Model of key success factors for Business Intelligence implementation

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Abstract: *New progressive technologies recorded growth in every area. Information-communication technologies facilitate the exchange of information and it facilitates management of everyday activities in enterprises. Specific modules (such as Business Intelligence) facilitate decision-making. Several studies have demonstrated the positive impact of Business Intelligence to decision-making. The first step is to put in place the enterprise. The implementation process is influenced by many factors. This article discusses the issue of key success factors affecting to successful implementation of Business Intelligence. The article describes the key success factors for successful implementation and use of Business Intelligence based on multiple studies. The main objective of this study is to verify the effects and dependence of selected factors and proposes a model of key success factors for successful implementation of Business Intelligence. Key success factors and the proposed model are studied in Slovak enterprises.*

Key words: Business Intelligence, implementation, key success factors, Slovak enterprises.

1. Introduction

In current competitive times, it is necessary to look for ways and solutions to facilitate and simplify the work. In other words, it's important to find effective solutions for the management process. That means to find automated solutions that save time, be more relevant outputs and last but not least, represents a cost savings. Moreover an electronic business environment changes more rapidly under the globalization, even small and medium size companies also change their business (Tuckova, Tucek, 2010). Available software and hardware significantly help in the decision making process in each enterprise and each field. The development of computers is growing high rate as well with it and the development and availability of information systems. New allover ERP solutions represent a new progressive tool in solving everyday management processes. For the needs of the decision-making and reporting are essential superstructure solutions. The complexity of the environment creates for organizations that operate in it opportunities but also threats to which they must respond quickly and flexibly. Response capability organizations improve computer-controlled systems for decision support. Most commonly used information systems (IS) is not able to properly and quickly assess large amounts of data stored in various databases across the enterprise (for example, payroll information, financial data, data relating to customers, suppliers etc.). Therefore it unable to fully satisfy the current information needs of managers. They often fail in an attempt to share information with each other, get information late, inaccurate or even wrong. For this reason, they are not often able to make use of strategically relevant information and make correct and timely decisions. Business Intelligence is a higher level and represents a longer time trend in management decision making at all levels. Despite these available solutions, companies sometimes do not walk with the growth of these progressive technologies.

Recently, the business environment has changed rapidly. There is a problem that the information system cannot follow rapidly to the change in this business environment. Consequently, a certain gap seems to arise in the business strategy and IT (Oba and Yamaguchi, 2014). It is therefore necessary to monitor and analyze the process of implementing these solutions and their subsequent use in enterprises.

The application of Business Intelligence (BI) systems in business practice is associated not only with more advantages and benefits, but on the other hand, it also brings certain barriers, problems and risks. The purpose of the BI systems is to combine different data resources into information about

processes in the company and provide this information in appropriate way and timely to company management (Horakova & Skalska, 2013). During the design process, implementation and use of BI solutions, businesses can run into many problems and complications that will need to be resolved. Not only technology plays a key role, but above factors, such as people, processes, management style and culture of the organization, are also important. These factors often represent a big problem and can disrupt or prevent attempts and efforts of implementing effective BI solutions in organizations.

Every BI project should provide clearly identified effects. Achieving these final effects (expected benefits related to the use of BI), and thus the overall level of success of BI projects into practice, identify success factors. What is the success factor and what is the point? For a more precise definition of content essence of success factors we can use the work of Pour (Pour, 2005; Pour, 2006, Pour and Slansky, 2004) and the success factor define as follows:

Success factor represents the knowledge and application of best approaches and experiences in managing BI that will lead to achieving the objectives of BI, as well as to achieving the desired economic and non-economic effects. Similarly, Novotný et al. (2005) define the essence of the concept of success factor, where by success factor they mean the set of properties or parameters of the solutions, or application of the best approaches and experiences that will lead to achieving defined objectives.

Success factors identified by several authors as Novotný − Pour − Slánský, Atre, Eckerson, Loshin, Howson, Hwang, Turban, Panta, Škanta, Adelman − Schrader and more (Novotny et al., 2005; Atre, 2003; Eckerson, 2003; Loshin, 2003; Howson, 2008; Hvang, 2008; Turban et al., 2008; Panta, 2009; Skanta, 2010;Adelman and Schrader, 2012; Hsing Kuo et al., 2010; Litavcova et al.,2012). Based on the above-mentioned sources it was created baseline model of factors affecting successful implementation and use of BI. The starting point in identifying the key success factors for BI was a study of numerous contributions, publications, independent studies and surveys, as well as our knowledge and experience in this field. In addition, we have consulted and discussed this topic with several experts in the theory and practice of business, who are dealing with this issue. In particular, we have examined common characteristics of organizations that succeed in implementing and using BI, implying the difference between success and failure. We have identified and confirmed some of the most common BI key success factors, which are necessary for successful implementation and use of BI. Based on the results of the examination we have identified seven key success factors of implementation and use of BI in enterprises (Figure 1).

Proper implementation and effective use of BI in the managing companies determines the number of success factors of differing importance and intensity of action. The most significant of these factors are referred to as critical or key success factors of BI. Knowledge targeted monitoring and management of key success factors of BI accelerates the process of implementation of these systems (Krsak, 2013). BI also enables more efficient use of them in support of decision-making processes in the company, which ultimately facilitate the achievement of the expected final effect − benefits.

Figure 1 - Key success factors for the implementation and use of BI in corporate governance (Novotny et al., 2005; Atre, 2003; Eckerson, 2003; Loshin, 2003; Howson, 2008; Hvang, 2008; Turban et al., 2008; Panta, 2009; Skanta, 2010;Adelman and Schrader, 2012; Hsing Kuo et al., 2010; Litavcova et al.,2012)

2. Problem formulation

In recent years, our environments are driven by changes in society, fast growth by science, technology and knowledge development (Hsing Kuo et al., 2010). Implementation of information systems in enterprises is relatively difficult process. Many studies, which are also mentioned in the introductory part of the article, it appears that the success factors can be divided into three groups. They are the following: people, technology and processes. Business Intelligence systems combine operational data with analytical tools to present complex and competitive information to planners and decision makers. The objective is to improve the timeliness and quality of inputs to the decision process. Business Intelligence is used to understand the capabilities available in the firm; the state of the art, trends, and future directions in the markets, the technologies, and the regulatory environment in which the firm competes; and the actions of competitors and the implications of these actions.

Therefore, all three components (people, technology and processes) are in some way dependent on each other. In other words, relevant outcomes and the usefulness of the system have an affect on number of direct factors. It is necessary to analyze these factors and determine the size of the impact (Negash, 2004).

Based on defined research problem: analysis of relationships and connections between defined success factors of BI and overall success in the deployment and use of BI in the management of enterprises in Slovakia.

The problem can also be formulated in the form of central examination questions:

What kind of relationships and connections exist between the defined factors of success and the overall success of BI deployment and use of BI in the management of enterprises in Slovakia?

Baseline model (Figure 1) contains seven key success factors of BI, which were defined in particular in the light of experience and the results of foreign experience.

3. Methodology

Today's Based on the model of key success factors of BI that have been defined the dependent variable and seven independent variables. The dependent variable is the overall success of the implementation and use of Business Intelligence in managing companies in Slovakia, which means the correct implementation and effective use of these systems in supporting decision-making processes in the enterprise. This will achieve the desired effects.

Independent variables are the success factors of BI that can be classified into two main groups:

- Personnel and organizational: strong sponsor, close cooperation, enterprise-wide solution scope, right team of qualified and experienced Business Intelligence workers and open corporate culture
- Technological factors: the quality of the source data, flexible architecture and BI tools

We assume the existence of a positive relationship respectively connection between the independent and dependent variable. Hypotheses (H1 − H7) are defined as follows:

H1: The active involvement of a strong sponsor to the Business Intelligence project is positively related to the overall success of the introduction and use of Business Intelligence in managing companies in Slovakia.

H2: The quality of the source data in the information systems of company positively related to the overall success of the introduction and use of Business Intelligence in managing companies in Slovakia.

H3: Properly chosen, flexible architecture and Business Intelligence tools are positively related to overall success of the introduction and use of Business Intelligence in managing companies in Slovakia.

H4: Implementation and use of Business Intelligence across the enterprise positively related to the overall success of the introduction and use of Business Intelligence in managing companies in Slovakia.

H5: Creating the right team of qualified and experienced Business Intelligence workers is related to positive overall success of the implementation and use of Business Intelligence in managing companies in Slovakia.

H6: Ensuring close cooperation between the sponsor of the Business Intelligence project, technologists and ordinary business users of Business Intelligence positively related to the overall success of Business Intelligence in managing companies in Slovakia.

H7: Open corporate culture promoting decision-making based on facts and concrete positive results of analyses is positively related to the overall success of the implementation and use of Business Intelligence in managing companies in Slovakia.

Through statistical testing of hypotheses H1−H7, expected significant positive correlation between each of the proposed seven success factors and the overall BI success has been gradually established respectively unconfirmed.

Confirmed (unconfirmed) hypotheses happened feedback to the original model of success factors of BI deployment and use − test results of statistical hypotheses verification allowed modification (extension) of the baseline model.

4. Problem solution

In order to clarify was the logical sequence of tackling visualized in Figure 2. By its own solutions to the problem:

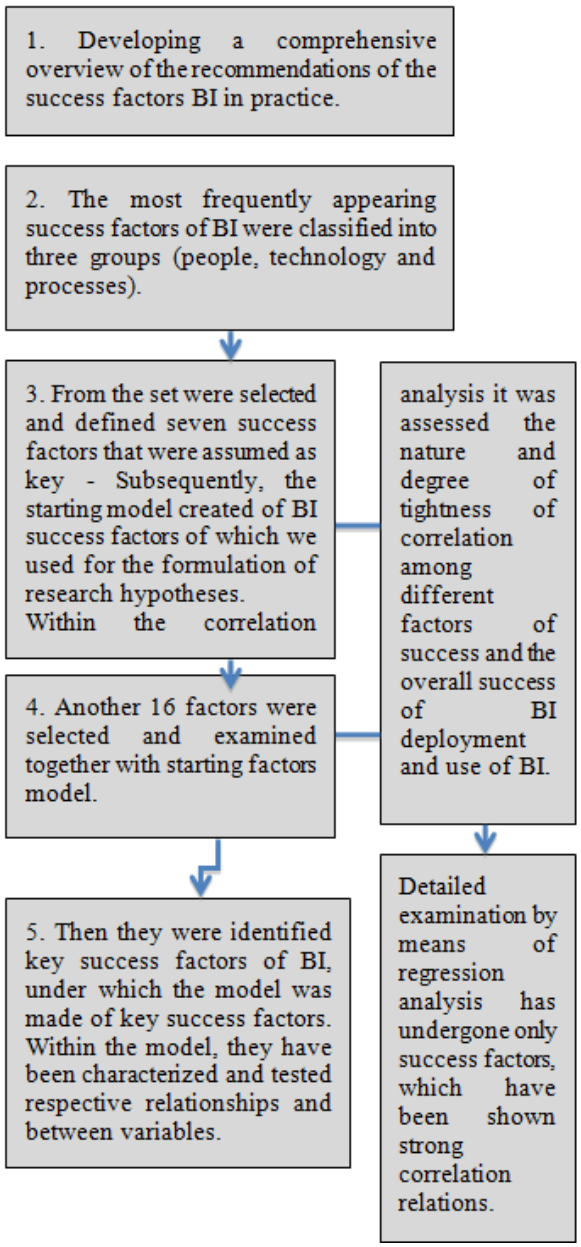

Figure 2 - The logical sequence of its own solutions to the problem
(Source: own processing)

1. Define the most common recommended personal, organizational and technological success factors of BI in practice and remains the starting model predicted the key success factors of BI, which can be considered the most important to ensure the successful implementation and use of BI solutions.

We got the usual and preferred science-based view of several renowned authors in a particular field (Adelman - Schrader, Atre, Boyer, Eckerson, Howson, Loshin, Sabherwal - Becerra-Fernandez, Yeoh - Koronios etc.), according to which the successful BI solution results by a combination of three elements - elements of success, and people, technology, and processes. Based on empirical studies and the results of surveys carried out abroad have been identified several success factors of deployment and use of BI. Defined success factors of BI were then classified into three basic categories - 1) people, 2) processes, and 3) technology.

Analyze the relationship and connection between defined success factors and the overall success of the implementation and use BI. Next, identify the key success factors of BI solutions in the management of enterprises in Slovakia.

Through appropriate statistical methods they were identified and analyzed relationships between all variables starting model, which is visualized in Figure 1. Statistical characteristics of the relationships

between variables initial model was first examined a method of correlation analysis conducted in the form of correlation matrix expressing the degree of correlation dependence, respectively. Association between variables, prepared matrix contained twenty possible correlation relations expressed in the form of correlation coefficients that were calculated for all pairs of variables starting model. Immediately they were made and presented the results of tests of statistical significance correlation coefficients on which they are examined from the starting model for further analysis. Only those success factors of BI, have been confirmed statistically significant association with the achieved a success rate of introduction and use of BI.

2. The most frequently appearing success factors of BI were classified into three groups (people, technology and processes).

Due to the nature of the problem and the objectives of article subsequently tested and surveyed the other success factors of BI. Correlation coefficients were calculated to characterize the strength of the correlation relationship between the overall success of the introduction and use of BI and other BI 16 success factors. New correlation coefficients were identified statistical significance testing. Altogether thus defined and survey surveyed 23 success factors BI - that is seven success factors of the starting model and sixteen other in practice, often emerging factors.

3. Propose a model of key factors of success of introducing and using BI solutions characterize test the relevant relationships and within the newly created model.

4. The above procedure can be the predecessor model of BI that includes further BI success factors that have been identified as key - correlation between the dependence of the conditional factors and the success of the overall success of introducing and using BI shown to be statistically significant.

If the correlation dependence between variables is significant, then it makes sense to look regression line (Litavcova, 2012). A detailed analysis of the links between the variables of the newly created model was subsequently implemented method of regression analysis.

5. The proposed model of success factors BI, which consists of ten key factors was statistically tested in terms of validation and proof of justification and significance, and is a proven combination of the most personal, organizational and technological factors of successful implementation and use of BI in the management of enterprises in Slovakia. Based on the results of its own investigations were subsequently formulate specific recommendations and suggestions for practice with an emphasis on aspects that should be a priority, enterprise managers to focus their attention before and during the duration of the BI project.

5. Research sample

Available set of business subjects that meet the above selection criteria was created through direct addressing software companies − providers of BI solutions in the domestic market. Based on this group of companies it was subsequently randomized defined research sample. Choice of subjects in the survey sample was not limited by other criteria such as industry or occupation of the enterprise, region or company size etc. It can be concluded that the fundamental requirement of ensuring representativeness of the survey sample was complied with.

On cooperation in the implementation of research, we asked several software and consulting companies in the domestic market offer software products and extensive services in the field of latest information technology − including technical consultation, analysis, development, training and certification and so on. We contacted companies that have knowledge and experience in providing BI technologies and support their implementation and process management in Slovakia. The leading providers group of BI solutions include, for example, SAP, IBM - Cognos, Oracle, Microsoft, SAS, NESS, Asseco and many other companies.

In the survey, the questionnaire was completed by 11 small businesses, what is 20.4% of the survey sample, 12 medium-sized companies, what constitutes 22.2% of the survey sample and 31 large enterprises, representing 57.4% of the sample.

The distribution of samples of research in the performed economic activities to the classification used SKNACE is given in Table 1.

Table 1 - Research sample structure – industry areas

Sectors of corporate activities (the subject of economic activity)	Absolute frequency *n*	The relative frequency *%*
Industrial production	18	33,3 %
Electricity, gas, steam and air conditioning supply	2	3,7 %
Civil engineering	1	1,9 %
Wholesale and retail trade	4	7,4 %
Transport and storage	2	3,7 %
Accommodation and food services	4	7,4 %
Information and communication services	8	14,8%
Financial and insurance activities	5	9,3 %
Real estate activities	1	1,9 %
Public administration and defense	1	1,9 %
Education	1	1,9 %
Health care and social assistance	2	3,7 %
Other activities	1	1,9 %
Information not provided	4	7,4 %
Together	*54*	*100 %*

6. Methods for solving the problem

Due to the nature of the problem and the main objective of the article they were selected appropriate statistical methods that can detect and analyze relationships between variables of interest − correlation and regression analysis. The objective of correlation and regression analysis is a description of the statistical properties of the relationship between two variables.

Within inductive statistics were performed statistical hypothesis tests (tests of statistical significance). Statistical hypothesis testing is a process of verifying the correctness or incorrectness hypothesis using the results obtained at random. When testing the statistical hypothesis of the research, that have been observed following, generally known steps (www.rimarcik.com).

1. Formulation of the null hypothesis (H0), which expresses the independence of variables, i.e. absence of a relationship between variables.

2. The formulation of the alternative hypothesis (HA), which shows statistical dependence variables, namely the existence of a statistically significant relationship between variables.

3. Determining the level of significance (α).

The significance level α is the probability of error of the first kind, which we do, if we reject the null hypothesis (H0) that actually pays. Was determined significance level α = 0.05 (5%).

4. Calculation of test statistics and probability.

The test statistic was calculated from the sample, which has provided the veracity of the null hypothesis (H0) the probability distribution. P-value is the lowest level of significance, leading to the rejection of the null hypothesis (H0) - the lower, the more we are convinced that the null hypothesis (H0) is not true and should be rejected.

5. The decision - reject or not to reject the hypothesis.

It formulated a conclusion statistical test. If $p < \alpha$, i.e. if $p < 0,05$ null hypothesis (H0) was against the relevant alternative hypothesis (HA) rejected, which means between variables exists relationship, if $p \geq \alpha$, that is, if $p \geq 0,05$ zero hypothesis (H0) has been rejected. We did not have sufficient evidence to have argued that there is a relationship between variables. There have been used three degrees values of significance p:

*** $p < 0.001$ - very highly statistically significant relationship

** $p < 0.01$ - statistically highly significant relationship

* $p < 0.05$ - significant relationship

It is important to say that the examined were considered to key factors. It means that other key factors which influence were not so clear, not only has the starting factored model.

7. Results and discussion

Correlation analysis was carried out in the form of correlation matrix, prepared for all variables of the parent model. To express the degree of correlation dependence between variables in the correlation matrix was used so-called The Pearson correlation coefficient pairwise. The correlation matrix contains 28 possible correlation relationships of the 28 correlation coefficients for all pairs of variables of interest.

Using a two-sided t - test within T - distribution of the test statistic tests were performed statistical significance correlation coefficients. The results are presented in Table 2. Table contains a correlation matrix with the calculated value of the correlation coefficient r of the pairs of variables significance p information on the number of values n, of which the calculation carried out.

As we expected, all seven independent variables correlated with the dependent variable (TPD) positive, with the highest degree of correlation with the dependent variable, depending achieve independent variable (atomizing) with a value of $p < 0.001$, which represents a highly statistically highly significant relationship. Statistically highly significant correlation variable (TPD) was observed by the variables (StSp), (QSD), (RTW) and (OCC).

Table - 2 The results of tests of statistical significance correlation coefficients of variables starting model

The variable		1.	2.	3.	4.
1. TPD		1			
2. StSp	r	**0,415**	1		
	p	**0,002**			
3. QSD	r	**0,389**	0,393	1	
	p	**0,004**	0,003		
4. FlexArch	r	**0,174**	0,386	0,297	1
	p	**0,208**	0,004	0,029	
5. EWSS	r	**0,463**	0,305	0,475	0,188
	p	**0,000**	0,025	0,000	0,172
6. RTW	r	**0,378**	0,493	0,394	0,295
	p	**0,005**	0,000	0,003	0,031
7. CCop	r	**0,151**	0,561	0,398	0,334
	p	**0,274**	0,000	0,003	0,013
8. OCC	r	**0,388**	0,604	0,493	0,287
	p	**0,004**	0,000	0,000	0,035

The variable		5.	6.	7.	8.
1. TPD	r				
	p				
2. StSp	r				
	p				
3. QSD	r				
	p				
4. FlexArch	r				
	p				
5. EWSS	r	1			
	p				
6. RTW	r	0,456	1		
	p	0,001			
7. CCop	r	0,253	0,406	1	
	p	0,065	0,002		
8. OCC	r	0,417	0,532	0,340	1
	p	0,002	0,000	0,012	

***p< 0,001, **p< 0,01, *p< 0,05; n = 54
(Source: the output of SPSS Statistics)

(TPD) − total percentage deployment and use of BI in the management of companies in Slovakia
(StSp) − existence and active involvement of a strong sponsor to BI project
(QSD) − the quality of the source data
(FlexArch) − flexible architecture and BI tools
(EWSS) − enterprise-wide solution scope
(RTW) − right team of qualified and experienced Business Intelligence workers
(CCop) − close cooperation
(OCC) − open corporate culture

The hypotheses were verified on the basis of the results of tests of statistical significance correlation coefficients presented in Table 2. In a key objective of the research was certified seven hypotheses (H1 − H7):

H1: The active involvement of a strong sponsor to the Business Intelligence project positively related to the overall success of the introduction and use of Business Intelligence in managing companies in Slovakia.

The hypothesis H1 assumes that active involvement of powerful sponsor increases the success rate of introduction and use of BI in corporate governance.

The results of correlation analysis have confirmed the hypothesis H1. For variable (StSp) was calculated correlation coefficient $r = + 0.415$. Using the statistical significance test of the correlation coefficient using two-sided t - test, we have demonstrated a highly statistically significant relationship with the corresponding value of $p = 0.002$, where we note that $p < \alpha$, that is, $p < 0.05$.

H2: The quality of the source data in the information systems of company positively related to the overall success of the introduction and use of Business Intelligence in managing companies in Slovakia.

This hypothesis suggests that if the corporate data stored in various source systems have achieved the required level of quality, then increases the success rate of introduction and use of BI in corporate governance.

The results of correlation analysis have confirmed the hypothesis H2. For variable (QSD) was calculated correlation coefficient $r = + 0.389$. Test the statistical significance of the correlation coefficient using two-sided t - test, we have demonstrated a highly statistically significant relationship with the corresponding value of $p = 0.004$, where it can be concluded that $p < \alpha$, that is, $p < 0.05$.

H4: Implementation and use of Business Intelligence across the enterprise positively related to the overall success of the introduction and use of Business Intelligence in managing companies in Slovakia.

Expressly provides that the more functional areas, departments or sections of enterprise BI solution covers, the higher the success rate of its use.

Based on the results of correlation analysis, H4 hypothesis was confirmed. For variable (atomizing) was calculated by the highest correlation coefficient $r = + 0.463$. Test the statistical significance of the correlation coefficient using two-sided t - test we have demonstrated statistically highly significant relationship demonstrated the value of $p = 0.000$, where we note that $p < \alpha$, that is, $p < 0.05$.

Enterprise-wide BI projects scope, that use BI to the enterprise level as a whole, which implies the involvement of all functional areas, respectively departments of the company to the BI project, is statistically significantly related to the overall success of the introduction and use of BI in corporate governance.

H5: Creating the right team qualified and experienced Business Intelligence workers is related to positive overall success of the implementation and use of Business Intelligence in managing companies in Slovakia.

This hypothesis suggests that if the BI team consisting of skilled workers with past experience of implementation and use of BI solutions was created, then the success rate of introduction and use of these solutions in the enterprise increases.

Based on the results of correlation analysis H5 hypothesis was confirmed. For variable (RTW) was calculated correlation coefficient $r = + 0.378$. Using two-sided t - test, we have demonstrated a highly

statistically significant relationship with the value of $p = 0.005$, where it can be concluded that $p < \alpha$, that is, $p < 0.05$.

H7: Open corporate culture to change, promoting decision-making based on facts and concrete positive results of analyses related to the overall success of the implementation and use of Business Intelligence in managing companies in Slovakia.

The hypothesis H7 assumes that when a corporate culture is able to adapt to changes in management style of organizations, then the success rate of introduction and use of BI in company increases.

The results of correlation analysis H7 hypothesis were confirmed. For variable (horseshoes) was calculated correlation coefficient $r = + 0.388$. Using the two-sided t - test, we have demonstrated a highly statistically significant relationship with the corresponding value of $p = 0.004$, where we note that $p < \alpha$, that is, $p < 0.05$.

The results of correlation analysis did not confirm the hypothesis H3 and H6.

H3: Properly chosen, flexible architecture and Business Intelligence tools are positively related to overall success of the introduction and use of Business Intelligence in managing companies in Slovakia.

H6: Ensuring close cooperation between the sponsor of the Business Intelligence project, technologists and ordinary business users of Business Intelligence positively related to the overall success of Business Intelligence in managing companies in Slovakia.

The calculated correlation coefficients of variables (FlexArch) and (CCop), although at a positive value ($0 < r < 1$), which given the independent variables and the dependent variable indicating the existence of the association of a positive trend, the dependence of the correlation is not statistically significant. Test the statistical significance of the correlation coefficients using the t - test demonstrated in both cases statistically significant relationship with the value of $p > \alpha$, where $\alpha = 0.05$.

In accordance with the defined main goals of the work were subsequently calculated and verified in terms of statistical significance also tested the correlation coefficients that characterize the strength of correlation between the dependent variable (TPD) and other defined variables.

Variables of interest in next table:

(SucFac 1) - BI supports the project by all the managers

(SucFac 2) - Communication and information exchange

(SucFac 3) - Establishment of a Steering Committee (competence center) for the BI

(SucFac 4) - Adequate funding for BI project

(SucFac 5) - Vision, strategy, clear definition of objectives for BI

(SucFac 6) - BI integration strategy with the overall business strategy

(SucFac 7) - Develop a comprehensive implementation plan BI

(SucFac 8) - Training and education of future users solutions before starting BI project

(SucFac 9) - Continued support of active use of BI tools BI for the duration of the project

(SucFac 10) - select a quality provider, providing external support

(SucFac 11) - Identification information and system requirements BI

(SucFac 12) - State and source level ISI

(SucFac 13) - User segmentation solutions and identification of specific technology needs of individual user groups

(SucFac 14) - BI system reliability

(SucFac 15) - BI system response time to user requests

(SucFac 16) - Continuous improvement of BI technologies (data and tools)

If there is significant correlation dependence, it makes sense to look regression line. Based on the results of correlation analysis presented in Table 2 and Table 3 were selected ten independent variables for which we have demonstrated a statistically significant correlation ($p < 0.05$) with the dependent variable - the overall success of the introduction and use of BI in the management of enterprises in Slovakia (TPD).

Independent of the parent model:

(StSp) − existence and active involvement of a strong sponsor to BI project

(QSD) − the quality of the source data

(EWSS)− enterprise-wide solution scope

(RTW) − right team of qualified and experienced Business Intelligence workers

(OCC) − open corporate culture

Other independent variables studied:

(SucFac 1) - BI support the project by all the managers

SucFac 5) - vision, strategy, clear definition of objectives for BI

(SucFac 6) - BI integration strategy with the overall business strategy

(SucFac 9) - continued support of active use of BI tools BI for the duration of the project

(SucFac 13) - user segmentation solutions and identification of specific technology needs of individual user groups

Table - 3 The results of tests of statistical significance correlation coefficients of other variables of interest

Variable		TPD	Variable		TPD
SucFac1	**r**	**0,449**	**SucFac 9**	**r**	**0,291**
	p	**0,001****		**p**	**0,033***
SucFac 2	r	0,067	SucFac 10	r	-0,103
	p	0,632		p	0,458
SucFac 3	r	0,019	SucFac 11	r	-0,161
	p	0,894		p	0,244
SucFac 4	r	-0,053	SucFac 12	r	-0,153
	p	0,703		p	0,270
SucFac 5	**r**	**0,399**	**SucFac 13**	r	0,385
	p	**0,003****		p	0,004**
SucFac 6	**r**	**0,492**	SucFac 14	r	-0,244
	p	**0,000*****		p	0,075
SucFac 7	r	0,086	SucFac 15	r	-0,095
	p	0,534		p	0,494
SucFac 8	r	-0,059	SucFac 16	r	0,031
	p	0,669		p	0,824

***p<0,001, **p<0,01, *p<0,05; n = 54

(Source: the output of SPSS Statistics)

A detailed analysis of the links between variables was performed by the method of regression analysis. A form of dependence between variables was expressed by regression function - model in the shape of the linear regression line. Since it was studied the influence of several variables used was the method of multiple linear regressions.

8. Conclusion

The sample consists of 54 enterprises of different sizes with a diverse field in Slovakia pursuit of economic activities in which BI solutions are currently implemented and used in support of decision-making processes.

Based on the results of the correlation analysis, tests of statistical significance correlation coefficients were confirmed hypotheses H1, H2, H4, H5 and H7, which consistently demonstrated a statistically significant relationship with the dependent variable - i.e. total success of implementation and use of BI. As a part of the testing of hypotheses H3 and H6 positive correlation with the dependent variable was not confirmed at the statistically significant level.

The starting model considered key success factors of BI has been modified by the new BI success factors that have been in business practice identified and validated by relevant analyses as key factors, i.e. factors of particular importance for the proper implementation and effective use of BI solutions.

Results of the research are directed to the formulation of one of the conclusions, and that enterprises of different sizes operating in different sectors today through successful implementation and use of technology and BI tools achieve significant positive effects − benefits.

Confirmation of hypotheses and interdependence of the extension of the original model as follows:

Figure 3 - The newly established model of key success factors of Business Intelligence
(Source: own processing)

The business environment has accelerated sharply year by year [2]. There will inevitably prompt management, including quick decisions. It is therefore undisputed that progressive new information and communication technologies are essential to making the right decisions. Business Intelligence tools (as shown by the research) assist management and decision-making in any business. To implement this solution is not enough for the improve performance. This is necessary, but it is important it implements and use properly. A number of factors influence to the successful implementation and usefulness of BI. The survey showed that these are factors in what addiction is.

This model of key factors can be applied in the Slovak enterprises. It is also possible in other enterprises in other country, but it is important to always take into account the specific conditions that each market different.

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