

DESIGNING ROBUST SAP ROLLOUT PLAN FOR THE ERP IMPLEMENTATION SYSTEM IN ROMANIA. INSIGHTS FROM THE PRODUCTION COMPANY CASE.

Viorel - Costin Banta
The Bucharest University of Economic Studies
Faculty of Accounting and Management
Information Systems,
Management Information Systems Department,
Bucharest, Romania

Dana - Maria Boldeanu
The Bucharest University of Economic Studies
Faculty of Accounting and Management
Information Systems,
Management Information Systems Department,
Bucharest, Romania

Abstract: Implementing an ERP solution has always been a challenge both for the companies who have planned such a system and companies who have implemented such a solution. The paper is based on a number of projects in which we have been part of the implementation team, either as part of the deployment team or as a beneficiary of such an IT complex system over the years. Our research was oriented to ERP Implementation Rollout established for an production entity, based on an established project developed during a period of two years. This article offers a perspective, for interested experts, showing how they can manage their activities, for the implementation of an ERP system, in Romania, based on agreed methodology used for rollout purposes. The particularities that the big companies have facing are detailed in this approach. The purpose of the research is to highlight a number of benefits of such implementation, as well as the risks that should be taken into consideration for companies deciding to implement various ERP software solutions. Achieving a good implementation plan leads to the best result and satisfies customer requirements. The raw data of an ERP project in the production area are collected and presented in this research. The results of analysed data show that the even we have faced a lot of risks – issues, which were mitigated during the entire phases of implementation, the scope of the project was achieved and pointed out a well-structured and detailed implementation plan.

JEL classification: C61, M15, M41, Y10

Key words: Rollout, SAP, SaaS, o Data, ERP - Enterprise Resource Planning, Production

1. INTRODUCTION

Many companies in our country have been involved over time in immense transformation processes, from their acquisition by biggest companies over the world to their development and adaptation to the times we live in. After 1990, business environments exploded with the arrival of many companies in Romania who wanted to

develop their own business here in Romania. Romania's entry into the European Union has meant even more for the business environment in Romania, the openness offered, being one of the strengths of a transition economy.

Any transformation came in the package and with the adaptation of the company to the performing IT environments, these occurring immediately after Romania's disappearance to the outside and to competitiveness.

It was found over time that the investments needed to acquire ERP software (Deltour, 2012) were very high, but the results were on the table: modeling business processes, a single point of data entry, reporting was done at agreed times, data collection it was a pretty laborious one. All data has been aggregated, a single database has been set up and the company's management has been one of the easier.

The complexity of the business environment has led the business environment to put increasing pressures on integrated software makers so their needs are met more and more. In accordance with what Savafi, N et. all (2013) wrote, enterprises are integrated, enterprise-wide, and these include software packages that are the result of modeling a series of processes encountered in companies where this software has been integrated / installed. Usually, in ERP literature review, it is mentioned that any integrated system incorporates all the best practices encountered over time in the field in which this ERP works.

In this paper, the authors want to analyze the impact, the risks and the difficulties encountered throughout the implementation project, being part of this project, this project being a rollout in a Romanian company operating in the automotive area. This specialized work in the field of analysis and modeling of an ERP will be organized as follows: for the first time we will review the specialty literature, we will introduce some theoretical notions regarding the risk analysis, their impact, and the analysis of the difficulties encountered by along a project.

First is going to be introduced the summary and characteristics of the business environment in which is conducted the case study performed in this article. Then is going to be presented the research methodology. The paper will end with the discussions on the analysis of data gathered during the project (2 years), the results obtained, as well as the conclusions reached.

2. THE BENEFITS, RISKS AND DIFFICULTIES – THE IMPACT FOR THE BUSSINES ENVIRONMENT

the researchers have reviewed a series of articles published by a number of authors so that we can get an idea of what others have done during ERP implementation. We have found that there are a number of differences, depending on the country where the system was implemented, the business environments, their specifics, and the field of activity.

A lot of analyzed global implementations over the time it has come to the conclusion that the implementation of an ERP system has two major steps to be taken into consideration: the evaluation of the benefits, impact, risks and difficulties that arise during the project and the motivation to adopt such a system (Elragal and Haddara, 2013).

A series of elements, mentioned above, could be divided differently depending on the implementation stage, they could be classified as intermediate or global (impacts, risks, benefits and difficulties) (Amini and Savafi, 2013).

The implementation of an SAP system, as this article discusses general implementation but in particular about SAP, has several phases to be taken into account

throughout the projects. An SAP implementation project can be done in a number of ways, from roll-out, to rollout, or partial deployment of features.

The following picture (Figure no. 1) highlights a series of articles research that highlighted the issues we are dealing with in this article:

ERP Implementation – Benefits, Impact, Risks and Difficulties encountered

| Areas of interest (articles and books – research) | |
|---|--|
| Study | Category Impact, Risks, Benefits and Difficulties |
| <ul style="list-style-type: none"> Gefen and Ragowsky, 2005 | <ul style="list-style-type: none"> Soja, 2005 |
| Overall benefit, organizational profitability, market competition, cost reduction | Economic, technical, organizational, and social benefits |
| <ul style="list-style-type: none"> Boulianne, 2007; Duh et al., 2006; Hoque and James, 2000; Ittner and Larcker, 1998 | |
| Analyze the benefits through the Balanced Scorecard perspective: internal processes dimension, customer dimension, learning and growth dimension, financial dimension | |
| <ul style="list-style-type: none"> Matende, Ogao 2013 | |
| Enterprise Resource Planning (ERP)T System implementation: A case study User participation | |
| | <ul style="list-style-type: none"> Boltena, Gomez, 2012 |
| A successful ERP Implementation in a Ethiopian Company: A case Study of ERP Implementation in Mesfine Industrial Engineering Pvt.Ltd. | |
| <ul style="list-style-type: none"> Information Resources Management Association USA, 2013 | |
| Enterprise Resources Planning: Concepts, Methodologies, Tools and Applications | |
| | <ul style="list-style-type: none"> Rajan, Baral, 2015 |
| Adoption of ERP system: An empirical study of factors influencing the usage of ERP and its impact on end user | |
| <ul style="list-style-type: none"> Baze, 2016 | |
| Realistic Risk Management Using the CIS 20 Security Controls | |
| | Note: source: compilation of the author |

Figure no. 1 – Articles reviewed by authors

The major impact in the organization, through the implementation of an ERP solution, is the possibility of modeling existing economic processes, restoring existing ones or simplifying others (Chen and Lin, 2008; P.C.G, 2013). The implementation of an ERP solution raises several risks, the biggest being that the solution chosen does not fully satisfy the desire of the business environment (Amini and Savafi, 2013).

A number of risks have been analyzed over time in various articles, mentioning strategic, operational, financial or compliance risks. These risks can be categorized as internal risks or external risks, the following table highlighting a number of these:

Table 1. Validity of the research constructs

| Cause/Objective | Internal | External |
|-----------------|---|--|
| Strategic | Strategic Competitiveness Market Intelligence Innovation Branding Culture | Industry Changes Economic Sensitivity Political Sensitivity Stakeholder Relations |
| Operational | Leadership & Governance Project Management Human Resources HSE & S Sustainability | Customer Competition Sourcing IP Hazard |

| | | |
|------------|--|--|
| Financial | IT / IM Financial Systems & Controls Financial Reporting Liquidity | Financial Market Financial Obligations Foreign Exchange Interest Rate Commodity Price Credit Capital |
| Compliance | Non-Financial Systems & Controls Non-Financial Reporting Knowledge & Application of Standards Breach of Standards | Regulatory Change Regulatory Compliance Contract Commitments |

Source: the author's own concept

3. PRODUCTION PLANT – CHARACTERISTICS ERP IMPLEMENTATION

The company for which we have done this case study has begun implementing the ERP-SAP integrated solution in 2015. This company deals with the production of equipment for the robotic industry, from necessary cables to complete automation solutions for the robotic area. This company from Romania is a subsidiary of the large production group of integrated solutions for the robotic industry, having its subassemblies factory in Bucharest.

The headquartered group is in China but has offices in a lot of countries, like Bulgaria, Hungary or Letonia. Over the years, the group has diversified its activities from automotive cable solutions, fiber optics to healthcare, marine to special vehicles or wire products & solutions.

The Bucharest factory was designed to produce subassemblies for robots but also to produce a range of equipment for several areas of activity: medicine, automobiles or telecommunication networks.

At the factory in Bucharest, there are no fewer than 1,000 employees, ranging from robotics engineers to laborers engaged in packing and delivery equipment. The research part is also present in the Romanian branch, which aims to carry out research projects for the entire eastern part of the world.

Most foreign companies that have business in Romania have an IT and Finance approach, integrating the business environment into the existing enterprise software solution at the group level. Here we can talk either to install the local solution locally and consolidate at the group level (the costs are much higher), or to rollout the Romanian company into the central ERP system (costs are much lower), in our SAP case. This integration is based on a unique company code assigned to the business environment of our country, in this case, of the local subsidiary.

For Romanian managers, integrating local business into SAP has been a great asset, with local business growth growing from day to day, and business decisions have had to be taken quickly and in line with what the market demanded. Managers have been

able to use data quickly, accurately and in real time. There was a visible improvement in how the business was being pursued.

A lot of benefits were encountered after ERP SAP solution was implemented, like: sharing information within the company, improving customer satisfaction, process efficiency, cost control, profitability growth, availability of the software anywhere.

4. ERP IMPLEMENTATION – RESEARCH METHODOLOGIES ADOPTED

For us, the research methods used have been found in the articles we have read over time. We can recall here the articles that are recently published by Senti Technologies, all that meant a great success in this type of business, namely the realization and implementation of an integrated ERP system, namely SAP.

A first article would be: SAP ESS-MSS Implementation for Steel Manufacturing Company in UAE - implementation realized by SENTI Technologies. The client is the largest steel bars (rebar) manufacturing company in UAE. The client wanted to implement SAP HR Self Service system to cover two main areas - Employee Self Service (ESS) and Manager Self Service (MSS). SAP HR Portal is based on SAP Net Weaver Portal 7.0 and is linked to SAP ECC 6.0 Enhancement pack 4 and SAP Business Warehouse/Intelligence 7.3. Another article comes from SAP and is named: carve-out: optimum adaptation to target markets. In this article it is explained that “More and more companies are deciding to withdraw their plants and branch offices from the group’s central SAP ERP system (Weidmann and Teuber, 2009; Banta et al., 2013) in order to better tailor their business processes to local market conditions. Local and market-specific adaptation is necessary to meet regulatory requirements and expand customer relationships in fast-growing regions. However, a „carve-out“ – i.e. transferring data to a dedicated local solution – costs considerable time and money. Many organizations are hesitant to take the plunge.” – source SAP (Banta et al, 2013).

5. THE STUDY PERFORMED – RESULTS OF COLLECTED DATA

Throughout the implementation process of SAP we have found a number of factors that have affected the implementation. We could mention here the problems that appeared from the initial phase of the project regarding the chosen solution, considering that this solution had to be adapted to the Romanian legislation, such as: the location in the SAP system (Banta et al, 2014) had to be adapted by a series of changes in Regarding the reports, some layouts had to be modified, others had to be built from scratch (Leu and Huang, 2009).

The impact was major with regard to the solution chosen: to be part of the central SAP, or make a local installation in terms of accounting, production, sales and distribution as well as customer relationships. It was decided to launch a rollout, the template being used in Bulgaria. There have been a series of discussions, which are more interesting, in order to adapt the economic processes encountered in Romania, on the template agreed by the company. For a good visibility on the SAP solution in Romania, a service provider in the SAP area (Zhou, 2009), who provided a project manager and six functional consultants for helping SAP Competence Center in the company, was contacted. These functional consultants were from several countries, so the implementation had a number of risks, the first one we would mention as having been allocated to speech differentiation, the

language used being English. In order to have an accurate date and to identify the real risks during the project we interviewed a number of 18 participants from the company and from the supplier. The authors have generated a questionnaire which was collecting information based on following type of questions: about risk category, about risk definition, about impact, about Likelihood and control effort. Based on these category, we have collected a series of answers and based on these we will present here a small part of the research (only 5 answers – were 48 collected):

Table 2. The entire project – collected risks

| Risk | Risk Category | Risk definition | Impact | Likelihood | Effort control |
|------|---------------|---|--------|------------|----------------|
| 1 | Operational | The knowledge new SAP Solution – participants into the project (users, key-users, managers) | 1 | 5 | 2 |
| 2 | Operational | Analized Romania operational situation (Ramp-up & Operating pressure) | 3 | 3 | 3 |
| 3 | Operational | Resource availability) | 3 | 3 | 3 |
| 4 | Strategic | Resitance in Romania for global solutions | 3 | 3 | 3 |
| 5 | Financial | Discussions about higher cost for SAP Romania solution (localizations + HR) | 5 | 3 | 5 |

Source: the author's own concept

The description for Impact: the risk occurs; what is the foreseeable impact on the achievement of the objectives? (EXCLUDE CONTROLS)

- 1 = Minor impact,
- 3 = Moderate impact,
- 5 = Critical impact.

For Likelihood: What is the likelihood of the risk to occur? (INCLUDE CURRENT CONTROLS):

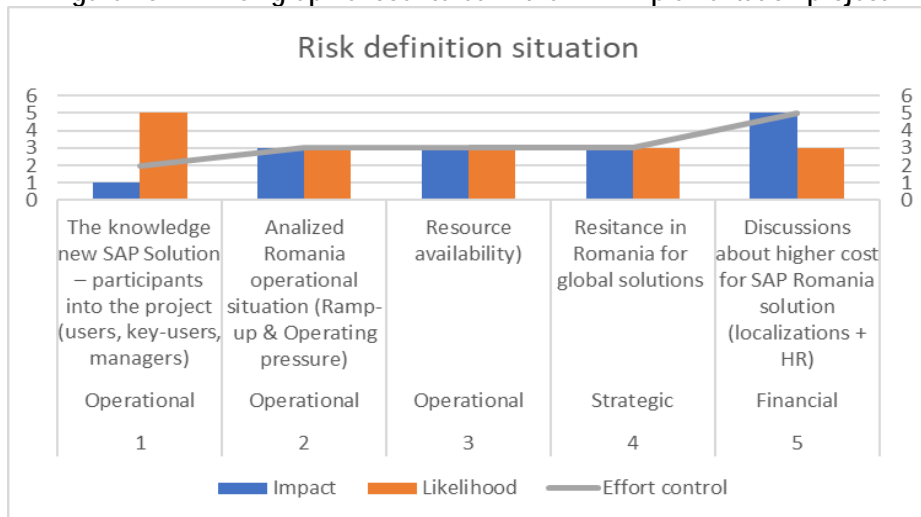
- 1 = <10% Chance;
- 3 = ~50% Chance;
- 5 = >90% Chance.

For Effort control: Is CURRENT effort (in terms of resources, procedures, measures, etc.) effective and sufficient to (1) manage, (2) monitor and/or (3) mitigate the risk for the COMING PERIOD within your RISK APPETITE?:

1 = No additional effort needed;
 5 = A lot of additional effort needed.

Based on a few presented risks, it was generated the following chart (Figure no. 2):

Figure no. 2 – Risk graph encountered in the ERP implementation project



Source: the author's own concept

6. CONCLUSIONS

A case study conducted by us and presented in this article highlights several issues that we would like to comment on, as well as conclusions regarding this implementation. We have discussed here some aspects of implementation, such as the possibility of failing to carry out the project in Romania: what are the risks and what are the benefits of such implementation. The risks are very high in such an implementation, such as the impossibility to discuss in an international language, the frequent changes of the legislation in Romania, hardware, software adapted to the new requirements, the multinational implementation team, the impossibility to have a common thinking about what we want to implement. We also want to conclude the biggest risk in such an implementation: the resilience of the business environment to the changes brought about by such an implementation, such an integrated ERP system, namely SAP. Adapting such an IT solution brings about a change in the way you think about what you want to achieve from such an implementation. The business environment needs to have a very open thinking about addressing such a solution. Structured thinking leads to a very high degree of success, ERP systems having the ability to structure very well the activity of a national or international company. The approach has to be pragmatic, from the very good structuring of the data that will be migrated into the system, to the reporting that must be obtained, both for the company and for the group. The deployment plan needs to be well established, such a solution requiring professionals of all grades, from senior SAP Consultants to end-users - those who will enter the data. The business response, from managers to system administrators, must be positive and constructive. It is not easy to implement such an IT system at all, but it is extremely necessary for it to provide the company data needs. We would like to mention that the implementation of an ERP system is clearly different from

the implementation of a traditional home-based system. In conclusion we would like to mention that the implementation of an ERP system is a relational IT-complex, it is a phenomenon itself. The authors could share successes and failures of such implementation, according to the literature, into three main categories: human / organizational, technical or economic. As a conclusion, every single step is important, but from our own experience in many projects, the human factor has the greatest importance in such an implementation.

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