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Factors Influence ERP Implementation Projects in Higher Education Institutes: ERP Consultants view

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ABSTRACT
Higher education could potentially benefit from implementing Enterprise Resource Planning Systems (ERP). However, implementing ERP systems in educational institute have proved to be a challenge for some HEIs.

This paper aims to contribute to the research field with the dimension of a deeper understanding of critical success factors (CSFs) in ERP implementation, with a specific focus on Higher Education Institutes from the consultants' point of view. The study recommends some major requirements and CSFs from consultants' points of view for the future ERP implementation process in Higher Education Institutes.

The study has conducted a systematic literature review to study the CSFs explored in the past by researchers focusing on HEIs. Based on that review, surveyed ERP consultants with the domain expertise in education and various other business sectors.

As a result, researchers showed the important factors to be considered in the ERP implementation process from a consultant's point of view. Though all factors found in the literature affect the success of ERP projects in Education, this study shows the significance of the need to build a systematic ERP implementation process for improving the performance and user satisfaction in educational ERP Systems to achieve the maximum ROI. The major critical success factors focused on by the consultants which are very important for success are Use of Project management practices for ERP implementation, the need to build a new model of ERP implementation strategy for the institutes and the ERP vendors to achieve the ROI, a dedicated role for the Project manager from start to end to execute, control and monitor ERP project and user performance, need to handle all the technical difficulties head-on, Efficient change management guidelines, continuous feedback, and training when there is a change from one system to other for better performance and user satisfaction, Involvement of user from the beginning in ERP improvement strategy will increase the performance and productivity.

The purpose of the study reported in this paper was to explore the challenges faced by HEIs implementing ERP systems based on a consultant's point of view. To explore these factors more clearly, a survey was conducted to ERP consultants having a key role in ERP systems implementation. The findings of this study should provide HEIs especially Top Management and ERP implementation Heads some important guidelines to better understand the likely challenges they may face during the implementation process. This may further help them to plan accordingly and take proper measures to help reduce the risk of implementation failures.

Keywords: Enterprise resource planning (ERP); Critical success factors (CSFs) , Higher Educational Institutes (HEIs)

Design/methodology/approach
A small-scale survey was designed and conducted among Digital Transformation consultants and ERP consultants. The data captured is analysed (n=105). In additions to this some interviews are also conducted to discuss and understand the views of consultants based on their experience in the domain. The results are mapped with the existing literature in the field of deploying ERP systems in the form of discussion.

Introduction

A properly selected and implemented ERP system offers several benefits, such as considerable reductions in inventory costs, raw material costs, lead time for customers, production time, and production costs (Davenport 2000; Grabski and Leech 2007; Koh and Simpson 2005; Somers and Nelson 2001). Therefore, the majority of enterprises around the world use ERP systems. Like other business sectors, ERP can offer benefits to Education sector as well if implemented successfully.

The integration of Academic and Administrative processes is necessary for institutions of higher learning to compete in

the current technology driven domain. The attention of higher learning institutions is rapidly being focused on enterprise resource planning (ERP) to streamline and enhance the administrative and academic functions. HEIs who lack the experience and expertise to implement the system fail to provide the strategic and operational benefits to the organization. This makes the process of implementation more difficult. Looking at these challenges the present study adds the more focused dimension of consultant's views, observations and suggestions to improve the results

Though successful ERP implementation can get various benefits to the HEIs, implementing ERP is a complex process. There are various internal as well as external factors which impact the ERP implementation process. There are various instances observed when HEIs are switching from one ERR software to the other because of ERP implementation failure or not getting the desired results from the process. The ERP implementation process needs extensive resources such as money, time and resources to handle the process. To deal with the challenges, most of the times, Organizations seek ERP consultants with expertise and experience in the domain for the projects. The consultants are expected to fill the gap between existing and necessary knowledge of the client to complete the project successfully.

A lot of research has been done during the last decade about the success and failure of ERP implementation. Most of the data these researchers analyzed often came from surveys of organizations which experienced ERP implementation. Many researchers also suggested some key points in overcoming the problems of ERP implementation according to their survey results (Gulledge, 2006; Moon, 2008).

This paper presents view and suggestions of Consultants to reduce the risk of ERP implementation in HEIs. The study comprehensively understands challenges, gaps and recommendations for ERP implementation from the consultant's perspective. The study has conducted a systematic literature review to study the CSFs explored in the past by researchers focusing on HEIs. Based on that review, a small-scale survey was conducted with ERP consultants having domain expertise in education and various other business sectors.

Also, Interviews were conducted with some of the consultants The results of the interview are analyzed and critical implementation aspects are suggested.

The survey responses indicate various CSFs like Use of better Project management practices for ERP implementation, the need to build a new model of ERP implementation strategy for the institutes and the ERP vendors to achieve the ROI, a dedicated role for the Project manager from start to end to execute, control and monitor ERP project and user performance, need to handle all the technical difficulties head-on, Efficient change management guidelines, continuous feedback, and training when there is a change from one system to other for better performance and user satisfaction, Involvement of user from the beginning in ERP improvement strategy will increase the performance and productivity. In addition, capturing proper requirements and specifications from client, client satisfaction is important to achieving project success in HEI when implementing ERP systems.

This study contributes by identifying some major CSFs from consultant's point of view.

Majority of CSFs are studied from the literature explored in the past by the researchers. These CSFs are mapped with the views of consultants to find the gap and suggest the recommendation to improve the process for better results. This study will be beneficial for HEIs, Top Management, ERP implementation Heads, ERP consultants, practitioners and researchers.

Literature Research

A systematic review of the literature on CSFs of ERP implementation was undertaken studying and exploring various dimensions focused in the past by other researchers. The initial search identified all the ERP implementation challenges and failure studies in the educational domain. This was followed by the focus approach on the CSFs and its impact on the ERP implementation process.

The failure of ERP implementation has led to several studies to investigate the Critical Success Factors (CSFs) that could influence the ERP implementation during and after implementation phases. Balogun, A. S. (2016).

There are various factors identified in the past research like lack of organization's top management support, ineffective user training, clear project requirement, lack of project team, proper planning as the pre- readiness of the project, lack of effective communication, incomprehensive business plan/ unclear vision, and lack of effective change management process.

In general, technological innovation, like ERP systems, is a means through which an organization can improve its overall efficiency and achieve a competitive advantage (Bhawsar & Chattopadhyay, 2015; Karia, 2018)

Technological advances have forced HEIs to undertake ERP benefits urgently since HEIs are heavily dependent on IT advances to stay competitive (Soliman et al.,2019).

Though this is the fact and many of the HEIs are going for the implementation process, the success rate is not very high. Unfortunately, most HEIs are still in a struggle to implement ERP systems successfully and reap the benefits of ERP to increase efficiency and productivity in the real sense. (Feldman et al., 2017; Soliman, 2015)

H. A. Eka et al. (2018) focused the study on evaluating the implementation of the Education ERP system in the university and identify the factors that influence the success in its implementation. The results of this research identified the critical success factors (CSFs) in the implementation of the education

Hsing-Jung Li et al. (2017) in their study explored the trend in technology, critical success factors (CSFs) in current research projects are ranked differently from those in prior ones. The study investigated possible CSFs for the life cycle of an ERP system. This study also analysed the effectsof CSFs from the perspective of Information Technology Governance (ITG). Thirty-five different CSFs were identified in the study.

Helo, P., Anussornnitisarn et al. (2008) have majorly analyzed in their study the expectation and reality in enterprise resource planning implementation from the consultants' and software vendors' point of view and process these further as requirements of future IT systems. The research has presented the consultants' opinions about the ERP implementation process .

Abdallah Abu Madi et al. (2024) conducted the study on the failure of Enterprise Resource Planning (ERP) implementation in higher education institutions (HEIs). In the research they have identified various categorises CSFs of ERP implementation in HEIs from multiple aspects. The main finding of this study is the identification and characterisation of three new sector- and context-specific CSFs. The researchers have identified new CSFs with evidence of successful implementation of ERP systems in the public higher education sector.

Balogun, A. S. (2016) have focused in their study the role of consultant in ERP success. Considering various difficulties and challenges in the process, researchers have analysed the importance of consultant as CSF in ERP implementation.

ERP systems are highly complex and difficult to implement (Xue, Liang, Boulton, and Snyder, 2005), and often require long implementation time and significant resources.

Although various CSFs of ERP implementation is studied in the past by researchers, the literature lacks to explain the consultants' views and recommendations to improve process and output.

Adopting Enterprise Resource Planning (ERP) systems is essential for managing business processes. However, Higher Education Institutions (HEIs) must be careful and proactive in assessing the readiness for implementing such systems to achieve the expected best results. Studies have shown that ERP implementation projects can be difficult and may not bring about the expected benefits if not implemented with proper planning and readiness

Though various CSFs studied in the past by researchers, the literature lacks to explain the methodical approach to an ERP Readiness assessment institute should take before ERP implementation. Therefore, this study is trying to develop a structured process for assessing the ERP Readiness institutes that should be ready in the planning phase before the ERP implementation.

Research shows there are various aspects and critical success factors studied towards better output but the readiness of the institute for ERP implementation as a complete study is a less explored area. The study focuses on the readiness of the institute as one of the important factors to be considered before taking up ERP Implementation project for the institute.

The purpose of this research is to identify gaps and propose improvements as a better model and readiness to improve the ERP implementation process and in turn improve the output of this process. The result of this research is to develop the framework using important factors studied with a case study. This research methodology uses a combination of qualitative and quantitative research methods.

The finding explains how the ERP readiness mechanism is significant mainly in the initial phase of planning with detail parameters that are important and need to be considered by HIEs before implementation.

The study by Soliman, M., & Karia, N. (2021) sheds light on the emergence of enablers and inhibitors explaining technological readiness insight for ERP adoption.

This study aims to understand better ERP readiness among HEIs to ease the substantial change required for the adoption process.
Okunoye et al. (2006) focuses on the case where they cover the key stages of implementation. Particular emphasis is placed on the selection of the ERP system and the organizational dynamics involved. The analysis of the case sheds light on the activities involved in ERP projects and what to expect during the implementation stage.

The purpose of the study by Mahmood, F et al. (2020) was to find current issues and challenges and assess the degree of criticality of these issues/challenges faced by organizations during ERP implementation. The topmost ten issues/challenges amongst 31 identified include top management approach, change management, training and development, effective communication, system integration, business process reengineering, consultants/vendors selection, project management, project team formation, team empowerment/skilled people and data conversing/migration

Research Gap & Research Focus
This section describes the Research gap and the research focus. Though Various CSFs are studied in various sectors and especially in HEIs in the past, the views of consultants to improve the ERP implementation process is a less explored area. Considering this gap, researchers have focused on Investigating CSFs in ERP Implementation in Higher Education Institutions from Consultants perspective. The aim of this study is to provide recommendations to the ERP implementation Heads and the Top management which can help them while planning for the ERP implementation.

Research Methodology:
This section describes the detailed methodology used to conduct the research. The aims and Objectives of the research were identified and supported in the design of the study.

The present study uses mixed methodology qualitative and quantitative both. To better understand the CSFs, researchers conducted a case study consisting of semi-structured interviews of ERP Consultants. The experiences, observations and the results from the study and interviews were synthesized and processed.

Primary data has been collected from ERP consultants involved in the process from Client HEI, Product Company and independent ERP consultants.

A structured questionnaire was adopted for collecting primary data from the consultants through the questionnaire method and in a few cases, wherever possible through the interview method, to collect information. Secondary data and literature study are taken from published articles, journals, periodicals, and research papers.

The study focuses on mapping the findings in the context of the HEIs with consultants' suggestions.

Digital Transformation consultants and ERP Consultants were requested to fill out the questionnaire, which includes small scale questionnaire related to the ERP implementation process and its impact on Success. A Likert scale consisting of 8 statements was designed to know their views and opinions about of ERP implementation process, challenges, and possible solutions.

Findings & Results
This study used the Statistical Package for Social Science (SPSS) to analyse the collected data.

Table No. 4.2: Frequency Table -Consultant

Total N = 105	**Frequencies**									
	Strongly Disagree		**Disagree**		**Neutral**		**Agree**		**Strongly Agree**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
There is a need to build a systematic ERP implementation process for improving the performance and user satisfaction in educational ERP System to achieve the maximum ROI?	**2**	**1.9**	**0**	**0%**	**0**	**0%**	**44**	**41.09**	**59**	**56.02**

Using best project management practices for ERP implementation projects can improve the performance and user satisfaction in educational ERP SYSTEM?	**12**	**11.4**	**2**	**1.9**	**19**	**18.1**	**29**	**27.6**	**43**	**41**
Implementing Education ERP and achieving user performance through it for Educational Institutes is a tough job. Do you think poor project management could be one of reasons for the failure?	**0**	**0**	**5**	**4.76**	**20**	**19.04**	**36**	**34.3**	**44**	**41.09**
There is a need to build a new model of ERP implementation strategy for the institutes and the ERP vendors to achieve the ROI?	**2**	**1.9**	**14**	**13.3**	**17**	**16.2**	**45**	**42.9**	**27**	**25.7**
There is a need to have a very specific and dedicated role for Project manager from start to end to execute, control and monitor ERP project and user performance?	**12**	**11.4**	**2**	**1,9**	**2**	**1.9**	**22**	**21.0**	**67**	**63.8**
Technical difficulties can make the institute ignore critical problems. Do you agree for a proper implementation, all the technical difficulties should be handled head-on?	**8**	**7.6**	**5**	**4.8**	**2**	**1.9**	**58**	**55.2**	**32**	**30.5**
Do you believe in Efficient change management guidelines, continuous feedback and training when there is a change from one system to other for better performance and user satisfaction	**2**	**1.9**	**4**	**3.8**	**0**	**0**	**50**	**47.6**	**49**	**46.7**
Do you think involvement of user from the beginning in ERP improvement strategy will increase the performance and productivity?	**9**	**8.6**	**0**	**0**	**0**	**0**	**63**	**60**	**33**	**31.04**

As shown in the frequency table above,
56.02% of respondents strongly agree and 41.09% respondents agreed on the need to build a systematic ERP implementation process for improving the performance and user satisfaction in educational ERP System to achieve the maximum ROI. The percentage of consultants who disagree on the need is very low which is only 2%.

Almost 43% of the respondents strongly agreed and 41% respondents agreed that using best project management practices for ERP implementation projects can improve the performance and user satisfaction in educational ERP SYSTEM. Only 1.9 % respondents disagree on this.

41.09% of the respondents strongly agree and 44% of the respondents agree that poor project management could be one of reasons for the failure in Implementing Education ERP and achieving user performance through it for Educational Institutes.

68.7% of the respondents agreed on the need to build a new model of ERP implementation strategy for the institutes and the ERP vendors to achieve the ROI.

Almost 63.8% of the respondents strongly agreed and 21% respondents agreed that there is a need to have a very specific and dedicated role for Project manager from start to end to execute, control and monitor ERP project and user performance.

55.2% of the respondents agreed and 30.3% of the respondents strongly agreed that for a proper implementation, all the technical difficulties should be handled head-on.

Almost 46.7% consultants strongly agreed and 47.6% consultants agreed that efficient change management guidelines, continuous feedback and training is important when there is a change from one system to other for better performance and user satisfaction.

Almost 60% consultants agreed and 31.04% consultants strongly agreed that involvement of user from the beginning in ERP improvement strategy will increase the performance and productivity.

Discussion & Recommendations
This paper tries to study various lacunas in the process from consultants' perspective to investigate ERP project critical success factors (CSFs) with a focus on higher education institutes (HEIs). Based on the findings and the results it can be concluded that for HEIs, factors like ERP project management practices and planning are equally important with other CSFs.

Study shows using best project management practices for ERP implementation projects can improve the performance and user satisfaction in educational ERP SYSTEM. There is a need to build a systematic ERP implementation process for improving the performance and user satisfaction in educational ERP System to achieve the maximum ROI

The goal of an ERP readiness assessment should be for the HEI to identify processes that need improvement and post-implementation objectives for the new processes.

Requirement analysis in terms of the financial, analytical, human and technical resources required to deploy, maintain and grow an ERP system should be clearly mapped in the beginning

A plan should be developed for managing change and mapping how teams will respond to the process and cultural changes ERP systems often bring.

The benefits of investing in an ERP system versus its costs over time should be clearly mapped and measured.

Dedicated Project managers from both the ends Client HEIs and the Product company should be responsible for overall planning, resource allocation, communication with leadership and system users. Risk mitigation planning should be done with clear course of actions.

Apart from project management skills, ERP project managers must possess excellent leadership, communication, technical, and problem-solving skills.

According to findings, it can be concluded that there is a need to build a systematic ERP implementation process for improving the performance and user satisfaction in educational ERP System to achieve the maximum ROI.
The major critical success factors and recommendations focused by the consultants which are very important for the success

of ERP implementation are as follows.

There should be Project management practices used for ERP implementation
There should be a new model of ERP implementation strategy build taking into account both the institutes and the ERP vendors to achieve the ROI. Dedicated and clearly defined role for Project manager from start to end to execute, control and monitor ERP project and user performance is very important.

All the technical difficulties should be handled head-on by the HEIs.
Involvement of the users are very important from the beginning to understand clearly the requirements and specifications.

Efficient change management guidelines, continuous feedback and training when there is a change from one system to other for better performance and user satisfaction is very important and should be conducted systematically.

Maintaining best user experience withing given scope, timeliness and cost is important in the process. As-is to-be process & Fit-Gap Analysis is very important. Defining expected outcomes of ERP , Study as-is process (study exceptions, and data relations and business rules and use cases), Process Mapping, identifying gaps, identify solutions to the gaps , configure ERP, hold demos and seek user feedback, fine tune, Hold conference room pilot , refine, go live includes data conversion and user testing and user training should be important steps and should be given significant in the process.

Other than any usual best practises, also key aspects to closely track are organisational change, roadmap, communications, user training and feedback is extremely important according to the consultants' views.

Process documentation, detailed user requirement, continuous validation of design by testing with business users, freeze scope extension towards UAT are few of the key elements ERP implementations require significant rigor and participation across the organization. A formal methodology helps in navigating the journey easier

Before the implementation starts, there should be a kick-off meeting with the client and the ERP implementor. Setting the roles and responsibilities at both ends is important. Setting realistic timelines is significant. Defining modules to be implemented in Phases i.e. start the basic few modules, and then the modules that are not show stoppers can set the right roadmap.

There should be a single point of contact (SPOC) from both ends. Too many people communicating may lead to mismanagement. Thereby, no one will be in control of the project.

Frequent communication, Inclusion of all the major stakeholders who are going to be the end user of the platform, Selection of modules in a critical way as it shoots up the cost ,Frequent post implementation feedbacks and continuous improvement ,Customer alignment, managing expectations, change management, business process blueprinting, dedicated team on customer side with designated roles, Driving the implementation project in a phased manner, doing pilot runs and driving the process keeping end user's perspective in mind, Clear requirements are the major parameters should be considered in the process. Roles for users should be identified in advance.360 Integration with Covering all business area, inclusion of all stakeholders from the get go will make it easier for everyone to accept the new system and adopt it can greatly reduce the change management issues in future.

Best practices should be to start with proper understanding of ERP in the users and educate them about the possible drawbacks of heavily customisation of ERP. Further clearly define customisation requirement and analyse if any of them can be avoided by tweaking the processes. Finally defining sign-off criteria and avoid changes or deviations during implementation also play important role in the success according to consultant's views.

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