

Benefits and Challenges in Implementing Enterprise Resource Planning (ERP) Systems in Indian Universities – B School Student's Perspective

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ABSTRACT

The increased usage of technology among the younger generation enforced universities to provide necessary hands-on skills and knowledge to their students to meet their increasing demand in this competitive environment. Technology has made a revolution in Higher Education with email alerts, user-friendly web interfaces, and efficient processes as a necessity. Universities that bought ERP from quality vendors have reduced their costs with good quality control retention. ERP implementation provides a quality output at the right price and good facilities to their staff and students provided they have portal support, secure remote access anytime anywhere, and back-office directories such as email and calendar. Higher Education institutions should think about providing quality output through good and cost-effective ERP.

This study has been conducted across various Business schools in India where the ERP system was implemented. Questionnaires were circulated among B-school students and their responses were recorded. The analysis of the responses provided contextual details about the factors which were considered effective to acquire skills by the students. Primary data is collected through questionnaires and secondary data was collected through journals. The analysis was carried out using SPSS version 22.0. The research evoked that there was a strong correlation among participants irrespective of gender in acquiring the benefits of ERP from the institutions for their better future. The research findings specified that there were challenges in implementing ERP systems during their initial phase but once implemented benefits were realized.

Keywords: - Benefit, B-school students, Challenges, ERP, Higher Education Institution, Technology

1. INTRODUCTION

India has seen a huge shift in its education-related activity as it gained the status of a sector with its own rights. With the amount of its young population rising day by day as the hub of potential resource capital in the world there is a need for quality higher education and positive learning outcome among its future generation. At this time software like ERP (Enterprise Resource Planning) which has numerous configurable modules will be of great use in the adaptability and upgradability of technology in education institutes. The adoption of ERP in colleges will increase the progress and performance level of different departments as a whole [7].

ERP is a software application used by organizations to automate their day-to-day business processes including sales, marketing, accounting, supply chain, and finance. As it is a multi-module software package, the benefit that it

will create for higher education universities and colleges will be enormous [4]. Many research has shown that instead of its ample beneficiary utility still there is a hesitation among the organizations to implement it. Higher education institutions (HEI) implementation of ERP is still in a slow phase which needs to get accelerated for the better future of the students. In fact, there are many similarities between implementing ERP in higher education and organization like scheduling, management processes, finance, performance level indicator of both staff and students, and administrative level. To ensure the smooth communication expectation from all its stakeholders including students, teachers, administrators, management, and parents it is necessary to study the impact of ERP in higher education [10]. Students from the colleges which are already using some basic versions of ERP were surveyed in this study to determine whether the higher education institutions in India are ready to use the upgraded version of the ERP system.

Much research related to ERP implementation in higher education has been made in developed countries like the USA, UK, Australia, and other European countries but in India wherewith has a huge number of universities, it is important to provide necessary insights into this field. As the global competition is increasing among students in India [3], it would be easy to connect the students from their internal campus to the outer global environment with respect to ERP.

The implementational benefit of ERP in higher education institution (HEI) and ERP implementational challenges in terms of students' ease of use who are on the verge of learning hands-on training has been studied. With respect to the post-implementation framework of ERP along with its reengineering, HEIs can provide great benefits to their students as expected from them [5].

1.1 Review of Literature

Paul Hawking et al. [1] addressed the evolution of ERP systems and how universities were addressing the dilemma of evolving curricula with respect to ERP usage. ERP skills were in short supply with the high demand of market value. Universities that adopted ERP completely have some confusion with respect to the curriculum so visiting faculty delivery method of specialist academics should be established by SAP. Both vendors and universities need to address deficit skills with a new strategy of portable to university.

Ahmad A. Rabaa [2] contributed to the ERP implementation phenomenon in the Australasian region with the identification of critical success factors in relation to ERP factors. Further research is needed to investigate relative importance across different stakeholders including top executives, end-users, project mates, and consultants.

Hadeel J [3] pointed out the complexity of ERP implementation in developing countries due to their inadequate IT infrastructure, lack of ERP experience, and incompatible government policies as a response to increasing the global competition in an educational environment to replace existing management system. With little attention in HEI-based ERP, recommendation of specific beneficiary ERPs such as student administration and campus management has been given.

Amin et al. [4] described that simply adapting ERP solutions in business will not lead to success. With a unique model higher education system's academic activities need to support scheduling, examination process and follow-ups. Previous studies identified many similarities between ERP implementation in educational institutes and organizations. Thus, it is necessary to avoid the problems in legacy ERP system implementation so that role of ERP in education will be addressed. The research recommended an ERP road map for better control in universities.

Ahmad Tabbara [5] examined and measured ERP system value in UAE as executives federal of HEI raised a legitimate concern about ERP return on investment value. The post-implementation measure framework revealed the application deficiency in both system and service quality constructs.

Sumedha Chauhan et al. [6] integrated the concept of the convenience of online access and innovation in ERP implementation as there was a gap between the institution level of employability and the actual result. Many academicians and organizations raised concerns that university education has not adequately addressed on employability gap. Research should carry forward ERP software training in business schools to validate the existing ideas for educational disciplines.

Mohamed Soliman et al. [7] ascribed the success factors of ERP adoption to the conceptual model to create progressive levels of efficiency and performance so that educational institutes of all departments can carry out research at a low practical cost. Still, ERP research in HEI is in an immature stage and it is necessary for the researcher to provide a better understanding of the Critical Success Factor to influence the competitive advantage.

Stefan Strecker et al. [8] identified that redesigning the course while utilizing technology led to an intricate design problem. For producing digitized learning content, it was never acceptable to underestimate the amount of time. Some students still were not accustomed to self-regulated learning as they have more responsibility. It is necessary to support the intense early phase of the learning process in ERP so as not to lose students in any manner.

P. C. Jha et al. [9] classified good financial and accounting software as a necessity for the organization as ERP requires substantial changes in processes with all social dimensions to gain a competitive advantage. Instead of an unsystematic way of bookkeeping financial records and cash flow, these organizations can use good financial accounting software for successful ERP management.

Gwamaka Mwalemba [10] highlighted the challenges in the sub-Saharan African enterprise education system with respect to material resources for teaching, scarce knowledgeable faculty as well as expensive technological infrastructure to facilitate the teaching. Most commercial ERPs were expensive but they offer some offer free licenses to universities working for education as the sole purpose.

1.2 Research Objectives

1. To understand the challenges of ERP implementation in Higher Education Institution.
2. To evaluate the implementation, and benefit of ERP in HEI.

1.3 Research Methodology

Quantitative survey method was used for this research where questionnaire data have been prepared and circulated among students to collect the required data for this survey. The online survey was solely conducted and responses were collected with respect to the Business Schools in India where ERP is implemented. The questionnaire was framed based on implemented ERP software's performance, college guidance, behavioral intention, and facilitating based on the collection of 20 questions. A simple random sampling technique was adopted to select the participant that is a student who experienced ERP learning from their curriculum. 109 responses were collected which were treated as primary data. The secondary data of review of the literature was carried out with the help of journals and websites. With the help of the SPSS statistical tool, necessary analysis was carried out.

1.4 Theoretical Framework

In order to produce quality education for the younger generation of India, there has been an increasing need in communicating the information to different departments within an educational institution. There have been numerous numbers of research carried out on implementing ERP in an organization while research for ERP implementation in educational institutions is quite less. The authors took many literature reviews and based on the citation frequency of underdevelopment of ERP in developing countries identified certain factors contributing to the benefit of ERP to students.

Internal Control:

Stakeholders in education institutions can know what is happening in the university. From the ongoing day-to-day activity, student records, student outcome, and institutional effectiveness ERP have great control in every department. Users can monitor, verify and control the whole administrative process within this single platform.

Better Connectivity:

Unorganized workflow happens in institutions due to poor connectivity among its stakeholders. Like one too many, the ERP portal provider provides a single solution to its students, teachers, parents, and its staff members. It even provides an exclusive portal so that any institution member can log in and access their information at any time.

Smart Reporting Management:

The upcoming generation is more interested in online learning than book reading as technology has been an integral part of their life. With the ERP paperwork of fee payment, student reports, staff records, and accreditation detail can be kept forever for future purposes. As a centralized database system, it generates reports without wasting hours.

Enhances student workflow outcome:

With a specific app for students, they can access their own records including fee payment, attendance detail, semester mark sheet, assignment submission, remarks feedback, and performance records without any delay. This keeps them motivated and will enhance their overall result.

Threat management:

As Higher education has more research papers and patents it is more prone to threats and is crucial for institutes to ensure the safety of the data. With the help of an ERP-based cloud solution, endless flexibility of encrypted high-security data is made possible. ERP investment ensures steady but late ROI through which institutes can save both time and money.

2. RESULT

Data were analyzed using SPSS 22.0. An independent sample t-test was conducted to evaluate the difference between male and female students' responses and their acceptance of ERP in terms of benefits and challenges. It was found that extraction of 6 components among 15 accounted for a maximum variance of Eigenvalue greater than 1 and Bartlett's test of sphericity was found to be significant ($p < 0.005$). Linear regression between the benefits of ERP and challenges in implementing it was used to test their correlation. With a Durbin-Watson value of 1.523, the data set was normally distributed with no violation of homogeneity of variance as shown in **Fig -1**.

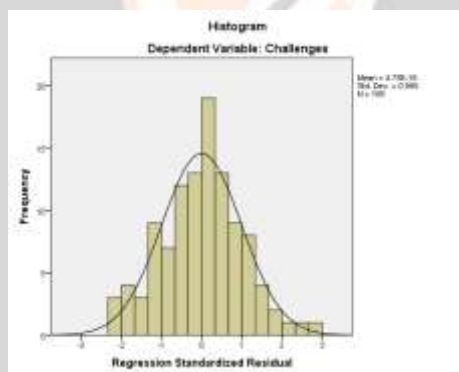


Fig -1: Histogram of Benefits and Challenges in ERP with normal curve

Collected data was checked to determine its normalcy of distribution where the assumptions were not violated. Results show that a p-value of 0.130 data set containing homogeneity of variance with the normal distribution of no assumption being violated as shown in **Table -1**.

Table -1: Test of Normality for normal distribution of data

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Add	.074	109	.177	.981	109	.130

a. Lilliefors Significance Correction

2.1 t-test analysis:

From the result, it was evident that there exists no significant difference between males and female while considering the benefits of ERP usage.

P-value Levene's test = 0.664 (where P-value > 0.05). Therefore, the null hypothesis is accepted. $t_{-1.985} = 107$, $p > .001$ as shown in **Table -2**.

Table -2: Independent Sample t-test

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Add Equal variances assumed	.190	.664	-1.985	107	.050	-.12904	.06500	-.25789	-.00019
Equal variances not assumed			-1.998	106.884	.048	-.12904	.06459	-.25709	-.00099

2.2 Factor Analysis

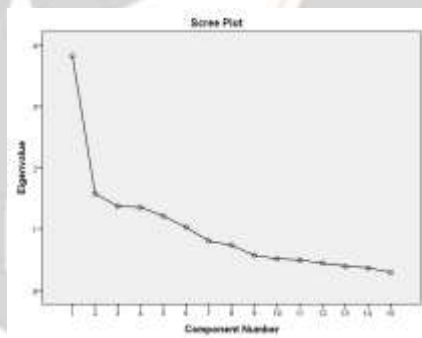


Chart -1: Scree Plot

As the sample size was large, the factor analysis technique was used for the stabilization of data. From the data reduction of 6 component scree plot drop between components 1-6 and 7-15 with Eigenvalue greater than one has been shown in **Chart -1**. The KMO value of 0.722 measure of sampling adequacy indicated that the data is suited for further factor analysis.

After reduction of low communality values, question 18 was correlated with the first component as 0.664, 0.324 with the second component was found out similarly for every question.

Table -3: Factor reduction using Rotated Component Matrix**Rotated Component Matrix^a**

	Component					
	1	2	3	4	5	6
19. ERP in own language:	.747					
11. Staff in ERP doubts:	.705					
9. ERP in management events	.665	.389				
3. ERP to submit assignments:		.807				
17. Recommend ERP for effectiveness	.368	.730				
5. ERP short-term courses		.652	.426			
10. ERP in placement:			.884			
18. ERP in syllabus helps	.304		.529		.355	
12. University guide ERP:			.515			.304
16. Technical team for ERP:				.853		
14. College on training ERP			.451	.668		
13. College resources on ERP:				.624	.322	
4. ERP fee payment:					.881	
6. ERP easy to understand	.418				.496	.423
7. ERP search records						.870

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 8 iterations.

Thus, components were grouped into six main groups each denoting ERP importance from the rotated component matrix as shown in Table -3.

- Component 1: ERP usage benefit for students (Q3, Q4, Q7, Q10, Q16)
- Component 2: ERP university guidance (Q12, Q13, Q18)
- Component 3: ERP management effectiveness (Q9, Q17)
- Component 4: ERP technical guidance (Q11, Q14)
- Component 5: ERP course effectiveness (Q5, Q6)
- Component 6: ERP in own language(Q19)

3. LINEAR REGRESSION

Regression analysis established a relationship between the independent variable (benefit) and dependent variable (Challenges) in order to get the best fit line existing between those variables. The diagrammatic method was studied in order to predict the relationship between the two variables with the help of a scatter diagram. The correlation coefficient of 0.608 denoted a strong correlation between the benefit and challenges views of ERP among the

respondents. As the p-value is 0.00 (p-value < 0.005) correlation coefficient was significant at level $\alpha = 5\%$ as shown in **Table -4**.

Table -4: Correlation between Benefits and Challenge in ERP implementation

Correlations		Benefit	Challenges
Benefit	Pearson Correlation	1	.608**
	Sig. (2-tailed)		.000
	N	109	109
Challenges	Pearson Correlation	.608**	1
	Sig. (2-tailed)	.000	
	N	109	109

** . Correlation is significant at the 0.01 level (2-tailed).

As y-variable (challenge in ERP) tries to increase, the x-variable increase leads to a positive correlation between the variable's Benefits and Challenges as shown in **Chart -2**.

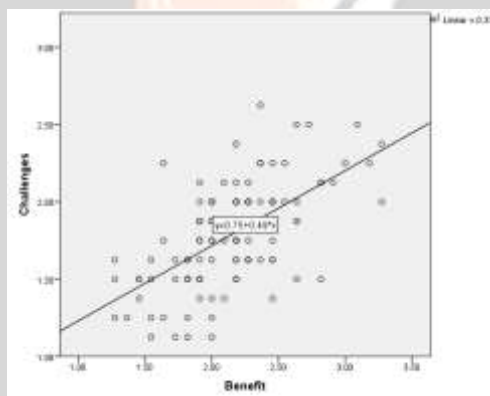


Chart -2: Scatter Plot showing a positive correlation

3.1 Regression Equation

A coefficient table was used to determine the regression equation with respect to the unstandardized coefficient and regression coefficient. From the table, the regression coefficient:

$$Y = 0.75 + 0.49 X$$

The regression coefficient of Challenge on benefit was found to be 0.49 which implies that respondents whose institutions use ERP were 0.486 which is more beneficial than that one without the ERP implementation. The regression coefficient is 0.00 (p-value < 0.005) which was at a significant level ($\alpha=5\%$) as shown in **Table -5**.

Table -5: Coefficient Table of Regression and Unstandardized coefficient

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	.745	.134		5.580	.000	.481	1.010
Benefit	.486	.061	.608	7.922	.000	.364	.607

a. Dependent Variable: Challenges

4. CONCLUSION

Research suggests that six factors play important role in students' perspective of ERP implementation. Current ERP functionality in Higher Education Institutions (HEI) of India is slightly different from the student's expectation. In a country like India where the potential of young talents is growing day by day, there is a need to provide quality education to its younger talents. Changes in the ERP system considering all challenges and its benefit should be tailored specifically to meet the demand of students. Therefore, ERP for Indian Higher education should consider students' benefit, resources, and skillful training for its employees and students which focuses on efficiency and effectiveness in management and administration. By implementing this idea management of higher education can achieve effective operation control and communication flow across different departments and its stakeholders.

Suggestion for future work is the exploration of other factors which hinder institutions from adopting useful ERP software. Research similar to this can be applied to other fields like Arts, Science, Engineering, etc.

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BIOGRAPHIES

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