

HIGHLY INFLUENCING FACTORS FOR ENHANCING THE PERFORMANCE OF ERP TEAMS

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Abstract- Enterprise resource planning (ERP) is a business process management software that consists of a set of software applications which allows the organization to define, organize and standardize the processes to affectively plan and control. For any small, medium and large ERP implementations, the basic prerequisite is to identify an appropriate and suitable ERP solution for the respective business which is not only a tedious process but also takes a good amount of time to finalize the ERP solution. Review of literature is done to identify the research gaps to identify the research objective. The data, collected from 413 software professionals working with software vendors, implementation teams and the key business users from India, Kenya, Malaysia and Kingdom of Saudi Arabia, are analyzed by using SPSS software. Statistical tools like reliability analysis, sample size calculator, KMO Bartlet's test and factor analysis etc. are employed to draw meaningful inferences. Out of 68 questions shared with the audience to get the responses for the research on enhancing the performance levels of ERP project implementation teams, 12 highly influencing factors are identified and the results are discussed.

Keywords- Enterprise Resource Planning (ERP); Implementation teams; Critical Success Factors (CSFs), First Time Right (FTR).

I. INTRODUCTION

The ERP system also allows the organization in using different integrated applications to meet the business practices and systematize many of the back office functions associated with technologies, services and human resources. Enterprise resource planning (ERP) system has been one of the most popular business management systems, providing benefits of real-time capabilities and seamless communication for business in large organizations (Sarmad Alshawi, Marinos Themistocleous, Rashid Almadani: 2004). However, not all ERP implementations have been successful, as ERP implementation affects entire organizations such as process, people, and culture. There are a number of challenges that companies may encounter in implementing ERP systems. By identifying, controlling and minimizing the major business risks in the first instance, the scene can be set for the successful implementation of an ERP system (Severin V. Grabski, Stewart A. Leech, Bai Lu.: 2001).

1.1 Review of Literature

There has been growing research on the matters and concerns on the human aspect of the employees, which has not limited itself to the developed nations alone, but with the upturn of world economy and globalization, has percolated to the developing nations as well whereon the onus of delivering to the original stakeholders lies, as outsourcing becomes the buzz word of today's business scenario (Majed Al-Mashari: 2002). A project is a success or failure; it purely depends on the phase of implementation of the project. The product may have lots of lacunae or issues which cannot be solved or will be solved over

a period of time (Placide Poba-Nzaou, Sylvestre Uwizeyemungu, Louis Raymond, and Guy Pare: 2012). It is the team of Implementation which makes the project a success or failure with their abilities of dealing with the client and maintains the relationship by taking time for the shortcomings to be fixed or to convince the client for alternative solutions (C. Venugopal, K. Suryaprakasa Rao: 2011). The key would not only be the importance of the quality of the software, but especially the importance of the implementation phases' management, which requires both technical and managerial ability of the team made up of people from the system integrator and the company's key business users (Alberto Felice De Toni, Andrea Fornasier, Fabio Nonino, (2015).

Implementation of ERP solutions in any organization typically carries wide range of impacts across the organization and various business processes. Once ERP is implemented, most of the organizations select a reduced cost method for modifying their business processes to be in line with ERP system, however, this method isn't essentially be the best option. (Stanislav Prokopiev: 2014). In recent times, organizations, small, medium and large in nature are going towards implementing the ERP solutions. Basically, implementing an ERP solution comes with a good amount of cost involved, where human resources plays an important and vital role in executing the solution. ERP solution basically used for control and to organize all the resources, information and the functionality across the organization (Anubhav Kumar and Shanu Verma: 2013). Also, ERP systems are generally complex, extensive, expensive and risky in nature which usually goes through several challenges. Thus it is

pertinent to accomplish initial readiness assessment before the project is initiated so as to identify the weaker areas for which the project may get into a failure (Hanafizadeh and Ravasan: 2011). Fundamentally, the ERP Solution is to enrich the quality and productivity by integration of several systems, standardization and simplification of various organizational transactions (Dimitrios Maditinos, Dimitrios Chatzoudes, Charalampos Tsairidis: 2012).

The practice of implementing ERPs in multinational companies have experienced good amount of success where integration of different individual solutions across the geographical locations, by maintaining a single database which gives an edge of getting information at one shot (Nah, F.H., Islam, Z. and Tan, M.: 2007). The measurement of ERP solutions success or efficacy is crucial to the understanding of the value and effectiveness of ERP investment and managerial actions. The success models of the traditional systems whether to be extended to investigate ERP solutions success is yet to be investigated (Chien, S.W. and Tsaur, S.M.: 2007). Several researches on ERP implementations have drawn most of the attention over the last couple of decades, where various studies have taken place by several prominent authors and scholars in the areas of factors which are affecting the success or failures of implementing Enterprise Resource Planning Systems (Kamhawi, E.M.: 2007).

For any small, medium and large ERP implementations, the basic prerequisite is to identify

an appropriate and suitable ERP solution for the respective business which is not only a tedious process but also takes a good amount of time to finalize the ERP solution. Selection of ERP solution is equally important as the ERP implementation. Most of the organizations will go for the solution by the brand or word of mouth rather than analyzing the suitability of the solution with the kind of their business and processes (T.R.Bhatti: 2005). An ERP implementation success can be derived as understanding the output of ERP implementation, within the budget, within the timelines and overall with a satisfactory Return on Investment (RoI).

Over the past couple decades various market analysis and research have thoroughly studied the basic fundamentals of most ERP failures. This is to address productively these basic fundamental failures which undoubtedly ensure an ERP implementation as a success story (Al-Shamlan H. M., Al-Mudimigh. A. S.: 2011).

1.2 Critical Success Factors for ERP implementation from different Scholars:

Identifying, categorizing and testing of various such critical factors drawn from the several literatures which would affect the ERP success or failure is one of the main stream of the current research and also, the enhancement of ERP implementation teams performance is concentrated. The following table illustrates the CSFs identified by three researchers.

Table 1.1: Critical Success Factors from different Scholars

22 Critical Success factors of Alaskari, Ahmad, Dhafr, and Pinedo-Cuenca (2012)	26 Critical Success factors of Hairul, Nasir, and Sahibuddin (2011)	22 Critical Success factors of Somers and Nelson (2001)
Business process reengineering	Process-related factors	Business process reengineering
Change culture	Adequate resources	Careful selection of the appropriate package
Change management	Appropriate development processes/methodologies (process)	Change management
Clear goals and objectives	Clear assignment of roles and responsibilities	Clear goals and objectives
Data accuracy	Clear objective/goal/scope	Data analysis and conversion
Effective communication	Clear requirements and specifications	Dedicated resources
ERP package selection	Effective change and configuration management	Defining the architecture
Financial resources	Effective communication and feedback	Education on new business processes
Interdepartmental cooperation	Effective monitoring and control	Interdepartmental communication
Legacy system management	End-user training provision	Interdepartmental cooperation

Minimal customization	Frozen requirement	Management of expectations
Project champion	Good quality management	Minimal customization
Project management	Proper planning	Ongoing vendor support
Project manager	Realistic budget	Project champion
Project team organization and competence	Realistic schedule	Project management
Sponsorship	Risk management	Project team competence
System technological	Up-to-date progress reporting	Steering committee
Top management support	People relevant factors	Top management support
Upgrading infrastructure	Committed and motivated team	Use of consultants
Use of consultants services	Effective project management skills/methodologies (project manager)	Use of vendors' development tools
User training and education on software	Good leadership	User training and education
Vendor support	Good performance by vendors/contractors/ consultants	Vendor/customer partnerships
	Skilled and sufficient staffs	
	Support from top management	
	User/client involvement	
	Technical-related factors	
	Complexity, project size, duration, number of organizations involved	
	Familiar with technology/development methodology	
	Supporting tools and good infrastructure	

1.3 The Research Methodology

The sample considered for the present research is subjected to the various ERP implementation partners, business users and vendors. The simple random & multi stage sampling techniques were considered for the study. It is quite important for any study to have an acceptable sample size to arrive at a statistically significant result. According to the sample size calculator the minimum sample requires is 383 and for the purpose of the present study a sample of 413 is considered, which justifies the validity of the statistical analysis presented below. The sample consists of 338, 31, 23, 21 from India,

Malaysia, Saudi Arabia and Kenya respectively. The data are collected and analyzed during 2016.

1.4 Respondent's demographic profile

Out of all the demographics requested from the respondents for the research study, the core parameters such as designation, organization, number of years of experience in ERP implementations, number of ERP projects executed, average timelines taken to implement the ERP projects, average team size considered for the ERP implementations, education and total experience in IT industry have been evaluated further. For example the following tables are presented below:

Table 1.2: Designation of the Employees

Role of the Employee	Frequency	Percent	Valid Percent	Cumulative Percent
Implementation Team	156	37.8	37.8	37.8
Middle Management	121	29.3	29.3	67.1
Leadership Team	136	32.9	32.9	100.0
Total	413	100.0	100.0	

INFERENCE: Based on the above table 37.8 percent of the respondents are from the junior level, 32.9

percent of the employees are from the senior level and the remaining are from the Middle level.

Table 1.3: Organization of the Employees

Organization of the Employee	Frequency	Percent	Valid Percent	Cumulative Percent
Implementation Partner	171	41.4	41.4	41.4
Business Users	35	8.5	8.5	49.9
Software Vendor	207	50.1	50.1	100.0
Total	413	100.0	100.0	

INFERENCE: Based on the above table 41.4 percent of the respondents are of Implementation Partners, 50.1 percent are of Software Vendors and 8.5 percent are of other organizations.

1.5 Survey Questionnaire

The questionnaire basically contains two parts, demographic data which is Part-A and Part-B(68 questions) is the combination of demographic factors and responses received from the audience about enhancing the performance levels of ERP Project Implementation Teams.

1.6 Summary of Findings

The data, collected from 413 software professionals working with software vendors, implementation teams and the key business users from Hyderabad (India), Kenya, Malaysia and Kingdom of Saudi Arabia, are analyzed with the help of various statistical tools like Reliability Analysis, KMO Bartlett's test and Factor Analysis to identify the highly influencing factors(CSFs). The study reveals that, to enhance the performance of ERP implementations, the major pre-requisites are involvement of leadership team, middle management ownership for the deliverables, training and development for the Implementation team and their thirst to learn & deliver besides support and

motivation from the management to achieve the success.

1.6.1 Reliability analysis:

Cronbach's alpha values for all the dimensions (Client Expectations, ERP Team Competency, Perks to ERP Teams, Creating awareness to clients, deliverable and deadlines, resource management, risk mitigation, quality assurance and FTR(first time right), management skills and involvement, project management) are 0.740, 0.679, 0.805, 0.739, 0.669, 0.662, 0.760, 0.804, 0.629 and 0.815 respectively. These values are high and indicate strong internal consistency among the dimensions.

1.6.2 Factor analysis

The KMO value $0.689 > 0.5$, therefore, the considered sample was good to proceed for further statistical analysis. For Bartlett's Test of Sphericity, the sig. value is < 0.05 , therefore the data are eligible to proceed with factor analysis.

The principal component matrix gave the component matrix and is rotated using the varimax rotation technique which gave the rotated component matrix. Rotation of factors helped better interpretation of factors. The final list of 12 factors which collectively account for 70.43 % of the variance in the data is shown below:

Table 1.4: Highly influencing factors

SI.NO.	FACTOR NAME	FACTOR LOADING VALUE	Q
1	Thorough CRP (Conference Room Pilot) sessions	0.675	Q43
	Change in business goals/priorities	0.661	Q49
	Common name: Understanding change in business goals and priorities.		
2	Discussion of critical success factors in the onsite project kick- off meeting	0.855	Q9
3	Successful project execution by teams within timelines.	0.865	Q68
4	Involvement of project implementation teams from the product demo stage to sign-off stage.	0.647	Q12
5	Agreeing-upon unrealistic timelines for ERP Implementation with the clients.	0.784	Q33
	Utilization of existing manpower irrespective of project requirements.	0.756	Q24
	Time allocation for requirements gathering phase.	0.751	Q45
	Common name Optimum utilization of time and manpower		

6	Before the project kick-off, client nomination of project manager from their side	0.717	Q4
7	Competency of ERP team to understand client's business process	0.752	Q34
8	While ensuring resource billability, maintaining backup for the critical resource replacements	0.803	Q39
9	Onsite project kick-off meeting between ERP Implementation team and Client's steering committee.	0.756	Q7
	Project expectations setting meeting with the client.	0.705	Q1
Common name Onsite project kick-off meeting and project expectation setting meeting			
10	Prioritization of the tasks for the shared resources working on multiple projects.	0.784	Q51
11	Project manager's Effective handling of multi organization, multi locational and multi lingual requirements.	0.747	Q54
12	Educating client on project preparedness.	0.68	Q2

Out of 68 questions shared with the audience to get the responses for the research on enhancing the performance levels of ERP project implementation teams, the above mentioned 12 variables are highly influencing factors. It may be observed from table 1.1. and 1.4 that the results of the present study are in synch with the studies of Alaskari, Ahmad, Dhafr, and Pinedo-Cuenca (2012), Hairul, Nasir, and Sahibuddin (2011), Somers and Nelson (2001).

1.7 Limitations

The present study could not focus on the inter comparison of influencing factors across sample nations viz. India, Malaysia, Kenya and Saudi Arabia. Further, the study could not focus on the role of intrinsic, extrinsic rewards and empowerment that motivate ERP implementation teams to enhance their performance levels.

1.8 Scope for future research

Future studies may focus comparison of influencing factors across nations so that an instrument may be developed to generalize the findings and a key developed to benchmark the performance of the ERP implementation teams. Studies on the impact of intrinsic and extrinsic rewards and empowerment on the performance of ERP teams would through light on the management of ERP implementation teams.

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