

ERP Systems and their Effects on Organizations: A Proposed Scheme for ERP Success

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Abstract – The world has become more digitized. Businesses are relying upon technology to enable them to improve their business forms. Companies are searching for an information system that can deal with gigantic workloads. This is the place Enterprise Resource Planning (ERP) systems become an integral factor. An ERP coordinates various subsystems into one gigantic system that shares one database. It improves productivity and conveys more benefit to companies (Hasselbring, 2000). The motivation behind this paper is to address the impacts of ERP systems on organizations. The paper will talk about these issues and present a scheme to conquer them. Research was completed with articles, just as books, to accumulate the appropriate resources that will help us in examining the factors that add to ERP systems. Huge numbers of the articles are from IEEE journals. A huge volume of data was gathered that speaks to a large number of users. Examining the gathered data will give researchers knowledge into the impacts achieved by ERP systems. Furthermore, the paper will investigate these issues and their effects on organizations.

Keywords—Enterprise Resource Planning, Customization, Information System

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I. INTRODUCTION

Since the start of organizations, strategies were researched to improve business forms. This is when PC systems and databases were acquainted with the business world. Making an information system encourages the organization to keep up its data and utilize its procedures. At first, it was an extraordinary plan to have a PC play out a procedure a lot quicker than a human can do. It was additionally fantastic to store a large number of papers into a drive that is littler than a human's head. In any case, when businesses began developing more, the requirement for PC systems has expanded. At that point, various systems were presented. In any case, numerous issues have emerged (Irani, 2002). It was in the start of the 1990s when the enterprise resource planning (ERP) system was first presented. From the point of view of the business field, it was an incredible product. Yet, from the point of view of system developers, it was a test to actualize. The ERP system isn't just about incorporating various subsystems into one monstrous system; it is significantly more than that. It is a system whereby you have a whole electronic organization. Be that as it may, everything new brings new difficulties. ERP has conveyed impediments to system developers,

however to organizations, also (McGaughey and Gunasekaran, 2007).

The ERP system represents enterprise resource planning. It is fundamentally an information system that consolidates various subsystems into one system. This activity is called joining, whereby subsystems are coordinated into one system. For instance, an organization has three principle information systems. The principal system handles human resources; the second system handles fund; and the third system handles producing. ERP incorporates these three into one system that shares data among these subsystems. The ERP system ought to improve productivity for organizations (McGaughey and Gunasekaran, 2007). The conventional ERP system is known as a back-office system. It is utilized only by employees and isn't for the general population or customers. It includes just the center business procedures of organizations without including customers. The principle objective of the customary ERP system is just to improve proficiency (McGaughey and Gunasekaran, 2007). Be that as it may, the cutting edge ERP system has crushed the limits of the spirit office (Robert Jacobs, 2007) to likewise incorporate the front office, for example, customers. It incorporates the utilization of customers to make it a

more prominent system that handles gigantic operations (Robert Jacobs, 2007). The historical backdrop of ERP systems really goes back to 1970, with the requirement for the mix of business forms. In any case, it was not actualized until the start of the 1990s. The name itself came to fruition in 1990 by Gartner Group. Software companies began to actualize ERP systems in the mid-1990s, for example, Baan software and SAP (Robert Jacobs, 2007).

SAP discharged SAP's R/3 of every 1992. The system included new highlights, for example, the expansion of client-server hardware architecture. The expansion of client-server hardware architecture empowered the software to be kept running on numerous stages. Also, the system was executed utilizing an open architecture approach that made it workable for outsider companies to incorporate their systems with SAP's R/3. In 1999, the ERP system caused companies, to with the exception of IBM, develop considerably more and control the software market, for example, Oracle, SAP, PeopleSoft, and BAAN (Robert Jacobs, 2007).

The year 2000 is one motivation behind why ERP systems have spread far and wide. ERP system vendors have tended to the issue of Y2K. These companies and other major ERP systems have actualized bundles, for example, a system bundle for universities. Outsider companies redo these bundles (Robert Jacobs, 2007). The ERP system conveys numerous advantages to organizations. It brings operations benefits, managerial advantages, vital advantages, IT framework advantages, and organization benefits. Be that as it may, there are numerous hindrances to moving to an ERP system (Shang and Seddon).

II. RELATED WORK

So as to make an ERP execution a success, we need a decent scheme. Restricted examinations were led in ERP execution plans. Two of these execution schemes will be talked about in this area. The majority of the examinations center around the critical success factors of ERP success. There are numerous factors engaged with making the ERP project a success. There are critical factors (Velcu, 2007). These factors will be talked about in this segment. As per Umble, there are nine success critical factors. The first is an unmistakable comprehension of key objectives. This is the principal factor since you have to comprehend why you need to change to ERP. This factor implies that the organization needs to comprehend what they need to accomplish and how they can accomplish it. So as to do that, they have to comprehend the key objectives (Umble, Haft, and Umble, 2003).

The second factor is duty by top management. This is significant. The individuals from top management in any organization are the decision makers. What's

more, so as to make the ERP project work, it needs full help from top management (Umble, et al., 2003).

The third factor is amazing project management. An incredible project management system should be followed so as to achieve success. This includes an unmistakable comprehension and meaning of targets. They need great work and resource plans. Taking everything into account, the management needs to follow the project movement (Umble, et al., 2003).

The fourth factor is organizational change management. As talked about before, the change management is significant on the grounds that organizations dependably face obstruction from employees and users (Umble, et al., 2003).

The fifth factor is having an incredible usage group. As we have found in a portion of the past cases, it is imperative to have an extraordinary counseling partner. For instance, PharmaCo lost cash and time as a result of a poor usage group that had no involvement with Oracle products. The 6th factor is data exactness. An organization that executes an ERP system should move its data from the old system to the ERP system. This implies the data that is gone into the ERP system must be right and exact; else, it will cause numerous issues. As we have found in the CosmeticCo case, the organization was placed in a terrible spot in light of the fact that the data group reports were causing issues (Umble, et al., 2003).

The seventh factor is broad education and training. It is essential to decrease client opposition, and we can accomplish that by having training sessions. Instructing and training employees is exceptionally critical to the success of the ERP project (Umble, et al., 2003).

The eighth factor is engaged execution measures. The ERP system execution must be assessed by the organization to monitor how the system is meeting the organization's objectives. The ninth and last factor is multi-site issues. It is key to the ERP system, and it is hard to actualize, so it must be dealt with by a top execution group (Umble, et al., 2003). Another paper likewise referenced comparative critical factors. They additionally gave a scheme to lead the project ERP to success. They partitioned their scheme into four phases: contracting phase, project phase, squeeze phase, and on the up and up phase. Each phase has numerous undertakings, and they are shown in the following figure (Nah, Lau, and Kuang, 2001).

III. PROBLEM STATEMENT

The ERP system influences organizations. It ought to improve operations productivity, streamline business procedures, and make life simpler for employees. As referenced beforehand, there are a

few factors that inspire organizations to pick an ERP product. Notwithstanding, there are significantly more factors that lead organizations to not think about going with an ERP product. Besides, when executed, it could significantly influence organizations adversely and move organizations in reverse. The reason for this paper is to address these issues confronting organizations, investigate how to manage them, and propose a scheme to defeat these issues.

IV. CASE STUDY

As indicated by Issues in executing ERP: A contextual analysis, the Water Corporation chose to change their old system due to numerous failures. After a long search for an answer, the ERP arrangement was presented in late 1997. They chose to go with the SAP vendor. They pursued the ERP usage life cycle; they began in 1997 and completed in 1999. Amid that time, many training sessions were set up for in excess of 1000 employees. These training sessions are great for change control. Everything was going fine and dandy, so they chose to utilize a consecutive deployment whereby each piece of the system is enlivened in an arrangement.

After the main system was conveyed, the issues began to show up. Besides, despite everything they needed to dispatch different subsystems since it was a successive deployment. The system was closing down a great deal. This little issue of transferring data from the old system to the ERP system has caused numerous issues for the Water Corporation. In the first place, they needed to pay much more money to fix these issues. The data was not accessible, numerous arrangements were proposed, and by the end, the issue was in the end tackled, yet simply after quite a while of anguish.

The company paid a great deal of money to contractual workers to fix this issue. The employees were enduring on the grounds that they couldn't carry out their responsibilities. Management was influenced gravely in light of the fact that the company was in financial emergency. The entire company was confronting a disaster, and a few employees were laid off. Taking everything into account, there are numerous people who have proposed methodologies for a successful ERP execution, however just a rare sorts of people who have expounded on taking care of these impacts after the ERP disaster happens.

V. ERP ISSUES

As per Issues in actualizing ERP: A contextual investigation, the ERP system could improve organizations hugely, yet just when executed

effectively. At the point when the system isn't executed accurately, it could influence organizations in all respects severely. It could devastate companies. These impacts will be recorded under its class. As per The Impact of Enterprise Resource Planning (ERP) System Implementation on Organization: Case Study ERP Implementation in Indonesia, there are three sorts of execution impacts: individual, workgroup, and organizational effects (Yoon, 2009). These impacts are operational and managerial. Every one of these impacts could harm organizations harshly. These impacts convey numerous issues to organizations. They will be examined individually under these three classifications.

These two impacts are appeared in Figure 1. The figure demonstrates the two fundamental classes of impacts that the ERP system could bring.

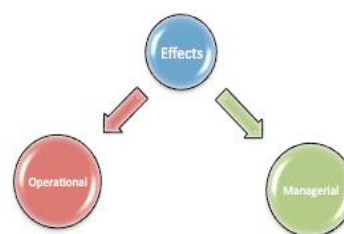


Figure 1 ERP Effects

A. Managerial effects

There are numerous issues that influence an organization's management. Management is continually attempting to keep up or increment benefit. The ERP system could require a great deal of money after deployment when issues begin to show up. It ought to diminish costs, which will thus build benefit (Poston and Grabski, 2001). Yet, some of the time, similarly as with the contextual analysis introduced, a company endures and money is an issue. The money is really a major issue, since when a company is in financial emergency, it can't work proficiently. A company begins to cut costs and all of a sudden it loses its place in the market; normally, it sets aside a long effort to recuperate (Mandal and Gunasekaran, 2003). PharmaCo is a Chinese company that works in medicine. They chose to execute an ERP system in 2000. They purchased an Oracle product and picked a neighborhood customization vendor to do the usage. The management picked the wrong vendor; the vendor had no experience with Oracle products. After eight months, the usage was halted and another vendor was chosen. They lost their money that they paid to the nearby vendor (Xue, et al., 2005).

These issues are influencing the organizations as a rule, yet additionally the management division specifically and to a more noteworthy degree, since

they are the ones who are the decision makers. When you settle on a decision, you need to manage the outcomes. For instance, if the management would have taken additional time with investigating consultant vendors, they could have maintained a strategic distance from these issues. However, they were surging in settling on the decision.

B. Operational effects

All together for a system to work successfully, it must be executed great. The most significant factor in the success of the project is the execution phase (Xue, et al., 2005). As we have found for the situation examine, a technical issue in transferring the data from the old system to the new system has put the Water Corporation in an awful circumstance; the data was essentially not accessible (De Loo, et al.). Another technical issue that can put an organization in a terrible spot is the thing that occurred with CosmeticCo. It is one of the greatest Chinese companies that works in cosmetics. They chose to move to an ERP system in 1998. They chose AB as their package vendor. The primary issue they experienced was that the system was not completely converted into the Chinese language; regardless it had English words. What's more, the revealing configuration was not the government-required arrangement, and it likewise was not perfect with Chinese money norms. For instance, the negative sign is situated after the numbers. In addition, the numbers were covered and hard to peruse. Therefore, they needed to fix the reports after they were produced, so the procedure took any longer than it used to on the old system. The company lost their money on the purchase of the system and endured therefore. In the end, they sued the vendor and recovered their money after just about two years and needed to supplant the entire system (Xue, et al., 2005). Despite the fact that these technical impacts sway the organization from an operational point of view more so than from a managerial viewpoint since operations are halted, operational and managerial impacts cover, and one influences the other (Law and Ngai, 2007).

VI. PROPOSED SOLUTION

As we have seen, there are numerous impacts of the ERP system that have repercussions on an organization. These impacts are found on account of an ERP disaster. Numerous schemes have been proposed to keep these issues from occurring, however they keep on happening. In this paper, a scheme will be proposed to defeat these issues. The scheme is called Solve Scheme:

1) First: Managerial effects

As we have seen, the effects of managerial problems are wastes of:

- Time

- Money

The causes can be grouped into three main categories:

- Poor management skills
- Hasty management acts
- Poor decision-making skills

2) Second: Operational effects

As we have seen, the effects of operational problems are:

- Business process shutdown
- Technical problems

The causes are under three main categories:

- Poor consultant vendor
- Poor transfer of data
- Do not apply government standards

A. Success Scheme

The figure below is the proposed scheme for overcoming the managerial and operational effects. In order to overcome this disaster, we need to have a good start.

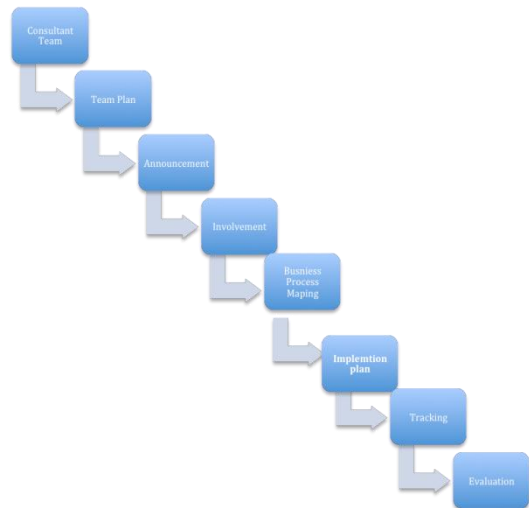


Figure 2 The Success Scheme

First Phase: Consultant Team

In this phase, the top management will shape a consultant group from the organization. This group ought to incorporate experts in three territories: ERP system, business procedure, and information system. The group ought to likewise incorporate

consultants from outside of the organization who are experts in ERP products.

Second Phase: Team Plan

In this phase, the group should structure a primary arrangement. This arrangement ought to determine the phases that they ought to experience in the project. They are of the accompanying: Specify issues in the present information system; Set up objectives; Review recommendations; Choose ERP product; Choose integration partner; Implementation; Training; and System Testing.

Third Phase: Announcement

In this phase, the scheme ought to be reported to the majority of the employees in the organization. This phase is critical in light of the fact that the association of the employees is significant.

Fourth Phase: Involvement

In this phase, the employees will be told how they will be engaged with this project. The inclusion of the employees will decrease the client opposition. They will likewise have higher confidence toward this project.

Fifth Phase: Business Process Mapping

In this phase, the integration partner will initially meet with the consultant group to talk about the primary procedures of the system. At that point they need to go to every division and see how every business procedure is completed.

Sixth Phase: Implementation Plan

In this phase, the integration partner will construct the usage plan. Also, they have to talk about this arrangement with the consultant group and get their endorsement.

Seventh Phase: Tracking

In this phase, the consultant group should follow the progress of the usage with the execution group. They should follow the progress each week and assess the progress.

Eighth Phase: Evaluation

In this phase, the consultant group ought to assess the project after it has been finished. They should check whether it has met the objectives that they set.

VII. RESULT AND EXPERIMENT

A questionnaire spread out to an alumni class at the University of Bridgeport, where an introduction was directed to clarify the subject and present the

Success Scheme (SS). The class has students from various fields. There were PhD-and master's-level students. The study was directed among 15 people who hold in any event a graduate degree in an engineering or management major. The table beneath speaks to what number of people pick a specific decision for inquiries. For instance, when people agree with a decision, it implies that they strongly agree with the statement. We utilize the proficiency condition (Efficiency= Estimated focuses *100/Total focuses) to decide the most significant statement. Absolute points=1500. Subsequent to investigating the data, the fifth statement turned out to be the most significant phase. The figure underneath demonstrates the investigation.

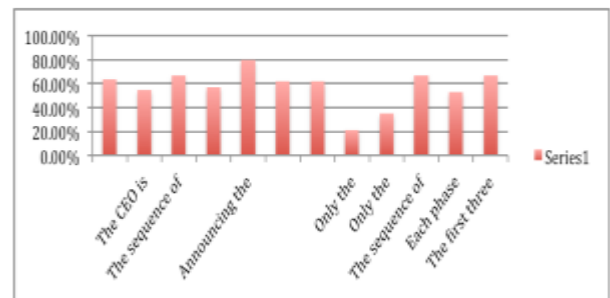


Figure 3 Data Analysis IV.

VIII. CONCLUSION

The paper has examined a few impacts of the ERP system. The impacts are managerial and operational. The paper has proposed the Success Scheme (SS). The SS comprises of eight phases. The scheme was introduced and examined in an alumni level class, and a survey was directed. After the examination of the overview, a few changes on the scheme were made. The work can be additionally upgraded. Executing the scheme in a real project to test its adequacy can upgrade the scheme, just as improving the Success Scheme to include increasingly certain parts of the ERP project, for example, customization.

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