

## SUCCESSFUL IMPLEMENTATION OF ENTERPRISE RESOURCE PLANNING (ERP)

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**Abstract**— Enterprise Resource Planning (ERP) system consists of different sets of software that are used to integrate the business functions in a company or organization. Given that these solutions provide an integrated solution to the needs of an organization, these systems are in high demand by all organizations. The full potential of these systems can only be realized only if they are successfully implemented. However, the implementation process is costly and time consuming, and thus requires careful planning and organization. If successfully implemented, ERP systems provide many benefits to those organizations that adopt them. On the other hand, if the implementation process is not successful, the venture can prove costly. By examining the existing literature on this topic, this paper focuses on how ERP systems can be successfully implemented in organization and the critical success factors. The information provided in this paper may be used to guide organizations in the implementation of ERP systems.

**Keywords**- Enterprise resource planning, integrated solution, successful implementation, success factors

### I. INTRODUCTION

The main aim of adopting ERP system is to solve the problem disintegration of information, where different sets of information reside in different locations within an organization. These systems provide an organization with different software that covers activities in all departments within an organization. The sets of software cover areas such as finance, sales, customer service, and human resource management among others [22]. These systems can be applied in various sectors including; finance, telecommunication, hospitality, tourism, and education among others. It is important to note that these systems have been traditionally associated with the big firms, and smaller firms have found it difficult to implement ERP systems [22]. This requires that these small and medium size enterprises that plan to adopt these systems should change their organizational structure and practices in order to meet the demands of these systems [20]. In order to remain relevant and competitive, organizations need to adopt such systems in order to tap the full potential of the IT systems. Previously, firms used the manufacturing resource planning (MRP) which did not address the challenges in the market due to its reactive, rather than proactive nature [20].

### II. IMPLEMENTATION PROCESS

An ERP system that is successfully implemented helps to speed up the processes within an organization, and at the same time improving on aspects such as reliability, quality, minimizing redundancy and enhancing customer satisfaction. Various studies have proposed various approaches that can be used in the implementation of an ERP system. Based on previous researches, the steps below can be used in the successful implementation of an ERP system. This paper combines steps that have proposed in the implementation of these systems for both small and large organizations.

#### A. Planning

Planning is the initial step in the implementation process. For small and medium size enterprises, [18] categorizes this step under the planning activities. While discussing the implementation process for large organizations, [15] propose that management needs to carry out a feasibility study in order to evaluate the needs of the organization. In general, this initial step demands that an organization examines the existing software, databases and other IT systems in order to determine which areas require improvement. This helps the organization develop the goals that are to be met by the ERP system, at the same time evaluating the key benefits that are to be accrued from the implementation of these systems. In this step, top management involvement is critical. Apart from the top management, junior members of staff need to be involved as well. This helps to capture the needs and views from all the departments in order to ensure that the designed system satisfies the majority needs. Each member of the project team that has been developed, involving top management and other members of staff must be given specific tasks to complete in a given period [8]. The planning also involves reengineering processes, which may involve the restructuring of the various processes and eliminating those that are inefficient.

#### B. Training

Individuals to be involved in the implementation process have to be adequately trained and educated in order to effectively accomplish their duties [10]. For small

organization, training alone might be insufficient due to their size, and hence might be required to hire new personnel who possess the desired skills and competencies. The training might be provided by consultant firms. This training involves teaching the employees on the use of the software packages that come with ERP systems. During the training phase, it is important to communicate all the desired outcomes of the project and the general business objectives. It is normal that in many organizations that change is usually resisted, and offering these training programs provides an opportunity to effectively communicate the importance of the new systems in an organization [10]. For a large organization, deploying project representatives across various departments will help enhance the communication of the strategies. In addition, the project representatives may provide the necessary feedback to the project team relating to those potential trouble areas. The choice of training members and the project representatives is critical given that such members need to be respected and trusted throughout the organization [26].

### C. Analysis

After the ERP system has been chosen, the benefits and maintenance requirements of this new system need to be evaluated. This may involve hiring system analysts and consultants to evaluate the effectiveness of implementing the ERP and also make a selection of the best source or provider of the ERP system [9]. A suitable vendor is to be selected from all the shortlisted vendors, and this also requires the input of the project sponsors. Price negotiations and the terms of contract need to be negotiated with the vendor. At this stage, a careful and thorough analysis of the changes that might occur in the organization need to be evaluated. Such changes may affect the use of the ERP system, which may either enhance or reduce the benefits that are to be accrued from these systems. For all the benefits that the organization expects to accrue from the system, it is important to analyze all the factors that might affect the attainment of the benefit [7]. In addition, the ownership of the benefit needs to be clearly stated and the time required for the benefit to be delivered.

### D. Installation and testing

During this step, the organization needs to ensure that the underlying hardware is effective and reliable. The project team makes a determination of how the system will operate in reference to the processes that the organization uses in its operations. This also requires that the ERP system is configured so that the system works coherently with the organization processes [6]. At this stage, the data that is to be used by the ERP system needs to be converted to the required standard. New data also needs to be collected, where the source of this new data needs to be identified. For instance, it might be necessary to create

spreadsheets that will be used in collecting and organizing the data. The accuracy and relevance of the data needs to be reviewed after it has been fed into the ERP database [13]. This may therefore require that the data be cleaned up to move any unwanted information. The installation stage may be accomplished by either shutting down the operations of the organization or using the phased approach. In the first approach, the entire organization has to prepare for a date when all the operations will be shutdown [6]. However, the phased approach requires that the modules are integrated into the new system in a sequential manner, only moving to the next module after the initial one has been fully integrated. During this phase, the project team needs to formulate a testing plan that will be used to carry out a number of tests which may include; unit tests, system test and acceptance testing among others [21].

### E. Final review

After the ERP system has been successfully implemented, a final project review needs to be implemented in order to determine how the system will be supported in the long term. This stage involves re-evaluating the long term effects and implications of adopting this system. The organization needs to determine which aspects of this system will be obtained internally, and those that will be outsourced. One of the strategies that might be used is to develop training programs and centers that will equip individuals with the required skills to support and run the new system.

## III. KEY SUCCESS FACTORS

Considering that ERP implementation is a costly and risky affair, it is vital to understand the critical success factors. By examining these factors, an organization is in a position to determine whether the implementation will be successful or not in advance. As a result, the organization will decide whether any changes are to be made or whether the implementation should go on as planned [24]. These factors may differ across various organizations due to the difference in their operations. Below is an examination of these key success factors that apply to both small and large organizations.

### A. Top management commitment

The success of any project requires that top management gets involved at all stages of the project. The main role played by top management is to provide the required leadership skills and resources necessary to complete the project [14]. Top management must therefore support the costs of the ERP system, understand the benefits, and facilitate integration of this system into the organization [5]. In addition, high level management demands feedback and payback from the project, factors that contribute to the success of the project. The ERP implementation process

needs to be headed by a respected member of the organization who will champion the project.

#### *B. A competent implementation team*

Members of the implementation team need to be chosen based on their qualifications, skills and experiences. Members of this team are constantly involved in making critical decisions that affect the entire organization [15]. The implementation team develops the plan for the entire project; hence their decisions at this stage determine the success of the entire project. The team also provides the link between the management and the other members of the organization, and any decisions made by the team should reflect both views [12]. The team also assigns different roles to the members of the organization. This determines the overall effectiveness of the project, whether the project will be delivered in good time. In addition, the implementation team is responsible for ensuring that the required resources for the project are delivered in the right quantities, time and quality.

#### *C. Adequate training*

In order for an ERP system to be implemented successfully, the users need to understand how it operates as well as the rationale of adopting the system [15]. With adequate knowledge, people can solve problems that result from this system thereby realizing the full potential of such systems. This determines the returns that are to be gained from such an investment and the number of processes that can be accommodated by the system [25]. Users of the system need to be trained early enough before the implementation process starts. The management of the organization needs to invest in the education of the employees. The project team needs to collaborate with the users in order to understand their needs and the problem encountered in using the new system. It may become necessary to schedule regular meetings with the users in order to understand their concerns regarding the ERP system [5]. Through such meetings, employees of an organization can exchange the information gained while interacting with the new system.

#### *D. Accuracy of data*

As stated earlier, ERP systems integrate various processes within an organization into one unit. This therefore requires that the data that is fed into such systems is accurate. Any wrong data that is entered into such system will affect the operations of the entire organization, affecting nearly all the departments. Users need to understand the importance of maintaining accurate data records as well as using the right procedure when entering data [23]. Members of an organization need to avoid using old systems that may compromise the accuracy of data obtained.

#### *E. Availability of a measurement criterion*

It is important to understand the impact the new system will have on an organization. This therefore requires that an organization develops a measurement criterion that will measure the performance of the system in reference to the set objectives [17]. As a result, any changes or improvements may be effected. In addition, these measures should be used to reward the implementation team as well as the users whenever certain standards are attained [28]. The monitoring of the project should not only be carried out during the implementation process, rather the entire system needs to be monitored all the time. The measurement criterion developed must provide specific objectives relating to the performance of the system [27].

#### *F. Clear objectives and strategic goals*

The implementation of an ERP system needs to run in accordance with the set objectives and goals of the organization. The organization should therefore develop a clear vision of what it is supposed to achieve within a specific time frame. By doing this team, the effectiveness of the ERP system can be gauged and any improvements can thus be made. This also helps to ensure that the ERP system addresses specific needs within an organization and the members of the organization understand why the system is being adopted [16].

### IV. BENEFITS OF AN ERP

Implementing an ERP is certainly a costly and risky affair which demands that an organization understands the benefits of such systems before undertaking this process. Below is a brief look at some of the potential benefits that are associated with a well implemented ERP [27].

#### *A. Efficiency*

The use of an ERP system enhances efficiency within an organization. This is because the ERP system eliminates some of the manual processes that exist within an organization [11]. Through such a system, data access and storage are made more efficient, and many processes within an organization are integrated. Different databases that were previously disconnected are replaced by a single system, and information can be entered or accessed from one system [3].

#### *B. Better reporting*

The use of an ERP system leads to improved reporting, where different reports are generated using this system. This is particularly crucial for those organizations that deal with large volumes of data [4].

### C. Enhanced communication

For large institutions/organizations, the use of ERP system leads to enhanced communication across various departments. These systems also facilitate collaboration among the employees across various departments given that many processes are integrated in one location [19].

### D. Data security and integrity

One of the requirements of using ERP systems is to use more accurate and relevant data. These systems help improve on the data integrity across various departments within an organization. This depends on the ability of the management to impose strict rules on the nature of data that can be fed into these systems [2]. In addition, those who cannot access such data can be restricted, thus enhancing security.

### E. Standardization of processes

By using ERP systems, the organization adopts standard processes that are built based on this new system. This allows for efficient management and monitoring of processes within the organization. In addition, the standardization process offers other sectors of the organization that lack the right systems an opportunity to upgrade their systems to meet the requirements of the ERP [1].

### F. Enhanced customer satisfaction

Given that these systems speed up processes within an organization, services are offered to customers in a timely manner. In addition, the data used in such systems is of very high standards, thus ensuring that the products/services offered based on such data are of high quality as well. By integrating different processes, ERP systems lead to a wide range of services being offered to the customers [11]. In addition, these systems deal with current data relating to customers, enabling the organization to understand the needs of its customers.

## V. CONCLUSION

This paper has examined the key steps that are used in the implementation of an ERP system. From the discussion, it is evident that different organizations have varied requirements, hence the steps followed might differ. However, the above discussion gives a general overview of these steps which might be applied for all sizes of an organization. This paper has further examined some of the critical factors that determine the success of an ERP system in any organization. By understanding these factors, the organization can fully evaluate its capacity in adopting and implementing ERP systems successfully. Finally, the research has outlined some of the benefits that are associated with the use of these systems. Though this paper has focused on the positive side of ERP systems, there are negative aspects of these systems. It is important that future research examines some of the negative aspects associated with these systems in order to bring a balanced view.

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