Factors influencing ERP projects success in the vendor selection process

Hurbean, Luminita

West University from Timisoara (Romania), Faculty of Economics and Business Administration

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Luminița Hurbean
Faculty of Economics at the West University of Timisoara
luminita.hurbean@feaa.uvt.ro

ABSTRACT

Successful implementation of an ERP system is the result of knowledgeable and dedicated people working together. It entails company-wide commitment, openness to change, good planning and experienced guidance.

These primary criteria determine the probability of gaining significant return on investment (ROI) from an ERP system. Using these criteria as guidelines during the system selection process and subsequent implementation can ensure that the chosen system will support and enable the business improvements envisioned.

Among the numerous critical success factors (CSFs) in the implementation of ERP systems, identified and demonstrated by practitioners and academic researchers in the last few years, we will synthesize and analyze the vendor selection issues, in connection to the implementation aspects, as we consider implementation the essential “ingredient” of the ERP success.

KEYWORDS:

ERP implementation, ERP vendor selection process, critical success factors, ROI, ERP success

I. INTRODUCTION

Choosing an ERP system without paying careful attention to the implementation strategy and methodology is somewhat similar to choosing a hospital for cardiac surgery based on its architecture, but ignoring the surgeon’s experience. No one selects surgery based only on the hospital, but most Romanian companies choose an ERP system based exclusively on architecture and functionality. The results are predictable. The new ERP system is installed, orders get placed, product is shipped, and invoices get paid. Yet no one is really happy with the results. Customer satisfaction is unchanged and profits don’t increase. Ironically, quality of life at work declines while employees climb the learning curve. Finally, the company continues to struggle against competition.

What happened? Which are the causes? The most frequent situation is when the ERP vendor’s selection criteria are based mostly on the product features, covering less or not at all the implementation. For some managers installation and implementation are the same, which is an expensive confusion. The goal of an installation is move from one software to another, with a minimum of disruption. The goal of an implementation is to enable a company to achieve significant business goals as the result of a carefully planned transformation of its business processes, supported by appropriate software and technologies.

Many international studies focus on recognizing the problems encountered by organizations in implementing ERP systems (quoted in [2]). Several problems are identified in the literature as impediments to ERP implementation success (see [4], p.39). In the real life, these problems occurred more or less in the different implementation processes.

In Romania few empirical studies were conducted in order to identify and rate the ERP implementation difficulties. Researching in the published results (mostly in [10]) we found the most important problems to be:

- lack of ERP training and education;
- lack of in-house expertise in ERP;
- lack of clear goals for ERP effort;
- lack of companywide support and involvement (resistance to change);
- lack of top management commitment and support;
- lack of data accuracy.

Implementation of an innovation is a dynamic process of adaptation. The implementation of ERP has two alternative approaches: the adaptation of the package to the organizational needs and organizational adaptation to the software. Despite ERP vendors' advice, the many Romanian companies still go for the adaptation of the software package. The well-known concept of *Business Process Reengineering* (BPR) was so far mostly overlooked, despite its significant support to ERP implementation success (see [1]).

Evaluating and selecting enterprise software is a complex process characterized by both the prominent potential and dramatic risks. Executed properly, the selection process can deliver exceptional benefits. If executed inadequately, the results can range from disappointing to devastating. Generally speaking, organizations that select the wrong hardware, middleware, or software, will learn the hard way that the money they've lost is a result of inadequate vendor information and evaluation processes. Vendor's publicity, consultants' conflict of interest, user doubt, tiresomely long selection processes, and unclear decision rationale are some of the unfortunate watchwords for most selection processes.

II. ERP SELECTION PROBLEMS OVERVIEW

Generally, when an enterprise decides to implement a new software solution it evaluates internal processes, defines needs, and then sends *requests for information* and eventually, *requests for proposals* to a shortlist of vendors. Chosen vendors are typically invited to demonstrate their solutions, and from there, bids are placed, and a decision is made. Unfortunately, throughout this process, the selection teams face a number of difficulties in their projects.

First, because of the great appreciation on product functionality and product technology requirements, some criteria that can determine the eventual success or failure of a new system are left out. For example, vendor long term strategy, service and support capabilities, financial viability, cost and qualitative measures with regards to process fit, ease-of-use, market feedback, vendor diligence, and product flexibility are important. The explanation for letting some of them out is that they are difficult to measure.

Another problem is due to the use of spreadsheet, the most utilized instrument in ranking criteria and measuring the product functionality. Spreadsheets are popular by reason of flexibility and ease-of-use. However, they lack integrity of data and are disreputable for propagating calculation errors: hidden cells are causing errors when cells are moved or fields are accidentally typed over. Broken links between sheets can invalidate results. Simple mistakes, such as copying or rewriting a formula to a different cell, are common. Conclusively, the use of spreadsheets is risky.

Third, due to poor access to quality, impartial information, the evaluation methodologies are burdened with serious errors from the start. As a result, sometimes it is difficult, if not impossible to justify the motivation behind selecting a particular vendor's solution. Most decision makers rely on intuition or "feeling", executive directives, or tiresome spreadsheet compilations that fail to discern the best solutions, thus the majority of enterprise technology evaluations run into overtime and accumulate costs well over the initially expected budget. When finally selected, the majority of these software implementations fail to meet functional expectations, with low *ROI*.

To summarize, during the ERP selection process, prospective customers typically face the following problems:

- the project selection team has no effective way to define the business requirements;
- gathering all required criteria (critical vendor and product questions) is time consuming and becomes a problem at the early stage of the project. There is a push for the project to get underway and for a fast implementation, because delays mean lost revenue;
- when criteria are selected and submitted to the vendors, the project team often lacks the ability to effectively prioritize the different criteria relative to their supporting business requirements. As a result, priorities are derived from internal political agendas rather than the true needs of the company. A professional decision support tool to organize and keep priorities in check, and to conduct simulations and analysis of the vendors' performance should be used;
- the project team lacks the ability to obtain objective, checked data on available vendor solutions. Vendor demonstrations are often marketing terrains that fail to focus on the solution's ability to satisfy user needs, and are often ambiguous. Unfortunately, most project teams are

deficient in separating fact from hype, especially because the ERP selection is the first attempt of its kind, or the first in an extended period within a specific organization.

The problem is clear: having inadequate fit-gap information (as identified above) for the selection phase means an inability to properly plan and execute the ERP implementation.

III. SUCCESS FACTORS IN THE VENDOR SELECTION PROCESS

Next to selecting the right ERP solution, the planning and overall administration of an implementation project may be the most important part of the business systems initiative (see [5]). Considering the relationship between the two, the factors that can take an ERP project to success will be detailed subsequently.

3.1. AN OBJECTIVE-ORIENTED APPROACH OF THE ERP SELECTION PROCESS

Successful implementation of an ERP system depends on partnering with a trusted and competent software provider. From the beginning, and during the relationship, the provider should offer process improvement suggestions based not only on its experience, but on its knowledge of the client's business and objectives. With the right partner, the system is maximized, the strengths of each partner are leveraged, and significant benefits finally result.

The following issues should be taken into account in the process of selection.

• **develop an implementation plan prior to selection**

A successful implementation should begin almost as soon as the selection team begins communicating with a prospective ERP provider. Not only are challenges, needs and goals articulated at the very beginning, specifics about the organization's structure and culture are communicated.

The ERP provider worthy of selection should already be thinking about the easiest and most efficient way to implement the system and deliver the capabilities needed. The vendor should be able to provide a preliminary implementation plan even before the contract is signed.

• **have a clear understanding of the business**

First, the organization's objectives for the ERP system need to be clearly communicated. Then, the ERP provider should get involved in helping to identify and learn about the business processes and challenges that are the basis for the selection process.

As the short-term and long-term goals are described, a qualified provider is able to show how their people and the software can accomplish those goals, step by step. The vendor should be able to detail the value to be derived from the system: how it will support day-to-day operations, how affordable it is, and how it will get installed. The level to which the provider demonstrates and explains specific solutions is a good indicator of their ability to help the company achieve return on its investment.

• **act as a change agent**

The success of the implementation depends highly on the company's openness to change. Change is not always welcomed by all individuals, so the first step is to ensure that the executive management supports the team's vision, the vendor selection and the implementation project from beginning to completion.

When an ERP software provider is selected, they should display the qualities and be prepared to act as a "change agent", one who has the ability to lead the company confidently and rapidly through the change process. One who can explain short-term and long-term benefits of the proposed changes, while being sensitive to each employee's level of change acceptance.

3.2. THE ACCURATE CHECK OF VENDORS REFERENCES

Checking an ERP vendor's customer references is the first opportunity to ensure whether the vendor's claims are substantiated and not just advertising.

Selecting a new ERP solution is one of the major decisions an enterprise makes. It has one of the greatest potentials to improve business performance. Risk analysis is appropriate at this stage and reference checking is part of a thorough risk analysis. Making a software selection decision based on insufficient knowledge of a vendor's implementation track record may result in a high-risk outcome.

Furthermore, since implementation is so important to a successful ERP investment, reference checking should not be considered just a formality.

No doubt that every vendor evaluated will produce a list of good references. But, what separates the good from the bad is the degree to which their implementation claims have been tested and proven. A well designed and executed implementation methodology is one of the major elements that will make the project a success. Implementation timeframe, cost and effectiveness are the areas of most concern. Some studies suggest that over 90% of ERP projects are not completed within the planned timeframe. Other studies rate consulting expertise as the weakest link in an IT implementation. Cost overruns are frequently cited as reasons for dissatisfaction. To learn from the experiences of other companies, where over 50% of ERP implementations fall short of expectations, means looking for evidence of successfully implemented solutions.

Many ERP evaluation "experts" often neglect to mention the need to understand a vendor's implementation success rate in their recommendations on how to check references. This is a gross omission.

Checking the references of a prospective ERP partner must involve looking well below the level of the standard, traditional list of questions. Function-to-function comparisons identify few differences. Great testimonials about the usability and quality of an ERP system's capabilities are not enough. Questions asked in the evaluation stage must be also implementationoriented if the vendors' track record and true capabilities are to be effectively rated. No standard list exists for this line of questions, but it should include questions such as:

• At what stage in the relationship was the implementation process started? Was it begun during the software evaluation and selection process to ensure compatibility?

• How well did the vendor understand, document and suggest improvements to the company's current complexities and business processes?

• How well did the vendor develop, document, monitor, communicate and manage the scope of the project plan?

• What was the level of professionalism, quality, experience and knowledge of consultants and project managers?

• What problems were there with getting the right amount and type of skills assigned to the project?

• What industry specialization did the vendor's consultants bring to the implementation?

• Did the implementation project meet its cost estimates and goals for meeting deadlines and milestones within the planned timeframe?

• How effective and timely was the vendor's response to problems and issues encountered during the implementation?

• How were users of the new system prepared for change and provided with knowledge of the new system, tools and processes?

• Did the conversion go smoothly and without incidents, or were there troublesome, unanticipated issues?

In addition to this formal process, the project team should begin networking, join on-line discussion groups, blogs or forums, talk to analysts, and find other creative ways to identify users of the system in addition to the ones provided by the vendor. It's worth the time and cost. As difficult as it is, the customer shouldn't rely solely on attractive vendor reference sites.

These types of forums are expected to gain popularity in Romania too, and it's easy to see why. They provide information that is not available directly from a vendor.

The queries should ask references about what results they have achieved and in what timeframe. Getting references to be specific about what results they have achieved is a signal of how well their implementation was executed. Issues such as long implementation timeframes, incomplete projects, and cost overruns as well as positive comments about quickly experiencing business benefits are significant.

In all cases, the final question should be, "If you had it to do all over again, would you still choose the same vendor?". The reasons why or why not are interesting to find out. The veracity of their claims should be testes by asking for a site visit or to speak with others in the company who use the system.

To fulfill high expectations of bringing positive change and performance improvement to the business, the selection team must be confident with a potential partner's implementation capabilities and match with the company and project. References are the 'credentials' of an ERP software provider. These must be checked carefully before making the selection decision.

3.3. ASSISTANCE IN ERP SELECTION

Measuring criteria is crucial when determining the viability of an ERP solution. Numerous variables must be considered and measured against different offers. We recommend organizations to engage modern decision support tools to compare solutions even before structuring their request for proposals. Doing so will help create an appropriate shortlist of vendors to consider in more detail. How a vendor ranks, however, depends on how well it can satisfy an organization's priorities.

In the international market companies may use the services of analyst or consultancy firms and other companies offering comparison and evaluation tools and services (**Gartner**, **TEC** are some examples). Some of them are online decision support tool (TEC's evaluation center, see [9]). They support the analysis and comparison of thousands of criteria on hundreds of vendor solutions that have been evaluated by their analysts using industry standards and benchmarks.

The most important component of an evaluation center is the *knowledge base*, a combination of criteria and methods required to analyze one or more enterprise solutions for a decision. The knowledge bases use industry-standard terminology and match the features, functionality, and services offered by the largest variety of vendors. The knowledge base is typically organized in a hierarchical tree structure and contains a breakdown of the detailed features and functions of a vendor's solution, as well as the business priorities that users assign to these features. This structure allows users to specify requirements from a general business view and then refine the functional details by drilling down the tree structure to more detailed levels of criteria. Priorities express the importance assigned to various business criteria, which allows vendors or providers to be ranked on how well they can meet priorities. The results are offered as reports and graphics.

3.4. UNDERSTAND THE IMPLEMENTATION METHODOLOGY

Knowing what to expect during and after implementation can avoid many problems. The ERP provider selected must be able to articulate and document the specifics of the implementation process ([5], p. 113).

The process should be comprehensive, but not cumbersome. Detail is not the same with complexity. A detailed implementation plan, when executed by a dedicated team, is the shortest distance to returning real benefits to the business.

The project team needs to have a sound comprehension of the steps, expectations, roles and responsibilities. They should be able to reach a consensus with the ERP provider about the measurable and anticipated outcomes, and then have the provider play this information back accurately.

In a well-constructed methodology, the provider conducts a formal survey of the organization to gain a complete understanding of the business environment and goals, then clearly delineate them in a report or profile. As a check for both the provider and the organization, the written profile should be referred to throughout the implementation process and should be used as a road map in setting expectations, guidelines and direction.

The amount of time dedicated to this front-end phase of the project will be well worth it, offering an important measure of protection against problems later in the implementation.

3.4.1. Implementation focused on process improvements

The extended ERP system selected should provide powerful capabilities to consolidate and shortcut processes.

To realize significant ROI from the ERP system, existing processes must be objectively examined to determine where non-value-added activities reside. The processes that directly and indirectly influence the company's bottom-line should be identified, especially those labor-intensive that result in excess payroll, disconnected communications, cumbersome reporting, and long service times. Current levels will be measured and recorded, and together with the ERP provider targets for improvement with the new system will be established. An implementation that harvests ROI will focus on those targets. From the system parameter settings to education that addresses those specific issues, the defined goals should drive the implementation and ultimately deliver significant, measurable ROI.

We consider BPR as a natural and inherent part of every new software implementation or upgrade project. Companies should change specific operating methods to take advantage of new features and functionality provided by the new software. Though this activity may provide added value, the real improvements come from a collaborative effort to rethink and simplify the entire process rather than making subtle changes to specific tasks within it.

When selecting an ERP vendor, it should be interesting to find out if they offer a BPR service, which can be fully integrated with the initial system implementation, subsequent major release upgrade projects, or as a separate phase entirely.

3.4.2. Implementation planning from the beginning

Effective ERP implementation methodologies have been developed by important performers in the ERP market, based on industry experiences gained over many years in business (see [3], p. 63). Different methodologies promise to deliver return on investment, quickly and effectively. To help clients achieve the desired results, the vendor's team of industry experts provides guidance through each of the implementation stages, from analysis to deployment.

In some models, implementation planning begins even before the prospect becomes a client. This way, the project team acquire a level of certainty that the system they ultimately choose can be implemented to achieve the desired results. Implementation planning is considered an important element of the selling approach, and planners are involved during the evaluation period.

The early involvement of an implementation manager will support a smooth transition from sales into implementation. This approach provides an understanding of the typical implementation life cycle, milestone events, methodology, terminology and all other details of the project, with focus on implementation issues that are unique to the prospective client. Ideally, an initial implementation transition plan or “vision” tailored to the known requirements is developed and agreed upon before the implementation process actually begins.

IV. CONCLUSIONS

Organizations benefit from enterprise software only when they **make the right selection**. By using **accurate and relevant criteria** on enterprise software functionality, organizations are better informed of their options. By avoiding spreadsheet calculations, the selection team can make accurate assessments about how well a vendor can satisfy the organization’s needs, which should ensure the most appropriate enterprise software is selected.

Given the large expenditure and the impact an enterprise system can have on an organization, it is essential that there is ample support to **justify selecting a particular vendor**, and to illustrate that the selection process involved **rigorous business analysis**. The valuable information that has been compiled during this process is available in a number of reports that can be printed out and delivered to upper management and decision makers. As a result, the selection team will have quantifiable information to justify a selection. Additionally, these graphics and reports can be used during vendor demonstrations to separate the marketing pitches from product functionality. Scripted scenarios can be created based on the prioritized hierarchy of criteria, where vendors will have to demonstrate their products’ functionality in relation to the organization’s needs. Consequently, the selection team can further validate its selection.

On the other hand, we showed that ERP project success does not begin with vendor selection, but with **a defined set of business objectives**. Once having identified these objectives, a plan for achieving the objectives must be developed. If the plan identifies a need for applications and technology not already deployed, it is then appropriate to seek help from a vendor.

Seldom, vendors are evaluated on the functionality of their applications only. The selection process should take into account their **ability to help transform business processes in order to achieve the customer’s objectives**. In order to appraise a vendor’s ability to assist in executing a business transformation, three conditions should be checked:

1. the vendor’s sales approach and their interest in helping to achieve the defined objectives;

2. the vendor’s references;
3. the vendor’s implementation methodology.

ERP is an investment in more than just technology. It is an investment in the business and its people. It is not difficult to place a system within an organization and let them try to use it with trainings on different modules. What is more challenging is **implementing the system into the company’s culture** where it becomes an integral part of developing a business and fulfilling a vision. Careful check should evaluate the vendors, to see if they are really just installing or actually implementing. In order to ensure that maximum return will be realized on the technology investment, the organization should partner with a software provider who is committed to its clients’ success and has the experience and methodology to help achieve that success.

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