

THE ADVANTAGES AND RISKS OF USING AN ERP SYSTEM IN THE CONTEXT GLOBALIZATION

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Abstract: The authors propose to develop and to discover the integrated information systems in applications Enterprise Resource Planning (ERP), started to the evolution of business in a globalization context. In this purpose the authors started from the appearance and the evolution of significant information systems management processes, production, information and integration into enterprise and companies. ERP Interfaces are used for the entire organization regarding to the product planning, materials, parts purchasing, inventory, distribution and logistics, production scheduling, capacity utilization, order tracking as well as planning for finance, accounting, marketing and human resources. After the application information system the authors realize a number of advantages and disadvantages started from the systems requirements, taking into account the uncertainties that can occur during their design, performing and operation.

Key words: Integrated information systems; Enterprise Resource Planning (ERP); software

1. INTRODUCTION

Enterprise Resource Planning (ERP) represents the systems which are based on client / server architecture developed for the processing transactions and the facilitation of the integration at all processes from planning and development phase of production to the relations with suppliers, customers and other business partners (Footpace D & Hurbean, L 2004)

The system appeared in the '90s, it became a common presence in the great corporations and in the multinationals company. The second half of the last decade has meant opening the ERP application for the small and medium enterprise segment (Cazimir Bohosievici, 2009).

Over time, the techniques and management practices have evolved into a generally accepted set of rules (best practices) for each specific vertical by business. Although the result of a long process of sedimentation, these "best practices" are also exposed to the continue needs by the resynchronization with the structural changes of the environment business. The role of an ERP is to facilitate the incorporation

and update their within the company's business processes.

ERP is fully capable to managing complex processes, from placing actuations for supply, production and up to the management distribution.

The system is framed from a single database, software and a single unified interface across company, in other words it represent an applications package which integrates the information and the processing within company and between performance areas of an organization: planning, production, sales, marketing, distribution, accounting, financial, humane resources, project management, inventory, service and maintenance, logistics and e-business.

2. THE MARKET AND THE EVOLUTION OF THE PRODUCTS

The market represents the first step to establish if a company benefited or not by the market power. As to, the determination of market power seems to require a market definition that may be exercised in the ability to increase the prices in the profitably mode above competitive levels.

Considering that as the definition of the share of the market involves the existence of market power, the market definition is crucial in application of the competition policy.

The computers have revolutionized our way of life and tend today to assist us as a normal tool for work, in any field of activity being the result of the new and greatest revolution that has known the humanity from the wiew of the of progress, the information revolution.

The evolution of ERP as well as its market developed along the over four decades. (Rusu L., et al 2005)

In the '60s, most enterprises projects, develop and implement the centralized applications, created with their own force.

In 1965 the system Material Requirements Planning (MRP) appeared on the market. This application was made to help a company in the next uses: inventory,

the data about the objects, the program production necessary for the calculation the required materials, the launch of supplies and ensuring of those during by manufacturing process. MRP was represented the metamorphose system control of purpose under the influence of the electronic computer and its applications.

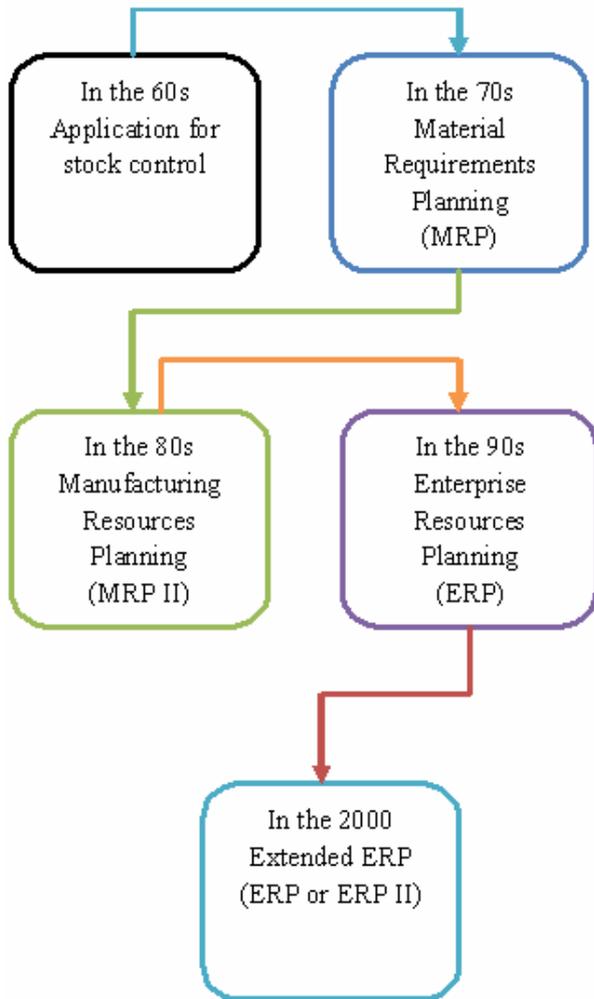


Fig.1.The evolution ERP [5]

In the '70s, Manufacturing Resource Planning (MRP II) appeared; it was focused on optimizing manufacturing processes by synchronizing demand for materials with production requirements. It also the area which covers was exceeded the production limits: financially, human resource, distributions, selling through the one's stores, project management. In the late '80s on the evolution of ERP enshrined the idea of coordination and integration of the interoperable in the enterprise. Based on technological function of MRP II, ERP system integrates all economic processes: production, distribution, accounting, financial, personally, inventory, service and maintenance, logistics, project management, offering accessibility, visibility and informational consistent in entire organization. In the 90s, the ERP vendors have added their suites new models and performances, which generate the

apparition of the concept "extended ERP II. Extensions include applications such as APS (Advanced Planning and Scheduling), e-business solutions on the relationship customers area CRM (Customer Relationship Management) or on the suppliers – supply SCM suppliers-supply (Supply Chain Management).

In the ERP industry billions of dollars circulating and the ERP market is very complex and very widely developed. Choosing the suppliers is a very difficult decision for a client. In the ERP top is observed as 60% from the market remains to a small number of international manufacturers that are: SAP, Oracle - Oracle Apps., Sage Group (Sage Pro ERP 7.4), PeopleSoft, Microsoft Dynamics NAV Global Technologies (BaanERP), JD, Edwards and in Romania: SIVAPPS (Siveco Applications), Charisma (TotalSoft) Clarvision ERP. Default after that next a total of approximately 50 companies, medium size, which producing one hundred ERP or search functional niches.

Each provider has developed and competencies required for a functional area: SAP in logistics, Oracle in financial, Peoplesoft to human resource and BaanERP in production.

The main quality to select the best suppliers are: the long-term vision, the commitment to service and support ahead implementation, the functional characteristics, the degree of specialization, the experience and financial strength, includes the amounts which allocated to researchs and development.

SAP AG (Systeme Anwendungen und Produkte in Datenverarbeitung) was founded in 1972 by three engineers who left from IBM Germany, in the idea of developing the integrated software for production companies. Their first product was R / 2, launched on the market in 1979. The application was made for centralized database on large computers (mainframes).

In 1992 they launched a redesign application customer / server with its name by R / 3. Have a huge success, in 1999 SAP AG became the third company by software in the world and they installed successfully on the first place in the top providers of ERP solutions. SAP has over 20,000 customers in more than 100 countries (like Romania). In 1999, the suite has been extended with new functionality: database development, CRM, SCM, SFA. SAP invests consistently in large amounts in research and development so that new versions of R / 3 3.1, 4.0, 4.6 include new features and extensions specific to the Internet. The solutions oriented on the Internet have been launched under the name mySAP.COM. The product ensures the good functionality plus the special characteristic of industrial and the best business practices based on three decades of experience. The products have the best range ERP functional, they are strongly oriented vertically, the

company policy view and active involvement in research and development will continue to ensure the success.

Oracle Corporation was established in 1977 in the U.S., and is famous for database applications. Oracle has over 5,000 customers in 140 countries (including Romania). In 1987 they launched the first suite of enterprise applications. In 1999, from the total turnover of 9.3 billion dollars, 2.5 billion were made by Oracle Application ERP suite. The difference is obtained from other products offer strong: management systems database, data warehouse, workflow applications, media and the application of development tools, consulting services and a broad portfolio of applications under the outsourcing operating.

The ERP suite has over 50 modules components abidances into six broad categories: financial, human resources, production, supply, and sales projects. Oracle has integrated ERP solutions with Internet technologies, launching more than e-commerce applications. Internet infrastructure is reflected in two procedures: Oracle, Oracle and Database, application Server. Oracle has thought to design specifically for small and medium businesses a suite with all the basic functionality and CRM applications, delivered as a web service called Oracle Small Business Suite.

Siveco Romania took first place in the software and IT services in terms of production sold, according to a study realized recently conducted by the Institute for Computers at the initiative ANIS (The Employers' Association of Industrial by Software and Services) and dedicated to the sector IT & C from Romania.

According to a similar study undertaken by market research company IDC for the situation on the interior market solutions EAS (Enterprise Applications Suite) and IT services in 2005, Siveco Romania have a market share of 19.3% on the market for EAS solutions and a rate of 9.7% that of IT services. They consistently implemented in the major computerization projects which provide non-discriminatory access at solutions for eLearning, eHealth, eAgriculture, eCustoms and eBusiness.

Microsoft Romania is equipped in 1975, (Microsoft (NASDAQ "MSTF") is the largest company of software producer) with services and Internet technologies for personal computers and business environment. The company offers a wide range of products and services designed to provide peoples the special software programs - available anytime, by anywhere and for any device.

The Microsoft Romania Mission is to increase the satisfaction of the user and partners (Microsoft high technology) contributing with the professionalism and honesty to the development of local IT industrial through implementation of the corporate business model. Microsoft Romania has proposed since its creation to following business objectives:

- To generate the business initiatives, investing on long term, for Microsoft and business partners;
- To facilitate access of the people from this region to the latest software technology generation;
- To build skills and talents to organize the activity for training, provide technical information and to locate products.

3. THE IMPLEMENTATION DECISION OF THE SYSTEM, BENEFITS AND RISKS

ERP (Enterprise Resource Planning) - in the narrow is relate to applications for planning and tracking of the production processes, take into consideration a materials, technological processes and resources (machinery) available.

Increasingly important problem which we can get at mojaritatea firms is to survival in a global business environment. The informational technologies create more business opportunities, providing solutions to problems and answer questions, faciled rethink and reorganize the activity of the companies.

The adoption of an ERP system is a very difficult decision, especially on how many suppliers are on the market today. The decision process is started because of the problems which arising in collaboration and interaction between departments of the organization. The decision and implementation solution called Enterprise Resource Planning.

Over time, techniques and management practices have evolved into a set of generally accepted rules (best practices) specific to each business vertical. Although the results behinde of the long process of sedimentation, are also exposed to the continued need by resync with structural changes with business envierment. Role of ERP is to facilitate incorporation and update their in enterprise business processes.

The decision to implement ERP software should be based on a very percise list of selection criteria and the variants anailiza comparative of the more applications regarding:

- mandatory compliance with the legal framework of each country, but also bring at European legislation and standards;
- the possibility to operated with the national currency, the implementation of the single European currency, but also easy to work with other currencies;
- real time processing;
- the modular structure of the software application which to allow phased implementation and the subsequent extension of the functional area covered;
- hardware platform independent;
- functional characteristics;
- the ensuring of the high level at security and data integration;
- the flexibility in the increasing number of users;
- direct benefits;
- the clear justification of the investment opportunity;

-minimize risk.

The characteristics key which individualized the ERP solutions:

Adaptability - the functionality standard of the application can be modified according to specific requirements of the enterprise users, usually in the process of implementing an ERP. The realization of adaptation is possible through configuration (parameterization, setting, customizing) that requires modification of data structures or parameters system, the major changes may require modification / development application code. In the second case appear the disadvantage that the update process (update) becomes more complicated, because the code changes need to be rebuilt after applying update packages of the manufacturer;

General - can include and satisfy most types of organizations, to support more organizational functions; the generality and power to support large and complex coexist with small organizations of specific flexibility. General functionality covers to the computerization of processes applicable to any organization, for example accounting, human resources, purchasing, and so one. The application offer includes business applications and solutions specific to certain fields such as health, telecommunications, retail trade, manufacturing industry, public administration, end so one;

Modularity – to have a modular structure and any module can be included or detached whenever required without affecting the other modules or the entire structure, the all modules of the system are closely interrelated with each other, all the user working simultaneously on other data, through network of computers ,in duties functions on which they have;

Open system - to have an open system architecture, can support multiple platforms hardware / software and communications for companies using heterogeneous platforms, to provide facilities to enable integration with other existing applications and / or transition with efforts and costs minimum to the other modules of the application, to provide a development environment and documentation for advanced users who take part of maintenance, adaptation, extension system, but integration with platforms and latest technologies such as Web / Intranet // Internet / Data Warehouse.

The interface with standardized user – the module operation is unitary, through standardizing design forms, of the applications menus and to the operating rules. This will facilitate the learning process for users.

Security dates - to allow the access to the particular data in safe conditions only under the rights offered to each user; the security and the data security they are insured at a special lever through the system by access rights.

Connectivity - are not limited to the company's organizational boundaries but to support the connectivity with other business modules from other companies (Hamilton S., 2003)

Simulation of reality – to allow simulation of actual business processes and assign responsibilities to the users which control system.

In addition to these general characteristics should be noted that an ERP should have a collection of the best business processes and business practices, which should provide to the users. (Brady J. A. et al, 2001)

To implementing an ERP system has proved a challenge for the company's, a necessary condition to implemented being that the user processes with ERP is to adapted with the module approach used by software. Two essential requirements for successful ERP implementation are the electronic support and accurate, real enters. Instead of complet implementing the whole system once, some companies choose to implement only those applications or modules absolutely necessary, others to be implemented in a subsequent phase. Thus the system can be implemented quickly with minimal disruption (Wisner J. D., 2008).

However, many implementations have failed for a variety of reasons (Wisner J. D., 2008):

Deficiency of the top commitment management

- While management assigns the enough funds for implementation of a new ERP system, he is not implying actively in encouraging his implementation. Often, the users turn to old processes or systems due to lack of knowledge and interest to learn the capacities of the new ERP system.

Deficiency of the adequate resources.

- To implementing an ERP system is a long term commitment which requires a substantial capital investment. Although the cost has become more accessible due to the appearance of computer technology, total or complete implementation it can not allow a lot of small businesses company. In addition, small firms might not have the necessary manpower work and specialized knowledge for the implement this complex system.

Deficiency of the adequate preparation.

- Many employees are already familiar with MRP system. Thus, when a new ERP system is implemented, the top managers assume that, the users are properly trained and underestimate theirs training necessary to implement the new system. Lack of financial resources can also, diminish the manpower work in this purport.

Deficiency communications

- Deficiency communication within an organization or between the organization and ERP software providers may also be a major obstacle to implementation. Deficiency communication usually, materializes in the wrong specifications and requirements.

Incongruous system environment

- The environmental organization, in some cases, does not provide to the ERP system a distinct advantage over other systems.

Table 1. Advantages and disadvantages of ERP strategies implementation

Strategy	Advantages	Disadvantages
Minimum risk strategy	<ul style="list-style-type: none"> - maximum benefits are provided; - avoid "surprises" major; - the budget is respected; - the are greater possibilities of obtaining the desired results; - the work organization is disturbed to a lesser extent; 	<ul style="list-style-type: none"> - implementation period; - difficult to learn from the conceptual point of view; - requires the top management support; - requires dedicated resources; - is expensive;
Budget Strategy	<ul style="list-style-type: none"> - Standard; - minimal planning; - low initial cost 	<ul style="list-style-type: none"> - high risk of failure; - long duration of implementation; - often require the resumption of activities; - may be rejected by the organization; - functional and performance problems; - small benefits;
Strategy of "Big Bang"	<ul style="list-style-type: none"> - full information and organizational redesign - all redefining business processes; 	<ul style="list-style-type: none"> - is aggressive and difficult
Strategy "by their own efforts"	<ul style="list-style-type: none"> - can find the basics elemnts of ERP projects; - strong technical resources; - adaptrea flows of economic processes; - good communication; 	<ul style="list-style-type: none"> - high risk; - the high support postimplementation; - vulnerability to the migration of staff; - inflexibility; - not adapt technological change; - not benefit from external expertise; - not always get the integrated nature of the system;
Strategy "turnkey"	<ul style="list-style-type: none"> - there are not solcited internal resources, only in very limited; 	<ul style="list-style-type: none"> - high risk; - expensiveof the cost; - possible functional deficiencies; - depending on the vendor / implementer; - difficulties in processing system by the user;
Partnership Strategy	<ul style="list-style-type: none"> - benefit from the expertise and experience of the partners; - require fewer resources from the organization 	<ul style="list-style-type: none"> - medium risk; - very expensive; - possible adverse in relationships between partners; - dependent by partners;

4. ADVANTAGES AND RISKS USAGE THE SYSTEM

An ERP system can provide firms and supply chain a competitive advantage, which until after that will justify the investment of time and money in the ERP. A functional ERP system is able to increase a firm's ability to use the maximum the capacity to schedule the production correctly, to lower the inventory, to respect the delivery dates, to increase the efficiency and effectiveness of the supply chain.

Advantages:

- uses a single database and a common software infrastructure to provide a better understanding and updated information, enabling managers to make better decisions from which to get benefit the entire supply chain;
- Is able to provide real time information and to communicate information about operational changes to supply chain members without delay. Thus, the users are able to share information and communicate via the Internet;
- help the organization to reduce the inventory of the supply chain through adding visibility throughout the supply chain to fulfill orders allow to view so that members of supply chain to improve production planning and delivery of charitable goods clients;
- help the organization to standardize manufacturing processes. Production companies often have joined in the company who manufacture the same product using different processes and information systems.
- allows the company to automate some steps in the production process. The standardization eliminates the unnecessary resources and increase productivity.
- provides information on-line and in real time for all functional areas of a company;
- the information is entered into the system once in a single database which ensures the accuracy and standardization of the data and eliminates the redundancies;
- improves the access to data in order to take decisions in time to support the business decisions;
- decrease the response times to the customer but also to the realization business operations;
- divesificate provides management reporting tools that improve the business process control by the management company;
- improves business processes as require the use of "best practices" that are included in applications;
- ensure the competitive advantage and improve the company image.

Limits of using ERP are:

- relatively long period of implementation;
- implementation costs: the expense to purchase additional costs / hidden (training, integration, testing, maintenance, adjustment, data conversion from old systems, consulting);
- enhance the security issues.

Criteria for the selecting an ERP:

A prerequisite in choosing an ERP which ensure the company progress in terms of efficiency is to realization preliminary of the analysis and any business process reengineering (BPR = **B**usiness **P**rocess **R**eengineering). This involves:

- studying the existing system
- defining the organizational structure and processes within it
- designing and developing new system
- implementation

Convenient choice for implementing ERP package includes:

a. Check the supply by:

- verifying the coverage of all functional aspects of business;
- verification of full integration of all functions and business processes;
- check if the supplier's ERP uses latest IT technology;
- check if the supplier ERP has the capacity to implement and customize the system provided.

b. Checking the readiness of the beneficiary through:

- verification the existence of IT&C resources;
- verification of ERP amortisation on investment possibilities;
- verification of reimbursement opportunities excellent (ROI = Return on Investment).

5. CONCLUSIONS

ERP business system provides some beneficial, namely:

- enables large companies to cover all functional areas;
- attend the most important activities from the company and constetute, therefore, a solution from the best for management;
- lead to full integration of the applications not only between the departments of company but also between several companies;
- eliminate most problems of a business: the crisis of raw materials, increased productivity, prompt delivery, product quality and so one;
- discount the abscesses in information organization and provides secure information flow without redundant;
- facilitates the introduction of new technologies (Internet, Intranet, Video conferencing, E-commerce, EFT-Electronic Fund Transfer, Electronic Data Interchange-EDI etc.);
- an global overview of what's happening in the organizational structure of the company's, on actual demands of company and opportunities for continuous improvement and refining business processes;
- improves customer service and through this improve the company image.

This system can take part in a number of risks, namely:

- the main risks associated with ERP system are:

- the risks specific ERP adds to typical projects;
- the potential impact on the all business;
- Increased confidence in the controls elements of the application and reduced in the human intervention in processes;
- separation of ownership of the key activities is potentially more difficult;
- the critical points from the framework process are potentially multiple and complex from perspective of the security and/or functionality failure;
- the dependent potential by supplier solution adopted, especially from perspective of the system support and upgrades;
- transition from a traditional organization with tested and controlled process known as "new mode of operation" add significant risks and challenges to the company's internal control environment;
- possible cultural shock to achieve real integration;
- The risk areas, audit and security:
- business control and risk analysis;
- documentation systems and control methods;
- logical access control of the ERP system;
- change management for softwer;
- aspects of business continuity;
- ERP infrastructure (OS, operaiting system / database / network);
- Evolution ERP (adoption industrial solutions, upgrades, connections B2B).

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