The Impact of ERP Systems on Business Decision-Making

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***Abstract* – In this paper, the authors will introduce you to the ERP system and refer to its impact on decision-making within a company. The fact that they have on their decisions, automatically affect the company's business. The basis of business process automation is the use of a well-organized information system. Because of existence two markets in producing ERP systems, business management system creates a confusing picture when choosing the appropriate solutions for business information systems.**

***Keywords* – ERP, decision-making, management.**

1. Introduction

Fundamentals of today's modern information systems can be found in the distant past. While the comparison in qualitative, quantitative, and in each another sense, it is almost impossible, the basis of all these systems is generate the necessary, relevant, reliable and timely information. Generation and distribution of information within the information system, regardless of its technology base, essentially involves collecting data from different sources to be entered into the system, classifying, recording, calculations, and other data processing procedures for their transformation into convenient form for use, and distribution and presentation of information users. The essence of this process is contained in the so-called business information and integrated information systems (ERP Systems - Enterprise Resource Planning Systems).

2. About ERP systems

ERP is a general term for integrated systems that are used in data processing organization. These systems connect business management and production processes, which are included in the production [5]. In addition, ERP systems automate and integrate business processes that can be found in a production environment, including business processes that take place in the production. They often integrate information organization of the supply chain, customers, human resources, finance and so on.

Systems for enterprise resource planning (Enterprise Resource Planning Systems) are integrated software solutions that cover all aspects of the company. Initially, these solutions are only included aspects of production. Later added support and other business processes (functions) as well as the purchase, sale, finance, accounting, human resources, and thus included managing all relevant business resources [10].

ERP systems have become a means to support and speed up the whole process to satisfy orders, including product distribution. By registering changes in computer storage, ERP systems monitor resources - material, facilities, and workers, which are typically used in financial management, production, and distribution. These systems are increasingly viewed as a source of additional decision support system, which uses the memory - based processes to perform "what if" simulation, or so-called Data Warehouse, which uses OLAP technology for ad-hoc analysis [3]. ERP systems are related to the use of client - server technologies, relational database, UNIX, Linux or Windows operating systems, for more flexibility in the business modeling and organization. ERP systems can be a mechanism to perform re-engineering of business processes and increase the flexibility and availability of, eliminating the "border" between functional parts and reduction efforts in their implementation [7].

The increased functionality of the system management workflows is entered into the ERP system, to support the specific needs of vertical industry segments [2]. ERP systems including system management workflows are becoming more proactive, flexible, intuitive, and as a result, more effective in carrying out the process of the supply chain. In particular, advanced alternative ERP systems are those that are related to system management workflows in actual applications; so that changes made within the system management workflows, determine directly the change of the current system functions. Capabilities such as monitoring feature of the process and modeling workflows provide users with ERP characteristics. To optimize the supply chain embedded in ERP systems, using the tools of modeling workflows. Management

system workflow enables you to build complex business processes through the application, connecting each individual action so that their ERP system can assist in the coordination of all activities. In this way, the system provides the convenience of an automated execution of steps in the management of affairs. In addition, system management workflows raise the value of the user's applications, enabling them to automate any business process.

3. Features of ERP

Most ERP systems are based on client-server architecture, and the elements of ERP integration: database, application software, user interface, tools, and business processes [1]. Specific structure directly determine the success of the implementation process of the system, which requires an adequate strategic, tactical and operational approach to the planning of all segments information systems hardware and software and of course people.

Consideration of the essence, functioning and performance of integrated system information, it is based on comparison of information systems, before and after the emergence of integrated information systems. The most important general characteristics of integrated information systems are: flexibility and adaptability (it can be adapted to the real and specific needs of a particular company), independence and comprehensiveness, openness and modularity (its structure is made up of modules, targeted at specific business functions, which are available via the interface can be connected to other modules or a variety of internal and external software components), availability (the system is not limited by formal limits of business system and may be available to his distant organizational units) and can simulate real business conditions (a means of behavior prediction system using simulation scenarios for the purposes making important business decisions).

It can be concluded that the design, development and implementation of applications integrated information systems to enter data into the system place of origin or the nearest place to accrual multiuser mode paper, electronic commerce and communications over the Internet, forming an ad-hoc reports for different purposes, minimal functionality with three main functional modules (accounting and finance, basic resources management, procurement and sales), the development of function-specific certain industries and others.

4. Components of ERP

The content of any ERP package is: FI – Financials, HR - Human Resources, MM - Materials Management, SD - Sales and Distribution, CO – Controlling, etc. In recent years , manufacturers of ERP software are develop additional applications such as CRM - Customer Relationships Management and BI -Business Intelligence, which are installed as an upgrade standard ERP packages.

The following features characterize ERP systems: an integrated system that operates in real-time with periodic processing; a common database that supports all applications; consistent look and work during each module; installation of the system without over-analysis of integration of applications or databases. Certainly the basic components that every ERP system or ERP implementation system should include the following: transactional database, portal, business intelligence system, customized reporting, outside the so-called "gateway" access through some form of technology, search, Document Management System (DMS), "Workflow" [10].

Transactional database is a database that stores the multiple logical transactions in the form of certain business transactions. Practically, the transaction database is used collection, updating, processing and simple presentation of data on certain business processes in the company. Portal is a transparent control panel through which it manages and manipulates with any ERP system. ERP under the portal usually includes the first screen that comes after login to the system and a set of commands grouped into smaller parts.

Business of intelligence system extracts data from the database and based on the same create standard reports that can be interactive or static. Known ERP systems are further developed module business of intelligence in a more sophisticated form. Another component related to the customization of the report is closely related to earlier concerning the Business Intelligence. Otherwise, the ERP system must features using standard tools that I can create reports that fit the business processes of the company without extensive programming. ERP system has an internal model authorization by which to manipulate the rights of specific users or set users. DMS and system management and administration of the external document is known component of any ERP system. More sophisticated DMS systems are implemented parallel with a specific ERP system and an upgrade basic business processes.

ERP system needs to have sophisticated component search facilities in the system. SAP uses SES (search engine service) that allows the use of TREX search technology. TREX is a search technology, which enables indexing and searches all objects in the system [13]. "Workflow" is a logical sequence of business processes, which are executed automatically, or is required minor intervention. Known ERP systems are developed in detail

component of the "Workflow" and charged separately. In particular, the workflow is applicable when you need a user to authorize the execution of business management business process.

5. The importance of ERP systems for companies'

There is no knowledge why the ERP system is better or worse than the other systems. Certainly, every business ERP system implementation is expected to have enormous benefits - increased productivity, reduced operating costs, and flow of information, and improved performance management [8].

The global success of the ERP system is not only of interest to researchers in the field information technology, but also for all researchers in economic disciplines. Using the "system development life cycle" as a conceptual reference was observed the critical success factors of an ERP project moved from system design to system implementation. Implementation teams are guided through persons who are responsible for the business processes, not IT technology. In addition, the ERP imposed by that logic companies that are the focus of employees who hold business processes. Through ERP implementation forcing the employees as member's implementation team to intensively think about business processes as well as their changes [4].

In the course of evaluating the impact of ERP implementation on business processes and company, many researchers have made their generic models. The main purpose of each model was to investigate the influence of several aspects of ERP implementation and later ERP production at the company's performance and the performance of business process. In some models, it was found that it was longer implementation, the overall performance of the company increases, but the performance business processes remain the same. One explanation for the absence of a positive impact the company's performance in the short term is that the cost of implementing ERP investments tends to exceed the short-term and medium-term increase in productivity.

It was found that companies that have implemented ERP for many years do not contribute to the improvement of business processes in relation to companies with short ERP history [11]. Thus, ERP customers in the short and long term do not achieve high performance of business processes and do not achieve high overall performance company. The learning curve suggests that companies need much more to recover from the initial shock of ERP implementation than planned.

Because of the research states that ERP extensions with additional functionalities and solutions for business processes have a positive impact on organizational performance and the improvement of business processes.

Before designers of ERP, systems have been striving to satisfy the requirements of both operational and managerial users. Much debate has centered on the ability of ERP to satisfy both the operational requirements for managing basic resources and the managerial requirements for planning and control of these activities. 1965 Anthony developed taxonomy of managerial activity to help to differentiate the types of support possible from information systems. Allowing that the limits between these categories are not exact, he defined that managerial activity consists of:

- strategic planning
- management control
- operational control.

Gorry & Scott Morton later describe the characteristics of the information required by these three categories of activity as different. Operational control activities require information that is detailed and real-time. It is based on the actual use of internal resources. Managerial control requires more information, which are not necessarily in real-time.

The framework for management information systems proposed by Gorry & Scott Morton (1971) is very applicable to today's situation, where contribute of ERP systems has been clearly to support all types of management activity. Management control should stem from mastery of the detail contained in operational systems (and certainly, the language used by ERP vendors would encourage this perception), Gorry & Scott Morton would argue that these are two levels of activity, which have different information characteristics and requirements. The databases as a support management and strategic decisions would be quite different to those used in operational control.

It is interesting to note that the support for these categories of activity afforded by ERP systems. Questions are addressed by "hardwiring" the execution and monitoring of specific tasks into usually processes. Managers with their management control assessments, is not necessarily addressed. This is because employees are assigned to data entry "roles" that are pre-ordained by the ERP software, without a knowledge of the number of people available to fill those roles. Standard reporting is not hitched towards the monitoring of the "efficient" or "effective" use of people.

Ackoff (1967) suggests that most managers have some conception of at least the some of the types of decisions they must make. Their conceptions still are likely to be deficient in a very critical way: the less a

phenomenon is understood [9]. More variables are required to explain it. It was Ackoff's argument, well before the age of global ERP systems, that most managers have not a lack of relevant information, but rather an excessive intake of irrelevant information. Gorry (1971) decries the tendency to assume that improved decisions will result from increasing the information provided. This marker was echoed by Benjamin and Blunt (1992), suggesting "managers and workers are in danger of dying from a surfeit of communication".

The emphasis in information systems design has therefore shifted towards systems that provide managers with the information they require in a broader sense rather than just one specific decision and that support their communication needs. Executive Information Systems (EIS) and Executive Support Systems (ESS) have been put forward as the solution to the problems of information provision to senior managers. Based on a few famous examples (exceptions at the time), Rockart and Treacy (1982) have claimed that ESS (a term they first coined in 1982) was going to allow a revolution in executives' use of computers.

6. Conclusion

Development of information system has undergone expansion in recent years. From traditional accounting systems, it is now a complex ERP systems cover all business processes of the company.

ERP systems dominate the market of information systems for medium and large companies. Consequently, it is important to increase the automation of business processes and integration. Therefore, in our time, investment in information system is imperative if the top management of the company is to maintain its existing market position.

ERP system is singled out in relation to other business information systems. Many information systems have a tendency to highlight as ERP systems in order to counter the market right ERP system - SAP and Oracle Financials [12]. In this way, it creates confusion in the software market. Certainly ERP systems have a history of about 40 years in the global market of information systems and the model versioning (launch of new version with new/enhanced functionality) are create a dominant position in the market [6]. It is interesting that the long-term use of ERP has the effect of improving business processes, but there is a improve overall company performance. Thus, it is proven top management and owners have benefited from long-term use of ERP systems.

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