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Research Article

Sustainable Business With Adoption Of Erp Technology For Functional Implementation

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ABSTRACT

Purpose: *The purpose of the study is to assess the sustainability in the business and challenges it has got. It also tries to understands the significance of ERP in the business management. The adoption of ERP technology has improved the functional status of the business, leading to increase in their profitability.*

Methods and Data*: A total of 5 companies in Mumbai in the field of Healthcare, manufacturing, small enterprises, e-commerce, and non-profit organizations, were identified. Information from the past and the present were included in the research. The data was collected to portray information logically, using both quantitative and qualitative methods. It will give a clear picture of Pre and Post ERP implementation challenges and benefits.*

Findings: *business and market by and large were predictive. ERP implementation life cycle worked on a fixed framework with definite Scope, Time, Budget, and Timeline. Hence the waterfall model was the best choice to go for any software implementation.*

Policy Implication: *Over the years market situations changed and project management for ERP started moving from a waterfall to an agile model to cope with ever-changing business requirements.*

Keywords: Functionality, Implementation, Programming, ERP Technology

1. INTRODUCTION

Accurate information that is promptly made available is crucial to every step in a modern organization if it is to survive in the cutthroat market of today. Real-time information about demand and supply for materials, machine production lines, stock (regionally, locally, or facility-wise), respective up-to-date ledgers, stock allocations, quick and informed decisions about whether to manufacture goods internally or externally, accurate invoices, AP, AR, etc. or historical information about country-, region-, sector-, customer-, and product-level information based on historical data.
In fact, this information has grown to such a large extent that software systems had to be implemented to capture and retrieve information promptly. Since no decision can be made without information nowadays, information systems are the lifeblood of organizations. As a result, businesses use enterprise resource planning (ERP) software to obtain a competitive edge over rivals and provide on-time service to customers.

An ERP software unifies all operational business sectors, such as procurement, sales, production, inventory management, logistics, quality assurance, billing, and finance, into a single system used across the entire company. Systems for enterprise resource planning may be regarded as one of the most significant advancements in the use of information technology in the corporate sector. ERP enhances the customer experience. Modernize corporate processes and systems, automate business solutions, boost operational efficiency, and improve competitiveness.

If businesses effectively use this software, customizing the business processes to correspond to organizations' most recent Standard Operating Procedure, they will get a significant return on their investment (SOP). Despite all these benefits, the project success rate for implementing ERP software is quite low. Previous research has shown that inefficient change management, budgeted implementation cost overruns, and implementation time overruns are all factors in software implementation failure.

The organisation should be completely aware of its own business process, including its strengths and weaknesses, system dynamics, current place and position in the market, as well as constantly changing dynamics that affect and have an impact on the world, the country, the sector, and ultimately the organisation itself. During the review process, this understanding must be there for the organisation to be able to make informed decisions.

Throughout the 1990s, ERP systems saw more development. The introduction of cloud ERP, originally made available by NetSuite in 1998, was one significant development. Businesses may access crucial corporate data on the web from any device with an internet connection using cloud ERP, which is usually seen as an enhancement over on-premises systems. Companies no longer had to buy and maintain hardware thanks to cloud solutions, which reduced the need for IT personnel and made installations simpler. Due to the cloud model, formerly only available to large corporations, ERP systems are now now available to smaller businesses who lack the funding to develop and maintain a resource-intensive on-premises solution.
Small and medium-sized organisations might get the same advantages as their bigger competitors across all industries, including automated procedures, higher data accuracy, and increased productivity.

Today's top ERP systems are vast databanks that can provide reports that showcase the accomplishments of every division inside a business, from sales and marketing to product development to HR and operations. Applications have been developed and are easily available for a variety of issues, business models, and industries. Here, ERP serves as the control centre for what may be a sizable software network.

2 LITERATURE REVIEW

2.1 Chairunnisa Kuntum (2019): An ERP system is a piece of technology that aids in the organization and integration of information for corporations and other organizations. Because ERP is a complex and expensive technology, its deployment requires a user who can utilize it. To collect the data for this empirical investigation, deliberate sampling is performed. The study's respondents were 45 users from a manufacturing unit in East Java. In this study, regression analysis was used to assess the hypothesis rather than the hypothesis test itself. The results of this study showed that the quality of accounting data was significantly impacted by the use of ERP systems.

2.2 Muhammad Siddique and Abdul Sam (2018): ERP system adoption by users must be evaluated to determine its impacts. Whether or whether the system's benefits are realized directly depends on how much people use it. ERP systems fall into a category that needs more empirical study since user performance evaluations and the post-implementation phase give them less attention.

2.3 Pralay Pal & Vijay Kumar Jha (2016): The conclusion of their work's literature review focuses on four main aspects of the issues with ERP adoption. When deploying ERP, organizations may see several advantages, including cost reductions and time or additional effort savings.

2.4 Khaled Almgren & Cristian Bachthe (2014): Several implications of the ERP system have been covered in this study. The results are operational and managerial. The Success Scheme is suggested in the study (SS). Eight stages make up the SS. A graduate-level class where the idea was presented and debated also included a survey. Some changes to the system were made following the study of the survey. The work may yet be improved. The success scheme may be improved by including additional specific components of the ERP project, such as customization, as well as by using the scheme in a real project to assess its efficacy.

2.5 L. Yang, (2012), Author discusses a model that is backlogging the Inventory partially for deteriorating items with fluctuating selling prices and purchasing costs. The author mentions advances in operations research and how fluctuating cost prices impact the selling prices directly/indirectly and in turn, create an imbalance in revenue forecasting rather than dynamic revenue forecasting. In dynamic fluctuation, how to plan profits. The author has taken a time frame and developed an algorithm to arrive at some conclusions.

3 OBJECTIVES OF THE RESEARCH

3.1 To Identify areas in resourcing that can improve the Quality of the projects in achievement sustainable business developments.

3.2 To identify gaps in project management practice during ERP implementations and suggest an approach toward boosting project performance of the businesses.

4 HYPOTHESIS OF THE STUDY

Hypothesis 1: Product Training to customers at the start of project helps improve quality of implementation project.
Hypothesis 2: Customer Satisfaction can be improved significantly, with effective project communication.
Hypothesis 3: Re-assessing Project deliverables/scope periodically can help mitigate risk of changing market and customer demands.

5 SCOPE OF RESEARCH WORK

To achieve the above-mentioned objectives, The research's focus would be limited to the following industries, sectors, and geographical areas:

5.1 Industry/Sectors: This research study featured certain manufacturing and trading/logistics industries, particularly in the textile, food, and beverage industries, which had successfully deployed ERP systems in their organizations or were in the process of doing so. Generating reduced cost of manufacturing and operations, hence obtaining an edge over competitors.

5.2 Geographical: The research involved customers and vendor businesses deploying various ERP systems from India and Europe.

5.3 Targeted Respondents: The respondents targeted would be people from ERP implementing customers as well as vendors who are/were performing the roles of CIO, CTO, End User, Key User, Functional Consultant, Business Process Owner, Operations (HOD), Program Manager, Project Manager, Functional Consultant / Business Process Owner, Solution Architect, Technical Consultant / Technical Responsible, Project Sponsor, Sales (HOD), Operations (HOD), Others

6 RESEARCH METHODOLOGY

This research methodology involves, a study of various Case studies, Reports, and scenario analysis, and important executives in customer and vendor companies were interviewed. A total of 5 companies in Mumbai in the field of Healthcare, manufacturing, small enterprises, e-commerce, and non-profit organizations, were identified. Information from the past and the present were included in the research. The data was collected to portray information logically, using both quantitative and qualitative methods. It will give a clear picture of Pre and Post ERP implementation challenges and benefits.
The Research Area would be focused on customers and vendors implementing ERP in India within sectors of Manufacturing and Trading/Logistics and Industries like Textile, Food, and Beverages.

7 DOMAIN-WISE COVERAGE OF ERP MECHANISM

Implementing ERP software may help businesses save 25% to 30% on inventory expenses and 15% to 20% on raw material expenditures. The program guarantees a seamless exchange of information across functional boundaries, improving efficiency and decision-making. Throughout the projected period, it is anticipated that an increase in the number of SMEs in developing nations like China, India, and Brazil would drive up product demand. It is anticipated that the uptake of IT technology in these economies would alter customer behavior and boost the use of ERP software rather than manual processes.

The availability of mobile device integration and low infrastructure costs are anticipated to drive up demand for cloud services. Businesses are prepared to spend money on cloud-connected mobile applications that make it easier to synchronize, update, and manage documents. Since the COVID-19 epidemic, there has been a surge in demand for cloud-based ERP systems, particularly from small- and medium-sized firms, which is expected to present several possibilities for market participants. The market for ERP software is expanding as a result of a boom in the usage of cloud and mobile applications.

Companies may now implement a single platform that oversees all operations thanks to the growth in business apps and the volume of data generated by various supply chains. The market has grown as a result of expanding automation and technology deployments in the supply chain management process, which has also raised the demand for ERP systems.

8FINDINGS

8.1 Was the Risk Register maintained and used effectively to highlight Risks and Mitigate those risks proactively?

Response: The risk Register is a key artifact towards risk management in all projects

Table 1: Risk Register

Risk Register maintained	%
Yes	84.7 %
No	15.3 %

In project management, a risk register serves the objective of keeping track of all recognized hazards, their analysis, and methods for handling them.

It generally consists of a document that lists hazards, indicates their seriousness, and outlines the actions that must be taken to lessen the risk. The risk register database is a management tool that project managers can use to monitor the risk management protocols for their projects. The risk register must be updated by the project manager whenever it becomes required. Typically, updating the risk registers falls under the purview of the project control function.

8.2 Was the ERP Software Vendor's Goal/objective of the ERP Project Achieved?

Response: Software Vendor's only bread and butter are, the success of the project and building reference customers while managing a decent profit margin

Table 2: Vendor Goal

Vendor Goal Achieved? (1 to 5) (i.e., Strongly Disagree to Strongly Agree)	%
1	0 %
2	5.1 %
3	11.9 %
4	47.5 %
5	35.6 %

One needs to always remember the evaluation criteria based on which a particular Vendor was selected for ERP implementation and accordingly periodic evaluation of those criteria needs to be done.

8.3 Was the project completed within the agreed budget?

Response: Key power boosters can help improve projects to complete within budgets

Table 3: Budget Management

Budget Management	%
Completed on Budget	62.7 %
Completed but with 50% Over budget	28.8 %
Completed but with 100% Over budget	5.1 %
Projects Failed	1.7 %
No Idea	1.7 %

The budget against reality comparison is one criterion used to assess the effectiveness of ERP project execution. Making a detailed and reasonable ERP budget is the first step in achieving this objective before the project even begins.

8.4 Descriptive statistics of Functional Domains.

Response: 100% of the Respondents here have work experience in a specific function/domain of Manufacturing, Trade/Logistics with Finance being an integral part of ERP.

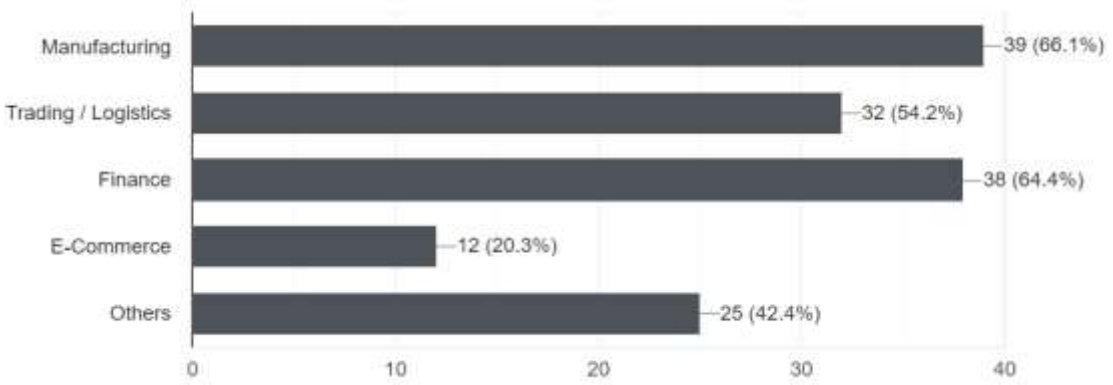

Figure 1 (Function/Domain-wise coverage)

Interpretation: The scope of this research work is specific to domains like Manufacturing, Trading/Logistics, and integrated Finance. As per the survey results 100% of the respondents have worked in these domains. In addition to this, they also have experience in other functional domains. In the ERP implementation if the respondent has executed end-to-end implementation workflow/user cases then it elevates them to a niche category where they get recognized as an overall solution champion. In some organizations, they are called as solution architects. The survey feedback is expected to be rich with data considering the overall experience of what works and what does not, for those specific domains. Also, how changes in these specific domains impact other domains.

9 SUPER USERS

Once the implementation is complete, Super Users are regarded as the internal cross-functional specialists. Super Users are responsible for becoming comfortable with the new ERP system. Super-users are essential to the project's post-implementation stage, but by identifying and involving them early on, they can develop the knowledge and familiarity with the ERP solution needed for knowledge transfer to the rest of the company.

The super-user may also serve as the project manager in smaller businesses or with ERP systems that are less complicated. In contrast, numerous super-users who represent the various functional divisions of a larger firm may exist. The super-user works closely with the change management team, the implementation partner, or the vendor to obtain the necessary software training and participate in the implementation process.

The super-primary user's duties include the following:
• Be involved in the implementation process.
• Create a strategic training strategy for system administrators or technical users in collaboration with the project manager.
• Compile information on user experience and offer advice.
• Provide current and potential customers with technical help.
• Give the implementation partner a thorough understanding of their business domain.
• Guide coworkers on how to use these new programs and processes as well as the ERP system.

10 Comprehensive Analysis of data for Hypothesis testing

Hypothesis 1:

H_0: Product training to customers at the start of project does not improve quality of implementation project
H1: Product Training to customers at the start of project helps improve quality of implementation project

Table 4: Hypothesis 1 Product Training

When was product training provided to customers?	Was Product training effective?				Total
	Disagree	Neutral	Agree	Strongly agree	
At Start of the project	1	2	7	4	14
During Mid of the project	0	2	4	4	10
Nearing End of Project	1	1	0	2	4
Multiple times at various stages of Project	0	4	7	12	23
Training was not provided at all	0	0	1	1	2
Total	**2**	**9**	**19**	**23**	**53**

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.893[a]	12	.538
Likelihood Ratio	11.168	12	.515
Linear-by-Linear Association	1.462	1	.227
N of Valid Cases	53		

Since the p value is less than 0.05 (p=0.538), it cannot be concluded from the above table that product training delivered at the beginning of a project has any meaningful impact on its effectiveness. We so agree with the null hypothesis.

Hypothesis 2:

H_0: Customer Satisfaction cannot be improved significantly, even after improving effectiveness of project communication

H1: Customer Satisfaction can be improved significantly, with effective project communication

Table 5: Hypothesis 2 Customer Satisfaction

Was Project communication during ERP implementation effective enough to drive project activities/objectives at all levels i.e., from Senior Management to End User and vice-versa?	Was Feedback collected from all project team members and appropriate actions taken proactively?					Total
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Disagree	0	1	0	1	0	2
Neutral	0	1	5	3	0	9
Agree	0	0	7	16	2	25
Strongly agree	2	0	1	4	10	17
Total	**2**	**2**	**13**	**24**	**12**	**53**

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	43.676[a]	12	.000
Likelihood Ratio	38.176	12	.000
Linear-by-Linear Association	6.966	1	.008
N of Valid Cases	53		

Significant correlation between project communication throughout ERP installation, team member input, and proactive action done has been identified from the above table, since the p value is less than 0.05. As a result, we accept the alternative hypothesis and reject the null hypothesis.

Hypothesis 3:

H_0: Re-assessing Project deliverables/scope periodically does not mitigate risk of changing market and customer demands

H_1: Re-assessing Project deliverables/scope periodically can help mitigate risk of changing market and customer demands

Table 5.6: Hypothesis 3 Project deliverables/scope re-assessment

Did re-assessing Project deliverables/scope periodically help mitigate risk of changing market and customer demands?	Was Feedback collected from all project team members and appropriate actions taken proactively?					Total
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Disagree	0	2	0	1	1	4
Neutral	0	0	4	3	0	7
Agree	0	0	9	15	1	25
Strongly agree	2	0	0	5	10	17
Total	2	2	13	24	12	53

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	56.038[a]	12	.000
Likelihood Ratio	46.991	12	.000
Linear-by-Linear Association	5.555	1	.018
N of Valid Cases	53		

From the above table significant association has been found between re-assessing Project deliverables/scope periodically help mitigate risk of changing market and customer demands and the feedback collected from the team member and the appropriate action taken proactively as the p value is less than 0.05. So, we reject the null hypothesis.

11 RECOMMENDATIONS

The overall study has provided positive results towards the Hypothesis of this research.

Hypothesis 1: Product Training to customers at the start of project helps improve quality of implementation project. As 37% of the customer responded that they received training at the start and multiple times during the project, further 66% of the respondents mentioned that they have received training at least 2 to 4 times, while 17% of the respondents believed that Training at the start of the project can improve the Project Quality and Efficiency.

Hypothesis 2: Customer Satisfaction can be improved significantly, with effective project communication. 50.9% of the respondent's emphasis having periodic CSAT survey's enabled transparency

ensuring timely action and customer buy in to decision making process. 79% of the respondents mentioned that the communication adopted during ERP implementation has been effective enough to drive project objectives. While 68% of the respondents further mentioned that the feedback was also collected from the project team members and appropriate actions were taken on the same which was instrumental in corrective actions. 46% of the respondents strongly believed that having Effective Project Communication is key to Improve Project Quality & Efficiency.

Hypothesis 3: Re-assessing Project deliverables/scope periodically can help mitigate risk of changing market and customer demands. 61% of the respondents claimed that the scope of the project changed frequently whereas 79% of the respondents believed that re-assessing project deliverables helped them mitigate risk of changing market conditions and customer demands. 40% of the respondents also mentioned that Re-assessing the project deliverables / scope periodically can help in improving Project Quality & Efficiency.

12 CONCLUSION

Traditionally ERP products attracted the business world since it was a one-stop solution to run all functions of the business. At the same time business and market by and large were predictive. ERP implementation life cycle worked on a fixed framework with definite Scope, Time, Budget, and Timeline. Hence the waterfall model was the best choice to go for any software implementation. Over the years market situations changed and project management for ERP started moving from a waterfall to an agile model to cope with ever-changing business requirements. As we know ERP touches all departments within the organizations starting from Planning to Procurement to Manufacturing to Marketing, Supply Chain Logistics, and Sales right up to Finance, there are too many variable factors to manage. Hence it is imperative that during the implementation life cycle, the project team needs to continuously identify the apt power booster and implement them promptly to keep the objective of the project alive all along the project duration of months/years.

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