A Comprehensive Study on ERP Failures Stressing on Reluctance to Change as a Cause of Failure

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Abstract

Enterprise Resource Planning (ERP) in the massive, promising software built to provide immense efficiency increase and automate business processes, more often than not, ends in failure. The subjective nature of a failure is discussed before an enumeration on common reasons for ERP failure. The paper stresses on reluctance to change both behavior and business processes as a cause of failure. Certain intuitive suggestions to assuage failure rates is lack of knowledge or awareness.

Keywords: Enterprise resource planning, ERP failures, business process management, software failure

Introduction

Efforts to automate and improve business processes have been undertaken for over half a century. The first Materials Resource Planning (MRP) inventory management systems appeared in the 1950s. Mainframe computers were used to examine the bill of materials and create a production schedule. The first company to use MRP was Black & Decker in 1964. This gradually evolved into MRP II (Manufacturing Resource Planning). Computers became increasingly mainstream applications for individual business processes. While these processes were very efficient for their individual functions, they did not integrate with other processes. Companies would often end up with different systems for purchasing, accounting and manufacturing. Transactions had to be entered manually into each system. Often, these systems could not share data with each other. Employees could not find the information they wanted, or could not find it fast enough (Turban, Leidner, Mclean and Wetherbe, 2008, p. 397). Multiple
redundancies and inconsistencies began to appear. The need for an integrated information system was blatant.

Enterprise resource planning (ERP) emerged as a solution in the late 1990s. ERPs can be used for planning, managing and effectively utilizing organizations resources. ERP integrates the activities of various departments; providing a conduit for easy information flow between business activities. An ERP consists of modules that take care of individual business activities. An ERP’s major objective is to integrate all departments and functional information flows across a company onto a single computer system. Its goal can be said to be enabling fast and easy flow of information within an organization. An ERP offers several benefits including increased efficiency, quality, productivity and profitability. ERP integrates all routine transactions within an organization, including internal suppliers and consumers. Later it was expanded into what is called extended ERP software to integrate external suppliers and customers (Turban, Leidner, Mclean, Wetherbe, 2008, p. 314). Nowadays ERPs provide best practices, i.e. they make available the practices of the most efficient organizations.

An ERP is a complex piece of software requiring significant expertise, effort and cost to develop. It may be built in-house based on existing systems, or may be purchased from vendors (such as SAP). They may also be leased from application service providers (ASP). This makes ERPs more accessible to small and medium businesses. ERP software today is much more affordable than it was 10 years ago. The cost of packaged ERP depends on the number of ERP modules, number of end-users, complexity of software and ERP vendors. The total cost of ERP ownership includes the costs of packaged software, hardware and professional services.

ERP software that involves integration with external business entities generally costs more. ERP vendors offer discounts to organizations that invest in a suite of ERP software systems. Though many mid-sized organizations typically commit a few million dollars in packaged ERP software, there are a number of result-oriented low-budget packages available in the market today. Implementation of ERP system sometimes demands purchase of new computer hardware, system software, network equipment and security software. The costs of hardware vary in a wide range depending upon the scope of implementation and platforms. The hardware typically takes a big bite in the cost for mid-sized organizations that implement ERP systems.

Implementing ERP system requires the services of many professionals. These services cost money. The major costs under this category are customization, integration, data conversion, data migration, testing and training. It is unlikely that a financial director would support the idea of unlimited funding for the ERP implementation project. Much of the cost information could be obtained from the vendor. While it is likely that the vendor will provide a specific figure for each item, this may only be an estimate. This is likely to be the case for such items as consultancy, which history suggests is an area for potential overspending. In this case, an upper and lower value, and the expected value should be sought to give a fairer reflection of the potential cost.
exposure.

While some of these costs will be onetime costs (e.g., hardware, training and consultancy) others will be ongoing costs (e.g., maintenance). To get a better picture of the cost exposure, a long-term perspective should be taken. A meaningful time horizon is five years.

As can be seen building an ERP is an expensive proposition. The consequences of failure would be disastrous. Inspite of great advancements in software development, ERP failure is fairly common. A 1997 KPMG survey said that over 61% of ERP projects had failed. In 2001, Robbins-Gioia found that 51% of its survey participants claimed unsuccessful ERP implementations (Leung, 2008). Even today, claims of failure rates as high as 81% can be easily found.

Despite these alarming statistics, many companies are eager to implement ERP systems. This might be the result of aggressive marketing strategies by ERP providers such as SAP, Oracle finance. There are a multitude of scenarios resulting in ERP failure, these include, reluctance to change business processes, lack of commitment from management, unrealistic expectations, cost-cutting, poor planning, etc. Before examining causes of failure, it is important to define what constitutes a failure.

What Constitutes an ERP Failure?

Statistics suggest 60% of ERP projects fail. Failure, however, is a subjective term. An ERP could have failed on account of several varying criteria. Some examples of such criteria are:-

1. Lower returns than expected.
2. Inability of the ERP system to meet predetermined functional requirements.
3. Crossing budget limitations.
5. Missing development & deployment dates.
6. Incorrect working of the system.
7. Not living up to estimated expectations

It must be understood that an ERP completely changes the working of an organization. To a non-ERP company it is unconventional and alien. Hence while evaluating the performance of an ERP, the metrics used also have to be modified. Traditional, intuitive metrics can lead to misleading conclusions. Standardized metrics should be developed for estimating ERP implementation success; this would allow comparison with rival implementations. There might be various factors that belie a successful ERP implementation, these include:
1. Productivity gains are not accounted for in financial analysis: There are many difficulties in gauging & representing productivity gains
2. Time Lag: The effects of an ERP may take some time to be felt. This may be due to high costs, or other economic factors
3. Productivity gains are offset by high costs: ERP projects are very expensive. They may lead to initial losses which overwhelm gains in productivity (Turban, Leidner, Mclean, Wetherbe, 2008, p. 561).
4. Incorrect Usage: The ERP system may have been developed perfectly, but its true effectiveness can only be realized if users understand the organizations’ goals, processes and have technical know-how to operate the ERP.
5. Losses due to external factors: Losses might result from external market conditions. These might be misinterpreted as improper functioning of ERP.

Unless there is an egregious fault in the working of a system, management should not be quick to dismiss ERP systems as failures, as stated before it takes a few years to realize profits from ERP systems. Nevertheless, there are several lawsuits against ERP providers. The parties involved include vendors (SAP, Lawson, Oracle, IBM, Epicor, etc.), consultants (such as Deloitte), universities (Ex: Montclair State University), governments (New York City, Marin county), and even nurses from Nova Scotia (Wailgum, 2009). 10 Famous ERP Disasters, Dustups and Disappointments Retrieved April 15, 2012 from: http://www.cio.com). ERP failures can cause a big mess, and result in significant losses.

Causes for ERP Failures

ERP by virtue of its scale, objectives, and functions requires collaboration between multiple parties. This includes top management of the company purchasing the ERP along with personnel from the IT department, managers etc. There are engineers from the vendor’s firm inter-mixed with specialists and consultants representing both parties. People involved may have contrasting vision, ideas, and approaches. Difference of opinion and communication gaps can be extremely detrimental to ERP development. All parties involved should realize that compromises have to be made. The goals set should be realistic and achievable. Ultimate goals should be kept in mind.

Major causes for ERP failures are:

1. **Lack of Clarity on functional Requirements:**
   Desired functionalities are often not communicated well. Sometimes the buyers themselves are unsure of what they are looking for. This leads to repeatedly changing goals and requirements; while this is tolerable to some extent, however excessive
changes can cause delays, increase cost, and result in inferior quality software. Developers should gauge and understand requirements carefully. Requirement gathering tools and techniques such as prototyping, use-cases, JAD, meetings and interviews should be used. Without a clear idea of objectives, the software created will likely be misaligned with the businesses goals. Without a clear definition of what is desired the developers will not give the software desired capabilities. It is very important to make a clear, well defined blue-print of the software.

Waste Management, a garbage disposal giant, is embroiled in a $100 million legal battle with SAP since 2008. Waste Management sued SAP for indulging in misleading sales schemes that resulted in failure. SAP shot back, saying that Waste Management had violated the contractual agreement on many occasions including failure to provide well defined requirements.

2. Lack of commitment from management:
   Top management, although often being the ones deciding to implement an ERP, are seldom aware of the scale and technicality of the project. The lack of knowledge results in lack of commitment. This results in a dearth of resources as well as time for ERP implementations. Without sufficient resources the ERP project is doomed for failure. Often top management frequently delegates the responsibility of over-seeing the project to lower level managers (Goldband, B. The Real Reasons why ERP systems fail. Retrieved April 15, 2012 from: http://www.reliableplant.com). Due to this, the top management is not fully aware of what direction the project is taking. The appointed manager usually doesn’t have the power to make important decisions or change existing business processes. This reduces the flexibility of the project and can cause further delays. The most successful ERP projects are led by a member of the management team who has actively participated in the both the software selection and implementation efforts.

3. Inadequate Training
   All users of the ERP system should be well trained. They should be aware of all aspects of the system. Interactions with the vendor implementation team should be encouraged. Lumber Liquidators is a massive company: With approximately 225 stores and $650 million in estimated 2010 revenue, the retailer is the No. 1 provider of hardwood flooring in the United States. According to the earnings press release, mishandling the ERP implementation caused net income to drop about 45 percent from the previous year’s posting. The company openly admits that there was nothing wrong with the ERP software, they hadn’t spent enough time training their employees and preparing them for changes related to the ERP. Employees have to be trained; they should be made familiar with the interfaces and functioning of the system. Employees are used to performing isolated tasks, while working on an ERP each task can have significant effects on the
entire business process. Employees need to be made aware of the ramifications of their actions. Other bad habits with regard to training include teaching just a handful of employees about the system, and expecting them to disseminate the information; and more commonly hold training sessions for departments in batches. The marketing department’s session is in the afternoon, while purchasing follows them in the evening. This methodology prevents employees from any department to develop a holistic view of the system. Employees fail to see how the software integrates and the potential outcomes of their actions. TQM measures which make employees feel responsible for products should be inculcated. Vendors often provide initial training. They may train all the employees; or in a more economical approach, the vendors train a “few” who in turn train the rest (Goldband, B. The Real Reasons why ERP systems fail. Retrieved April 15, 2012 from: http://www.reliableplant.com).

4. Improper package selection
ERPs nowadays are sold in packages, i.e. the ERP can be broken into smaller components and each component purchased separately. This allows customization for each implementation. Choosing the correct package is essential. Buyers have to make sure that the package chosen satisfies their requirements. Reasons for improper package selection include lack of knowledge as well as lack of clarity about functional requirements. Sometimes packages are wrongly chosen because the characteristics of the package aren’t well understood. There have been instances where employees have chosen certain packages due to successful implementation in past jobs. Buyers have to make sure that the vendor has the correct package; often purchasers are drawn in, using misleading tactics, only to discover that an existing package has to be modified extensively. If incorrect packages are purchased, they may not suit the needs of the organization well or process tasks slowly. Additional resources will have to be expended to remedy the situation.

5. Miscalculations & Expectations
The time and effort required for complete implementation is often miscalculated. If the expected date of completion is crossed, added costs are incurred. It is better to exceed the timeline rather than shorten the time required for completion of the project and end up with system that is erroneous (Frey, 2008). Whirlpool had its ERP implemented by SAP. Although several errors were discovered during testing, the company decided to launch the system in order to meet deadlines and save costs. The decision not to change their schedule led to shipping delays with appliances in warehouses for upwards of six-weeks past their correct delivery time.

In recent polls, 25% of respondents cited “realistic ERP implementation expectations” as the most important requirement to avoiding failure. There are often too high
expectations regarding the performance of ERP systems. These expectations often result from specious sales practices. Software vendors infamously distend benefits in terms of return on investment (ROI) while understating cost. Often left out of the total costs are costs of planning, consulting fees, training, testing, data conversions, documentation, replacement staffing, and the learning curve performance drop. These hidden costs preclude the possibility of achieving expected ROI.

6. **Incompatibility with business processes**

Misfits with underlying processes can severely affect ERP performance. These can be described as gaps between software functions and organizational requirements. Incompatibility results from poor understanding of underlying processes; both of the ERP as well as of the business. In a Singaporean implementation ERP implementation, entire patient name was entered in the first name field. This was done to avoid confusions resulting from Asian names. The ERP generated an ID based on patient name; the government however, had allotted unique IDs to each citizen. The ERP ID often conflicted with or was overridden by the national ID. An add-on had to be used to track patients; the original system provided a smoother operation. It was a standard function in the earlier system.

The six factors stated above are often cited as the primary causes of ERP failure. There are of course, many other causes; ERP implementation varies significantly from case to case, and hence, so do the causes of failure. The factor common to all the reasons stated is **lack of knowledge or awareness.** This privation often leads to failure. Management wasn’t aware of ERP implications and hence, wasn’t committed, unjustly cut resources/schedules/training efforts. They were unaware of what packages are suitable and had unreasonable expectations. This paucity of knowledge can lead to many incorrect decisions; companies often resort to unnecessary cost cutting to save costs. Schedules are often shortened to reduce expenses. Instead of trying to identify weaknesses in business operations or methodologies, they try to modify the ERP to cover faults. A good example of this is what happened to Hershey. The company spent approximately $113 million for ERP implementation. The entire project took 30 months. The time at which the ERP went live was Halloween, amongst the busiest times of the year. The software didn’t function properly; there were delays in shipping and loss of customers. The company lost around $151 million. The main reason attributed to the malfunctioning software was shortening of schedule. The project was supposed to take 48 months (that is four years) but instead was hastily completed in 30 months.
The reasons so far are explicit; to comprehensively cover causes of failure it is necessary to allude to tacit reasons. One of the main implicit reasons is cost of additional software. Despite its image of completeness, an organization often needs other software for proper functioning. Examples of other software needed include query tools, Impact analysis, additional security, monitoring systems, automated cloning & back-up, etc. Purchasing of additional software is often critical. They may be purchased from ERP vendors or 3rd parties. Budget allocations have to be made for additional software acquisitions. ERP software is often buggy and error prone. End-users often realize and report these errors. Special interest groups (SIGs) provide invaluable information to Oracle regarding errors in ERP software. Additionally, perhaps as a consequence of miscommunication or implementation difficulties, organizations often lack complete internal control. This means they have might not control all aspects of few internal processes. There are often many coding inefficiencies. These go undetected during testing and development but might cause serious problems at later stages. There may be a lack of exception handling or badly written queries, etc. These problems are usually detected while the system is running. They are expensive to fix; if remained unfixed, they may cause severe delays and frustrations.

Reluctance to Change as a Cause of ERP Failure:

An ERP implementation usually necessitates significant changes to business processes as well as employee attitudes. An ERP can change not just technical aspects but also the objective of an organization. Changes may be made in response to external factors or be made to align the organization with long-term goals. This change has to resonate throughout the organization. Failure to change is very often the primary cause of ERP failure. Change management has a crucial role to play and should be incorporated in the early stages of ERP planning. Change management seeks to lower the risks associated with ERP projects.

- Changes in employee attitude:

Attitudinal changes are crucial for an ERP implementation. Resistance to change is a natural human tendency; additionally employees often view ERP implementations negatively. An ERP automates many processes this invariably causes loss of jobs. FoxMeyer faced this problem, employees feared the ERP system so much that they sabotaged interfaces other employees skipped training sessions (Frey, 2008). While employee resistance is understandable, it has to be dealt with.

Top management has an important role to play. They must strongly and unequivocally support the ERP project. A perfunctory attitude from top management often spreads throughout the organization and affects the general attitude of the organization. The project should be strongly supported and the benefits of the project stressed upon.
Employees should be closely involved in the project, their inputs and suggestions should be duly noted. There are also changes to an employee’s working environment. Old jobs may be given new definitions. An employee’s task are no longer isolated they are part of a process. His or her actions can affect the entire process and each process can affect other processes. The employee now has a much greater responsibility; his approach must be process oriented instead of task oriented. Groups are formed around processes; employees must learn to work in groups (Agicha, 2012). Teamwork and communication skills may need to be enhanced. Employees must also get used to the new system. The ERP system changes the way information flows in an organization. Managers must get used to receiving analysis/charts/data from the system. Many managers are often skeptical of data generated by a machine.

An ERP implementation cannot be successful without proper support from employees. There are many examples of ERP systems failing in spite of successful deployment. Employee training is critical to a successful implementation. They must be taught not just how to use the system but the implication of their actions. They must be made to realize how the ERP system will help the organization achieve its goals. Few companies use training sessions to try and align individual goals with that of the company. The best practices of the ERP system cannot be effectively utilized if the employees are unmotivated or lack know-how. The people side of change has to be dealt with properly. Many ERP projects have been deemed as a failure due to lack of change management.

- **Changes to Business processes**
A process is a set of activities that lead to the creation of some value. It is composed of tasks and activities, each having its own inputs and outputs. Processes can often be broken down into smaller processes having goals, needs and feedback. Initially processes were isolated and served as stand-alone units. This resulted in poor quality and high costs. Today however, processes often cut across various departments or functional areas. Reengineering of processes has been taking place since the last 20 years (Turban, Leidner, Mclean and Wetherbe, 2008, p. 322). The importance of continuously improving processes has been recognized by organizations, governments, and military. ERP integrates various processes using IT.

ERP implementations bring about massive changes to processes. A nagging question faced by most organizations is whether to change business processes and have an ERP automate them or whether to adapt business processes to the best practices of ERP. Some may even choose to change and adapt processes after ERP implementation; another intuitive option is to reengineer processes during ERP implementation (Hammer, Stanton, 1995). This scenario is the ideal thing to do, effective in terms of both time and money.
As with most ideal options, it is practically impossible to implement this methodology. There are several complexities and it eventually leads to software of very poor quality.

If changes are made first, i.e. business processes are reengineered before ERP implementation, the ERP will have to be customized. Standard packages cannot be used; as a result the organization will miss out on best-practices. Despite these disadvantages the chances of successful implementation increase as the processes are better understood. The solution takes into account the work ethic, culture, hierarchy present in the organization. As is built to suit the organization, it may potential be more beneficial than best practices. Employees are motivated and develop a sense of ownership. Arguably the biggest advantage is minimal disruption to existing workflow.

If the ERP is implemented first, the organization can take full benefit of standard packages. It has access to industry leading solutions. The modules of the ERP will have already been created, reducing development time. However, the organization would have to change its processes as per the ERP. Employees would not be acquainted with the new system or participate in its development and hence, would not develop a feeling of ownership. A standard ERP would also cause changes in the working environment; this may disconcert employees.

If employees are not comfortable with the new system, the organization will be unable to achieve expected results.

There is no clear cut answer to this question. There are scenarios suitable for each approach. Meticulous analysis and planning is imperative for a correct decision to be made. Despite the question of when? ; In most cases processes should be changed. There can never be an end to improvement efforts. It can be recurrently seen that organizations fail to extract the maximum value from software due to inefficient or incompatible processes.

The above statement notwithstanding, many organizations fail to improve processes. One possible reason for this is lack of awareness amongst managers about inefficient processes. Managers have to realize that over time processes become inefficient and costly. Changes to processes have to be made periodically to remain competitive. Another more likely reason is the cost and effort required to change processes (Delano, 2006).

Process change is an extremely long term activity requiring significant resources and commitment. The benefits of such a change may not be visible for many years. The “its good now, it’ll be good later” attitude has often caused massive losses in the long run.
An ERP is built to automate business processes. It must be understood that if the processes themselves are not optimal, the ERP system cannot be. Surveys have shown that most of the key people in successful ERP implementations believe that process change or management is not just crucial but necessary. Process management and ERP complement each other. Processes can often make or break an ERP. Due attention should be paid to processes their relation with ERP before and after implementation should be analyzed. When an ERP is being implemented the processes it automates/codes should be examined, if these processes (often best practices) are suitable to the organization then the project may proceed, else finding another solution would be more appropriate.

**Conclusion and Recommendations**

A recurring theme has been lack of knowledge or understanding. Well-educated decisions would seem to alleviate many ERP failures. This is especially true of top management; if they could educated themselves and commit to the project, ERP failure rates would not be so daunting. Top management should be aware of the potential consequences of their actions. If executives at Hershey’s had this enlightenment of sorts, thousands could have enjoyed Kisses during Halloween (and the company could have saved $151 million). Encouragement, support and adequate resources are required for any project having the scale and complexity of an ERP.

The management need not get into the technicality of an ERP, there are many proficient consultants that can be hired to provide detailed information, an understanding of the importance, difficulties, and required resources should suffice. The management should also make sure that they are aware of the processes underlying an organization. They should be able to gauge the compatibility of an ERP with the organization. Adequate steps should be taken to aid successful ERP implementation (change management, employee training, etc.).

Communication is another key factor. The organization should convey what is required in a lucid manner. Vendors, Implementers’ and consultants should also be aware of organizational goals. Efforts should be made to adapt an ERP to suit employees to as large an extent as possible. They should ensure that requirements are well understood. Studying implementations in similar situations would help both parties.

Implementing an ERP is an expensive & tedious affair. ERP implementations often cost hundreds of millions of dollars. Organizations usually cannot afford an ERP failure. A decision to implement an ERP should be made after careful information gathering, analysis, and planning.
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