A successful deployment of an ERP system: A case study of a small Greek company

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Abstract

The purpose of this paper is to present the findings of a case analysis of a successful ERP implementation in the context of a Greek small enterprise. Past research has identified factors that are important to the successful implementation of ERP systems. However, the majority of the papers describe unsuccessful cases of ERP implementation systems examining and pinpointing the factors which led to failure. In Greece, there is a relative lack of empirical studies in examining the adoption of ERP by Greek firms, but most importantly there is a complete lack of studies of Greek small enterprises having applied an ERP system either with success or failure. The results of this study highlight some crucial factors that influenced the ERP implementation process in a small commercial company. Moreover, some determinants of successful application of an ERP system are extracted being valuable for other small companies in considering to implement ERP.

Keywords: Enterprise Resource Planning (ERP); Small and Medium Enterprises (SME); User Satisfaction; Case study.

1. INTRODUCTION

Information Technology (IT) Information Systems (IS) and particularly Management Information Systems (MIS) provide great benefits in improving process productivity and efficiencies as well as increasing the ability to speed up decision-making within and across organizational boundaries. Enterprise Resource Planning (ERP) systems are becoming one of today's most widespread IT solutions. The primary functions of ERP are the integration of all the enterprises subsystems and business functions, i.e. supplier selection, production, finance, purchasing, sales and customer service. Nevertheless, planning and implementing an ERP system require an enormous investment on behalf of the firm in terms of time, cost and resources. Additionally, the firm must address the issues of culture as well as day to day company activities for achieving its objectives.

A great number of companies have implemented ERP packages attempting to integrate and optimize their various business functions and processes, but their efforts, in many cases, were not successful. According to a number of studies the main reasons leading to failure of ERP projects are the lack of strong and committed leadership, a clear implementation plan along with a strategy to implement it, problems in software customization and testing, lack of technically well educated and trained staff and, finally, a lack of financial planning, budgeting and justification (Sarker, 2003).
This paper describes a case of a successful implementation of ERP by a small commercial Greek company attempting to understand and identify the factors and issues associated with the success of the particular ERP project. An important prerequisite for a Management Information System, proposed in the literature, is the top management support (Sarmaniotis and Stefanou, 2005; Chen and Popovich, 2003). Fortunately, the particular company supported and stimulated the staff to adopt new IT solutions and particularly an ERP system. Moreover, training programs as proposed in the literature (Rigby et al., 2002) were vital to the success of the ERP system implemented. The critical point was that training focused first on the process connected to the ERP system and then to teaching the ERP applications' features and functions. Another critical determinant that has been taken into account was the user (company's staff) involvement. It should be noted, that user involvement has been found to be a predictor variable for ERP perceived usefulness, influencing ERP acceptance (Gyampah, 2007; Wu and Wang, 2007). Moreover, suggestions are made for solving problems during the planning and the implementation phases as well as for further research.

2. LITERATURE REVIEW

There is a lot of research focusing either on critical key success factors for ERP implementation (Upadhyay et al., 2011; Ngai et al., 2008; Al-Mashari and Al-Mudimigh, 2003; K. Hong and Y. Kim, 2002;) or on pitfalls and complexities in ERP implementation (Ip, et al. 2002; Ribbers and Schoo 2002). Some others focus on the fundamental corporate capabilities driving ERP as a strategic concept (Motwani et al., 2005; Mandal and Gunaskaran, 2003; Jacobs and Bendoly, 2003; Hitt et al., 2003). A third stream of research papers proposes theoretical models for ERP implementation (Finney and Corbett, 2007; Stensrud and Myrtveit 2003; Stewart and Rosemann, 2001). Finally, few papers look at the influence that user satisfaction and user perceived experience have on the behavioral intention to use an ERP system and how these two factors contribute to implementation success (Gyampah, 2007; Wu and Wang, 2007; Wu and Wang, 2006; Zhang et al., 2005; Gyampah, 2004).
The majority of the above studies have stressed the importance of top management support and commitment as prerequisites in successful ERP implementation. Top management can provide clear directions to staff members of all segments of the organization in order to cooperate and integrate information within and across all functional areas in an organization. Furthermore, business process reengineering is an imperative in order to achieve improvements in critical measures of performance (cost, service, quality etc). The lack of performance measures is one of the main reasons that leads ERP systems to failure (Yusuf et al., 2004; Hammer and Champy, 2001), due to the fact that organizations underestimate the extent to which they have to change the existing business processes and as a consequence the staff have many difficulties in changing the way of doing their business. The capability of

organizational change depends on the company's capacity to change the embedded structures and processes in the organization. In that case the role of the company's leadership in pursuing organizational change when implementing a new information system is extremely crucial (Stefanou, 2001).
Additionally, many researchers argue that user involvement in the development of an ERP system is integral to the success of the system (Mandal and Gunaskaran, 2003; Zhang et al., 2005; Yusuf et al., 2004). The implementation of new technology seems to be a threat for the staff who have to cope with differences between old and new work systems. According to Zhang et al., (2005), even the characteristics of different users may also affect the ERP implementation success.
Furthermore, many authors have focused on the users involvement, as a critical factor for implementing ERP systems. While they have taken into account user satisfaction as an important key success factor to the successful implementation, the majority of them based their conclusions of the perceptions and attitudes of top managers of the organization that implement these systems. In any case, both of them, managers and end-user satisfaction are important mechanisms and criteria for determining system success.
The ERP software suitability and usability is an issue that many authors and practitioners have mentioned for implementing an ERP system. According to them, companies should conduct requirements analysis in order to ensure their selection of ERP packages that most fit their requirements. Additional dimensions of the system such as flexibility, ease of use, usefulness of functions are major determinants of ERP success (Yusuf et al., 2004).
Concluding with the literature review we can point out that many of the above mentioned papers describe unsuccessful cases of ERP implementation system examining and indicating the factors which led to failure, though, successfully implementing an ERP system in a firm is extremely difficult (Yang et al., 2007). In Greece, there is a relative lack of empirical studies in examining the adoption of ERP by Greek firms, but most importantly there is a complete lack of studies of Greek small-medium enterprises (SME) having applied an ERP system with success.

3. RESEARCH METHODOLOGY

A case study approach was employed to identify the factors that facilitate or inhibit the success of ERP implementation in a small company. A case study examines a phenomenon in its natural setting, looks intensely at an individual or small participants, gathers information from one or a few entities (people, groups, or organizations) and draw conclusions only about that participants or group and only in that specific context (Yin, 2003). Furthermore, the case study method is well suited to the study of Information Systems implementation and considers an ideal methodology when a holistic, in-depth investigation is required. Due to that case study is a preferred strategy when "how" and "why" questions are being posed, and the researcher has little control over events (Feagin et al., 1991; Yin, 2003).
Based on the above, this study used the case study technique for data collection to gain insights into the topic being investigated. The criterion used to select the company was that the specific company is a small company that was implementing an ERP system successfully. Data was collected primarily through interviews, observations and archival sources, in order to confirm the validity of the processes (Sarker and Lee, 2003). The authors interviewed the project manager of the studied company and executives who were familiar with the ERP implementation progress.

All interviews were taped to ensure accuracy of written data and follow-up phone calls and e-mails were also made to seek clarification or further information. Additionally, reports, newspapers articles, evidence from different case studies and books from the existing literature had been reviewed and were compared with the initial case study to validate the findings from the case. Finally, when the case study was documented, was reviewed by the project manager of the studied company in order to crosscheck the accuracy of information.

4. CASE ANALYSIS

The study was carried out in a small commercial company that implemented an ERP system, specifically the LogicDis of Singular Logic. The name of the company is withheld due to the willing of the executives, subsequently termed company X.
The company X is an importing-exporting commercial company that was founded in Thessaloniki in 1946. In its 4.000/m2 privately owned facilities, the company imports and supplies the Greek market with a wide range of products such as home and office items, gifts, ornaments, electrical equipment, as well as products that cover the needs of companies for promotional actions. Moreover, the products are distributed to Cyprus, to Serbia and FYROM. The wide range of products is designed for all who wish to experience little everyday pleasures in smart, “smiling” prices.
Realizing the commercial changes and challenges that arise, the company X invests in human resources, in computer technology as well as in communication. Additionally, it builds on important partnerships with worldwide established companies, such as Hyundai, whose batteries are distributed in Northern Greece, but also with Mare Ochiali, an upcoming wearing glasses business.
In order to improve its services, the company X decided to upgrade its inventory management process and an ERP solution seemed to be the logical answer, in order to provide the ability to integrate accounting, inventory and materials management. The executive manager of the company X underlined that before the final selection of the vendor and software the owners (top managers) and him had clearly determined their objectives and requirements. Moreover, they had set as a primary goal for the project to increase organizational efficiency, to achieve internal control, to reduce the time for some basic functions and finally to increase their effectiveness. Also, some other criteria were: the depth of the system's functionality and usability, the specialized coverage of financial, inventory, logistics and the reliability and consistency required in sensitive business installations. In the end, they had to elaborate the budget, though the specific company is a small one and could not afford an enormous investment.
After considerable study the choice was made and the software was LogicDis Prime ERP from Singular Logic. Singular Logic is currently the leading software and integrated IT solutions group in Greece. With understanding of the entire range of market requirements, Singular Logic offers advanced and integrated IT systems. It also offers full support services, regardless of the company’s size, investing capacity and internal infrastructure. Singular Logic is specializes in small and medium-scale enterprises, since those enterprises form the backbone of Greek economy.
Singular Logic philosophy met the company’s X business needs and reflected company’s requirements. The implementation approach initiated 3,5 years ago and involved the installation of some basic modules such as Merchant Management Subsystem (indicative Inventory Management, Sales, Purchases, Serial Numbers, Lots, Guides, Parts Guarantee, Cost of Imports and Exports) and Financial

Management Subsystem (General Ledger, Accounts Payable & Receivable, Financial Management, Budget Bill). Based on company's X scope, re-engineering implementation with Prime ERP was planned to take 8 months, beginning in early 2007. This was a short time and the company was in a hurry but the executive manager underlined that the company had the capacity to change easily the embedded structures and processes due to the fact that all people of the organization are familiar with new technology tools. Consequently, the staff felt confident about their abilities to use the system. Technical issues and training lasted less than 2 months and the software was viewed as a very helpful on the whole. Moreover, the staff found the Prime ERP to be a flexible system which offers a familiar interface that is easy to use and the adoption was very quick. At that point, it should be noted that the majority of the users who would involve with the system, participated in the whole ERP project (from the idea stage, to selection and finally to implementation phase) and they expressed their opinion for the decision making. It is possible that these users, either because of their participation as project team members or because of their knowledge and experience in new technology tools, tend to have increased satisfaction with the ERP system. However, usage and practice was needed for exploiting the capabilities of the ERP system and the staff during that period detected some issues that should be improved. In any case, since 2007, the whole system has been subjected to continuous improvement efforts. Configuration and customization of the Prime ERP modules were undertaken by the project manager and a team of users (2-3 persons) and they were supported from the vendor's consultants.

The whole project cost €6800 included some extra services relating to customization arising during the first 3 years. In that cost €2000 were added for the purchase of small mobile devices connected to the company's ERP, through Internet, in order to provide direct (in any place and any time) information to sales representatives staff. It is obvious that top management commitment and support was an important prerequisite for this strategic decision. Once managers started to think about this project, they tried to explain and to justify their idea in that way those employees felt motivated to go along with the project and they were not opposed to the changes that were going to occur.

The return for investment (ROI) of such a project is very difficult to calculate. The company X, despite the global financial crisis and particularly in Greece, managed almost to double its turnover in the second year, since the ERP system was adopted. Additionally, the gain in efficiency, in speed, in cost and time saving and in customer service are even more difficult to evaluate, but have obtained for sure, and this is something that have appreciated from all the staff of the organization. Today, approximately 70% of the firm's employees are end users (total 12 employees) and are involved with the ERP system.

5. DISCUSSION

At Company X, all the staff considered the change efforts to be successful. The success of the implementation and deployment of the ERP system in our case is due to consistent and support of top management. This is a critical success factor, proposed in the literature by many authors (Sarker and Lee, 2003; Dong, 2001). Top management should be the driving force and must be willing for accepting that a lot of learning has to be done and many changes are required in business processes (Upadhyay et al, 2011). Hopefully, in this case top management and leadership were

of great value and ERP-directed. Furthermore, in this case, top management explained and justified the significance of the project to their employees. Consequently, top management was able to develop a shared mission of the organization and was also able to communicate the new system more effectively to company's employees and gained everyone's commitment and support. Due to that top management managed to increase their behavioral intention to test the new system and thus to convince them to participate to the preparation of the project. It is obvious, that user involvement and participation is another critical determinant as it has been found in the literature to be a predictor variable for ERP perceived usefulness, influencing ERP acceptance (Upadhyay et al., 2011; Zhang et al., 2005; Al-Mashari and Al-Mudimigh, 2003). In addition to that, it should be underlined that the project manager had experience and knowledge of ERP systems and this was very catalytic for the successful implementation.
Moreover, a team of experienced consultants undertook the directorship of the project. Vendors should be carefully selected since vendor support plays crucial role to the project success (Thong et al., 1994) and the package must match the business processes (Chen, 2001). In our case, the selected package is a user-friendly one and users are very satisfied with it. The project team worked very closely with the consultants of Singular Logic. Furthermore, training programs as proposed in the literature (Mandal and Gunaskaran, 2003; Yusuf et al., 2004; Zhang et al., 2005; Gyampah, 2007) were vital to the success of the ERP system implemented. The staff had a better understanding of how their jobs are related to other functional areas within the company. Additionally, training during technology implementation influenced user attitudes, performance and acceptance of the new system. In particular, end users had more favorable perceptions on the benefits of the system and higher level of satisfaction after training.
As it has been mentioned in case analysis, top management had clear goals and objectives that were essential to guide ongoing organizational efforts for ERP implementation. However, the company X tried to introduce a new system, fortunately not "all-at-once", within a time frame of only 8 months of preparation. According to the literature, implementing an ERP system involves reengineering the existing business processes to the best business practices. Company X, due to the unrealistic time frame, underestimated the extent to which it has to change the existing business processes in order to accommodate the ERP system. Consequently, during the first year the staff with the consultants had to customize some extra functionalities, which increased the implementation cost. Hopefully, due to the fact that Company X is a small enterprise and so there is business agility, responded very quickly.

6. A CONCEPTUAL RESEARCH FRAMEWORK

Based on the ERP literature and the findings of the presented case analysis, a conceptual research framework is developed and depicted in Fig.1. This framework illustrates the critical factors that need to be addressed for a successful ERP implementation in small firms.
Firstly, it should be underlined that the dimension of the reengineering process might not be the principal success factor in small companies– as reported in the literature for large companies- due to their magnitude and hence their greatest flexibility of

their capabilities. Such a process does not need a long time to be integrated and it is not a difficult task due to limited processes and fewer staff involved.
Additionally, top managers in the case of small firms is usually the owners of the firms. Consequently, top management is still a significant prerequisite and, thus, a key success factor but it is considered that owners are playing the role of top management.
Moreover, it is even more necessary in small companies to involve employees in an ERP project planning and implementation. They should be motivated to participate in all stages of the ERP implementation process (from the idea to the final step) and to have a positive attitude towards the whole venture. This goal is easier to attain in small companies due to the fact that they are characterized by coherence and unity.
Finally, it is important to mention that an ERP software dedicated to small companies is more customized to the company's special needs and it simplifies the efforts of the end users, thus increasing their positive attitude and satisfaction.

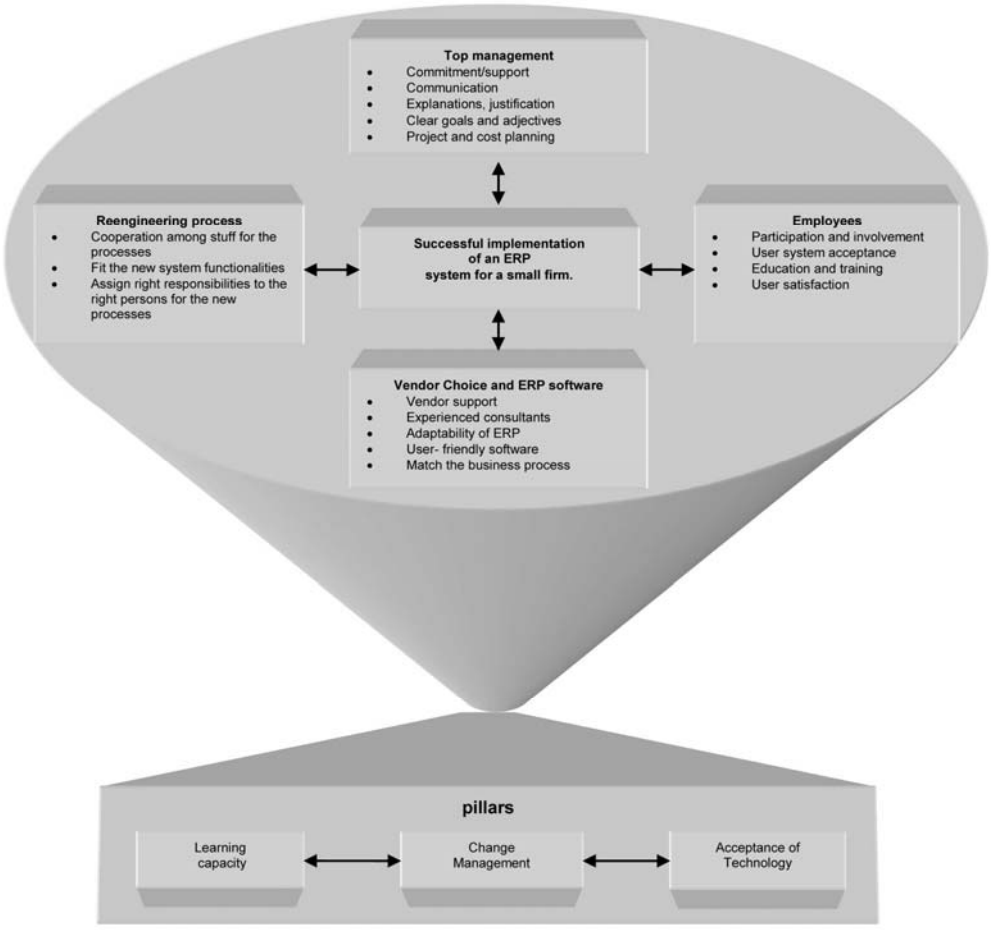

Fig.1 Conceptual Framework of Key Success Factors of ERP implementation in SMEs.

7. CONCLUSIONS

This paper provides valuable insight into the issues of the ERP implementation process, focusing in a small import-export commercial company. The Greek financial crisis and the competition from global market provided an opportunity to the specific company to change the way of conducting business by adopting an ERP system.

Introducing a new ERP system poses a great challenge for an organization. Some issues affecting ERP implementation were discussed and some critical factors that are prerequisites were examined.

ERP has long been applied and promoted in the large companies. Instead, in the small companies there is an absence of any technological advancement or development or in some cases there has been slow. Consequently, there is a relative lack of empirical studies and particularly of cases with successful ERP stories in small companies. This study, demonstrates the necessity for top management commitment and support, clear setting and understanding of goals and objectives, budget planning, working process re-engineering, users involvement, package selection, consultant role and experience, training programs, users acceptance of technology and users satisfaction. A managerial implication of this case analysis is that users where involved to the whole ERP project design. Top management took into consideration their opinions for the decision making and encouraged participation of its employees in the process of ERP implementation. This was very integral to the success of the system. Additionally, top management place a great deal of emphasis on training and its impact on the perception of training effectiveness. Top management believed that users are the people who produce results and should be held accountable for increasing the system's performance. Due to that, top management considered the overall satisfaction of users with the system implementation.

In addition, the ERP vendor, Singular Logic and its software provided the firm with a major advance in the area of information systems. With Prime Logic Dis the company X is equipped with a common solution that provides the flexibility to respond immediately to business requirements. Moreover, even if it is not easy to measure the return on investment (ROI) of such a project, the implementation and deployment of PRIME Logis Dis consider as a successful project, since ERP has provided the company with a lot of advantages. The company X has already achieved business agility and has already enhanced its competiveness. Furthermore, the Company X doubled its turnover in the second year of ERP adoption, under circumstances of financial crisis.

Today, company X is preparing the integration of a new information system, a CRM which will allow it to manage customer relationships better.

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