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Case Study of Whirlpool ERP-SAP Implementation

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Abstract. Enterprise Resource Planning (ERP) systems provide integration and optimization of various business processes, which can lead to improved planning and decision quality, and a smoother coordination between business units, resulting in higher efficiency and a quicker response time to customer demands and inquiries. This paper reports the challenges and opportunities and the outcome of an ERP implementation process in the Oil & Gas exploration sector. This study will facilitate the understanding of the transition, constraints, and implementation process of ERP in this sector and will also provide guidelines from lessons learned in this regard.

Keywords: case study; ERP; implementation; oil and gas exploration; SAP

1 Introduction

ERP implementation poses major challenges to organizations, as many of them fail in their early stages or substantially exceed the project cost .ERP systems differ qualitatively from prior large scale Information Technology (IT) implementations in three ways: 1) ERP impacts the whole organization, 2) employees may be learning new business processes in addition to new software, and 3) ERP is often a business led initiative, rather than IT led. ERP is an integrated set of subsystems that integrates all facets of the business, including planning, manufacturing, logistics, sales and marketing. ERP systems originated to serve the information needs of manufacturing companies. Over time though, they have grown to serve other industries, including financial services, consumer goods sector, supply chain management and the human resources sector. These systems provide integration and optimization of various business processes and this was what the companies looked for along with tangible and intangible business benefits to organizations. Effective integration is the key because if one of these links fail, the organization's performance may suffer and may not meet the expectations of its customers or the service level of its competitors. It not wrong to say that ERP systems gained importance as they arrived at a time when process improvement and accuracy of information became critical strategic issues. With this growth, ERP systems, which first ran on mainframes before migrating to client-server systems, are now migrating to the Web and include numerous applications. ERP is a product that helps automate a company's business process by employing an integrated user interface, an integrated data set, and an integrated code set. Hunter and Lippert forecasted the ERP market to reach USD 1 trillion by 2010. A summer 2005 survey of members of the Society for Information Management showed that ERP is among the top application and technology developments of its members .ERP systems are complex, and implementing one can be challenging, time-consuming and an expensive project for any company Motwani et al. emphasized that ERP adoption involves initiating appropriate business process changes as well as information technology changes to significantly enhance performance, quality, costs, flexibility, and responsiveness. ERP systems are widely adopted in a diverse range of organizations and define the business model on which they operate . An ERP implementation can take many years to complete and costs tens of millions of dollars for a moderate size firm and more than $100 million for large organizations . Implementing an ERP system is a major undertaking. It is well known that the implementation of an ERP system is a very expensive and complex task and implementation tasks include consulting,

process design, data conversion, training, integration and testing . About 90% of ERP system implementations are late or over budget and the success rate of ERP systems implementation is only about 33% . The relative invisibility of the ERP implementation process is also identified as a major cause of ERP implementation failures . Such invisibility is attributed to the unpredictably complex social interaction of IT and organization. Volkoff suggested that the critical challenge of ERP implementation is believed to be the mutual adaptation between IT and user environment. The inclusion of today's strategic choices into the enterprise systems may significantly constrain future action. By the time the implementation of an ERP system is completed, the strategic context of the firm may have changed . Nicolaou reports that ERP implementation success often results from a number of factors, such as user participation and involvement in software development, the assessment of business needs, the processes during the analysis phase of the project and the level of data integration designed into the systems. ERP changes these processes, from designing a custom system to accommodate the existing business processes of a firm to selecting a business application system that best meets the firm's needs. Mabert et al. suggested that case studies and interviews facilitate to obtain reliable and detailed information on the current status of ERP practice and ERP implementations. They further argued that most implementation projects are unique in many ways, in spite of many common underlying issues, activities and strategies. To meet time deadlines alongside budget targets, ERP projects must be planned very carefully and managed very efficiently . Moreover, a lack of understanding and time and budget pressures budget pressures make it difficult for system and maintenance personnel to identify and remove unused modifications during a release change .In the context of ERP project implementation, challenges represent major pitfalls which, if not addressed, may cause the failure of a project. Therefore, it is important to understand the real-life implementations, problems and related scenarios in detail.

2 Literature Review

ERP systems, similar to other management information systems, are often perceived as very complex and difficult to implement .System implementation success depends on many factors: the ERP system evaluation, vendor selection, the ERP consultant, the implementation plan and execution are all critical to the success of implementing an ERP system. The inability of some firms to successfully implement and utilize enterprise systems to increase organizational outcomes has been a source of concern for both practitioners and academia. The evidence of enterprise implementation failures go back to the late 1990s, .For many organizations, ERP systems are the largest systems they have worked with in terms of the financial resources invested, the number of people involved and the scale of implementation. Several cases of ERP system implementation have experienced considerable difficulties. The failure rate of ERP implementation is very high . Numerous examples of failed and abandoned implementation projects are cited in the literature, such as Fox-Meyer Drug, Mobile Europe, Dell and Applied Materials. Wah cites failures at Whirlpool, Hershey, Waste Management, Inc. and
W.L. Gore & Associates. The University of Massachusetts-Amhrest and Indiana University, have also experienced revenue loss, wasted time, cost overruns and delays in ERP implementation projects. The Chaos Chronicles mentioned that only 34% of IT projects undertaken by Fortune 500 companies are successfully completed. Nike's ERP implementation is included in a listing of "infamous failures in IT project management" because of a major inventory problem which resulted in a profit drop of USD 100 million in the 3rd quarter of 2000 .

Muscatello and Parente cite ERP failure rates to be as high as 50%. Among other obstacles, technical problems and people obstacles have been cited as the major barriers, .The types of problems and issues that arise from the implementation of ERP systems range from specific issues and problems that can come up during the installation of an ERP to behavioural, procedural, political and organisational changes, among others, that manifest themselves once the system is installed. In the case of ERP, successful implementation is imperative, since the costs and risks of these technology investments rival their potential pay-offs . The failure of ERP system implementation projects may lead to bankruptcy. A study of 100 projects by Sirkin and Dikel found that their sponsors considered them successful in only one-third of the cases, and that tangible financial impact was achieved in only 37% of cases. Markus et al. suggest that ERP systems are inherently flexible, which means that stakeholders have many opportunities to influence the form of technology during the initial decision-making, development, implementation and also the use of the system. They further argued that many problems related to ERP-implementation are related to a mismatch of the system to characteristics of the organization. This is supported by Davenport , that "ERP tends to impose its own logic on a company's strategy, culture, and organization which may or may not fit with existing organizational arrangements". Although ERP systems are functionally rich, standardizing organizational processes with these systems is often difficult . It is found that many firms that have experienced success with ERP have comprehensively reengineered their organizational processes and structures as a method for enterprise–wide transformation . In the case of implementing an ERP system we should put more effort in customizing ERP modules to comply with the existing workflow, report formats and data needs. Involving users as early as possible in system implementation is generally a good strategy . As an enterprise system, the success of ERP implementation requires close cross- functional cooperation . Further evidence from literature shows that, although many organizations are using some modules of an ERP system, they do not see themselves as equipped with ERP .

Scoping and Approach Definition

Financial Accounting	**Controlling**	**Asset Management**	**Human Resources**	**Plant Maintenance**	**Material Management**
General Ledger	Cost Elements	Purchase	Employment History	Labour	Requisitions
Accounts Receivable	Cost Centres	Sale	Payroll	Material	Purchase Orders
Accounts Payable	Activity Based Costing (ABS)	Depreciation	Succession Planning	Downtime and Outages	Goods Receipt
Book Close	Profit Centres	Tracking	Career Management		Inventory Management
Consolidation	*Interface development with Oil and Gas applications	*Oil and Gas Control report system			Bill of Material

The taskforce then moved to the Scoping and Planning phase in which a team of focal points (from each of the functional areas) was created to jointly develop a business requirements document for the ERP implementation. The focal points were selected based on their experience and knowledge of functional areas of the company. These focal points

were required to allocate 80% of their business hours to work on this task as the deadline was in four weeks. Since most of the focal points were new to this type of work, they started working on their individual areas in their own style – the consolidated set of requirements produced by the team were clearly lacking in quality and consistency, as the requirements were either too high-level/generic or too detailed. The team took another two weeks to refine those requirements further. An organization's strategic decision on ERP customization or business process adaptation during planning can have a profound impact on the practices used to support the system during maintenance and support. Here it is also important to note that management may poorly define goals, have an overly simplistic project plan, use unrealistic deadlines and budgets, and fail to set and manage the expectations on the product (the software being developed) and the project (the development process) to gain support from users, developers, and functional managers.

It was planned to implement the following SAP modules in the first round of implementation:

** Specific to Oil and Gas sector requirements*

Conclusions

This study provides valuable insights into understanding ERP implementations and significant factors influencing their success. Various case studies provide different findings which are unique to ERP implementations because of the integrative characteristics of ERP systems. Alignment of the standard ERP processes with the company's business process has been considered as an

important step in the ERP implementation process. After almost a year of implementation, the company has mixed results in this case. Certain areas have seen great improvements after the implementation of SAP (e.g. Procurement, Maintenance, Financial) where as certain areas remain weak (e.g. Employee Records, Contract Administration, Integrated Planning). From this implementation experience, it can be seen that it is not a particular technology platform or software application that can transform a company. Instead, it is the way the company implements the technology that makes it successful.

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