ERP and Economic Influence on the Development of Business

Juan Carlos Berru Cabrera[1], Galo Rodrigo Moreno Sotomayor[2], Francisco Antonio Pacheco Vinueza[3]

[1, 2] Technical University of Machala, Teaching Researcher, Machala, Ecuador
[3]Technical University of Machala, Student Researcher, Machala, Ecuador

Abstract— *The use of software in business has become very significant, thanks to this business have access to a progressive technological development, as a result you get great benefits in optimizing processes and information. This research work emphasizes on the ERP and its economic influence in business, an unknown subject for many people. The realization of this research will help understand how it has contributed ERP largely to the development of enterprises, through the creation of systems that are responsible for optimizing most processes within companies to obtain a gradual enterprise-level development. Through documentary research it has been able to gather information from scientific papers, journals, academic papers, among others, which will help to better understand the problem to find a solution. Of enterprises or industries. The result of this research shows that ERP applied in companies have largely improved the process optimization and cost reduction and improved management practices efficiency, therefore a constant business development is produced.*

Keywords— Business, Companies, Development, Economy, Software Engineering, Technology.

I. INTRODUCTION

The application of information technologies in different social spheres as everyday life and business, has been able to give a progressive development in society by improving the quality of life and bringing major benefits to the development of enterprises.

About recent years software engineering has become a fundamental part in the development of applications, since it is used methodological and systematic way in creating new systems that will assist in the implementation of innovative development practices for this methodologies that will get the different features needed to create the new system, and this will quality, to meet the different needs presented is used.

The contribution to business development by Software Engineering is given by the creation of new systems, which will be responsible for process optimization generating companies to increase their productivity and thus its economy grow.

The problem that occurs is based on determining how the use of the ERP economic influences in the development of enterprises and their importance within the same.

The aim of this paper is to demonstrate the importance of the ERP within enterprises, through the comparative analysis of its features and benefits for application in the optimization of business processes.

As a result: you can show that the application of ERP in enterprises contributes to improving processes within them, which is reflected in the increase in economic activity and its continued business development.

II. MATERIALS AND METHODS

2.1. RESEARCH METHODOLOGY

For the development of this work it was decided by a documentary research, which will observe and reflect on the problems presented, using different types of documentation and interpreting data.

2.2 INFORMATION COLLECTION TECHNIQUES

For information gathering various documents which helped to have a clearer idea of the topic analyzed, this information was obtained from scientific papers, magazines, books and educational materials.

III. REVIEW OF THE LITERATURE

This research requires perform a broad definition of technological innovation and consider trade and financial stages scientific, technical, necessary for the development and successful commercialization of new or improved product, process or social service.

3.1 TECHNOLOGICAL INNOVATION

Technological innovation is imposed on the market, or used on a permanent basis, with the aim to help improve the development of the productive sector of goods and services and to increase the quality of life by means better products supplies to consumers. [1]

Technological innovation along the years are gradually giving, this allows to have an advantage over those companies that refuse to evolve, as this will help to improve the various activities that we have raised.

Implement technological innovation in companies acquire important features, but certain restrictions of production also apply and as its structure is made. [2]

3.2 IMPORTANCE OF SOFTWARE ENGINEERING

Anyone who develops software knows that it is a complex and risky business and that its participants are always looking for new ideas which lead them to develop better software. Fortunately, software engineering is still a young and growing profession who looks innovations and improvements in best practices each year.

Successful software development teams needs to establish a balance between rapid delivery of software systems that work well, the satisfaction of its stakeholders, the treatment of their risks and improve their ways of working. For that, they need a framework of thought effective to close the gap between their current way of working and any new idea that want to adopt. The software industry represents an economic activity of great importance for all countries of the world. [3]

3.3 IMPORTANCE OF SYSTEMS AND BUSINESS SOFTWARE

The application of different types of software for the companies has become the mainstays of them, making them become modern enterprises.

However, being a new tool for process design seeks to exploit its full potential to new technologies, for this you need to have the advice of an expert in the development of computer systems.

To make use of these computer systems the company must update its working methods in order that they allow the development of systems that conform.

Currently, systems and implementation of software in the companies allow increased production of activities in area of technology. When upgrading a system we can grow quickly so that it can fully cover the needs of both users and customers.

One of the most important areas where software systems are applied is the area of logistics, because this is the greatest benefits involved. Applying these systems can save money, time and efficiency is improved.

A system can perform processes previously performed manually, faster and more effectively capturing large amounts of information and giving optimal results, which will be used for decision making.

The endless number of applications for software goes beyond what I imagined, reaching automate several processes at the same time achieving a more efficient result.

3.4 THE IMPACT OF SOFTWARE ENGINNERING IN INDUSTRY

The impact that has had the Software Engineering is positive for some industries but for others not so much, a lot of companies have a software system for their business, others have websites or mobile applications, few really still do not dare to be immersed in the world of technology and systemized. [4]

The use of engineering software industries has it been positive in most of them, since when have software it becomes a fundamental part since they get to optimize key processes within the same, increasingly they are industries and companies that are opting to automate their processes and enter the world of technology.

3.5 AUTOMATION

With the development of information and communication technologies (ICT) area of automation is now a key field for industrial growth. For this reason, it is essential conducting studies to orient prospective technological changes to be made on platforms that support industrial automation. [5]

The constant advancement in technology has become an essential foundation for continued growth industries for this event is very high priority analyzes that advance the automation industries.

Automation has been divided into three types such as: fixed automation, programmable automation and flexible automation.

Among the types of automation we have fixed this automation is considered when the volume of large-scale production, this type of automation is more expensive but is justified because it can process large amounts of product to obtain high performance and improving production rates.

The fixed automation process uses it when there is a high volume production, which justifies the high cost of specialized design when processing the product team, which leads to increased performance and large production rates.

Quite aside from this, another drawback of automation is the life cycle that depends heavily on the effect it will have the product on the market.

The use of programmable automation is performed when the volume of production is considerably low and a variety of production will be obtained. For these cases, the production equipment is designed with the aim that can adapt to the various configurations of the product; this adaptation is done by the software.

For his part flexible automation is more suitable for a range of production means. These flexible systems have characteristics of fixed automation and programmed automation. [6]

A process is a tool not an end. A process is not able to achieve a transformation of a company or organization so lonely.

They are complex processes that involve greater difficulty when establishing and maintaining them.

The structure of a process must be shaped in a way that is easy to use and apply and both difficult to get lost or fail at the time of application should also be able to upgrade to the constant changes that occur in an environment. [7]

3.6 A COMPANY PROFITABILITY

Profitability is a concept that applies to all economic action that means, materials, human and financial mobilize in order to obtain results. [8]

For a company more profitable it is necessary that revenues are greater than expenses, this will achieve in the following ways:

1 Increase of income.

2 Cost reduction.

To achieve these objectives the application reach an ERP software systems ERP (systems enterprise resource planning) helps the different areas of business more efficient in their processes, this will help the company more profitable and productive.

3.7 IMPACT OF TECHNOLOGY IN THE ECONOMY

Technological change is manifested in different fields of economy, business investment in information technology innovations is growing. In turn, the companies recognize the importance of learning of human capital in this process and its development as an integral part of a growing industry. [9]

Advances in technology can be seen in different aspects within the economy, the application of new technology mean increased business investment, these are betting on improved technology access. Moreover they accept the great change that occurs in the growing development of the industry.

3.8 INFORMATION AND KNOWLEDGE AS A FACTOR OF SUCCESS IN BUSINESS ENVIRONMENT

The leader companies are currently those which, within themselves, manage knowledge and improve their learning ability. The knowledge in an organization is much more than simple data and information, is the resource of the individuals and groups to make decisions and therefore one of its main strategic assets. Manage the knowledge which in a company means to detect, organize and disseminate existing knowledge in the organization and place it available to your users. [10]

The information within a company is vital since to handle it a correct and timely way we know how this worked our company and thus correct the different flaws or effectively optimize all processes that this entails.

3.9 TRADITIONAL MANAGEMENT PROCESSES

Process Management is how to manage the entire organization based on processes and perceive the organization as an interrelated system. Currently, in most organizations where applied coexists processes approach to functional administration, "owners" are assigned to processes and international management generates value for the customer is established and that, therefore, seeks satisfaction. [11]

Management processes enables more agile development of different areas that are intrusive, thereby improving their performance, quality and adaptation to the environment.

3.9.1 ADVANTAGES OF TRADITIONAL MANAGEMENT PROCESSES

Process management is about managing resources belonging to an organization, with the idea that this is a unit containing the various features thereof, which involved interrelate to obtain a final result.

This definition is said that there are no divisions between sectors, but rather the areas are connected. It leads to the realization of interdepartmental meetings to make a decision making.

Process management is not dedicated to large enterprises, but also to any organization that considers fundamental values efficiency, customer satisfaction and the proper management of their resources.

Applying process management for performing the acquisition of some input or service, which allows to know the commitments assumed and the respective maturities, so that the company will not have any knowledge of the obligation to have the bill in hand, but rather know this before, enabling you to manage and anticipate their finances, which will optimize the flow of money.

3.10 WHAT IS AN ENTERPRISE RESOURCE PLANNING (ERP)?

"The ERP is an integrated business management system that is designed to model and automate most processes in the company (area of finance, commercial, logistics, production, etc.). Its mission is to facilitate the planning of all company resources." [12]

What stands out is that ERP can sort and edit the company information in one place, so any event can be seen immediately, enabling decision making quickly and safely, which shortens production cycles.

3.10.1 HOW TO HELP A ERP CORPORATE PROFITABILITY?

Today, the business world is highly competitive; the global environment in which companies develop has caused that only the most efficient achieve success. Despite being a good business, many organizations are not able to take advantage of the environment and it is common for the mishandling of information leads them to achieve significant losses in your organization. [13]

Companies can use erroneously available resources causing delays in activities, this results in not being able to exploit its full potential, resulting in low profitability which would cause that may not develop efficiently in the management of resources generated.

A possible solution for better control of operations in a company is implementing an ERP system, defined by Deloitte and Touche, as a system of business software that enables companies to automate and integrate most of their

processes, share common data and practices across the entire enterprise, produce and access information in real time. ERP is a software architecture that facilitates the flow of information between the functions of manufacturing, logistics, finance and human resources of a company. [14]

This system unifies all processes that form within companies, as a result, may help increase the productivity of the company, as this system connects people with the information they need.

3.10.2 CHARACTERISTICS

Among the main features we have:

• Proper decision making: Since you can visualize correctly decision-making. [15]

• Better process control: Prevents losses and reduces costs by being more efficient.

• Automating tasks: avoid errors and increases efficiency in high-value activities.

• Increased competitiveness: reduces costs to increase profit margins.

• Improved innovation capabilities IT infrastructure.

Standardize and streamline manufacturing processes: standardize these processes and using a single integrated computer system can save time, increase productivity and reduce main account. [12]

The use of ERP to optimize costs and make processes more efficient, thus improving the services that are offered. We see a competitive advantage that is reflected in more production and sales resulting in higher profitability.

3.10.3 DISADVANTAGES OF ERP

The implementation of an ERP also has some disadvantages:

• They are very expensive.

• Requires changes in the company and processes for installation.

• There are few experts in ERP.

Before implementing an ERP, it is important to consider the benefits you want for your organization and based on that the best solution on the market.

IV. RESULTS

4.1 CHARACTERISTICS OF PROCESS MANAGEMENT

Table 1 Characteristics of ERP management front traditional processes.

Dimension	Características	ERP	Traditional Process Management
Operational	**Reducción de costos.**	X	X
	Reducción de tiempo de ciclo.	X	
	Mejoras en la productividad.	X	X
	Mejora en la calidad.	X	X
	Mejora del servicio del cliente.	X	X
Management	**Mejora en la gestión de recursos.**	X	X
	Mejora en la toma de decisiones	X	X
	Mejoras en el control de rendimiento	X	X
Logistics	**Support business growth.**	X	X
	Support partnerships between companies.	X	X
	Making new investments.	X	X
	Construction of innovations.	X	
	Construction of linkages and external relations.	X	X
IT Infrastructure	**Construction of business flexibility.**	X	
	Reducing information technology costs.	X	
	Increased capacity of the IT infrastructure.	X	
Organization	**Changes in work patterns.**	X	
	Facilitate organizational learning.	X	X
	Enriching of the job.	X	X
	Constructing a shared vision.	X	X

Taken from: Authors

Analysis: Between the characteristics of different process management techniques can be seen that the ERP offer improvements in the technological part plus they become faster than traditional management processes.

4.2 BENEFITS OF PROCESS MANAGEMENT

Table 2. Benefits between traditional management processes and ERP

BENEFITS	TYPE OF RESOURCE PLANNING	
	ERP	Traditional management processes.
Technological innovation.	X	
Optimization of processes.	X	X
Logistic development.	X	X
Costs reduction.	X	X
Improving decision making.	X	X
Improving efficiency.	X	X
Reduction times adaptability for process control.	X	
Capacity for large volumes of work.	X	

Taken from: Authors

Analysis: Technology innovation, reducing times adaptability and capacity for large volumes of work are the main points in favor of the ERP, while traditional management despite having great benefits is overshadowed by the ERP.

The application of ERP in business management entails great benefits including improved control performance and efficiency and reducing costs, which give an economic point of view translates to a company more profitable which will be able to constantly developed to be more competitive in the market.

V. DISCUSSION

In the past the development of enterprises was forming of way hindered by certain factors that prevented exploiting the full potential of a company. The technology boom and the emergence of new techniques to process management, companies have been part of a more sustainable and sustainable global development.

The software application and consistent process optimization will allow a company or industry to improve gradually, since improving processes this increases their profitability and can be introduced in a more competitive market.

Should be considered for this change of place applying different methodologies for management and automation of processes, such changes should be governed by certain rules, which help to guide the results accurately and successful.

The application of these tools will allow an evolution of processes, which results in better management and improved productivity.

VI. CONCLUSIONS

Choose an appropriate ERP system for process management is the main factor of success grows a business couple.

The use of the ERP is a currently adopted practice, since it allows simplify and automate processes which benefits it is obtained in both time and in the quality of the work.

Information technologies allow businesses to constantly change the way they perform their processes.

The creation of new software enables gaining competitive advantage as expand and coordinate activities, also create new ways of communication among members of companies to expedite the transmission of information and coordination of processes.

Apply the ERP can create strategies for entering a very competitive market and increase the advantages of our company or reduce competitors.

The use of information technology and ERP process automation, makes a company become more profitable as a result its economy will increase and allow business development, achieving the goals outlined at the time of software implementation.

REFERENCES

[1] Martinez J, "La Innovación Tecnológica en las Sociedades Cooperativas y otras Organizaciones de Participación," Revista de Estudios Cooperativos, no. 78, pp. 9-25, 2002.

[2] Alberto Medina León, Relevancia de la Gestión por Procesos en la Planificación Estratégica y la Mejora Continua. Cuba, Cuba, 2004.

[3] Esther Pereira and Johana Quintero, "INNOVACIÓN TECNOLÓGICA EN EL DESARROLLO DE SOFTWARE DE LAS EMPRESAS MIXTAS DEL SECTOR PETROLERO VENEZOLANO," Télématique, vol. 14, no. 2, p. 5, Mayo 2015.

[4] Ivar Jacobson, Paul MacMahon, Ian Spence, and Lidman Svante, "La Esencia de la Ingenieria de Software: El Núcleo de Semat," Communication of the ACM, vol. 55, no. 12, pp. 42-49, Diciembre 2012.

[5] Blogkijho technologies. (2015, Abril) kijhotechnologies.com. [Online].

http://www.kijhotechnologies.com/el-impacto-de-la-ingenieria-de-software-en-la-industria/

[6] Olga Lucia, "Agentes de Software: Tegnologías, Herramientas y Aplicaciones," Revista Cientifica Guillermo de Okham, vol. III, no. 1, p. 6, Junio 2005.

[7] Juan Pedro Sánchez Ballesta, Análisis de Rentabilidad de la empresa., 2002.

[8] Oswaldo Teran, Flor Narciso, Francisco Hidrobo, and Johanna Álvarez, "Un Marco Metodológico Para el Desarrollo de Aplicaciones para Automatización Industrial," Facultad de Ingenieria U.C.V., vol. 24, no. 1, pp. 57-69, Febrero 2009.

[9] Yuniet Rojas, Organización de la información: un factor determinante en la gestión empresarial. La Habana , Cuba, 2004.

[10] Fernando Madrigal Hernández, ERP: Questions, Beneficios e impactos en las Compañías., 2006.

[11] R. P. Ward, M. E. Fayad, and M. Laitinen, "Software Process Improvement in the Small," Communications of the ACM, vol. 44, no. 4, pp. 105-107, Abril 2001.

[12] Santiago Lazo, "Impacto del Enterprise Resourse Planning (ERP) en las Empresas," Universidad Interamericana de Puerto Rico, Recinto de Ponce, Proyecto 2010.

[13] UNEFISTAS, Influencia de la tecnologia en la economia. Madrid, España, 2011.

[14] Liu, Baolin, Zhongning Wang, and Zhixing Jin, "The effects of punctuactions in Chinese sentence comprehension: An ERP study," Journal of Neurolinguistics, vol. XXIII, no. 1, pp. 66-80, Enero 2009.

[15] Javier Ordax, "Automatización de Procesos Industriales," Universidad Pontificia Comillas, Madrid, Proyecto de Carrera 2005.