Implementation and Deployment of ERP System

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ABSTRACT: Enterprise Resource planning is business software that has been widely used to increase the managerial capabilities of a system and make it automated with the help of more integrated applications. With the advent of technology, ERP has been widely used for proper planning, management and systematic organization for a venture. ERP acquisition for an organization is an expensive and time taking process. If the system is not a best fit, it can be detrimental for the organization. Thus, Selection and implementation of a system should be given a careful consideration. ERP implementation are major changes for an organization hence it is crucial that it meets its strategic and tactical goals. There are myriad of factors that go wrong while implementation. Some of the key factors being cost overruns, low benefit realization, technical or organizational issues. It is therefore important to address these issues and come up with a solution that makes the implementation and deployment process efficient.

KEYWORDS: Challenges, Deployment, ERP system, Implementation, Methodology

I. INTRODUCTION

Implementation of an ERP system is mapping a company's objectives and practices to a well- defined system in an organized manner. As technology is indispensable aspect in business today, so is the need to organize and strategize in a better way. The traditional systems are being replaced with automated systems. Data has exponentially risen. There is a pressing need to introduce a system that not only automates the system but also integrates various other applications like project management, supply-chain management, Customer relationship management. Enterprise Resource Planning is a panacea for this. ERP systems are being used to address various issues which traditional system weren't capable of. Though, it has shortcomings too. If the ERP system isn't aimed towards the goals and answers the challenges faced by an organization, it substantially wastes both tangible and intangible resources of an organization. But if selected wisely and implemented effectively it increases the capability of the existing system to a great extent. With the wide-scale demand and usage of ERP systems, selection of the right ERP system and implementing it, has been a crucial topic of discussion. The methodology used in implementation is dependent on the strategic decisions made by the company based on what path to choose for deployment. ERP strategies can be tailored according to the needs of the organization to make it a best fit. The implementation encompasses all the tasks, and actions to implement the system whereas deployment refers to distributing the system to recipients. The implementation may follow a *company-driven* strategy or a *vendor-driven* strategy depending upon the direction and the leadership. In the company-driven strategy, company takes the proprietary of the implementation, it uses it's well established corporate methodology while in vendor-driven strategy, the vendor is in the driver's seat guiding the implementation procedure based on experience and readily available solutions like tools or procedures or knowledge which had been previously applied and tested.

The implementation strategies are based on the understanding of various factors like-
- What are the project drivers? That is, why is the ERP system needed? This gives a broader view of the organizational demands.
- How is the project being scheduled? How will the project managed?
- Assessment of the existing resources and requirements of the system.
- How will the cost be allocated?

These key factors give us a broad scope of what are the factors on which these strategies are based. Once the strategies are defined the *implementation methodology* decides the path that should be used for the final implementation process. ERP *consultants* or *contractors* enable proper functioning of ERP for a client. They customize and adapt the package according to the needs of organization.

II. IMPLEMENTATION STRATEGY

The ERP *implementation strategy* is how an organization approaches the planning and managing the deployment of the ERP system. According to Al-Mashari & Zairi "The implementation strategy describes plan for change that ensures alignment with overall corporate objective and goal". Implementation strategy lays down a framework according to which the implementation will take place. There is a need for careful examination of all factors to make sure that the implementation is not discursive and follows a well defined path leading to success. The main factor driving the framework is to achieve corporate goals and objectives. The key factors of the implementation are-

- **Project driver**: This is the reason why the ERP system is being implemented and what are the expected benefits from the implementation. This is the first and the most crucial question that should be addressed. It is necessary for the stakeholders and company managers to make the objective lucid and keep that on the forefront. Most of the times, while implementation, the goal is lost as the demands and expectation may be shifted. For project to be successful, the managers should ensure that the expectations are expressed properly and the project objectives are developed based on this.
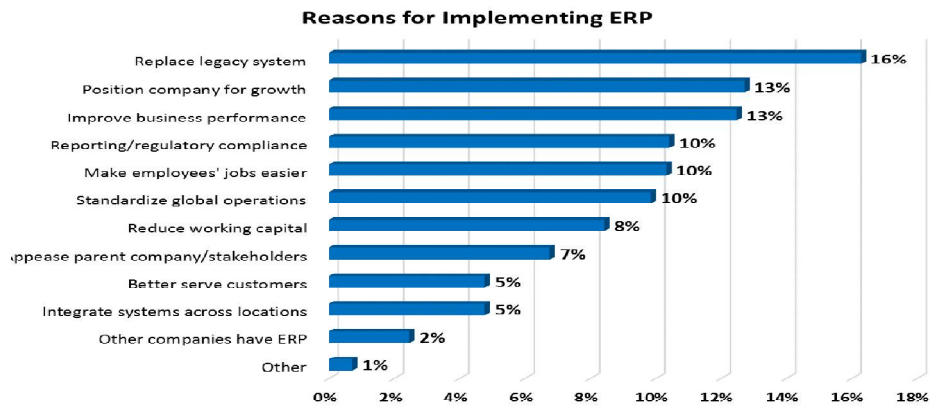

- **Project Management:** Project management involves all the activities like organizing, scheduling, resourcing, planning. It helps to monitor and stay on track during the implementation. It is crucial as it allows the project team to work according to the laid plan. Also, there are several issues that may arise during the implementation. Therefore, it helps the team to work accordingly and come up with a solution based on the constraints.
- **Project Resources:** During the selection of ERP system, resources are analyzed. This gives a broader view of what resources may be needed by the system. These resources may include the internal key matters or external resources required. While selecting, it's important to keep in mind that the resources selected are rightly capable of performing the functions. Not having the right resources may hamper the progress, ultimately leading to failure.
- **Functionality module:** The ERP model is selected based on the requirements of the organization. It is important to evaluate the model based on its functionality. The first thing is that it should successfully meet the goals and needs of the organization. The second thing to be taken care of is whether it works it coalesces with the existing applications of the system. The transition across the organization should be smooth.
- **Cost Allocation:** ERP systems are one of the most costly initiatives for an organization. The total cost contains internal costs (like consulting, training etc) plus the external costs (like new hardware or software etc). An appropriate selection of financial sources and budget allocation is therefore necessary. The duration of the project
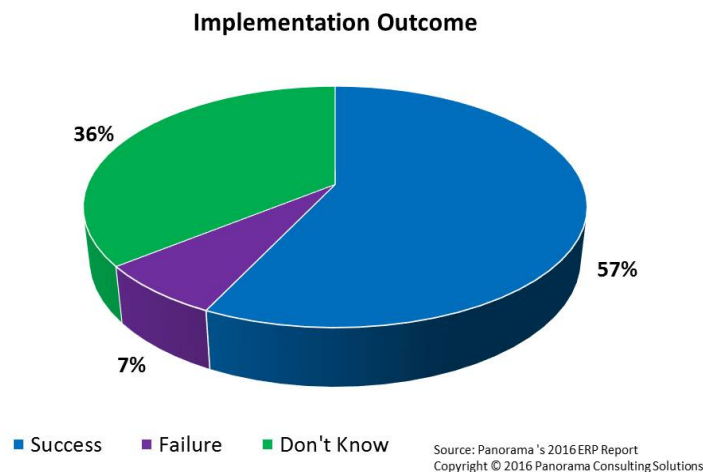
is important while estimating the cost. It is important to be prepared for issues like budget overruns or any other issues that might change the budget. A fall-back plan should be present to take care of the shortcomings. A savvy decision about this before software implementation can minimize the cost as well as duration of the project to a great extent. The panaroma ERP report 2016 claims that on an average an organization has been spending 6.5% of their annual revenue on ERP projects.

Implementation Costs
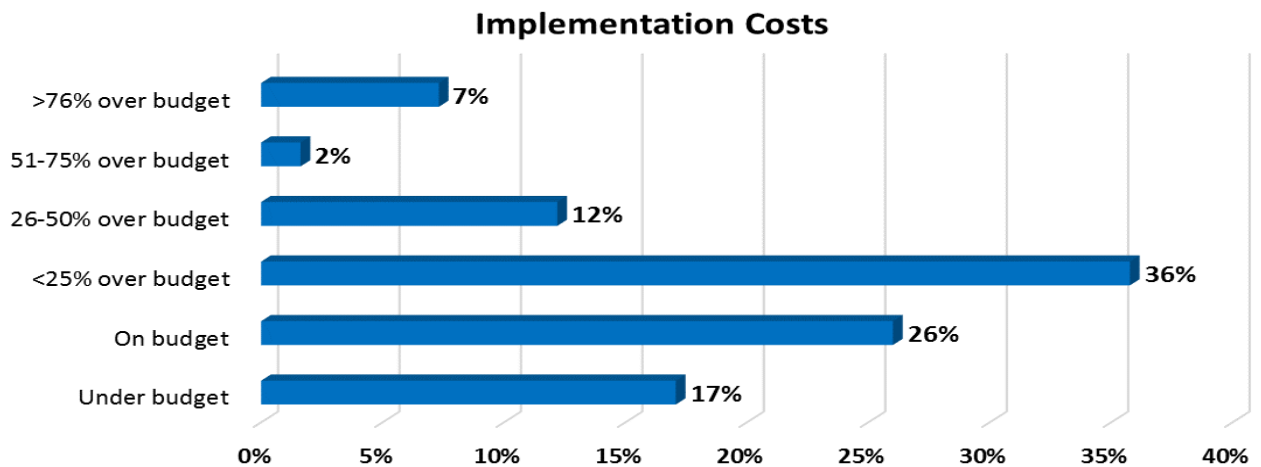
III. **IMPLEMENTATION METHODOLOGY**

A methodology is used to organize, manage and control the process of implementation. There is a substantial amount of risk that the implementation process may go wrong causing a huge loss to the organization. According to Panaroma 2016 ERP report, only 57% organizations report their implementation successful.

Implementation Outcome

Source: Panarama 's 2016 ERP Report
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 Hence, implementation procedure needs careful consideration. The methodology may be considered a blueprint, based on which the real implementation starts. The most common methodology used may be a joint venture, company driven, vendor driven or combination of both. These methodologies vary based on flexibility, leadership, direction etc.

 • **Joint Venture:**
Similar companies in a particular industry come together and collaborate. These companies work in partnership to address various issues like technology, cost, outsourcing, performance. They work in association to define a bench mark and best-practices which in turn gives a strategic advantage and support for clients. This association or consortium gives a global range available to members. It augments the range substantially by including world class

practices. These consortiums make processes available that have previously been implemented in real world successfully. For instance, 500 companies like The Coca-Cola company, Hallmark, Kraft foods is a consortium that has a data collection of over 12,000 benchmarks, priority information and Peer-Net where thoughts ideas are shared and adopted, which leads to finding the best practices.

- **Company-Driven:**
  This methodology is led by the standards and rules defined by the company. The company has a dedicated department for this development and maintenance of software. This department thus governs the functioning of the ERP process. They work based on pre-defined objectives and processes that are well understood. The company dictates how the implementation process will take place. The planning, development and deployment are thus in check with these standards.

- **Vendor Led:**
  Many vendors develop their own implementation strategies and methodologies. As the ERP acquisition is a tedious process, the vendors use the previous experiences and understanding to define their own solutions. The ERP systems require various tools, roadmaps of how to proceed, research and extensive analysis. These vendors use these implementation strategies to define a particular methodology. Some of these vendors are Microsoft, SAP, Oracle. According to Panaroma 2016 ERP report, Microsoft has been most frequently selected, that is around 32%, followed by Oracle (23%) and SAP (20%). Organizations have reported an increase of 9% to 54% over last year in customer satisfaction from vendors. Microsoft has developed a structured approach called Sure Step for implementing its solutions. This Sure step guides the user about the best practices and about the complete process including upgrading, implementing etc.
  Although being widely used this process has perks too. A vendor who has been previously proven successful might not be able to satisfy the customer. 10% of the customers are very dissatisfied with the vendors. The reason being that a general solution may not be the right-fit for their organization. They might need a more customized solution. Nike, Inc. partnered with i2 technology for supply chain implementation. This did not go well at all. I2 couldn't integrate the implementation process leading to complete failure. Despite the vendor's previous reputation, the project failed.

- **Combination:**
  The company driven approach is too specific and vendor approach is too vivid. To overcome the pros and cons of both, a combination of both the processes is used. The best practices of both the practices is chosen and then implemented. The combination of both will give rise to a methodology which is aimed towards goals of the organization, in keeping with the standards too and using the previously tried and tested methods too. This methodology is robust and takes in account all the weaknesses of other methods.

IV. DEPLOYMENT STRATEGIES

There are various deployment strategies that can be used by any company for successful implementation of an ERP system. The general approaches are usually influenced by a company's business objectives, budget and time constraints. The companies can use various implementation strategies which include big-bang, phased rollout, parallel adoption, and a combination of phased-rollout and parallel adoption. The figure shows the influencing factors.

The first of these is the BIG BANG strategy. As the name suggests it involves implementation of all enterprise functionality and ERP modules at once in a single major event. This is usually a very large implementation across multiple countries; business divisions etc. and therefore affect the whole organization.

The big bang approach is very helpful in dealing with time and resource shortages because it focuses the organization for an intense and very short period of time. This very thing is also a downside of this approach. The project is rushed, details are overlooked and the changes may not do very well for the company. In short the big bang approach surely provides a quick way for implementation but also involves great risk.

The second and more timing consuming approach is the phased rolled out approach. In this type the implementation occurs in small increments over a long period of time. The approach is less risky and slower because project teams are allowed to take their time in the planning, business process mapping, customization, and testing of the system while continuing with day-to-day job responsibilities. The implementation takes place in series of planned steps. Within a phased-rollout implementation ERP systems can be structured using a few different techniques such as by ERP module, company business unit, company business priority or geographical location. Each of these techniques is based on a company's strategic business goals, timeline, and resources.

Phased rollout by modules is the most common of these. ERP systems are made up of application modules such as accounts payable, purchasing, inventory etc. The core modules are implemented first followed by other modules. This is beneficial for the company because it can assure that the modules are working according to the department needs. The longer implementation time is perhaps the only big drawback of this technique.

The need for urgency and efficiency both in a company may require implementation by phased rollout by business priority. The approach is very similar to the module system. First the strategy is defined, after this critical business processes are selected and the implementation is done. This method is generally used by mid-sized companies.

The larger multi-national companies utilize the deployment by phased rollout by business units. The implementation occurs within a one or more business units or departments at the same time. Sometimes a team is put together that is made responsible for successful implementation from unit to unit.

Multinational companies in today's world have more global presence than ever before therefore another technique was developed for implementation of ERP systems; phased rollout by geographical location. The unique geographical aspects affecting the business process required for the development of this type of phased rollout. This type of rollout offers more complexity because of an added dimension of geographical influence on business process making it far more difficult than single site implementation. The phased rollout by geographical location is helpful in standardizing the business operation by ERP systems to bridge the organization, political and cultural aspect of doing business. The drawback is longer implementation time and it requires rigorous planning as well as co-ordination.

Parallel rollout encompasses both the legacy system and ERP system to execute at the same time; this means the transaction must be entered in both the old system and the new system. Due to this "double entry", mistakes are inevitable and there is variance of data. This system is least popular because of the inefficiencies and high costs.

The combination rollout uses the concepts both from parallel rollout and phased rollout to create a hybrid. One strategy may work for one company but it may completely fail for other companies, therefore the combination rollout gives the opportunity for flexible and tailor fit implementation to meet the goals of ERP implementation for the company.

Furthermore the companies can also use a different approach i.e. pilot implementation. In this a particular functional area is implemented first and then others are implemented in the order which is more beneficial for the company.

V. CHALLENGES

Most of the ERP systems fail during the implementation process. The most commonly seen challenge is budget overrunning. 57% of the organizations that implement tend to exceed the budget. Even after careful planning and consideration, Budget overrun is a reality that can't be escaped. There are many reasons that the budget is exceeded for example, the operational costs may be increased or for some reason the project is not completed on planned schedule. Although, a careful consideration is given to specify the budget and also a fall-back plan during strategizing, even then this is the most common challenge faced. Another challenge that caused by budget overrun is Timeline exceeding due to recouping of costs. The budget overrun hampers the functioning and created a demand of more money. The planned financial sources have been exhausted, hence, to find new sources or to make money available from the existing sources, it takes time. This extra time derails the functioning causing operational disruption, further leading to failure. Operational disruption may arise due to any factors like technical issues, organization issues etc. The plans give an ideal view of what should be but in real implementation there are many factors on which functioning is dependent like the man-power, or the resources or the requirements. If any of these factors change, it causes operational disruption. Some of the organizations also report low cost benefit realization.

VI. CONCLUSION

The ERP system needs a careful scrutiny while implementation process because it is associated with myriad risks. The implementation is not mere applying the system but to carefully strategize and organize first, to manage project and resources, to be prepared for the risks beforehand. The implementation starts with first strategizing the project. It involves various activities, tools to analyze. While strategizing, there is no actual implementing. It only gives a scope about all the elements at play. Then comes the implementation methodology. This is where actually implementation starts. The methodology followed decides the leadership and direction in which the project will be carried out. The methodology is then used in deployment. The deployment techniques may vary depending upon the organization. Every technique has its pros and cons. The ERP consultants make an informed decision throughout the whole process to maximize the benefits. Cloud computing has been a new area of research as a deployment technique opening a new opportunity for ERP.
The ERP systems have seen an increase in demand in the market. The budget allocation has increased and further efforts are put in. Lately, the organizations aim at making the job easier for their employees and look for systems that integrate well with the existing systems. The ERP customers satisfied with the system has also increased giving the vendors a boost to put more efforts and discover more efficient methods to make their product a success.

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