SAP System Implementation: A Case Study in a Public Institution of Turkey

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Abstract

Enterprise Resource Planning (ERP) systems are modular software that enable the integration of business processes in an organization with a central database. Users can reach to real time, accurate, one-source, and on-line information. SAP is the pioneer ERP vendor in the world with annual revenue of € 23.46 billion in 2017. This paper presents the implementation of SAP system at a public institution in Turkey. Reasons behind ERP implementation, vendor selection process, consultant selection process, and transition process are explained, and the methods used are described. The adaption of the institution to ERP system is summarized.

Keywords
ERP, Enterprise Systems, Information systems, SAP, Implementation.

1. Introduction

Enterprise Resource Planning (ERP) systems are business-oriented data and business software packages that enable the integration of business processes in an organization (Markus and Tanis, 2000). Generally, ERP systems provide cross-organization integration of transaction-based data via business processes. These systems are modular for different functions of organizations like human resources, sales, finance, and operations. These software packages can be adapted to the specific needs of each organization adequate to determined limits (Esteves and Pastor, 1999). By providing universal, real-time access to operating and financial data, the systems allow companies to streamline their management structures, creating flatter, more flexible, and more democratic organizations (Davenport, 1998). ERP has become one of the largest, most important, and impactful IT investments and developments since 1990s (Al-Mashari, 2003; Kilic et al., 2014).

It is expected that ERP systems support organization's founding activities and present its various management levels in a highly integrated manner. When integrated with business partners' systems beyond the limits of the individual business, such extended ERP systems, create value that goes beyond organizational boundaries. ERP can be an essential platform for an enterprise's information infrastructure. See Figure 1.

Today, new term ERP II have been proposed by the Gartner Group as a business strategy and a set of collaborative operational and financial processes internally and beyond the enterprise. It is expected enterprises' requirements to publish critical information for collaborative commerce processes within communities of interest to cause ERP II to supplant ERP as the primary enabler of internal and interenterprise process efficiency (gartner.com).

SAP is the pioneer ERP vendor in the world. It was started up in 1972 by five engineers in Mannheim, Germany. Today SAP is the world leader in enterprise applications in terms of software and software-related service revenue with annual revenue of € 24.74 billion in 2018. With years of history of innovation and growth as a true industry leader, SAP has more than 425000 customers in more than 180 countries, more than 96000 employees and locations in more than 130 countries, and more than 18000 partner companies (sap.com). This paper presents the implementation of SAP system at a public institution in Turkey in 2015 with the details of the project phases.

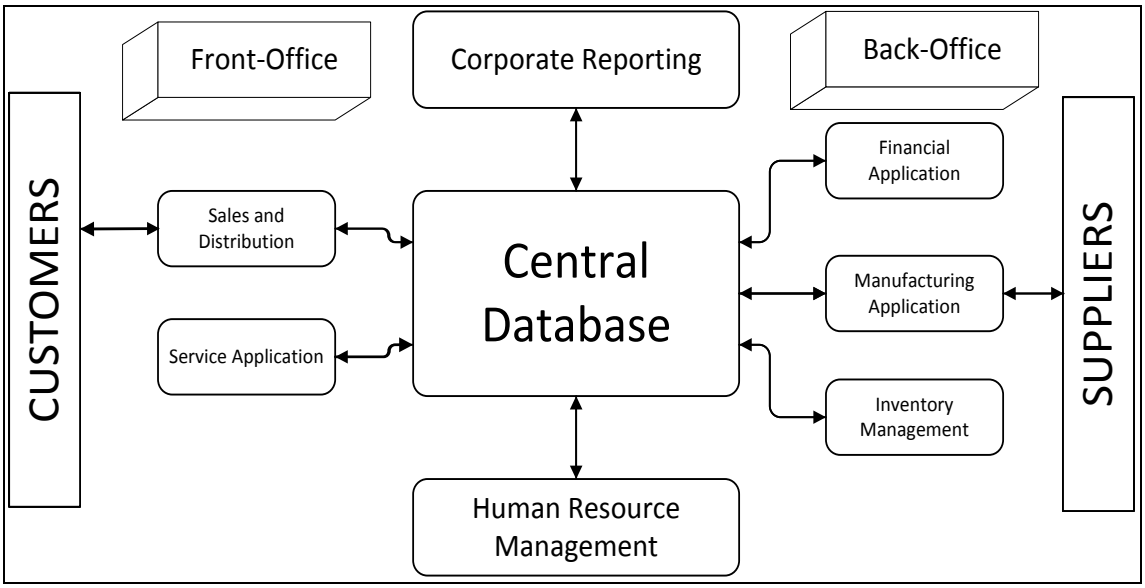

Figure 1. ERP system concept (Hossain et al., 2002)

2. Institution Background

The institution, which is the subject to ERP implementation process, is a national R&D center that produces innovative and national solutions for the needs of the country with the studies carried out in the areas of information, information security, and advanced electronics.

With the feature of being Turkey's most competent R&D center, to provide technological independence in the field of informatics and information security in Turkey, the institution carries out technological R&D activities. The center conducts scientific and technological research at international standards with more than 1700 personnel.

The main activities of the center are research and development, testing and evaluation, prototype production, and Training. The Center has five institutes that have signed hundreds of successful projects in the fields of advanced electronics, information technologies, cryptology, cyber security, software technologies, information security, electronic combat, and telecommunication.

In addition to this, it operates with the principle of providing country's information and information security needs with unique solutions that meet stakeholder needs rather than with uniform solutions. The technological solutions developed by the institution exceed the borders of the country and used by North Atlantic Treaty Organization (NATO) countries and many European and Asian countries. With this contribution of the center, the country exports solutions in the areas of information and information security and compete with world's giants.

3. Before SAP System

The center is an institution with dynamic structure in the sense of administrative affairs besides R&D work. Especially administrative units such as human resources, accounting, and procurement were using different information systems. Because these systems were operating independently of each other, there were no integration. Same tasks were repeated for different jobs. This was the wasted workforce.

With the management change in 2012, suggestions were collected for possible improvement in the institution, to eliminate deficiencies and for more efficient study. The recommendations for improvement were reported. Implementation of SAP system was one of the recommended improvements in the report. In the report prepared with the opinions and suggestions collected from the managers, include feedbacks on important issues such as "information systems support" in addition to those related to processes and organizational structure.

The existence of more than one "information systems" within the institution, employees were working in unintegrated project environments. This were adversely affecting productivity and communication. Almost everyone at this point agreed and accepted that this situation needed to be corrected in a way that did not undermine security. The second point was the usage problem of "business application software" and requests for change related to them. Together with complaints about resolution, these problems were tried to be solved by application developers through existing mechanisms. The third point was that the view of some applications such as "project management system" and "configuration management system" to be made with generally accepted ready-to-use application software. It has been reported that the business application software currently being used in this regard is continuously improved and enhanced.

The center is an institution with dynamic structure in the sense of administrative affairs besides R&D work. Especially administrative units such as human resources, accounting, and procurement were using different systems. These systems were operating independently of each other without integration. It was decided to implement and integrated ERP system to execute, measure, and report processes.

4. SAP Implementation Process

The SAP implementation process has 5 stages: (1) Project preparation, (2) conceptual & detailed design stage, (3) Realization preparations stage, (4) Preparation to go-live, (5) Go-live

(1) The project preparation phase: It has been planned and carried out as four phases: (1) Determination of the project team, (2) Software selection, (3) Consulting selection, (4) Hardware and infrastructure preparations. Project plan were prepared using MS Project. Determination of the project team was critical. The team must have a corporate culture and were selected from different units. The project team was composed of two parts: Key users and project management office team. ERP systems are the backbone of the institutions. To find solutions that are compatible with goals and policies, the right software technologies must be selected at the beginning. It is important that the selected ERP software will be compatible with the organization. The software selection process included the following general steps: (1) Determination of ERP selection team, (2) Requirements analysis of the institution, (3) Development of request for quotation (RFQ), (4) Submission of RFQ to vendors, (5) Invitation of vendors for quotation, (6) Visiting companies that vendors worked before, (6) Software selection.

(2) Conceptual & detailed design stage: Here, conceptual design analysis reports were prepared. These reports are written design documents which are prepared considering the technical specifications and which provide the general framework of the project to be adapted during the realization stage. These documents demonstrate the requirements for work to be done and form the basis for configuration, testing and development activities where necessary. With project analysis report business process needs, solution proposals, systems and methods to be used are defined. How to resolve differences between the data management system functionality and business process needs are described. Development needs are determined. Separate and detailed reports were prepared for each module. Documents have been revised when necessary.

The matching of conceptual design with technical specification was the most important part. The conceptual design analysis reports were created with this mapping. Apart from these reports, "Conceptual Design- Matching with Specification" part was opened in the system to follow all the specification items.

(3) Realization preparations stage: Here, mapping of technical specification and conceptual design document were completed. As it shows whether they met all the needs gathered from the units and the processes required, this mapping is an important step before starting to use the system. After the comparison, it is ensured that no specification item is missing, and the countdown started to pass to go-live. This comparison was performed by monitoring on the data management system. Conceptual design document corresponding to each item of the specification was prepared, feedback from the consultant firm and the latest status were regularly entered. When it comes to the last step, all the specifications were examined so that there were no missing items.
(4) Preparation to go-live: Implementations and enhancements made in the realization stage have moved to the quality assurance system. The test scripts (process steps) that key users have prepared were tested here. The failed steps were reversed. Incorrect adaptations were corrected and transferred back to the quality assurance system. After all the steps in the test script were successfully completed, a large part of the transition to the live system were completed.

End-user training was part of this stage. It was necessary to minimize the inconveniences and difficulties that could be experienced after go-live. There were key users, but all the staff should have learned to use the system and they should have been informed.

(5) Go-live
Here, the new system was started to be used with all modules.

5. Conclusions

In this study, SAP transformation process of a public institution that conducts R&D work in Turkey were examined. The process of granting the decision to implement SAP system and all the events that took place during the project were discussed.

Participation and support of management and users helped the SAP implementation project. The support of the ERP consulter, which provides installation, support and training services, also had a major effect on project success. With a single integrated ERP system, management started to run the institution more effectively and efficiently. The processes were revised and improved during the project. Effective reports were started to be prepared. User friendly screens were designed.

The training program was an important issue that must be settled on the business processes of the enterprises. Training for all modules were organized. Training was necessary for effective use of the system and employees were trained throughout the installation process. Some of the personnel accustomed to using old systems were resisted the new system having new interface and function. They resisted to participate in trainings.

During the testing stage, the requests from the units and the redirection of key users were very important. At this stage, staff change became more frequent, and key users were constantly changing. It caused some important points to be missed during the test and analysis stage.

Management should take the ERP implementing decision after a detailed study. ERP projects extends frequently arranged time and spending plan. Some fail to deliver many of the promised benefits. Companies can overcome it by understanding the reasons behind. A significant number of the issues are not about technology but rather progressively about the project management issues. These projects need a serious change management as the organizations change the way of doing business. Lack of organizational change management experience may cause problem.

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Biographies

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