Critical success factors for ERP implementations

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This paper is the result of the second desk research assignment of the 2003 Information Systems Architecture course of the Eindhoven Technical University. It describes critical success factors (CSFs) of ERP implementations. This paper is based on [1] and [2].

Introduction

An ERP system (Enterprise Resource Planning) is a software system that includes a set of standard programs that are adapted to a specific customer. This customer is usually a large organization. An ERP system includes programs for production, human resources, e-business, customer relations et cetera.

Despite the benefits of an ERP system, many ERP implementation projects fail. During the last years a lot of research has been conducted to find the cause of such failures. This paper gives a summary of the found critical success factors of an ERP implementation project.

When considering the CSFs of an ERP implementation project it is important to realize that the definition of success differs, depending on who defines it. Consultants and project managers often define success in terms of completing the project on time, within budget and with the agreed functionality, whereas the people that use the system to do their jobs will define it in terms of its effect on the organizational process.

In this paper a successful ERP implementation is considered the *"best outcomes the organization could possibly achieve with enterprise systems, given its business situation, measured against a portfolio of project, early adoption and longer term business results metrics"* (from [3]).

CSF Ordering

The CSFs are considered from a technical and an organizational point of view. The first focuses on aspects of a particular ERP product, whereas the second focuses on aspects related to the organization culture, structure and business goals.

Within these two views, a distinction is made between factors that affect long-term goals (strategic) and factors with impact on short-term operational goals (tactical)

Organizational view

Strategic

Sustained management support: It is vital that the top and middle management support the project. Top management must publicly and explicitly identify the project as a top priority. The project team and corporate management must have a shared vision of the organization and the role of the new system in it, as well as the new structures that are defined. This vision must be communicated to all employees. It is also important that the project has a high level executive sponsor that is able to enforce organizational changes when necessary.

Effective organizational change management: The acceptance of the system by the employees must be ensured, as well as the readiness of the new system. This helps the organization to pick the benefits of its use.

A corporate culture with shared values and common aims helps to integrate the new system and perform the inevitable organizational changes. This requires a corporate identity that is open to change.

Good project scope management: It is important to define and limit the scope of the project. This scope must match with the organizations mission and strategic goals. If new goals and objectives are defined, their benefits must be evaluated against their cost and the risks.

Adequate project team composition: An ERP implementation project requires knowledge of the ERP product itself, implementation experience and knowledge of the current organizational process. Therefore the project team will be composed of internal staff of the ERP implementator, consultants and vendor-experts. The latter two bring in knowledge of previous implementations and the ERP product. It is vital to bring knowledge of the system back to the organization by embedding internal staff in the project team.

Comprehensive business process engineering: Already before the start of the implementation, and even before a specific ERP product is chosen, the quality of the organizational process in place needs to be evaluated. There is no point in molding the system around a bad process.
Besides adapting the new system to the organizational process, adapting the process to the system is inevitable. Therefore a clear business model must be made of how the organization should operate after the implementation is complete. This new model must be communicated with both management and the users of the system.

Adequate project champion role: The project champion role is critical to the project's success. S/he must be made in charge of the project and "champion" it throughout the organization. Measures of success help to overcome initial skepticism. The project champion must resolve conflicts and manage resistance against the project.

User involvement and participation: From the start of the project, end-users must be involved. The importance and relevance of the new system must be clear to them. Input from users must be incorporated in the requirements and their comments and reactions must be taken seriously. Before going live, the new system must be approved by the users.

Trust between partners: In the implementation project many different partners are involved. This includes consultants, software and hardware vendors. An ERP implementation project will run much smoother if these different partners trust each other. This helps to achieve the defined goals with less effort.

Tactical

Dedicated staff and consultants: The project team must be composed of a mix of internal staff and consultants so the internal staff develops the necessary skills to design and implement the system. This embeds knowledge of the system in the organization. It is important that the staff believes in the success of the project. Consultants should share their knowledge with the staff.

Strong communications, inwards and outwards: Strong communications are vital for the success of the project, both inwards -to the project team members- and outwards -to the future users of the system-. The expectations of the project need to be communicated inwards and outwards. This includes the scope, objectives and activities of the project. Project progress must be communicated on a regular basis. It is also important to admit that changes will occur, both to the project and to the organization. When they happen, these changes must be communicated.

Formalized project plan/schedule: A formalized project plan/schedule must be written at the start of the project. It must include the project mission and the proposed (strategic) benefits. These benefits must be tangible and must be tracked during the course of the project.
The plan/schedule must also contain the resources needed, costs, risks and timeline with milestones of the project. The progress of the project must be measured against the plan/schedule.

Besides the plan/schedule that describes the 'how' and 'when' of the system implementation, the requirements that the new system must fulfill must also be documented (the 'what'). This prevents reconfiguration during the course of the project.

Adequate training program: A training program is important for the success of the project. The program must be set up during the project –not at the end- and must include training for both the technical staff and the end-users. The training program must not only teach users how to work with the system, but also how the new system affects the business process.
To embed the training program in the organization, the human resources department must be involved in its definition.
Extra training and support capacity must be available during the rollout of the new system.
Once the system implementation is complete, a training program must be available for new employees.

Reduced trouble shooting: This is related to the inevitable problems that will occur, which must be anticipated in the implementation plan. Two important moments during the project at which problems are likely are the moment the system goes live and when data from the old systems is transferred to the new system.

Empowered decision makers: Some of the project team members must be given the authority to make quick decisions to prevent delays. This is important because small delays can have big impact in such a large project with relations to the entire organization.

Technological view

Strategic

Adequate ERP implementation strategy: An adequate ERP implementation strategy must be chosen. At one end of the spectrum it is possible to build a skeleton implementation that is gradually filled in. At the other end it is possible to choose a big-bang implementation. These two extremes, and the strategies in between each have their advantages and disadvantages that must be considered.

Adequate software configuration: Customization of the new system must be avoided whenever possible, in order to take advantage of new versions and releases without the need to implement a lot of changes at every update. The process of the organization needs to be adapted as much as possible to the ERP implementation.

Adequate ERP version: It must be determined which ERP product best suits the needs of the organization. Depending on factors tike the type of organization, vertical market, size and so forth an ERP product must be chosen. The systems update frequency must be considered also. To many updates of the product make maintenance more difficult but too few updates frustrate system usage.
It is also important to consider cultural aspects when choosing an ERP product. Most vendors are targeted at the Anglo-American market. Cultural differences can cause unexpected problems[1].

Tactical

Adequate software configuration: whenever it is not possible to adapt the organizational process to the ERP system, the system must be adapted. Process modeling tools can be used to model the process without changing code. Before going live the system needs to be tested –also by end users and problems that emerge must be solved.

[1] Numbers for instance are used extensively to identify objects. In some cultures numbers can have significant associations. In the Chinese dialect spoken in Hong Kong for instance the number '4' is a homonym for 'death' while '8' is a homonym for wealth. This can cause problems when assigning unique IDs (example from [4]).

Legacy systems: The old systems used by the organization might be replaced by the new system, or it can be decided that the new system has to interface with them. In both cases they can be a valuable source of information regarding possible problems during the implementation.

Conclusions

The critical success factors found for ERP implantations can be considered 'classics'. They are all part of the normal project management practices. Considering the importance of an ERP implementation however, these factors become more important than in just any project.

The main reason so many implementation projects fail is that too often project managers focus on the technical instead of the non-technical issues. In modern literature regarding the success of ERP implementations the non-technical issues seem to be considered much more important than the technical.

References

[1] - "Towards the unification of critical succes factors for ERP implementations", J. Esteves-Sousa, J. Pastor-Collado, September 24 2002, http://www.lsi.upc.es/~jesteves/BIT2000.htm

[2] - "Critical factors for successful implementation of enterprise systems", F. Fui-Hoon Nah, J. Lee-Shang Lau, J. Kuang, Business Process Management Journal, Vol 7 no 3, 2001, pp. 285-296, http://web.njit.edu/~jerry/OM/OM-ERP-Papers/ERP-11-CSF.pdf.

[3] - "The Enterprise Systems Experience – From Adoption To Success", M. Markus, C. Tonis, 2000, in R.W. Zmud, "Framing the domains of IT management: Projecting the future through the past", Pinnaflex Educational Resources Inc, Cincinatty, OH, pp. 173-207.

[4] - "Cultural complications of ERP", R. Davison, Communications of the ACM, July 2002, vol. 5 no 7, pp.109-111.