Implementing ERP-systems with accelerated ERP more efficient and quickly – a best practice

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Abstract: This best practice deals with the Accelerated ERP Methodology and the relevant project steps, while defining the main parameters such as administration, system availability, security and planning the project and the network. In this case, the implementation project in a food company (JKL, name altered) is analyzed within the scope of project management, and it is described how this methodology put into practice. With this study, efficiency and quickness of an ERP implementation with the Accelerated ERP Methodology is pointed out.

Key words: ERP, implementation, accelerated ERP, system integration.

Introductory comments: The practitioners should already have project management skills and experience from ERP implementation projects. Other skills required for the practitioners include those listed below:

- Process modeling and analyzing skills,
- Business process scenarios,
- Team management skills,
- Analyzing and understanding of multidimensional structures of ERP implementation projects,
- An ability to deal with providers of relevant technologies,
- Readiness to use existing and proven tools,
- Understanding importance of IT-Business alignment,
- Change management,
- Intensive and effective communication between the business and technical side of projects.

1. Introduction

In many organizations, ERP implementation projects cannot be carried out successfully because of different reasons. To speed up implementation processes which usually take a lot of time and cause high costs, ERP vendors have developed the Accelerated ERP Methodology. For example, Accelerated SAP (ASAP) which was announced by SAP America in 1997, describes a good framework respectively a roadmap to use this methodology. ASAP was developed to accelerate implementation processes of R/3 and after improvements to this methodology, it is also called ASAP Focus. ASAP Focus has a rational AS-IS phase and provides developed tools to accelerate the process and to fulfill the organization’s requirements in a more effective way. It provides a pre-canned project plan, a very comprehensive inventory of business processes, and a large number of template forms and procedures [2]. Besides, accelerated ERP was declared by different ERP vendors as the standard implementation methodology.

The multidimensional structure of ERP implementation projects can be regarded as one of the probable reasons for relevant high failure rates, costs and long implementation periods. In other words, in ERP implementations a large number of areas of expertise must be managed. These areas can be categorized into technical and organizational areas (including human). Examples for technical areas are system development and process engineering, and for organizational areas change management and end-user involvement. These areas are called critical success factors, which have been studying continuously [3].

A main objective of the ERP project described in this case was to unify the users of the various environments and business processes as efficiently as possible or to connect them through interfaces. In the business processes, different functions were separately conducted, and also in a decentralized
Another objective of the project was automation. The project aimed to minimize manually performed tasks and to reduce individual failures as far as possible. In other words, a standardized system structure and function was needed. In addition, orders and contracts should be monitored and managed within the project management function of the system.

2. The Accelerated ERP Methodology

To speed up implementation processes which usually take very long time and cause high costs, ERP vendors have developed an implementation methodology called accelerated ERP (AERP). In the example of ASAP, the basic phases, main activities in these phases and %of expended effort for them are shown in the following table [2].

<table>
<thead>
<tr>
<th>Phase</th>
<th>Activity</th>
<th>% of Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Preparation</td>
<td>Scoping, staffing, team training, process fit</td>
<td>10%</td>
</tr>
<tr>
<td>Business Blueprint</td>
<td>Enterprise modeling/business process design</td>
<td>25%</td>
</tr>
<tr>
<td>Realization</td>
<td>Configuration &amp; Customization/interfacing</td>
<td>35%</td>
</tr>
<tr>
<td>Final Preparation</td>
<td>Data migration, End user training</td>
<td>25%</td>
</tr>
<tr>
<td>Go-Live</td>
<td>Cut-over and support</td>
<td>5%</td>
</tr>
</tbody>
</table>

Tab. 1: The Five Basic Phases of ASAP
Source: Doane, 2006

AERP enables that especially in the basic steps business blueprint and realization important improvements are achieved. In the blueprinting phase, To-Be processes are modeled by the project team. After that, they have to be validated regarding relevant business process scenarios. Today, ERP software includes reference processes which provide an adequate context to redesign business processes. Therefore, comprehensive business process reengineering activities before selecting the ERP system has only little value. Besides, these early reengineering activities can have negative effects on the implementation process. This fact requires that a balance should be struck between the reference business processes provided by the ERP software and the To-Be processes of the organization [6].

Another basic step in which AERP methodology can provide important benefits is the realization. Today, ERP software supply pre-defined systems that can be easily customized through changing configuration settings in the software to fulfill specific requirements. In this way, it is enabled that different advantages of pre-configured best practice processes are exploited and the possible effects are rapidly examined. On the other hand, modern web-based systems require less programming compared to older mainframe-based systems. Besides, AERP includes data conversion tools and ready-made documentation covering configuration, which enable to speed up and facilitate the implementation process [6, 2].

3. IMPLEMENTATION STEPS

3.1 PROJECT PREPARATION

In this step, first the scope of the project is described and the project objectives are defined. After that, the organization standards for the project are formulated and needed technical requirements are explained. Proper planning and organizational readiness play a central role in this step. Besides, the focus areas which should be regarded are defined and planned [5].

There are a large number of different factors affecting success of software projects in organizations. One of them is the organizational readiness of the enterprise, which includes also sub-factors such as role of decision makers or support of management level. It is extremely critical that the commitment of
the management and all key decision makers is ensured. The managers and also these key decision makers should have a firm connection to the project for a more successful implementation [4].

- **Project planning**
The first step of the project preparation is setting an implementation strategy. The strategy should be developed and defined in detail with co-operation with decision makers and consultants. This strategy must be in accordance with the long-term goals of the enterprise. After that, the strategy leads to guiding principles, which define and reflect the vision of the enterprise. These principles ensure to keep the project focused, and in conflict situations they serve as the basis upon which problems are solved [4].

- **Building the implementation team**
The project preparation phase of the AERP methodology needs also that the organizational structure is determined, and improved if necessary. In this step, the project's organizational structure must be described and the project team authorities must be set [4].

- **Administration**
At this point, technical requirements regarding front-ends are determined. In this task, an enterprise has different combinable possibilities: The results of Kickoff meeting can be used, the proposals of hardware suppliers or the suppliers of technical services such as network service can be regarded. Close to the end of the project preparation, the authorizations and rights of access for the members of the project team and also for future users are assigned [1].

- **Software logistics**
During the preparation phase the project members should co-operate with their ERP consultants and form the entire landscape for the enterprise. Here it is defined, which clients are needed and how they are distributed on the systems. In addition it must be planned, how the system landscape will be implemented [1].

- **System availability**
During the preparation for the project, technical infrastructure requirements for the system landscape are defined. The hardware configuration is mostly dependent on the desired availability level of the system. Therefore, many questions arise such as: How should an alternative system be available for database server? How are the messaging and enqueuing services ensured? etc. All these questions should be discussed with the hardware supplier and a solution which offers optimal system availability should be developed. On the other side, this solution should be suitable for the processes of the enterprise [1].

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**Fig. 1: The ASAP Roadmap**


JKL, where the implementation project was carried out, is one of the biggest food companies in Turkey. In organizations, management commitment is a must-requirement for almost all large projects. In JKL, the situation was consistent with the theory. The management from the top to the managers of the lower levels had both a large and firm commitment, and a responsibility. With this mentality, the managers encouraged the staff to participate in the project and thus they gained their trust.

Soon it was the time, after the project goal and frameworks were formulated and determined, to establish the project team. For the ERP project, in JKL four project teams were built, each worked for the enterprise and the ERP-side. On the side of JKL, the management was in the highest level. Under the management, in the second-highest level, there was the project sponsor, who was responsible for all financial aspects and superior to the project manager. Subordinated to the project manager, four
project teams were established, each was responsible for the financial, production and logistics modules, and a team for technical problems. For each team a staff member was delegated as team leader.

On the side of ERP there were only four teams for the financial, production and logistics modules. Additionally, there was another employee for technical support. And for each module, there was a consultant in the ERP teams. For preparation to the blue printing, business process owners who had the best knowledge about the respective processes were determined. In collaboration with the hardware and ERP vendor, it was also discussed and determined what types of servers will be used as the deployment, application, and enterprise and web server. During the preparation phase of the project, the technical ERP team installed these servers. Already in this step, a database which will receive all documentation during the whole project was created. At the end of the business blueprint step, this database was transferred to the development server.

![The total time of the project: 6 months (+ 1 month for remaining optimizations in Go-Live)](image)

### Fig. 2: The Project Time Plan

#### 3.2 BUSINESS BLUEPRINT

In this step a common understanding, which explains the company's intend to use the ERP system, should be developed. In order to do this, relevant business process requirements are documented. Business blueprints provide a framework in which the implementation activities will be carried out and specific business processes will be supported. At the end of this step, a comprehensive blueprint of the business is developed. On the other side, the project objectives determined in the previous step are finalized [5].

- **Aim and Scope**

  The objectives of this phase are to clarify how the enterprise runs its current processes/activities, and to define its implementation requirements on the basis of future needs. To achieve these objectives, a comprehensive analysis which clarifies the organization's business, describes how the current processes function, and determines the functionality provided by the existing systems is accomplished. After that, the determined business practices and functionalities are compared to those provided by the ERP system. Besides, existing platforms and applications are specified, interfaces to be developed are made clear, requirements for data migration are defined, etc. In the blueprinting phase, detailed interviews are made with company executives, managers and other key employees. At the end of these interviews, following points should be clarified by the consultants: [4]

  - Company's business
  - How the enterprise operates
  - Critical elements of the business
  - Desired business processes
  - Business and functionality requirements
  - Implementation scope
  - Implementation risks

At the end of this phase, the Blueprint Document is created. This document contains: [4]
- Present functionality
- Future functionality after ERP implementation
- Processes of the ERP software that are currently in operation and those required to run the business in the future
- Implementation scope
- Organizational structure required to implement ERP
- Deferred functionality
- Gaps
- Potential risks

- Defining the organizational structure
The definition and design of the organizational structure is one of the main decisions in this step. The organization structure is based on the business processes and has significant impacts on the way in which the ERP-system is configured to fulfill the organization’s requirements. The organizational structure of the company has certain characteristics. First, it can be determined that the structure plays a central role in the ERP operation and control. Besides, it provides the fundamental data and functional architecture in the context of the ERP system. The basic but flexible nature of the structure allows different organizational structures to address specific functional areas such as finance and purchasing [4].

- Project administration
In this step, training seminars and courses are held. Herewith the entire project team participates in the level I and level II training seminars, which take place either in the training center or by the providing company. Level I training courses take one to two days and are generally an introduction to the systems and technology. These seminars are held for the project team.

Level II trainings, where members specialize in their areas and roles in using the system and learn the core competencies; take longer than level I, namely three to five days. These trainings focus on technical issues such as how the system is administrated and how reliable production operation is performed [1, 4].

- Administration
In this step, the strategy for the maintenance of front-ends is developed. The more there are front-ends, the more carefully the strategy should be planned. It is recommended to create a schedule where times of adaptation of the existing front-ends to the system standards are given. Besides, the upgrades of the front-ends to the new versions must be determined. Remote connections with branches or employees in the field should also be regarded. At the same time, training for the users must be planned. If front-end platforms are developed through the implementation, then users should be trained about the new platforms. The users should have a contact person for their problems and questions. The enterprise can assign for each department an employee as a contact person, who deals with problems during the implementation, answers questions and works as a member of the project team [1].

- System availability
A strategy for backup of the data in the ERP system should be developed for each scenario related to breakdown situations due to hardware or software. Therefore, in this step it is collaborated with technical consultant and defined how and when the data will be backed up. Herewith necessary tools to backup are selected according to the maximum system downtime. Here one can have two types of breakdowns, namely planned and unplanned downtime. The planned downtimes are the times when the entire system will be closed for maintenance. The unplanned downtimes occur because of hardware or software failures [1].

- Security
Once the development system is used in this step, the safety guidelines have to be used to being able to take the necessary protection measures. The measures deal with both internal and external threats such as unauthorized access. In this phase, a remote connection is also set to the ERP system. To use the online system of the ERP, also routers have to be installed. Router controls whether users connected from a specific IP and ports are allowed to access the network [1].
JKL is a production company and makes export both to Middle East and to Europe. These logistics, manufacturing and financial processes are very detailed and should be faultlessly defined. Therefore, all the steps of all processes were discussed in particular and the defined processes were documented by the ERP consultants so that they could consistently design the system to be implemented. These discussions were not made in a very serious atmosphere, but they were more in form of talks, so that the whole project team was able to work more efficiently and flexibly. On the other side, the concentration was not lost, because the corporate culture of JKL enforced employees to keep discipline always in mind. After the ERP consultants designed and structured the system, approximately after the middle of the phase, all modules to be implemented were presented by the members of the project teams to the management and other members of the team, and discussed again.

![Supply Chain Management Diagram](image)

**Fig. 3: ERP System and Interorganizational Applications**

*Source: Stahlknecht and Hasenkamp, 2005, p. 328*

At the beginning of the phase key users visited level I and level II training, which were organized by the consulting firm. Near the end of the phase, training activities were finished and key users were able to transfer their knowledge to the rest of end users. This knowledge transfer took place within the company. In order to preserve the knowledge of key users and to enable that this knowledge could be completely transferred, manuals for all modules developed by key users and consultants were printed. After that, these manuals were distributed to the respective end-users.

The blueprint document includes a production management module analysis, which is realized with JKL ERP project team. The content of the analysis was the production, quality control, planning and R&D departments, which were analyzed on the basis of the general process. This analysis was a simple, scalable and standard analysis developed by the ERP vendor. In this phase; reference processes, ready-made documentation covering configuration, standard analyses and a large number of template forms and procedures provided important benefits and facilitated to implement the system in a more effective, efficient and quicker way.

### 3.3 REALIZATION

In this step, the business process requirements determined in the blueprint phase are implemented. The configuration is completed through setting up parameters and designating the main data. Besides, this phase includes testing and releasing of the system [5]. The main cornerstones of this system can be defined as simulation, validation, and testing.
Simulation
Simulation consists of configuration, playbacks and other tasks. First, the configuration of the preliminary design is carried out by consultants. This configuration is realized on the basis of the business blueprint requirements, and includes about 80% of the organization’s processes and daily business practices. After this configuration has been finished, playback demonstrations are carried out. Through these demonstrations it is aimed that selected managers and end-users are involved with the implementation process. At the end of these demonstrations, the system should be brought to the final configuration.

Validation
Validation consists of configuration, business process procedures and end-user documentation. Through configuration activities it is ensured that all requirements are configured. This configuration covers the remaining 20% of the organization’s processes and daily business practices. In validation, also business process procedures are created. These procedures can be used for training, as the initial template for creation of final training documentation, and as reference documentation. At the end of validation, quality end-user documentation which enables an effective training should be developed.

Unit and integration testing
In practice, it is not possible that business software is released without detailed testing activities. On the other side, testing integrated ERP systems is not an easy task. At the end of these activities, following questions should be answered:[4]

 Are business operations supported by the created processes?
 Is the performance of software in accordance with configuration and expectation?
 Is the interaction of the ERP system with external systems in accordance with expectations?
 Are the performance criteria fulfilled for different business processes?

Project administration
Within the framework of project administration, support for the production and cut-over are planned. The cut-over plan describes how to switch over from the old (legacy) system to the ERP. This must be planned early in this phase to ensure that all preparations for the cut-over are made and all team members are ready in the planned time for it. Then, the cut-over plan is controlled by the project manager and approved by the management. In this context help desk is a very basic component, because users will certainly need help in live use. In this phase, the project team visits level III training after level II [1, 4].

Administration
The front-end network for the production (live use) and the deployment of the front-ends to users are made in the implementation phase. It is the best way to prepare for the live use, because herewith the production system is almost completely implemented. After the front-ends for all users are installed and configured, it should be secured and tested that the GUI or the Session Manager functions correctly.[1]

System availability
With the deployment of the production server you are almost ready for the live use. Therefore, in this step the last consents and settings for a breakdown should be readied. For the problems that can not be solved by the company itself, you need the assistance of software or hardware vendors. For this reason, necessary service level agreements that contain, for example, when the partner must react at the latest in a problem situation are made with the suppliers [1].

Security
Regarding security, measures are taken for both quality assurance and production system, because they are deployed in this step. Protocols and guidelines securing the production system are developed in this phase and documented in the manual for system operation. Besides, it is determined who may change permissions or create users. The authorization administrator and the business process owner are responsible for the tasks regarding authorization concepts [1].

In the realization phase of the accelerated ERP project in JKL, the software logistics in which the system was structured and configured according to the blueprint document had a centrality. This process was a major challenge for the project, because JKL had a large number of specific business processes, which had to be specifically adapted in the system. Besides, it was needed to load the
master data from the old system, further to transform and transfer into the new system. For this migration a lot of work and time was needed. The reason was that the data in the old system was very "dirty". First, all the data in the old system was repaired by code. Then, the repaired data was converted into MS Excel format (*.xls), so that the loading program could read this data. Sometimes tables with many columns had to be dealt with. In this step, especially pre-defined systems provided important advantages compared to classical realization activities.

The main instances in an ERP implementation can be defined as development, quality assurance, production, and training. In the first instance, developers carry out their development tasks, and the created objects are initially tested. After that, the objects are transferred to the quality assurance box, where they are tested on a more formal basis. After this rigorous testing, the relevant objects are transferred to the production instance. Production instance is the live situation of the project and the place where users carry out their daily tasks. And in the training instance, users are trained to use the ERP system [4].

After the deployment of the quality assurance, the new system was tested on the basis of the requirements of JKL. In accordance with the recommendations of the accelerated ERP, the unit, integration and scenario tests were carried out. They were created in cooperation with the technical team, the key user team and the ERP consultant. Key users were already used to the system, because they had participated in training activities and were constantly in communication with the consultants. Then, key users tested all the transactions. Each key user tested the transactions in his module. After the consents in the unit test, the scenario test in which the business process scenarios were considered was made. Hence, the permissions in relevant processes were determined. Finally, the integration test was made. Thereby, all key users were brought together in the ERP project room, the necessary equipment and network connections have been configured and the entire system was fully and completely tested.

3.4 FINAL PREPARATION

This step aims to finalize organizational requirements to use the production system and to finish all the preparation activities previously carried out. In this step, all open points have to be checked and resolved in order to ensure that the production system is used without any problem. Apart from system testing, system management and users training also play a central role in this phase [5].

- **Project administration**
  
  At the beginning of this step, the cut-over plan previously developed is refined and made ready for the production. The plans for the resources, tasks and time are finally structured and defined in detail. Within this step, end-user training and GoingLive Check are also performed.

  The goal of the GoingLive Check Tool is to ensure that the production starts trouble-free and efficiently. In order to do this, it analyses the core processes and checks the system's stability. ERP experts control the settings and possible situations that could lead to problems with participation of a large number of users. With a remote connection, experts log on to the client of the production system and ensure that this runs correct. After that, reports which include recommendations and optimization opportunities are also created. After GoingLive Check, all data are transferred from the old systems to the ERP system. This means that the planned cut-over is executed. Then, the project manager and the company's management confirm to start the production system and thus release the fifth step [1].

- **Cut-Over**
  
  The cut-over is the transition from the old (legacy) to the new system. Herewith the cut-over plan which was created in the previous phases, is executed and the data which were readied in the realization step for transfer, are transferred to the new system. At the beginning of the cut-over, first, the final adjustment settings are transferred from the quality assurance to the production system. Then, the master and transaction data are transported from the legacy to the production system [1].

- **Preparing users and staff**
  
  With the implementation of ERP, the company's organizational structure can significantly change. This would lead to new work roles and redesign of processes. Therefore, users should be trained well so that the system can be best used. In this step of the AERP, end-users take part in level I training, when the experienced project team members participate in level III [1]. In the literature, there also are different evaluations for relevant training levels (see also 4).
Administration

In this step, front-end administration comprises training of end users. Herewith it is decided between external and internal training, or for both of them. In internal training, the project team prepares facilities in the company and ensures the continuous availability of the system during the training. This often takes place on the quality assurance system [1].

In JKL, a key subject of the last stage before the live-use was the final training of end users. The trainings in which all end users and key users also participated were organized by the consulting firm. After the training, the manuals which served to end users as guide in the first weeks of the live use were also printed. The final preparation step included as another key subject the creation of new master data for all business processes. This was a very time intensive process, because, i.e. all production materials should be redefined and renamed for the production processes. This data was not transmitted from the old system because they were not properly and clearly inputted. This fact led to redundancy and inconsistency. About one month before the live use, the Live Check was carried out by the ERP system. Herewith all processes were analyzed again and the stability was tested. After this final test was made and completed in the production environment, reports, recommendations and optimization options were prepared by the consultants and presented to the management.

3.5 GO-LIVE & SUPPORT

Beginning this step means that the main project management activities are finished and all needed arrangements are made in the production system. Although some activities such as user training and system management are also carried out in this step, these are realized in the production environment, no more in development or quality assurance environments as in previous processes [5].

- Project administration

In this step the long-term strategies to support the production and release updates should be developed. In this context a plan that supports users in relevant problems is developed. This plan also contains arrangements to ensure a good performance of the system. Besides, training of the new employees should also be planned. At the same time a strategy which includes the measures for the technical changes to the production system should be developed. While doing this, the downtime of the system by a release update should be kept as short as possible [4].

- The last control before the start

The pre-start checks are critical for the final decision to start the live use. In relevant activities, the following questions can be used: [4]

- Are all the processes supported?
- Are the data transfer and interfaces finished and ready?
- Are the results of the integration tests satisfactorily?
- Are the users trained and ready for the live use?

In an ERP implementation project, it should not be forgotten that this project refers to hundreds of users. Therefore, communications targeted towards to end users can be regarded as one of the most important success factors. In general, end users can not accurately know the scope and effects of the ERP project. Usually it is assumed that the new ERP system is just software that can be learned with time. On the other side, this opinion can bring important problems in the go-live step, because many users will soon or later find out that they can not carry out their daily tasks [4].

After leaving JKL, key users were the central information and support resources in the company. That is why an ERP team was built with the three most successful key users, who have the best knowledge about the system. These key users, who also worked in the previously established ERP room, have the task to help other end users in addition to their roles in the system.

4. Conclusion

Today, ERP systems support all major functions and business processes of the company. Many business processes are covered with the use of standard software. Supporting business processes with computer-based systems increases the performance of the company. Besides, the integration of different modules enables to build a stable running system. Through the integration and efficient functioning of different business functions/processes of the company such as manufacturing, supply chain management (SCM), financial management, project management, human resources...
management (HRM), and customer relationship management (CRM); ERP systems become the main instruments of today's business world.

Accelerated ERP is the fastest and most efficient method for ERP implementation projects at present. In this best practice, this methodology was made known and its steps have been explained in the context of project management. These steps are described both from a theoretical as well as a practical point of view. This case shows how the Accelerated ERP Methodology can be put into practice and what points should be considered during the implementation process. It describes a frame in which the main cornerstones are defined, explained and evaluated. Besides, this case demonstrates that acceleration and effective support of business processes can be achieved together.

5. References


JEL Classification: F22, O15