Customer Satisfaction as a Significant Measure of Successful ERP Implementation

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Abstract: The measuring of implemented ERP system's efficiency is in any case multidimensional. Various researchers dedicated a lot of attention trying to find the best way to measure the success or the effectiveness of ERP solution. „Customer satisfaction" as a measure represents the crucial point in creating the model for Measuring the success of implemented ERP systems and therefore it is the subject of this work. In this work we shall see what effect the other measurements will have on the „customer satisfaction", respecting the correlation between particular crucial categories in creating the model of implemented ERP system's success.

Keywords: ERP, informational systems, success measurement, customer satisfaction

Introduction (Introductory remarks)

In order to obtain an adequate answer to the needs of the clients, the corporations need to update their business infrastructure and alter their work ethic. The key of competiveness lies in the ERP systems' infrastructure which is coordinated with the basic business processes and developed to support the delivery of products of high quality and services to clients in an optimal time [15].

ERP system provides an advanced functionality, global orientation and flexible options of expansion which are needed for achieving the maintainable competing advantage on the market, on which the company is running a business and providing the conditions for the company's profitable development [8]. According to the collected and analysed data in one study [19], it can be concluded that the role of ERP system's usage is recognized in many companies, but there are still certain problems regarding the implementation, such as workers' negligence, resistance and indifference.

Organizations from all over the world see the modern ERP systems as a main tool for the improvement of effectiveness, efficiency and competiveness. The business information systems are expensive and can represent one of the biggest financial and human resources' investments. They also very often bring the significant changes of business processes in organization by integrating so-called best practices into management. Today, more and more organisations from all over the world, under the pressure of the changes in the business's environment, integrate the business information systems in their management as a base for the successful management.

The understanding of advantage which brings the ERP system and ability to qualify those advantages become of crucial importance for managers which

have to justify the expenses and operative system's influence on organization [9]. The advantages are not usually realized straight away, and they are not widely accepted during system's start-up but very often many months or years need to pass by so that all changes brought up by the new system can be completely integrated in an organisation [10]. Especially in the times of crisis organisations tend to reduce the budgets and lower the costs in order to avoid the redundancy and sometimes bankruptcy.

Due to the costs, the investment into new business information system or just an update of an existing one is a very difficult decision and a great challenge for any organisation. Investments into technology, as well as other investments, are derived from the careful analysis and evaluations. Organisations want to know if technology investment will pay off in a sense of corporation's future success. Therefore, The Success, or the effectiveness of ERP is a very important subject in the field of IS.

Measuring the implemented ERP's effectiveness is multidimensional. The various researchers have dedicated lots of attention trying to find the best way of measuring the success, or effectiveness of ERP solution [7, 5, 11, 1]. What is exactly meant by success-effectiveness of ERP has never been totally clear, nor could the researchers agree on it. Success-effectiveness is the one of the disputable questions that preoccupies the researchers.

The problem is more complex because The Success, or the effectiveness is a multidimensional concept, which can be evaluated on different levels such as: technical, group, individual, organizational, etc. and by using a large number of necessarily complementing criteria such as: economical, financial, cognitive, etc.

Customer satisfaction as a measure represents a crucial point in creating the model for Measuring the success of implemented ERP systems and therefore it is the subject of this work. In this work, we shall see what an effect the other measures have on the customer satisfaction, that is to say, we shall examine the correlation between some key categories in creating a model of the implemented ERP system's success.

ERP SISTEMS (ENTERPRISE RESOURCE PLANNING)

ERP systems in every realisation represent the software solutions for management support. They consist of many modules which support a large number of different functions such as: marketing, finance and accounting, sales, customer support, supplies, distribution, resource planning, production, maintenance and quality and human resources. The architecture of ERP system provides integrity of modules in a way that it enables the constant and visible exchange of information.

The definitions of ERP system vary in accordance with the context, especially considering the different views of stakeholders. The different stakeholders of the ERP system will, regarding their position in organization, have completely different opinions and experiences with ERP system [16]. Deloitte Consulting defines ERP system in their report published in 1998 as a business software set which enables organization to:

- automatize and integrate the most of their business processes
- share common data and good practice throughout the whole organization and
- create and access information in a real time

APICS defines ERP in the following way: "ERP anticipates and balances the supply and demand. That is a set of tools for anticipation; planning and distribution of resources on the company's level which:

- connects buyers and suppliers in a complete chain of supplying
- applies the approved best practices in the decision making
- coordinates the sales, marketing, operations, logistics, supplies, finance development of products and management of human resources.

Its aims include the high level of customer service, productivity, the costs cuts, inventory trade and it offers the basis for the efficient organization's management.

This is achieved by developing the plans and schedules so that the real resources – manpower,

materials, machines and money – are available on a right scale when needed" [20].

Gable, defines ERP system as a comprehensive software solution – a set that attempts to integrate a complete range of business processes and functions, in order to represent a complete account of business from the unique information-communication architecture [6].

Somehow differently, Roseman defines ERP system as adjustable, standard application software which offers an integrated business solution for the basic processes (e.g. production planning and warehouse management) and main administrative function of organization (e.g. accounting and human resources management) [17].

Al-Mashari and Al-Mudimigh define ERP system as an information-communication infrastructure which enables the flow of information within the organization and communication with the suppliers and other members of a supply chain. Davenport, Harris and Cantrell and Laframboise and Reyes indicate that ERP combines business processes in organization and represents a way of running a business, not only a software set [2, 14]. Kumar and Hillsgersberg define ERP systems as and "upgradable and exchangeable sets of information systems that secure the integration of information of all functional parts within organization" [13].

Marious Alexandrou defines ERP in the following way:

"ERP is an industrial term which describes the wide spectrum of business activities supported by multi-module software's applications. ERP can include the following modules: production planning, supply in interaction with suppliers, stock etc. It also includes modules for finances and human resources [21].

Why implement ERP?

Koch points out 5 main reasons why companies introduce ERP systems [12]:

- Integration of financial information – In companies without ERP system, every business unit has its own report version as well as its own analysis and anticipation of profit, e.g. finances have their own report version on profit according to the statements on income and expenses' account, while the sales department has its own version of reporting according to the trade. In such conditions, it is difficult to understand the entire management of the company. By applying ERP system it is possible to have a unique version of reporting which is not questionable as every business unit uses the same version.
- Integration of information about buyer's orders – ERP system tracks down the buyer's order from the time the order is received to the delivery of the goods and invoice. With the unique information, the company can easily track down the orders, coordinate the production and plan the delivery of goods on the different locations at the same time.
- Standardization and acceleration of production processes – ERP system applies standard methods for automatization of some steps of production processes, which saves time, increases productivity and reduces the main costs.
- Stock reduction – ERP systems provide an easy business processes, which improve order fillings. That leads to the reduction of production material, makes the planning of delivery to the buyers better and delivery from the warehouse which reduces the stock of finished products. For the real improvement of supply chain's process, the software for the supply chain is needed, but also the ERP system can be applied in monitoring and implementation of that process.
- Standardization of information on human resources – In companies with multiple business units, a unique human resources department does not have to exist, but it can be achieved with ERP system. The most ERP systems are designed in a way so that the production can easily use them.

One of the main advantages of ERP system is integration of the previously non-integrated tasks through the usage of the same software. The compa-

ny decides upon introduction of ERP system when it wants to integrate the operational processes and apply the best practice at the same time. However, as it comes to the company's business on the whole and achievement of the competitive advantage on the market, the new technology as well as the software alone is not a key to success.

Kay Roman states 10 main benefits of ERP implementation [22]:
- Improvement of technology
- Efficiency
- Integrity of information
- Reporting
- User-friendly surrounding
- Data access
- User's service
- Functionality

It has been understood that the facts such as: project leader, training, general views, understanding the easy usage, understanding the usage and attitude towards usage, are important for making a decision about usage of ERP system. The results of one study support the concept that the systems and methods considered easy to use and understanding are accepted as more useful by the final user [18].

The Success – the effectiveness of ERP system

By implementing ERP system, organizations can benefit from it, but on the other hand the project alone can be catastrophic for organizations which are failing to manage the process of implementation. Despite the existence of empirical studies in the domain of success – effectiveness of information system, it is still unclear what is exactly meant by the term The Success or effectiveness of informational system, nor the researchers managed to agree on it. Informational system has different stakeholders, such as engineers, management and end users, and they all differently define The Success of informational system. For example, the projects' managers and implementation consultants very often define success in terms of ending a project in time and within a budget. The employers, whose task is to ensure that organization adopts ERP system (integrates ERP system in management of organization) and to continue using it, define The Success as a smooth passage to the sta-

ble management with the new system, intended for achieving the improvement of business such as: stock reduction and achieving the capability for improving the support of decision-making [16]. The optimal success refers to the best results which could be achieved by organization by integrating ERP system into its management, considering the business environment, measured according to the operational and business results in the longer term [16]. From the perspective of the system's end users, the successful system is the one that improves the job performance without additional efforts and unpleasantness.

The efficacy of ERP system (IS) cannot be measured directly, but can be valuated by using many measures relevant to The Success. Since the seventies, many authors developed an approach to assessment of ERP's efficacy. They suggested a variety of variables, indicators and measures, such as: satisfying users, or system's acceptability, users' involvement, users' participation, or users' competence, (palpable, tangible) quality of information, or quality of system, usefulness of IS, the need of IS for a support of specific tasks and many others. Amongst the mentioned measures the most prominent one is the user's satisfaction with the implemented ERP system's solution. The subject of this work is what it represents and what measured influence it.

Customer satisfaction with ERP solution

Customer satisfaction, together with system's usage is the most widely applied measure for the success of IS. The popularity is possibly helped by the existence of widely applied 39-piece instrument developed by the Bailey/Pearson, which supports comparison with other analyses by the fact that data is easy to use if it is expressed by the measuring unit which is comparable with other measures.

The successful 'cooperation' between management and information system can be measured in the terms of customer satisfaction. Several researchers have suggested customer satisfaction as a measure of success for their empirical researchers [4]. These researchers have discovered that the measures which include the customer satisfaction's category are very suitable in the case of specific informational systems. The key question is: whose satisfaction should be

measured here? The subject of manager's satisfaction is dealt by MIS effort, McKinsey and Company in their study of 1968. In 2 empirical studies on system's implementation success from 1981, Ginzberg chose the customer's satisfaction, as well as its dependable variables. In one of those studies, besides customer satisfaction, he also adopts measures which belong to the group "system's usage".

In the following table we can see the research listing on "customer satisfaction" subject:

Table 1. The researches on the customer satisfaction subject

Customer satisfaction analyzed measures or titles of research work	Researcher and year of research
General satisfaction	Alavi and Henderson 1981
Customer satisfaction	Baitey and Pearson 1983
Satisfaction with the user information	Baroudi, Olson and Ives1986
Satisfaction with the user information	Barti and Huff 1985
Customer satisfaction	Bruwe 1984
Top management satisfaction	DeSanctis 1986
Customer satisfaction	Doll and Ahmed 1985
Customer satisfaction	Edmundson and JefFery 1984
General satisfaction	Ginzberg 1981
Satisfaction with software Satisfaction with hardware	Lehman, Van Wetering and Vogel 1986
General satisfaction	Mahmood 1987
User satisfaction	Mahmood and Becker 1985-1986
Satisfaction with a developing project	McKeen 1983
Satisfaction with information, differences between needed and gained information	Olson and Ives 1983
Satisfaction with decisions	Sanders and Courtney 1985
Customer satisfaction	Taylor and Wang 1987

In previous researches, customer satisfaction represented an important measure in the works of De-

Lone-Mclean, [3] as well as in Gable and Co's work [6] and which permeates through all 4 defined perspectives in a model balanced scorecard approaches –BSC: financial, buyer's perspective, perspective of internal processes and perspective of innovations and studies.

Research (methods, techniques and instruments)

The research is conducted in companies in Bosnia and Herzegovina and Serbia. One of the research's aims is to paralelly compare the gained results for companies of different sizes, different categories and business domains, and the respondents are carefully chosen in order to satisfy this need. All questions (definitions) in a questionnaire are given by the Likert's scale from 1 to 5. Questions are chosen in order to satisfy the wider spectrum of measures classified by categories. The majority of questions are taken from the DeLone-McLean's study [3].

In order to prove the set model it was necessary to prove the relations between the set categories. In the same aim, the following analyses are used:
- Regression
- Correlation
- Pearson's test of linear correlation
- The multiple linear regression

The analysis is conducted in software SPSS in which the majority of analysis is processed. Also, along with this tool, Microsoft Excel 2007 has been used.

Presentation of research results

The research has included economic subjects which have implemented ERP systems. Economic organizations of different profiles took place in this research. 80 users of ERP system filled the questionnaire.

The structures of organizations which are the subject of this research are given in the following table:

TABLE 2. STRUCTURE OF RESEARCHED ORGANISATIONS

	Number	Percentage
Public company	7	8.8
production	30	37.5
sales	28	35.0
services	10	12.5
other	5	6.3
Total	80	100.0

When we talk about the size of organisation the results are the following:

TABLE 3. THE SIZE OF ORGANISATION

	Number	Percentage
1. small company	13.8	13.8
2. medium company	35.0	35.0
3. large company	51.3	51.3
Total	100.0	100.0

The respondents come from different service sectors. In the following table and chart we can see the structure of respondents according to their service sectors:

TABLE 4. STRUCTURE OF RESPONDENTS ACCORDING TO THEIR SERVICE SECTORS

	Number of respondents	Percentage
Finances and accounting	19	23.8
IT department	12	15.0
Sales	19	23.8
Buying/purchase	9	11.3
Marketing	6	7.5
Human resources	2	2.5
Production	3	3.8
General director	2	2.5
Other	8	10.0
Total	80	100.0

Also, it is significant when and **how many years ago ERP system has been implemented.** The research has shown the following results:
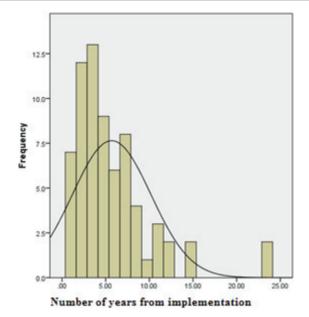

FIGURE 1. NUMBER OF YEARS FROM ERP IMPLEMENTATION

Descriptive statistics for measure "Customer satisfaction"

This category is covered with the following questions from the questionarre and whose statistics is shown in the following table. In the same table we can see medium marks as well as measures of deviations.

TABLE 5. DESCRIPTIVE STATISTICS FOR QUESTIONS THAT CHARACTERIZE THE CATEGORY OF CUSTOMER SATISFACTION

	N	Min.	Max.	Medium value	Std. Deviation
Informational system increases individual's creativity	80	2	5	4.15	0.843
Informational system saves time for individual jobs and tasks	80	3	5	4.31	0.739
Informational system increases productivity of individual	80	2	5	4.41	0.774

TABLE 6. STATISTIC'S DESCRIPTIVE SUMMARY

	N	Min.	Max.	Medium value	Std. Deviation
Average customer (user) satisfaction	80	2.67	5.00	4.2917	0.59623

The review of measuring scale's reliability – Customer satisfaction

One of the measures of scale's reliability which can be marked is its inner approval. That is a degree to which the values that make the measuring scale have the same corresponding attribute (that is to say: to which they are interconnected). The inner approval can be measured in many ways. The most commonly used is Cronbach's coeffic alpha, which can be calculated by SPSS as well.

That is an average correlation between all values on the scale. The amount of that indicator is of course between 0 and 1, by which the larger number (higher/larger correlation) shows bigger reliability.

Depending on the nature and purpose of the scale, different levels of reliability are demanded, but Nunnaly (1978) does not recommend the reliability which is less than 0,7. Cronbach's coefficient alpha changes depending on the number of values on the scale. For the small number of values on the scale (less than 10), Cronbach's coefficient alpha is sometimes very small. In that case it is better to calculate and state in a report the medium value of correlation between each pair of values.

Optimal medium value/the average value of correlation between couples/pairs values amounts to between 0,2 and 0,4 (according to the recommendation stated in Briggs & Cheek, 1986).

Table 7. Statistics of measuring scale's reliability Customer satisfaction

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.729	0.728	3

Correlation of "customer satisfaction" measure with other measures

The relationship between two or more variables is analysed by regression and correlation. Correlation assumes (includes, implies) analysis of strength and direction of their coherence. Regression implies analysis of shape and direction of correlation and analysis in terms of independent/dependent (predictors/outcome) variables in the aim of prediction. In a regressive model, knowing the values of independent variables enables the prediction of dependent variable's values.

Different authors interpret correlation in different ways. We quote Cohen's interpretation which gives the following guidelines for the size of correlation:
- correlation is small if r is from 0,1 to 0,29
- correlation is medium if r is from 0,3 to 0,49
- correlation is large if r is over 0,5

The abovementioned guidelines are valid regardless whether there is a negative sign in front of r and which only shows a connection/link's direction.

Considering all limits derived from the choice and size of sample and the way the research is undertaken, it can be noted that the results are relevant and enough reliable for conclusion. The questions in a questionnaire are 'closed-limited' with an offered mark on the fifth-level Likert's scale with a preadvanced evaluation criterion.

Surveying the scheme of McLean/DeLone's model [3] we can see that the system's quality, information quality and quality of IT service influence this category. The correlation between these categories has been analysed and it has been attempted to confirm the strength of the connection, or see which category has the strongest influence on intention of system's usage on the basis of the results.

We shall now see the results of correlation between the mentioned items by using the Spearman's rank coefficient and Pearson's test of linear correlation.

Table 8. Influence on customer satisfaction – Pearsono's test

		Average customer satisfaction
Average evaluation of system's quality	Pearson Correlation	0.57*
	Sig. (2-tailed)	0.000
	N	80
Average evaluation of information quality	Pearson Correlation	0.593
	Sig. (2-tailed)	0.000
	N	80
Average evaluation of IT service	Pearson Correlation	0.604
	Sig. (2-tailed)	0.000
	N	80
Average intention of usage	Pearson Correlation	0.606
	Sig. (2-tailed)	0.000
	N	80

The results of Person's test show somehow smaller correlation of "system's quality", "quality of information" and "quality of IT services" with category "customer satisfaction" than with "intention of use", but still has a high correlation according to Cohen. The lowest correlation is realised between "system's quality" and "customer satisfaction", and highest with "intention of use" and "quality of IT services", but the differences in correlation are higher than smaller (rather than smaller). Also, the level of statistical significance (sig) shows the value under 0,01 that is to say that the level of confidence is extremely high. Scatter charts, given below, only show the strong correlation between the categories.
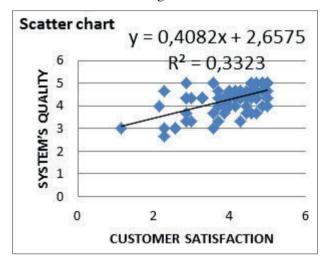

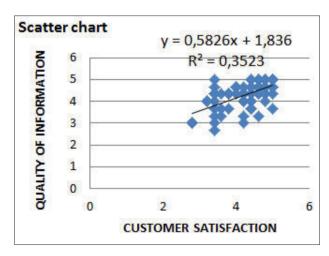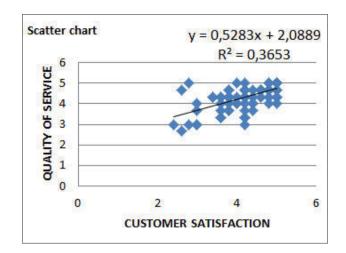**FIGURE 3.** SCATTERING OF IT QUALITY – CUSTOMER SATISFACTION

FIGURE 1. SCATTER CHART OF SYSTEM'S QUALITY – CUSTOMER SATISFACTION
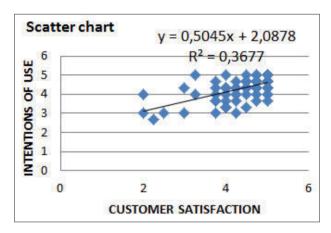

FIGURE 4. SCATTERING OF INTENTIONS OF USE-CUSTOMER SATISFACTION

By further analysis of using the multiple linear regression we want to make sure how well the set of categories can predict the evaluation of customer satisfaction with ERP system, as well as which variable in a set is the best predictor of the certain outcome.

TABLE 9. SUMMARY DANA OF MULTIPLE REGRESSION – CUSTOMER SATISFACTION

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.653[a]	0.427	0.396	0.46332	2.015

a. Predictors: (Constant), Average use intention, Average evaluation of IT service, Average evaluation of quality of information, Average evaluation of quality's system

b. Dependent Variable: Average customer satisfaction

FIGURE 2. SCATTER CHART OF QUALITY OF INFORMATION-CUSTOMER SATISFACTION

The following table shows dependence of "customer satisfaction" category on other measures:

Model	Unstandardized Coefficients		Standardized Coefficients	Sig.	Correlations		
	B	Std. Error	Beta		Zero-order	Partial	Part
(Constant)	1.63	.397		.000			
Average evaluation of system's quality	.018	.127	.025	.890	.576	.016	.012
Average evaluation of quality of information	.192	.163	.196	.242	.593	.135	.103
Average evaluation of IT service	.240	.140	.275	.089	.604	.195	.150
Average intention of use	.178	.146	.214	.226	.606	.140	.107

The indicators of multiple regression show that the category "quality of IT service" has the biggest influence on customer satisfaction category.

On the basis of the previous analysis we can perform an equation of the multiple linear regressions if we can mark the following categories as such:
- average evaluation of system's quality –QSYS
- average evaluation of information quality – QINF
- average evaluation of quality of IT services – QIT
- average evaluation of intention of use – QNAM
- average evaluation of intention of use – QZADOV

then the equation will be:

$$QZADOV = 0.025 * QSYS + 0.196 * QINF + 0.275 * QIT + 0,214*QNAM + 1,63$$

If we look at the value of column Sig of the previous table for the stated independent variables we can conclude that variables (since their value amounts to sig<0.05) give a significant, unique contribution to the prediction of dependent variable.

If we see the results in Beta column, we can see individual contributions to the state of dependent variable "customer satisfaction". In this case independent variable "quality of IT service" has the biggest coefficient, which means that this category has the biggest individual influence on category "customer satisfaction". The category "system's quality" has the smallest contribution. That confirms the column part on the previous table. However, the column part shows the item's participation in the entire (total) determination (R2), or shows how much R2 would be if this independent variable is taken out of the model.

Conclusion

All previously said in this chapter proves and confirms the following:
- Increase of quality of information will have a positive influence on customer satisfaction in the context of ERP system.
- Increase of quality of service will have a positive influence on customer satisfaction in the context of ERP system.
- Increase of system's quality will have a positive influence on customer satisfaction in the context of ERP system
- Higher intention of use will have a positive influence on customer satisfaction in the context of ERP system.

References

[1]   Behrens S., Jamieson, K., Jones, D. and Cranston, M. Predicting System Success using the hnology Acceptance Model: A Case Study. 16th Australasian Conference on Information Systems, Sydney. 2005.

[2]   Davenport, T. H., Harris, J. H., and Cantrell.(2004) Enterprise systems and ongoing process change.

[3]   DeLone W. H., McLean E. R.(2002) Information Systems Success Revisited. Conference Proceedings,35th Hawaii International Conference on System Sciences, Los Alamitos.

[4]   DeLone W. H. , McLean E. (1992) Information Systems Success: The Quest for the Dependent Variable', Information Systems Research, 3 (1): 60-95.

[5]   DeLone W. H., McLean E. R.(2003) The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. Journal of Management Information Systems, 19 (4), pp. 9-30.

[6]   Gable, G.(1998). Large package software: A neglected technology. Journal of Global Information.

[7]   Gable, G., Sedera, D., i Chan (2003), T. Enterprise Systems Success: A Measurement Model', Twenty Fourth International Conference on Information Systems,. Seattle

[8]   Gajic, G (2013). Unapredjenje upravljanja naftno-gasnim sistemima - doktorska disertacija. Novi Sad : s.n.

[9]   Hawkins, B. L., and Barone, C. A. (2003). Assessing information technology: Changing the conceptual framework. In P. A. McClure (Ed.), Organizing and managing information resources on your campus.

[10]   Hawking, P., Stein, A., and Foster, S. (2004). Revisiting ERP systems: Benefit realisation. Proceedings of the 37th Hawaii International Conference on System Sciences, Hawaii.

[11]   Ifinedo P., Nahar N.(2006). Quality, impact and success of ERP systems: a study involving some firms in the Nordic-Baltic region, Journal of Information Technology Impact, Vol. 6 No. 1, pp. 19-46.

[12]   Koch. C. (2007). ABCs of ERP - ERP Research.

[13]   Kumar, K. and Van Hillsgersberg, J. (2000). ERP experiences and evolution. Communications of the.

[14]   Laframboise, K., and Reyes (2005). Gaining competitive advantage from integrating enterprise.

[15]   Lin H.Y., Hsu P.Y., Ting P.H.(2006). ERP Systems Success: An Integration of IS Success Model and Balanced Scorecard, Journal of Research and Practice in Information Technology.

[16]   Markus, M.L and Tanis.(2000) The Enterprise Systems Experience: From adoption to success.

[17]   Rosemann, M.(1999) ERP software characteristics and consequences. In: Proceeding of the 7th European.

[18]   Soto-Acosta Pedro, Ramayah Thurasamy, Popa Simona (2013). Explaining intention to use an enterprise resource planning system:a replication and extension.. s.l. : Tehnički Vjesnik, 1330-3651.

[19]   Šimunović K., Šimunović G., Havrlišan S., Pezer D.,Svalina I. (2013). Uloga ERP sustava u poslovnom procesu i edukaciji. Tehnički Vjesnik, 2013. 1330-3651.

   Internet sources:

[20]   Apics.(2013). http://www.apics.org/. Access(06 15 2013)

[21]   Infolific.com.(2014) [Online] http://infolific.com/technology/definitions/computer-dictionary/erp/. Access(04 15 2014)

[22]   Kay Roman,. http://www.collegiateproect.com/articles/ERP%20Benefits.pdf. Access (10 13, 2012.)