

Factors influencing the purchase of an ERP system

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Abstract

This paper is about the factors that influence the purchase of an ERP system. The purchase of an ERP system is part of the acquisition phase of the ERP lifecycle. There are two kinds of factors that have influence on the purchase decision: business factors and IT factors. The decision is often determined by the amount of organizational change needed.

Keywords:

ERP, acquisition phase, selection, organizational change, organizational characteristics, business factors, IT factors

1. Introduction

Enterprise Resource Planning (*ERP*) systems are software packages that can be customized to serve for the specific needs of an organization. These packages are composed of several modules, such as human resources, sales, finance and production, providing cross-organization integration of data through business processes (Esteves and Pastor, 2001).

The ERP lifecycle represents the various phases through which an ERP system project passes in an organization. Esteves and Pastor (1999) proposed a framework which is structured in phases which consist of the several stages an ERP system goes through during its whole lifetime in an organization. The different stages are:

- adoption decision
- acquisition
- implementation
- use and maintenance
- evolution
- retirement phase

This paper focuses on the *acquisition phase*. According to Esteves and Pastor (2001) the acquisition phase involves selecting the product that best fits the

requirements of the organization to minimize the need for customization. Further a consulting company is selected in this phase to help in the following phases of the ERP lifecycle. Factors such as functionality, price, training and maintenance services are analyzed and also the contractual agreements are defined. Also the return on investment (ROI) of the product selected needs to be analyzed in this phase.

This paper is organized in five sections. First, the research approach is explained. In the next section acquisition phase related literature is reviewed. The research results are then described, followed by the discussion of the research findings and implications for the future. The paper concludes with answering the research question of this paper; *Which factors influence the purchase of an ERP system?*

2. Research approach

This research is an in-depth literature review. It is a synthesis of previous studies including those of Brown et al. (2000), Esteves and Pastor (2001) and Stefanou (2000).

3. Literature review

As stated by Appleton in Stefanou (2000) nearly half of all ERP implementations fail to meet expectations. The reason for this is underestimation of the effort involved in change management. Because of this it is important for managers to be aware that it is evident that the ERP software meets the organization's needs. When this is not the case it often happens that there are some implementation failures. Those failures can be very costly and sometimes even lead to businesses going bankrupt (Stefanou, 2000).

Stefanou (2000) has provided a research framework of the critical issues involved in the ERP systems selection process considering two important issues:

Firstly, because of the organizational, technological and behavioural impact of ERP on an organization it is important to thoroughly examine technological, business and organizational contexts.

Secondly, due to the complexity of an ERP system, organizations prefer to adapt their business processes to the software. This is because modification of the standard ERP configuration is costly, risky, time consuming and difficult (Davenport in Stefanou, 2000).

The framework consists of three phases, in the first phase a business vision is developed in such a manner that business and IT are aligned. In other words, the ERP system must fit to the IT strategy. The second phase is about business requirements versus constraints and the desire to change. This means that both current and future business needs have to be balanced against various constraints. There are five categories of constraints: technical, organizational, human, financial and time constraints (Table 1). The examination of the needs and constraints often reveals that a radical change in

business processes is needed. To accomplish that, the desire and commitment of the whole company is needed. The third phase consists of the *selection* and evaluation of the appropriate product, also the vendor and support service play an important role. Every suitable package's strengths and weaknesses are compared to the business requirements and also the ability to support current and future business needs is examined. When a candidate package is selected an evaluation and justification process is started. Depending on this process the acquisition decision is made.

According to Stefanou's framework (2000) it is important to carefully select vendors, products and support service. However the final decision has to be made considering the amount of *organizational change* required for the adoption and the implementation of the selected ERP system.

According to Brown et al. (2000) the purchase of an ERP package is influenced by *organizational characteristics* – as discussed by Stefanou (2000) – and ERP package capabilities. These last capabilities can be divided in *business factors* and *IT factors* of an ERP package.

One important business capability is the ability to better meet various competitive goals. Some examples are faster response to business change, reducing cycle times and workforce empowerment. Also multi-lingual and multi-currency systems can gain competitive advantages (Bartz in Brown et al. 2000). Another business capability is the desire to re-engineer the business processes. This is done by implementing cross-functional processes and adopting "best practices". Also deploying common processes across business units as well as globally is an example of business re-engineering. The last important business capability according to Brown et al. (2000) is access

to integrated data. This makes updating easier and provides more effective information for decision making and operations.

According to Brown et al. (2000) there are three IT capabilities that influence ERP purchases. The first one is replacing aging mainframes with more modern enterprise-wide client-server architectures. This brings more flexibility and lower running costs. The second IT capability is the replacement of legacy systems that no longer meet the firm's business requirements. This also results in lower costs than operating and maintaining aging mainframe systems. The last capability is purchasing packaged solutions and their upgrades instead of developing and maintaining in-house customized solutions. This results in both time and cost savings (Lozinsky in Brown et al., 2000). As Bancroft et al. in Brown et al. (2000) say "buy" vs. "build" is cheaper.

4. Research results

It is important that an organization is prepared for an ERP system before acquiring and implementing one. The reasons for this are the large impact on an organization and the complexity of an ERP system. It is this complexity that makes businesses adapt their processes to ERP systems instead of the other way round.

In order to get prepared it is necessary to align business and IT. Another important issue is desire to change. Employees must have a positive attitude towards the new system, it is possible that a lot of effort by the employer is needed to create this positive attitude. Further the business requirements need to be balanced against various constraints, see Table 1.

The last step before acquisition is evaluation and justification. All packages that are suitable for the organization are

analyzed. Strength and weaknesses are compared to the business requirements and then a decision is made.

Table 1: Constraints

<i>technical</i>	<i>legacy systems IT architecture</i>
<i>organisational</i>	<i>business processes management structure leadership commitment communication training</i>
<i>human resources</i>	<i>availability consultants availability employees experience</i>
<i>financial</i>	<i>budget limitations</i>
<i>time</i>	<i>deadlines</i>

5. Discussion

The approaches to purchasing an ERP system in this paper are general solutions. Every company has its own unique processes and architecture. So it is inevitable that some factors do not apply to some organizations. On the other hand there will be some factors important for organizations that are not mentioned in this paper. Maybe there are even factors that have never been acknowledged before. Further research on (new) factors influencing the purchase of ERP systems, or relationships between factors, is therefore recommended. This helps to get a better understanding of, and prevent, the dangers and implications that arise during the acquisition phase of an ERP system.

6. Conclusion

This paper is about the factors that influence the purchase of an ERP system. There are two kinds of factors that have an

influence on the decision to purchase an ERP system; business factors and IT factors.

Business factors encompass issues like strategic fit, desire to change and business requirements. IT factors encompass issues like IT architecture, purchasing in- or out-house solutions and training and maintenance. More business and IT factors were mentioned throughout this paper.

The impact of one single factor differs in each purchase decision. This is due to the uniqueness of each organization. One factor seems to be very influential in every organization: the organizational change required.

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