Success factors for using ERP (Enterprise Resource Planning) systems to improve competitiveness in the hospitality industry

Fatores de sucesso na utilização de sistemas ERP para a competitividade da indústria hoteleira

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Abstract

ERP (Enterprise Resource Planning) systems emerged as a tool to automate and add efficiency to repetitive business processes, providing managers with a global vision and timely responses to the ongoing business operations, and at the same time solving information fragmentation and disintegration problems.

These problems are felt in the hospitality industry just as much as in any other industry.

Implementing an ERP system may imply deep modifications in structure, business processes and even the culture of an organization.

Despite some drawbacks, the benefit of these kind of IT (Information Technology) systems are numerous and may bring important contributes to increase business competitiveness. In order to achieve the expected benefits there are some critical success factors that have to be closely looked at.

The purpose of this paper (supported by a case study of a Portuguese group of companies) is to identify the major success factors when using this kind of systems in the hospitality industry, as well as factors that may obstruct organizations from being competitive. Another goal is to provide some recommendations for organizations of the same type.

Keywords: Information systems, ERP systems, information integration, tourism, hospitality industry.

Resumo

Os Sistemas ERP surgiram como forma de automatizar e dar eficiência a processos organizacionais repetitivos, proporcionando aos gestores uma visão global e em tempo útil do estado das operações, resolvendo os problemas da desintegração e fragmentação da informação.

O problema da fragmentação da informação é sentido nas organizações da indústria hoteleira, à semelhança do que acontece noutros sectores de atividade.

A implementação de um Sistema ERP pode implicar profundas alterações nos processos, na estrutura e até na cultura de uma organização. Apesar de acarretar algumas dificuldades, os benefícios deste tipo de sistemas são numerosos e contribuem, por vezes de forma significativa, para a melhoria da competitividade do negócio. Para que se possam retirar os benefícios esperados na implementação de um Sistema ERP, existe um conjunto de fatores críticos que devem ser tidos em atenção.

O objetivo deste artigo é, através de um estudo de caso aplicado a um grupo Português da indústria hoteleira, identificar os principais fatores de sucesso da utilização destes sistemas na referida indústria e, ao mesmo tempo, identificar os fatores inibidores da competitividade nas organizações desta indústria. Pretende-se ainda, desta forma, contribuir com algumas recomendações para entidades do tipo da do grupo hoteleiro estudado.

Palavras-chave: Sistemas de informação, sistemas ERP, integração da informação, hotelaria e turismo.

1. Introduction

The purpose of this paper, either through literature review or by the case study, is to identify the major success factors when using this kind of systems in the hospitality industry, as well as factors that may obstruct organizations from being competitive. In this context, the IS/IT (Information Systems based on Information Technology) of the hotel units belonging to a growing group of companies are analyzed. As the group grows the need for adapting technology and systems, sometimes obsolete or not compatible, also increases.

2 ERP systems: literature review

2.1 Major features of ERP systems

Organizations use information to maximize productivity gains, and this places the problem of information integration as one of the most debated issues in the context of IS (Information Systems) in recent years (Lee, Siau, & Hong, 2003), mainly because there are many isolated tools in their diversified technical environments, leading, in most cases, to the duplication of information in the organization and to different results in its various "islands" (Muscatello & Chen, 2008; Davenport, 2000; Alshawi, Themistocleous & Almadani, 2004).

The main problems of fragmentation of information are the difficulty of obtaining consolidated information and the inconsistency of redundant data stored on more than one system. ERP Systems solve these problems by aggregating, in one integrated system, the various business processes that support organizations (Pang, 2001).

ERP Systems emerge as management systems that allow the organization's resources to be managed in an integrated manner by automating most of the departments or functions, so as to make the information available in real time (Ilfinedo & Nahar, 2006; Themistocleous, Irani, O'Keefe, & Paul, 2001). They provide decision makers with an overview of the organization's situation, globally and in each of its departments (Ross & Vitale, 2000) and along the entire value chain (internal and external) (Shang & Seddon, 2002). It is against this background that the efforts of software companies fit, seeking to present products that integrate all these information centers.

2.2 Expected benefits from ERP systems

Implementing an ERP system may imply deep modifications in structure, business processes and even the culture of an organization. Despite some drawbacks, the benefits of this kind

of IT systems are numerous and may bring important contributes to increase business competitiveness (Ilfinedo & Nahar, 2006; Davenport, 2000; Hayman, 2000; Scheer & Habermann, 2000; Sumner, 1999).

Whether related to financial, management or operational processes; involving internal tasks or those related to customers or suppliers, ERP Systems contribute significantly to improve business competitiveness (Davenport, 2000).

Davenport launched an enquiry to executive managers of several organizations with the purpose of identifying major benefits expected from the implementation of an ERP system (Davenport, 2000). About 2/3 of those managers considered crucial the quality of information made available by the ERP system. Improving the process of decision making was also considered of great importance by 61% of managers. Reducing costs and improve efficiency was pointed by 51% and 38% of managers, respectively, suggesting that the implementation of an ERP system is regarded as an opportunity for a technological upgrade. For Shang and Seddon, the expected benefits can be classified in five dimensions or categories (Shang & Seddon, 2002):

- Operational benefits are obtained through automation and rationalization of daily and routine tasks, reducing or eliminating human intervention. They provide cost reductions, time-frame reductions, productivity gains and improvement on customer service.

- Management benefits are obtained through centralized information stored on a single database, capable of data analysis, and allowing for better planning and support of management and decision activities. The fact that the ERP system provides real time information allows for better and proper control of all tasks and departments in the organization.

- Strategic benefits resulting from internal and external integration of the ERP system. Organizations benefit from integration throughout the value chain, integrating business partners and thus promoting new alliances, increasing productivity, reducing costs and fostering innovation.

- Organizational benefits resulting from internal processes integration, based on harmonization of all inter-departmental processes. ERP systems enhance internal communication and consequently a common vision of the organization and better motivation from employees can be achieved.

- Technological benefits resulting from the standard and integrated architecture of an ERP system. It results in reducing maintenance costs of legacy systems as well as standalone applications, making the introduction of new applications a more flexible process.

- Other authors such as Zaitun and Zaini (2008); Ilfinedo and Nahar (2006); O'Leary (2004); Daneva (2001) and Scheer and Habermann (2000) define the benefits expected when improving support for decision making.

2.3 Critical success factors when implementing an ERP system

According to Sumner, in order to achieve the expected benefits of the implementation of an ERP system, there are a number of factors to have in mind. The implementation of such a system should not start without having a clear and serious notion of what is needed. Objectives, constraints, contingencies, and projected time frames must be carefully evaluated, along with responsibilities and authority levels for project managers (Sumner, 1999).

Shang and Seddon suggest the analysis of benefits expected from the investment, before the implementation of an ERP system. Answers to the following questions should be looked for (Shang & Seddon, 2002):

- What is the purpose and scope of the project?
- What are the objectives and expected results?
- Is the investment reasonable and justifiable? What are the tangible and intangible benefits to be achieved?
- How important is the support from top management and what is their role?
- How will business processes be affected?
- What is the investment in training, support and maintenance, in order to assure the project will be successful?
- In what way will external consultants participate in the project?
- What is the role of users in the development and management of the project?

To Rockart, critical success factors are mechanisms to identify information requirements in each organization; they represent factors that assure a competitive performance in certain areas (Rockart, 1979).

According to Sumner, critical success factors change from organization to organization. Major factors are (Sumner, 1999):

- Project rationale in terms of cost and economy of scale;
- Process reengineering in order to adapt the organization to the system to implement (Lee, Siau, & Hong, 2003);
- Identification and implementation of strategies to incorporate know-how from internal teams as well as external consultants and vendors, whenever necessary.
- Add business analysts who may also have technical skills;
- Ensure the commitment of top management in project leadership and support (Stein, Hawking, & Foster, 2003);
- Involvement of several system users to identify and report flaws and suggest improvements.

Soja (2006) use critical success factors to understand which of them originate success or failure when implementing this kind of systems. These authors designed a unified model of all factors they consider critical for an ERP system implementation to succeed. The model is grouped into four dimensions or perspectives: organization, technology, strategy and tactics.

The organization perspective relates to its structure and culture, as well as the definition of what are business processes. The technology perspective focus on aspects related with the ERP system to implement and with technical questions linked to hardware and software necessary to have a successful implementation.

The strategic perspective deals with the mission and long term objectives. Tactics perspective relates to medium or small term objectives Soja (2006).

3 Methodology

With the purpose of identifying major critical success factors when implementing ERP systems, as well as factors that may obstruct organizations from being competitive, a case study was carried out based on data gathered on an important economic Portuguese group. The study also intended to understand how the hospitality industry can solve the problem of the disintegration of information of the various implemented business applications. The research did not seek to confirm or refute hypotheses or the quantitative measurement of the influence of variables in a particular phenomenon. Instead, it attempted to answer proposed questions, interpreting, through the systematic analysis of the collected data, ratings, perceptions, needs and limitations of IS/IT submitted by the people involved in the study.

Therefore, an inductive logic followed, with emphasis on the analysis of qualitative data and using the case study method. Several authors support the strategy of the qualitative approach, particularly in the study of problems related to organizations and technology (Saunders, Lewis & Thornhill,

2007; Maxwell, 2005). Although the dominant approach in research processes in the area of IS has been, until some time ago, the quantitative analysis, the research using the case study method, with qualitative data collection, has become increasingly accepted in the area of IS. This appears to stem from a growing recognition of the potential to help researchers understand the interpretations and meanings that govern activities of organizational stakeholders, as well as how technology is faced and used.

The research presented followed an interpretative approach (Klein & Myers, 1999). In view of the issues to investigate, an approach to understanding and interpreting facts was adopted, by the insertion of researchers in the organizational context of hotel units. This interpretative option permits that a group of people, including managers, directors of IS, or users, in an organizational context, can express, conceptualize and assess the objectives defined by the research.

The research method adopted combines several techniques, such as semi-structured interviews with the Chairman of the Board of Directors of the hotel group, the director of IS/IT's department of the group, as well as the heads of logistics, human resources and financial areas of the IS/IT's department of the hotel group, in order to find inefficiencies and inconsistencies in the information used and facilitate the analysis of the processes involved. Interviews with key elements of the organization are a way of ensuring an experienced vision of who is inserted in it and could induce a faster knowledge of what is analyzed. A questionnaire survey for key users was also used. Respondents are users of IS, heads of each department in each hotel unit, with the purpose of understanding the users' satisfaction in relation to the IS/IT implemented in the group, serving, at the same time, the purpose of confirming data consistency. The process was completed through documentary analysis of data collected in the hotel units and by direct observation of the use of installed applications. With the objective of analyzing the systems available and its application in the hospitality industry, solutions and proposals put forward by the leading supplier of integrated applications management were also examined. As a way to collect opinions and suggestions on the information collected, as well as the analysis of the same, a panel of experts in the field of IS/IT was consulted.

4. Case study: results

The hospitality industry has been through important changes and information technologies have played a decisive role (Ribalaygua, 2000). IS/IT has potential leverage to improve its competitive position. According to Miguel, Fernández, Olmeda & Segui (2000) it is important to use new technology to "reinvent" external and internal business processes, having in mind the targets of increasing productivity as well as customer satisfaction (Miguel *et al*., 2000). Other authors, like O'Connor and Murphy (2004) and Martínez, Majó & Casadesús (2006), state that new customer demands, in what quality service is concerned, require companies to respond properly to all requests, making the use of technology a strategic issue. Likewise the relationship with external agents, through new distribution channels, is another critical success factor in this industry and can draw benefits from using IS/IT, as stated by Miguel *et al.* (2000).

Diversifying the services offered is also considered by Ribalaygua, (2000) among the critical success factor of this industry. Services such as entertainment, health centers and golf clubs may state a difference to competition.

So, it was important to know in what way the studied group was facing these factors, to know their strategies within the sector they operate, as well as their own critical success factors. As a result of the interviews made, it was clear that the group´s strategy leaned, among other aspects, on quality and service diversification, namely through complementary areas of business (golf and health centers). This confirms what authors like Ribalaygua (2000) and Lin (2005) state about service diversification as a strategy for differentiation.

Given the stated strategy, the group's managers were interviewed about the competitive advantages associated to IS/IT, in particular in what business processes are concerned. In their opinion there are no competitive advantages using IS/IT, in fact it was considered a secondary issue when compared to brand recognition, quality of service or the location of their premises.

According to Ward, Peppard & Daniel (2008) this perception that some organizations have about the value of investment in IS/IT, not considering it strategic, reduces their ability to draw benefits from its use. The strategic use of IS/IT is a way to respond to global business demand, as stated by Miguel *et al.* (2000) and Ribalaygua (2000). In what the implementation of ERP systems is concerned, one of the limitations pointed out by authors like Alshawi (2004), Murphy and Simon (2002) or Themistocleus (2001) is that the time for implementation normally lasts very long and in most cases is always beyond schedule. However, in the study undertaken, implementation schedules were accomplished (96% of interviewed key users stated that delivery dates were "good" or "very good"). The fact that the IS/IT team had former consultants with key qualifications in ERP systems participating in the implementation/customization process, also explains why this was a successful implementation.

Notwithstanding the opinion of the managers about IS/IT role and importance, it is our belief that their use may leverage competitive advantages to this globalized industry. Thus we designed the application portfolio matrix, developed by Ward, Griffiths & Whitmore (1990), with the purpose of perceiving how IS/IT would evolve within the studied group. This evolution results from analyzing the critical success factors and other competitive advantages of the group of companies. In fact there are industries where dependence from information technologies is stronger than others. According to a study about the adoption of ERP systems in 2 647 small or medium European companies among several industries (Everdingen, Hillegersberg, & Waarts, 2000), it was concluded that industries with higher ratios of utilization of ERP systems were electronics, followed by automotive, and that European countries where ERP systems were more commonly used were Holland, Sweden and Finland.

5 Conclusions

The purpose of this paper was to identify the major success factors when using this kind of systems in the hospitality industry, as well as factors that may obstruct organizations from being competitive. There was evidence that the decisions taken by the group, namely those related to the choice of specific application software to fill the shortcomings and weaknesses of their ERP systems, including the integration process chosen, affected their own critical success factors.

The absence of integration of application software supporting other business areas like golf and health centers had consequences in the quality of service rendered to the customers.

The non-integration of data produced in these areas with total invoicing data, during customer stay in the hotel premises, originates negative impacts in customer service. The immediate consequence is that the customer current account is not automatically updated and the customer may have to wait for total integration of data when he leaves the hotel. This impact

on one of the critical success factor stated by the group itself: quality of service.

The non-integration between the front-office business processes with major online operators like Booking, Expedia and others, impacts another critical success factor: continuous process improvement. Not integrating these processes in the group´s value chain forces the processes to be concluded manually by an employee through traditional media like e-mail or fax. So, it was concluded that besides the process inefficiency and elapsed time, the group was not taking any advantage from one of the most important potential of IS/IT in the hospitality industry: to integrate the value chain in an integrated information system, as also stated by Ribalaygua (2000) and O'Connor and Murphy (2004).

It was also evident that the impact of non-integration or insufficient integration leads to loss of competitiveness, as a result of not being able to reduce the elapsed time for some business processes. Manual intervention may result in redundant and inconsistent data. Authors like Martínez et al., (2006), came to similar results in their investigation. Another consequence of non-integration is to reduce the organization´s capabilities to relate with their business partners throughout the value chain, despising advantages induced by the internet and new technologies. Equal perspectives had authors like Ribalaygua (2000), O'Connor and Murphy (2004).

Besides loss of competitiveness and negative impact on critical success factors, it is noticeable that these constraints prevent the organization to timely obtain data on its own performance and management.

Finally, the results of this investigation unveiled several paths to develop further works, in some cases a natural continuity of the work done and in other cases the development of particular aspects can be carried on autonomously.

For instance, we underline the importance of complementing this study with an investigation that would include a set of small and medium size hotels, in order to identify their major success factors and the obstacles to increase competitiveness, when using ERP systems. Also, this would be an opportunity to compare and analyze differences using these type o information systems.

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