Students Scientific Conference

The audit of ERP *(Enterprise Resource Planning)* systems with the help of SYB *(Start Your Business)* and SAP *(Systems, Applications and Products in Data Processing)*

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Content

1. Introduction

„Any sufficiently advanced technology is indistinguishable from magic."

Arthur C. Clarke

Our eras dependency towards machines is unquestionable. The once room sized computers turned not only into pocket-sized, but microscopic ones. This pace of modernization spread onto the corporate field and remodeled leadership and economic policy.

The speed of information was always cardinal.

The economic recovery of the mid 1940's brought new leading concepts, thus bringing along the need for faster information processing. The automated process took the place of the initial human work and high requirement of work hours. Compared to modern devices, these were slow, but still gave notable leverage.

These machines brought a new revolution. The revolution of information and automatisation. Since Mark I humanity craved, worked hard, designed and created faster and faster machines. This new discipline altered the core of the social and industrial sphere. The punctuality and reaction-time of machines grew exponentially, while they developed from basic mathematical tasks to artificial intelligence. At this rate, computers can basically assist in any field of life. This causes the constantly growing addiction in people, especially in younger generations, where the youth cannot imagine their lives without technology.

One capital, also technology-dependent sphere is business. Its almost indispensable parts are leadership supporting information systems. These systems give a significant leverage, have great speed in reaction, give perspicuity, methodized information storage and many more functions. These functions became crucial for leadership, for controlling, monitoring, strategic planning and modelling became easier.

My papers main goal is the presentation of ERP systems in a way that it can be clear for those, who are not really aware of this field. In my opinion it is cardinal for latter or now graduating students to have a grasp of them, because they are going to have to use them in a form in their future workplaces and endeavours. Furthermore the introduction and review of these systems with the help of SAP and the Hungarian SYB system.

My other goal was to present and evaluate my research of the need and usage of ERP systems amidst the mid and small corporations of Békés county, Hungary.

2. Enterprise Resource Planning (ERP) systems

The ERP systems, or Enterprise Resource Planning systems are modulated softwares which provide standard functions with which different sections can be coordinated, systemized, support decision-making with their assays and also make companies' work more fluent and sharp.

In other words, ERP can be recognized as an industry term for the broad set of activities that helps a business manage the important parts of its business. The information made available through an ERP system provides visibility for key performance indicators (KPIs) required for meeting corporate objectives. ERP software applications can be used to manage product planning, parts purchasing, inventories, interacting with suppliers, providing customer service, and tracking orders. ERP can also include application modules for the finance and human resources aspects of a business. Typically, an ERP system uses or is integrated with a relational database system.

2.1.The evolution of ERP systems

For a greater understanding I would like to briefly recap the history of these systems. The forefathers of ERP systems were the MRP I systems. MRP was short for Material Requirements Planning, but later in the years was renamed to Manufacturing Resource Planning. These systems were developed by IBM in the 60's. Primarly they were developed as the technology for material consumption planning, warehouse management. The technology is founded on product requirement and implements detailed schedulling considering costumer and manufactural orders though specified product structure.

In MRP II there was a possibility for the monitoring and estimation of needs, service of customers, receival of orders, preparal of fabrication schedules and the calculation of requirements of capacity. Morover, it integrated outputs of part-systems with economic reports.

By the 1990's new needs were born. The calculation of fix passing time was requisite, the systems did not have endless capacity and there was a demand of CAD/CAM functions. [1] The fill of these gaps brought along the birth of ERP systems. The main criterion of these softwares is that corporational data has to be inputted only in one place, where all additional information is available to all the sections (even geographically remote locations) and can be drawn forth from databases.

[1]Computer-aided manufacturing (CAM) is the use of computer software to control machine tools and related machinery in the manufacturing of workpieces. Computer-aided design (CAD), also known as computer-aided design and drafting, is the use of computer technology for the process of design and design-documentation.

Firms which installed ERPs also installed OAS systems [2] into their corporation technology. This trend was popular between companies and nowadays it became default. Some OAS features are integrated by ERPs. Their new generation, the ERP II systems are able to integrate external procedures as well. The automatization of business has needs. Flexible, co-operating assimilation elements and reticulated business objects are a must.

2.2.Characteristics of ERP systems

„ We are talking about a system, which is capable of converting internal and external sources into information, is capable of communicating, ergo is a mediator for functional decision points, where potent, time-limited and responsible judgements have to be made for planning, monitoring and managing purposes." (Lucey, T., 2004 –own translation)

The ERP, as a system is a mass of coherent, interacting data and entities. As an information system is a part of a company, which generates, store and provides their usage for the claimant personnel, systems and functions. As an informatical system, besides the above mentioned, it has software and infrastructural components. As an integrated enterprise resource planning system, during the integration and contraction, it overcomes an ES system [3] cramps the organiztional units and TPS functions [4] into a sole database using program frame, of which's usage the organization different, modularly diversificated units can divide the information and can communicate more effectively.

The softwares developed for various sizes and needs differ by companies' commissions. The developement took years, and with the organizational activities and extensive controll they could not keep pase. With the goal of making up arrears of work standardized softwares are created.

The standardized softwares were ameliorated in virtue of former experience, most of the time occurent needs and modules. These varied by systems and also by the needs of organizations. Latter a trend of company specializing can be recognized.

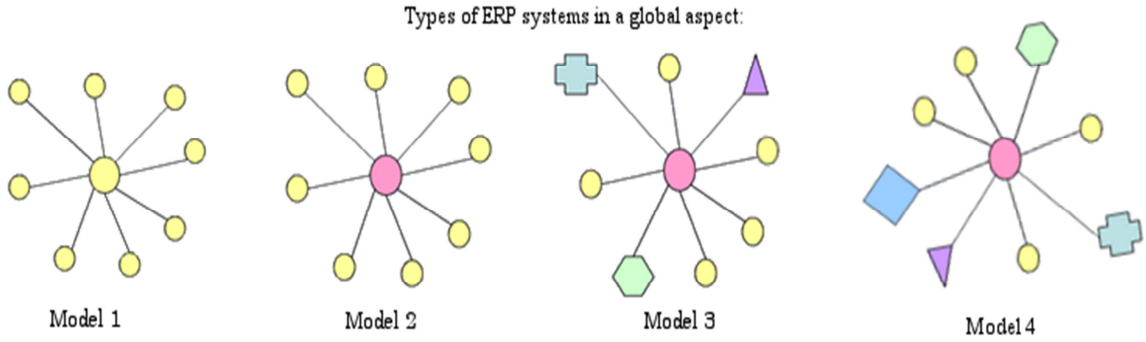
Some businesses' (especially larger ones') daily run would be compromised in the lack of these systems.

2.3. Types of ERPs in a global aspect

The ERP systems have a global aspect, which is utilized by multinational enterprises. The communication between these systems can be achieved with 4 models.

[2] OAS systems are short for Office Automation Systems, which basicly are the use of technology to help people do their jobs better and faster, as in computers, softwares and so on. (I.E.: Microsoft Office)
[3] ES systems are short for Expert Systems, which requirs specialists' work. (I.E.: diagnostical systems)
[4] TPS functions are Transaction Processing System functions.

According to the first model, they use the same ERPs at the headquarters and all of subsidiaris. In the second model the subsidiaries have a uniformized system with which they communicate with the central system, in the third model, the different systems of subsidiaries communicate with the central system and in the last one the central system communicates with the subsidiaries' system modules through intranet.(Szabó, Gy.; Bagó, P., 2011)



2.4. ERP systems' advantages and disadvantages

In the absence of an ERP system a larger maufacturer may find itself with many software applications that cannot communicate or have an effective interface which connects one and other. This communicating problem may lead to many hours of work.

Main advantages of ERP systems are:

- real time information
- automizes fluent perspicuant and managable business
- greater organizational proficiency
- better data and information quality
- versatile evaluation and measurement of output
- better realization, indication of business opportunities
- better prepared managing decisions
- integrated organization knowledge
- and the mentioned daily function's optimalization.

Disadvantages:

Problems with ERPs are mainly due to inadequate investment in ongoing training for the involved personnel, as well as a lack of corporate policy protecting the integrity of data in these systems and the ways in which it is used. Few of these disadvantages are:

- custumization of the software is limited
- re-engineering of business provcecces to fit the industrial standard prescribed by the ERP system may lead to a loss of competitive advantage
- the software can be very expensive
- ERPs are often seen as too rigid and difficult to adapt to the specific workflow and business process of some organizations
- larger companies may have multiple departments with separate, independent resources and consolidation into a single enterprise may yield limited benefits.

2.5. ERPs' goals

Generally ERP systems' goals summerized by mentioned points are:

- transaction maintenance
- the maintenance of different functional modules' and organization process' data
- uniformed organizational database
- satiating information need
- optimalization.

Therefore the goal of ERP systems is to integrate the company's functioning and informational processes, ideally integrate everything into a great system.

2.6. ERP systems in Hungary

Hungarian specilists realized at the late 70's that informational systems provide a great competitive advantages. However, they had to wait untill the early 90's for the installment of these systems, untill that only a handfull of them used commercially available softwares.

First of all only by this time the technical conditions for these systems now became available. Globalization, the birth of market economy, the hasty evolving technology, organizations' consumer-orientation and the market race (which was not accessible during the Soviet Union) was cardinal in the inauguration of these softwares. On the second hand, the foreign products which were flowing into Hungarian market were trying to fold every missing inch, thusly the standard, organization optionalized systems appeared in Hungary.

Very few recognized the importance of ERP information technoly in competitive strategies and also very few could implement their own business innovations. By the end of 2000's have only these systems appeared at large corporations.
Curiously, the tendency of their usage grew in very small paces. Today, midst mid- and large corporations it is almost unconceivable to work without them.
Main systems used in Hungary:

- SAP
- Oracle Applications
- Navision
- Movex
- Libra4 GA
- Baan IV
- MFG/PRO
- J. D. Edwards
- Scala
- Infosys

3. Systems, Applications and Products in Data Processing (SAP)

3.1. Developement of SAP:

The SAP was developed in 1972 in Germany. It's original name is „Systemanalyse und Programmentwicklung" which later became „Systeme Andwendungen und Produkte in der Datenverarbeitung". In English „Systems, Applications and Products in Data Processing".
Originaly a handful of resignated IBM programmers wrote it. Their first product was the R/1 named system, which was innovated at the end of the decade to R/2.
The R/2 was one of the ERPs' first generation, which gave companies a software with integrated options and real-time processes. Besides it's terminal system, their data-base structure resembles the now used R/3.
The R/3 systems are the second generation of ERP softwares, which constituted the in-business processes in to a client-server architecture. This system could be particionated, had a separate server for database and had a graphic interface.

Today, SAP varies on a large scale, can be specialized for small-, mid- and large corporations and differ for their portfolios as well.

3.2. SAP and Procter & Gamble:

Procter & Gamble uses SAP in all of it's subsidiaries since 2008, thus does the Hungarian subsidiary as well. With this step it counts as a first model of ERP systems. Here belongs all corporations which use one ERP system at all of their divisions.

The SAP has differing built-in modules, which have coresponding programs to coresponding fields. These modules also contain other modules, where usage options can be found on a very wide scale.

The usage of these modules have a base of authorization. The users' authorisation of the percentage of usage varies on their apportion. The authorization has 4 steps.

These 4 steps can be found in the training of users. The first scale consists of a theoretical training, and also provides the component search and operation. The second is a more functional scale, in which users can accomplish planned maintanance. The third scale is the controller scale, where the user has a quite wide range of authorized usage and the fourth is the manager/leader scale combined with economic features.

4. The ERP aspects of the Hungarian iPMS Consulting Kft.

Developement of the softwares:

At the beginning the firm worked with e-business interfaces, webpages, but the need of a software emerged, which was capable of easing the stock management, disposal and supplyment. With the help of local companies and five years of developement the IPMS 2.0 and the newly developed SYB was born.

During programming they had not founded on existing systems motors, even the interface is programmed, they did not use drag and drop options. Similar to other ERP systems' developement they created the software based on standard needs and with the elimination of errors they precised the softwares.

5. Start Your Bussines (SYB)

The installation of SYB has many phases. Firstly the agreement when the contractor roughs in their needs, secondly the demand scan where the specialists of SYB chart the function of the company, solution enquiry, test phase and after elimination all problems, the software's launch.

The program's interface is modulated, it is divided by business function sections. These modules can be easily found, are user friendly, but can make sophisticated operations. There are many filter choices on the interface, one does not have the need to type in commands.
The search filters' results are colour-coded, after the occurence of different parameters the software shows information in either red or green. Another feature is a built-in graph and chart generator, which also makes evaluation effortless. It should be noted, that the training time is equal with the software's integration into a company, namely about 1 week.

6. The comparison of SAP and SYB

The comparison of SAP and SYB is a tad bit complex task. during the introduction of SAP I used a global sized firm as base, while with SYB I used an interface specialized for small and midcorporations.
Both programs pursue the basic ERP characteristics. Thanks to their online accessibility, they do not require space, one or more large servers protect the infomation integrity.
Both tackle with real-time information with several sorts of filt options. These filtrations are significant for reports, since business process managing is more perspicuous and smooth.
One of the best examples for the interpretation of data required for decision making is the SYB's built-in graph generator.
The training of staff is similar as well, but the SAP, being a software specified for a large corporation, is more complex, thus needs a more thorough education. The interface, besides, that SAP at Procter & Gamble is in English is more sophisticated, has more built-in functions, which's paths have to be known. The SYB's functions, in contrast, are easier to apprehend, easier to look for even for a layman.
All in all, the SAP is not a sound system since decades for vain, which's complexity can help and controll a global company's process free from care, and by the same token, the iPMS Consulting Kft.'s continuous developement and innovation based attitude lets me to deduce a long and prosperous future.

7. The research of the necessity of ERP systems at Békés county's SMEs

One of the goals of my research was the audit of the cognition and usage of ERP systems amidts Békés county's mid- and small corporations. My other goal was the survey of the reasons why the companies who know ERPs do not use them and the assessment of the necessity of them.

Hypothesis:

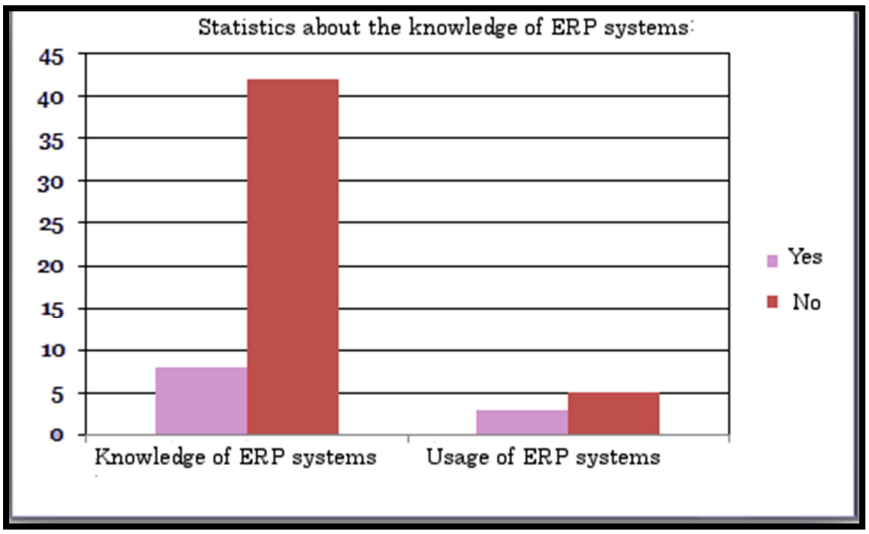
One of my main hypothesises was that Békés county's mid- and small corporations do not or just strayly use ERP systems. My other hypothesis was, that the reason of not installing these system is mainly financial.

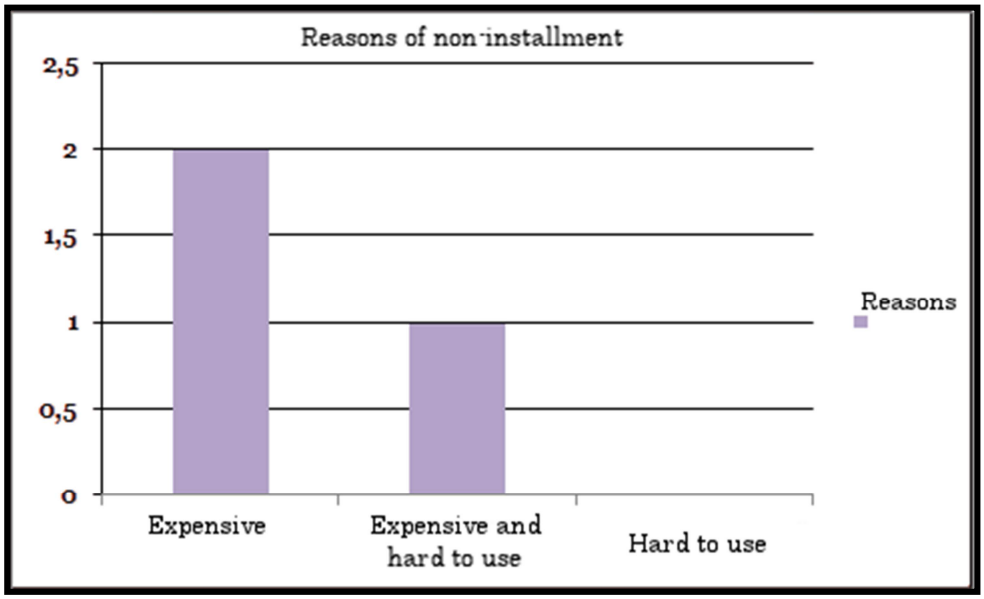
My applied research form was questionnaire survey. The questionnairing was accomplished in Békés county's 3 cities, Sarkad, Gyula and Békéscsaba. My choices were made because of their different characteristics. Sarkad for it's small town qualities, Gyula for a middle sized town which's income comes mostly from turism and Békéscsaba because of it's large size and shire-town aspect.

During the research I visited 50 organizations of which 18 were mid corporation, the others small ones. I asked 8 brief questions which, in my opinion satiate the needed information and did not rob too much time from the organizations' contact.

My first question applied to the companies' size. The second was about data processing, asking about it's manual or informatical form. 32 do it manually, and as the answer to my third question, 22 of these say that it is a time-killer method. In the fourth question I wanted to research which method requires more attention. 5 said both, 18 said the manual. The fifth question was to the informatical data-processors, regarding the required knowledge for the utility of the softwares. 16 needed qualification. The sixth and seventh question was about the knowledge and usage of ERPs, 8 knew them and only 5 use these softwares. My last question was in rapport with the causes of the non-usage. The given answers acted upon my hypothesis. 2 said because of the lack of financial background, one answered the financials and because their utility is hard.

Results:





Resource: own research

My hypothesises thus were sound. According to my representative sample, only 10% of the mid- and small corporations utilize ERP systems, and 16% of the asked companies know them. The ones who have knowledge about ERPs, but do not employ them give the reasons of financials, this is the 66,67% of the answerers and the remnant 33,33% says because of financial reasons and the complexity of usage.

8. Summary, conclusions

For my summary I must ask, have ERP systems a future?

The ERP systems, or Enterprise Resource Planning systems are modulated softwares which provide standard functions with which different sections can be coordinated, systemized, support decision-making with their assays and also make companies' work more fluent and sharp.

Their main characteristics are that the standardized basic packages contain those functions that are indispensable for organizational function and can be specified by companies' needs.

The ERP systems have a global aspect, which is utilized by multinational enterprises. The communication between these systems can be achieved with 4 models. According to the first model, they use the same ERPs at the headquarters and all of subsidiaris, in the second model the subsidiaries have a uniformized system with which they communicate with the central system, in the third model, the different systems of subsidiaries communicate with the central system and in the last one the central system communicates with the subsidiaries' system modules.

The ERPs spread in the 90's in Hungary, which caused *„the leading domestic enterprises and economic institues… to eliminate their former systems and switched to integrated enterprise resource planning systems"*. (Dr. Bodnár, P., 2008)

In Hungary the three most popular systems are SAP, Oracle and Navision. There are many domestic developed systems, like the iPMS Consulting Kft.'s IPMS 2.0 or SYB.

With technology's further evolution, business expectations will definately grow. The business field's parttakers have to live up to these expectations, or they cannot keep up with the race. This pace needs a fast enterprise system, which's base is the usage of business intelligence. Hereby ERPs became the indisposable parts of the large enterprises' world.

„ It is perceptible that nowadays paradoxically smaller firms have a bigger need for resiliant informational technology systems than the bigger ones. The latter can cope with the lack of an efficient system, because their size and globalization can compensate the loss. Smaller companies, however haven't got this opportunity, thusly they definitely require solemn… informatical solution and implementation." (Molnár, S., 2004)

Based on my research, mainly midst mid- and small corporations lie unexploited fields that could be mined by domestic ERP developers, broaden their possibilities.

All in all ERP systems *have* a future.

Acknowledgement

Research was supported/subsidized by the TÁMOP 4.2.2/B-10/1-2010-011 „Development of a complex educational assistance/support system for talented students and prospective researchers at the Szent István University" project.

Abstract

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I have to thank the delegates of Procter & Gamble and iPMS Consulting Kft. for the interviews, willingness and helpfulness during my work!

Annexis

Annex 1:

Explanation:	
1. question	ki-small corporations; kö- mid corporations
2. question	p-manual; no record-electronical
3. question	i-yes; no record-no
4. question	p-manual; e-electronical; m-both
5. question	i-yes; no record-no
6. question	i-yes; no record-no
7. question	i-yes; no record-no
8. question	d-expensive; k-hard to use; m-both
	no record-they do not know it

Annex 2:

Questionnaire

1. Size of company:
2. Which form of data processing do you use, manual or informatical?
3. If so, do the manual processing take much time?
4. The electronical or manual activities require more attention?
5. Did you need qualification for the informatical activities
6. Do you know ERP systems? (Enterprise resource planning (ERP) systems integrate internal and external management information across an entire organization, embracing finance/accounting, manufacturing, sales and service, customer relationship management, and automate this activity with an integrated software application.)
7. Do you use ERP systems?
8. If not, why? (Expensive, hard to use, both, not known)

Annex 3:

	1.	2.	3.	4.	5.	6.	7.	8.
1	ki	p	i	m				
2	ki	p	i	m				
3	ki			p	i	i		d
4	ki	p	i					
5	ki	p	i					
6	ki			p	i			
7	ki	p	i					
8	ki	p	i					
9	ki	p	i					
10	ki			p	i	i	i	
11	ki			p	i			
12	kö	p		p				
13	kö			p	i	i	i	
14	ki	p						
15	ki	p	i	p				
16	ki							
17	kö	p						
18	kö				i			
19	ki	p	i					
20	kö			p	i	i	i	
21	ki	p		m				
22	ki	p		m				
23	ki			p	i			
24	ki			p	i			
25	kö	p	i			i		m
26	kö	p		p		i		d
27	ki	p		m				
28	ki	p	i	p				
29	kö				i			
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37	ki	p	i					
38	ki	p	i					
39	kö	p	i			i	i	
40	ki			p				
41	kö			p	i			
42	ki	p	i					
43	kö	p	i					
44	ki	p						
45	ki	p	i					
46	kö	p	i					
47	kö	p	i					
48	kö			p	i	i	i	
49	ki	p						
50	ki	p						