28.3305	13.00	48.00
Total	167	26.9940	6.73643	.52128	25.9648	28.0232	13.00	48.00

(Table 4) ANOVA

Adoption

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	6.549	1	6.549	.144	.705
Within Groups	7526.445	165	45.615		
Total	7532.994	166			

We can deduce from the above (table 4) that the significant value at the 5% level of significance is 0.705, implying that the hypothesis is accepted. There is no difference between male and female ERP adoption in higher education institutions.

H_2:- there is no significant difference between the age of respondent and ERP adoption in higher education institution

(Table 5) Descriptives

Adoption

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1(18-35 yrs)	80	26.5375	6.00831	.67175	25.2004	27.8746	13.00	41.00
2(36-45 yrs)	48	27.8958	7.60806	1.09813	25.6867	30.1050	13.00	48.00
3(46-60 yrs)	33	26.4848	6.69011	1.16460	24.1126	28.8571	13.00	43.00
4(60 yrs & above)	6	28.6667	9.45868	3.86149	18.7404	38.5929	13.00	42.00
Total	167	26.9940	6.73643	.52128	25.9648	28.0232	13.00	48.00

(Table 6) ANOVA

Adoption

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	81.052	3	27.017	.591	.622
Within Groups	7451.942	163	45.717		
Total	7532.994	166			

We can deduce from the above (table 6) that the significant value at the 5% level of significance is 0.622, indicating that the hypothesis is accepted. There is no difference based on age. Respondents of all ages used the ERP in the same way. There is no distinction between them.

H_3:- there is no significant difference between the staff category of respondent and ERP adoption in higher education institution

(Table 7) Descriptives

Adoption

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1(Academic)	103	27.1845	6.79496	.66953	25.8565	28.5125	13.00	48.00
2(Non-academic)	64	26.6875	6.68302	.83538	25.0181	28.3569	13.00	44.00
Total	167	26.9940	6.73643	.52128	25.9648	28.0232	13.00	48.00

(Table 8) ANOVA

Adoption

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	9.749	1	9.749	.214	.644
Within Groups	7523.245	165	45.595		
Total	7532.994	166			

We can deduce from the above (table 4) that the significant value at the 5% level of significance is 0.644, indicating that the hypothesis is accepted. The ERP system was adopted by both academic and non-academic staff without distinction.

H_4:- there is no significant difference between the educational qualification of respondent and ERP adoption in higher education institution

(Table 9) Descriptives

Adoption

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1(UG)	27	25.8148	6.79953	1.30857	23.1250	28.5046	13.00	40.00
2(PG)	140	27.2214	6.72488	.56836	26.0977	28.3452	13.00	48.00
Total	167	26.9940	6.73643	.52128	25.9648	28.0232	13.00	48.00

(Table 10) ANOVA

Adoption

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	44.784	1	44.784	.987	.322
Within Groups	7488.210	165	45.383		
Total	7532.994	166			

We can deduce from the above (table 4) that the significant value at the 5% level of significance is 0.705, implying that the hypothesis is accepted. Respondents' educational qualifications have not emerged as a differentiator for ERP adoption.

5.Results and Discussion

ERP demand has grown in lockstep with the expansion of the education industry. As their environment and circumstances, educational organizations differ from one another. ERP is primarily used in the education sector to reengineer administrative systems in order to improve their performance. ERP enables various departments to connect, communicate, and share information. Because of the ERP application, this sharing is only possible with a single system. This promotes collaboration and interaction among different departments within a education institutions. ERP is used because of its numerous benefits, such as providing a platform for staff and students to interact with one another. ERP simplifies and facilitates the user's work. Through ERP, students receive all academic and non-academic information such as exam details, fees details, fee payment, assignment attendance, and final results, among other things. It is beneficial to both teaching and non-teaching staff because it reduces their workload and allows them to provide better service to both staff and students. In addition, it provides a platform for interaction for core institutional activities. ERP makes it easier for staff to manage student data

(attendance, registration and exam process). Through the integration of all information, ERP improves system transparency and increases efficiency. It provides greater flexibility, which improves the functioning of institutions and, as a result, increases the speed of work and is useful in decision making.

6.Conclusion

ERP systems have been a great help to businesses, and now companies that provide ERP applications are focusing on the education sector as well. ERP allows educational institutions to modify their work systems and provide a simple method of data management and operations. In terms of IT-based information systems, enterprise processes in industry and institutes are changing at a rapid pace. The institutes run a variety of courses that provide autonomous courses and enroll a large number of students. Manually managing processes ranging from admission to academic is becoming tiresome. The IT sector now provides the ERP system on the cloud, without having to worry about the infrastructure, the effectiveness and efficiency of educational institution operations would improve significantly through the implementation of ERP. The literature discusses the drivers of ERP adoption in universities and the higher education sector, such as system modernization and the need for greater flexibility and usability. No difference was found in the adoption of ERP in the identified higher education institution on demographic basis. The primary limitation of this study was that the data were conducted at the twoinstitutes. However, there is room for further investigation of this research work in the future.

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