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**Article**

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## Factor Analysis: An Instrument for Selection of Social Performance Factors

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### ABSTRACT

This article is focused on the identification of social performance factors. For this purpose, a multidimensional statistical method -factor analysis- was used. The basic set for the selection of indicators was the concept (and the social tool) of Corporate Social Responsibility, subsequently, the questionnaire was constructed. Empirical research was attended by 32 companies, from the Area of Information and Communication Activities (CZ-NACE, section J), with the number of employees over 250.

The aim of the factor analysis was selection of significant indicators and performance factors for selected area from the input database. On the basis of the paper, there were evaluated: three social factors from the area of working environment and two social factors from the area of local community. The understanding of their application into the internal management shall be necessary prior to company's decision regarding the measures of key performance indicators.

**Keywords:** business management; performance; indicators; factor analysis.

**JEL classification:** M21; M14; C42.

**MSC2010:** 62-07.

# Análisis factorial: un instrumento de selección de factores sociales de rendimiento

## ABSTRACT

Este artículo se centra en la identificación de factores de rendimiento social. Para este propósito, se utilizó el método estadístico multidimensional del análisis factorial. El conjunto básico para la selección de indicadores fue el concepto (y el instrumento social) de la Responsabilidad Social Corporativa; posteriormente, se construyó un cuestionario. En la investigación empírica participaron 32 empresas, desde el Área de Actividades de la Información y la Comunicación (sección J, CZ-NACE), con un número de empleados superior a 250.

El objetivo del análisis de los factores fue la selección de indicadores relevantes y factores de rendimiento para el área seleccionada de la base de datos de partida. Basándose en el trabajo, se evaluaron tres factores sociales del área del ambiente de trabajo y dos factores sociales del ámbito de la comunidad local. El entendimiento de su aplicación en la gestión interna se considera necesaria antes de la decisión de la empresa en cuanto a las medidas de los indicadores clave de rendimiento.

**Palabras clave:** administración de empresas; rendimiento; indicadores; análisis factorial.

**Clasificación JEL:** M21; M14; C42.

**MSC2010:** 62-07.



## 1. INTRODUCTION

The concept of performance evaluation in this article is based on a fundamental view of the enterprise as a socio-economic system. In the 90 years of 20<sup>th</sup> century can be considered as the initial impetus for the coalition theory, based on the consideration that the enterprise as an element of the socio-economic system is a carrier present a wide target group of stakeholders (interest groups). The objectives of its existence and achieves only if satisfies the objectives of all stakeholders, and therefore the company's performance is assessed in terms of its benefits not only for the owners but for a wider range of interests. Performance measurement, respecting above view, can be considered as a multi-criteria evaluation (Wagner, 2011). Currently, the "firm's survival" depends not only on financial competitiveness, equally important is that the organization could prove their status to various interested parties (stakeholders) that are affected by the activities of the enterprise. In other words, the fact those companies are facing increasing pressure from their environment to act in a socially responsible manner (Bučiūnienė, Kazlauskaitė, 2012).

The concept of corporate social responsibility and understanding, whether in relation to the stakeholders, employees, or other interest groups, in essence, from the first half of the 20<sup>th</sup> century constantly evolving. There is a gradual refinement and expansion of different definitions, but as an essential turning point may be considered the idea: *"the undertaking which meets the only legislative requirements cannot be considered socially responsible."* On the basis of the synthesis of individual knowledge Carroll in 1979 designed definition of CSR that was based on the 4 basic elements. Carroll joined the area in this definition of business activities, which many believed that exclude each other. An example may be entrepreneurs who in its "economic responsibility" also gave a donation, or felt the commitments to the community, and is a typical example of Tomáš Baťa and the construction of the "business" of cities (Carroll, 1979; Svoboda, 2010). Socially responsible businesses are characterized by proactive, not just reactive policy, for their leadership to actively apply new and positive trends (Boyd, Gessner, 2013).

In the field of business policy and strategy, according to Porter and Kramer (2006), which is also inclined in this and Laszlo and Zhexembayeva (2011) should be incorporated corporate social responsibility (CSR) into strategic activities within the corporate strategy. The rationale behind this is the fact that the chosen company strategy plays a large role in the competitive environment that just using social responsibility and business performance could be significantly affected. However, there is no guarantee that any benefit the company will also improve its position in the competitiveness (Porter, Kramer, 2002; Boyd, Gessner, 2013).

Companies can choose from several methods of dealing with performance evaluation with regard to the management company, it is up to them to decide whether to commit more to financial or non-financial indicators, or whether they will choose one of the methods of a comprehensive performance evaluation.

The objective of the paper is to answer a research question: *Which social factors play an important role in the business performance in the area of Information and Communication Activities in the Czech Republic?*

## **2. THEORETICAL BACKGROUND**

For the definition of social performance can be used states of Spirig (2006), who understands this concept as "social impacts on stakeholders." Social impact is perceived as the result of social activities and behavior of the company and stakeholders can be considered as customers, employees, government agencies, the media, suppliers, NGOs, etc. In general, it is possible to identify social performance for human resources in relation to liability.

In the area of measuring performance is necessary to focus on indicators. The most critical page does not consist in the identification of indicators, but rather to identify those that are appropriate to represent the process itself, the so-called Key Performance Indicators (KPIs). As stated by the author Marinič (2008) and Parmenter (2010) once defined the correct key indicators that reflect the goals of the company (those that can be measured), it is possible to use these performance indicators as a tool for performance measurement. It just depends on from which perspective entities inside and outside the company to build a performance approach and the purpose of the performance monitor.

In general it can be said that these indicators represent a set of measures which are aimed at those aspects of organizational performance that are most critical for the current and future success. According to Parmenter (2010), there are four types of performance metrics:

- Key Result Indicators (KRIs) – that tell us how we fared in a particular area or in terms of critical success factors. Very often are confused with KPIs. They provide a clear picture of whether the organization is going in the right direction and if not, tell us what we need to do in order to do so.
- Result Indicators (RIs) – given what we have done. Summarizes activities relating to all financial activities. If we want to fully understand where it is necessary to increase or decrease performance, we must look at those activities that create sales.
- Performance Indicators (PIs) – indicate what we do. These indicators help the enterprise to achieve the strategies. These are mainly non-financial indicators that complement the KPIs.

- Key Performance Indicators (KPIs) – are certain instruction that tells us what we should do to significantly improve the performance of the company. It is therefore a set of metrics, focusing on those aspects of organizational performance that are most important to its current and future success.

Performance metrics are usually a combination of these four types. Harvey (2005) to this matter is expressed in the sense that no matter which KPIs are used, these should mainly reflect the strategy, and should be regularly adapted to the changing business environment. Allio (2006) adds to metrics that good (well chosen) metrics facilitate the implementation of corporate strategies, while the bad (wrongly chosen) or no metrics, they can even implement the strategy to defend (Kocmanová et. al., 2013; Kerzner, 2011).

The social area also has certain types of indicators, which can be used for measure and evaluation of performance. For the evaluation of the social performance of the majority of non-financial indicators are used (called soft indicators). For social performance is needed to determine which of the standards will be selected social indicators. For the purposes of the author's research in this article was chosen CSR concept under which it is possible to responsible company behavior can be divided into four areas: market, working environment, local communities and the environment. This concept appeared in the early second half of the 20<sup>th</sup> century and means a way of conducting business and building relationships with partners, which contributes to increase the credibility of the company. It's basically about the voluntary commitment of enterprises to behave responsibly in the context of its operation to the environment and the society in which they carry out its business activities. The essence of CSR is the belief that the sustainable prosperity of the company responsible and transparent way of doing business. The concept is based on the three pillars – economic, social and environmental. These pillars correspond with three characteristics of the "triple-bottom-line": profit = economic area, people = social area and planet = environmental area. The following areas were defined key indicators that can significantly affect the performance of the company within the social area (Robins, 2008; Wood, 2010).

Basically since the beginning of the emergence of the concept of CSR, there are both its supporters and detractors, who present their beliefs about the correctness of their opinion. Many experts began to undertake empirical impact of CSR on its economic and financial performance. However, it is needed right at the beginning of this chapter to add that to this day has not achieved any general scientific consensus on this issue and the views of many groups of experts and scientists are quite different. One of the first researches in the area of the impact of CSR on economic performance is the work of Milton Moskowitz in 1972. The author choose from the 67 companies the 14 best in terms of the level of CSR and calculate the average rate of

appreciation in their shares. As a result, the average appreciation 7.28%, while the Dow Jones Industrial index showed a value a little lower. This result was considered to be confirmatory in relation to the hypothesis that CSR has a positive effect on the economic performance of the company (Moskowitz, 1972; Kukačka, 2008). Vance (1975) followed up on the research of Moskowitz and correlation analysis of the CSR and the growth of prices of shares. In this case, a negative correlation was found between these two listed units. On the other hand, author Tsoutsoura (2004), which dealt with the CSR and financial performance, indicates that the relationship between CSR and financial performance was examined many of the authors on the basis of empirical studies. Tell us about the relationship between CSR and financial performances are essentially of two types. The first method examines the short-term financial impact (in the form of abnormal returns) in the case of socially responsible or irresponsible business. The second type of empirical studies, examining the relationship between CSR and the long-term financial performance, use accounting and financial standards of profitability. Waddock and Graves (1997) they found the significant positive relationship between CSR performance measurement in the case of ROA. These authors used the methodological framework of the social performance of enterprises (CSP) and concluded that the CSP is positively linked with the earlier financial performance. To further prove that the CSP is also positively linked to the future performance of the company.

Authors Kocmanová and Šimberová (2013) were specialized on the area of the performance factors, they used the cluster analysis and factors which have been identified with research could be linked as follows: Labour Practices and Decent Work (LA), Human Rights (HR), Product Responsibility (PR) and Society (SO). During the performance evaluation using indicators is necessary to track a wide range of indicators and to carry out analyses from the point of the social aspects.

### **3. METHODOLOGY RESEARCH**

The basis of the empirical research was a questionnaire prepared within the frame of the doctoral thesis of the author. For the purposes of author's research it was a selective set of businesses that meet the following two conditions:

- Registered economic companies from section J (CZ-NACE) – Information and Communication Activities in the Czech Republic;
- Enterprises with the number of employees > 250.

The reason for the choice of Information and Communication Activities is a competitiveness aspect. From the financial analysis of the corporate sectors of the Ministry of Industry and Trade (2013), when evaluating financial indicators, gives this analysis on the

competitiveness of the image, the industry as a whole is uncompetitive, because even in one of the last period reached positive economic profit. In the case where the main goal of most businesses is achieving economic profit and to achieve the competitiveness of industry in the area of selection, the industry would not be too appropriate. The value of economic profit (EVA) is the most synthetic indicator of the competitiveness of the enterprise. A positive value indicates that the company is competitive in a given period. Analyzed area was chosen precisely for that reason, because as a single service area creates a positive added value over the long term (on the basis of indicators of the EVA). The decision to choose companies with the number of employees in excess of the number 250 fell mainly in connection with the focus to the social area of the research. On the basis of the literature review businesses mainly report its social area using the concept of CSR, a database of companies with this concept does not exist in the Czech Republic, so based the information of the CSR specialist and director of Association of socially responsible companies (A-CSR), in the Czech Republic there is only a few platforms, which are made up of socially responsible company but they are only a large companies.

Basic sample was made by 56 companies, author gathered data from 32 companies (the effectiveness was almost 57%). The research was conducted in the first half of the year 2013, the research content was the economic and social area of enterprises, of which were identified hard and soft data. Economic data (especially the hard data, for example EBIT, ROA, etc.) due to the pending of the year 2012, was acquired for year 2011.

All calculations were analyzed by the statistical program IBM SPSS Statistics 20, using a combination of different statistical methods.

The social indicators were identified by a factor analysis. Factor analysis is a method by which we try to replace the relationship between several mutually-knit small number of variables not directly observable characteristics factors. This is also determined by its primary function – data reduction, i.e., reduction of variables.

To implementation of factor analysis, it is necessary to have  $n$  observations each  $k$  variables  $X_1, X_2, X_3 \dots X_k$ . If among these variables exists linear dependence, their correlation coefficients large in absolute terms. When meeting provided further factor analysis for the dependence of the variables is common variables – factors, the partial correlation coefficients of the variables  $X_1, X_2, X_3 \dots X_k$  are very small.

Mathematically, it is possible to describe the process of factor analysis as an expression examined standardized variables  $X_i$  using a linear combination a smaller number of hypothetical factors  $F_j$  using the following relationship:

$$X_i = a_{i1} F_1 + a_{i2} F_2 + a_{i3} F_3 + \dots + a_{im} F_m + e_i,$$

for  $i = 1, 2, 3, \dots, k$ , where:



$k$  – number of variables,

$m$  – number of factors; valid:  $m < n$ ,

$e_i$  – specific component variables  $X_i$ .

Contribution of each factor is given by its variance, this can be obtained as an eigenvalue covariance or correlation matrix. To assess the suitability of use of a factor analysis is generally used two methods:

- Kaiser-Meyer-Olkin rate (the KMO) – KMO used to compare the significance of normal and partial correlations. Indicates the proportion of variation among variables that may be the cause the importance of individual factors. If the KMO value close to 1 (interval values 0-1) data can be used to create factors, while values below 0.5 are unacceptable.
- Bartlett's sphericity test – scans the entries in the correlation matrix (variables) that are not correlated and are therefore also suitable for creating the structure factor. In this case, it is necessary to focus on the value level of significance. If it is less than 0.05 means that the factor analysis may be useful for the selected data (Škaloudová, 2010; Hammer et al., 2011).

After the performed factor analysis is appropriate to confirm this analysis use indicator Cronbach's alpha, which is also known as the coefficient of reliability or consistency coefficient. It takes values from 0 to 1, the extreme value of 0 means that individual indicators are not correlated. On the other hand, the value of 1 indicates correlated variables. The closer the value is to 1, the higher is recognized degree of consensus. Cronbach's alpha is thus analogous to a correlation coefficient (Hrach, Mihola, 2006).

For Cronbach's alpha coefficient applies a formula:

$$\alpha = \frac{k}{k-1} \left( 1 - \frac{\sum_{i=1}^k S_i^2}{S_x^2} \right)$$

The statistical program SPSS allows calculation factors using by two statistical tests that indicate the suitability of the data for the structure factors. It is KMO (Kaiser-Meyer-Olkin) measurement test of the adequacy and Bartlett's test of sphericity. These tests were first step for factor analysis. First it was tested *market area*. Value range of KMO takes the value 0.393, based on the values by using factor analysis, in this case, there is no sense. If, however, the overall rate of KMO is low, it is possible on the basis of individual coefficients in the Anti-image matrix indicate variables that prevent the use of factor analysis. For this reason, it is possible to exclude from processing. Anti-image matrix is the matrix of partial correlations

between the original characters after by factor analysis. It's diagonal the values KMO for each variable. Despite repeated phased out variables with the lowest KMO and evaluation of factor analysis could not achieve the desired output since the third step of behind the overall correlation matrix, showing zero correlation. Thus, it was not possible to determine relationships between variables and the resulting key indicators. Factor analysis of social performance factors of the market area was therefore not carried out, nor could therefore be defined individual key indicators.

Other analyzed part was *working environment*. The indicators in this area have been identified: Salary, Structure of employees, Nature of benefits, Rates of sick leave, Number of Training hours, Number of Trained Staff, Rate of Employee Turnover, Number of Flexible Jobs, Number of Employee Complaints. From this group businesses determined their relevance in the context of social performance. Consequently, for these results was applied factor analysis. First, it was necessary to determine the appropriateness of using factor analysis based on the KMO and Bartlett's test. The value of KMO test is 0.626 and the observed level of significance of Bartlett's test is <0.0005. Based on the results of both test can be recommended the use of factor analysis, since the items we want factors are suitable for use.

The result of factor analysis is rotated component matrix that is used to interpret the factors. The determination of social performance indicators of these companies were based on a questionnaire-type survey per Table 1.

Table 1. Rotated Component Matrix in the Area of Working Environment

Indicator	Factor		
	Employee	Training courses	Work
Salary	<b>0.937</b>	-0.242	0.018
Structure of employees (age, gender)	<b>0.912</b>	-0.282	0.134
Nature of benefits	<b>0.805</b>	0.318	0.026
Rates of sick leave	<b>0.794</b>	0.228	0,113
Number of training hours	<b>0.754</b>	<b>0.525</b>	0.167
Number of trained staff	0.039	<b>0.981</b>	-0.032
Rate of employee turnover	0.003	0.037	<b>0.865</b>
Number of flexible jobs	<b>0.514</b>	-0.087	<b>0.677</b>
Number of employee complaints	-0.032	<b>0.642</b>	<b>0.649</b>
<b>Cronbach's alpha</b>	0.889	0.697	0.621

Source: own research

In extraction were divided all components into new three strongest component groups. These groups are normally indicating names that capture the essence of what that factor expresses; in this case it is a factor of employee, training courses and factor of work. Table 1

also presents Cronbach's alpha value, which serves to verify the reliability or reliability, as part of the methodology of analysis items. In all cases indicates that it is not necessary to exclude any of the factors, as always achieves a minimum value of 0.5.

These three selected groups are basis for further processing in terms of identification performance factor.

Last monitored social area was the *local community*. Within this field were used eight indicators, for which the companies determined the value of importance in the context of their performance. The indicators were: The Success of Projects Funded by Corporate Foundations, Number of Hours of Corporate Volunteering, Reaction to Corporate Activities, Volume of Non-financial Donations, Number of Placements Organized for Students, Number of Cooperating Schools and Ratio of the Donated Funds to Gross Profit.

The procedure is the same as in the previous cases where the first necessary step is to decide whether the data is suitable for factor analysis. The rate of KMO test in this case is sufficient (value = 0.758), as well as an indication Bartlett's test should be significant at least at the level of 0.05 (value < 0.0005). This assumption is therefore also satisfied. Using the extraction factors within this area were defined two factors, with variables represents Table 2.

Table 2. Rotated Component Matrix in the Area of Local Community

Indicator	Factor	
	Activities	Cooperation
The success of projects funded by corporate foundations	<b>0.908</b>	-0.136
Number of hours of corporate volunteering	<b>0.810</b>	0.398
Reaction to corporate activities	<b>0.717</b>	0.321
Volume of non-financial donations	0.394	0.252
Absolute amount of donations	-0.084	<b>0.937</b>
Number of placements organized for students	0.492	<b>0.788</b>
Number of cooperating schools	<b>0.525</b>	<b>0.770</b>
Ratio of the donated funds to gross profit	<b>0.560</b>	<b>0.562</b>
<b>Cronbach's alpha</b>	0.854	0.882

Source: own research

All indicators were divided into new two strongest component groups. Names of these groups are factor of activities and factor of cooperation. Table 2 also presents Cronbach's alpha value, in all cases indicates that it is not necessary to exclude any of the factors, as always achieves a minimum value of 0.5. Only one indicator has not been used within a set of factors, it is "Volume of non-financial donations".

These three selected groups are basis for further processing in terms of identification performance factor.

#### 4. RESULTS AND DISCUSSION

Selection of significant indicators and performance factors for selected area from the input database was the aim. The purpose was not to substitute identified database, but to establish an alternative file of appropriate variables. The objective of further data processing was the reduction of original broad file of indicators, namely by multi-dimensional statistical methods.

From the original 17 social indicators were selected on the basis of statistical methods 16 social indicators for the IT companies. Factors which have been identified with research could be linked to the following 5 factors, as follows: Employee, Training Courses, Work, Activities and Cooperation.

These factors can be used for the last step of factor analysis –for construction of a new variable. To create a new variable, on the basis of factor analysis, it can be use all indicators from working environment. In the case of indicators of working environment were defined three factors, the index will be the same amount. As it was mentioned in the previous section, each item is assigned a weight factor loadings (according to the calculated coefficient), which is based on Table 3.

Calculation of the factor score is basically the calculation of the employee, training courses and work for the various businesses in which each item is assigned a weight factor loadings.

The extraction method was used principal component analysis and rotation method is varimax with kaiser normalization.

Table 3. Coefficients of factor loadings of indicators for working environment

Indicator	Factor		
	Employee	Training courses	Work
Salary	<b>0.262</b>	-0.155	-0.061
Structure of employees (age, gender)	<b>0.250</b>	-0.191	0.025
Nature of benefits	<b>0.219</b>	0.153	-0.116
Rates of sick leave	<b>0.208</b>	0.228	-0.043
Number of training hours	<b>0.184</b>	<b>0.248</b>	-0.042
Number of trained staff	-0.006	<b>0.539</b>	-0.156
Rate of employee turnover	-0.098	-0.095	<b>0.578</b>
Number of flexible jobs	<b>0.072</b>	-0.149	<b>0.410</b>
Number of employee complaints	-0.096	<b>0.265</b>	<b>0.410</b>

Source: own research

On the basis of the individual factor scores were compiled new variables, which make it possible to calculate these factors for individual companies. The new variable is often referred to as the factor score or index factor. It is a weighted summation range, i.e., respondent answers to each question carried factorial loads (weight responses are multiplied by a weight factor and summed individual responses). Given that the factor score represents the weight of the variables, their sum should give a value of 1. For this reason, the coefficients of factor loadings converted relative to the total for that factor. The newly created variables are as follows:

- *Index factor of employee = Salary \* 0.220 + Structure of employees \* 0.209 + Nature of benefits \* 0.183 + Rates of sick leave \* 0.174 + Number of training hours \* 0.154 + Number of flexible jobs \* 0.060*
- *Index factor of training courses = Number of training hours \* 0.236 + Number of trained staff \* 0.512 + Number of employee complaints \* 0.252*
- *Index factor of work = Rate of employee turnover \* 0.430 + Number of flexible jobs \* 0.305 + Number of employee complaints \* 0.265*

In the area of local communities are created two indexes under different factors, which are based on the individual items and the assigned weights of factor loadings (according to the calculated coefficient). These coefficients are shown in Table 4.

Table 4. Coefficients of factor loadings of indicators for local communities

Indicator	Factor	
	Activities	Cooperation
The success of projects funded by corporate foundations	<b>0.468</b>	-0.314
Number of hours of corporate volunteering	<b>0.278</b>	-0.012
Reaction to corporate activities	<b>0.254</b>	-0.027
Volume of non-financial donations	0.119	0.024
Absolute amount of donations	-0.291	<b>0.505</b>
Number of placements organized for students	0.022	<b>0.274</b>
Number of cooperating schools	<b>0.042</b>	<b>0.256</b>
Ratio of the donated funds to gross profit	<b>0.115</b>	<b>0.140</b>

Source: own research

Also in this case it was necessary to recalculate the coefficients factor loadings for each variable, so that their sum equal to "1". The newly created indexes for social factors in the area of local communities are:

- *Index factor of activities = The success of projects funded by corporate foundations \* 0.405 + Number of hours of corporate volunteering \* 0.240 + Reaction to corporate activities \* 0.220 + Number of cooperating schools \* 0.036 + Ratio of the donated funds to gross profit \* 0.099*
- *Index factor of cooperation = Absolute amount of donations \* 0.430 + Number of placements organized for students \* 0.233 + Number of cooperating schools \* 0.218 + Ratio of the donated funds to gross profit \* 0.119*

These indexes can be calculated for the individual of company and on the basis of their results can compile a list of businesses.

This methodology can be used in any field of performance and can be applied to any area. The article describes the way in which enterprises can determine important factors of their business, which can play a key role in achieving the set of objectives. The proposed social performance indicators should help companies to demonstrate a progress towards the objectives of sustainability.

Author can undoubtedly say that disclosing the value of the research could be increased if it is attended by more businesses. Nevertheless the number of respondents was low enough that it is possible to evaluate the data and formulate certain conclusions. Among the main barriers to research I joined a certain reluctance of businesses in obtaining primary data. If most of the data was publicly available, the questionnaire might not be so detailed (and therefore could be even shorter). However, this is a general problem of voluntary reporting.

This research can be extended in the future and can serve as a starting point for further examination, which will deal with this issue. Examined all enterprises could be parsed from the area without limiting their size and individual results could be compared. At the same time could be more focused on the research of numerical data, as might be done in the period of comparison (e.g. using time-series).

From the theoretical area are taken, the benefits of the paper in the form of expansion of knowledge about the social performance of enterprises and its evaluation. In particular, identify key factors and indicators, which in the given area of activity affect the performance of the enterprise.

For the management of companies it is the ability to monitor their performance. In the case of the use of benchmarking, it is possible to compare the performance achieved with other firms in the market and to identify the weak points of his performance. The total benefit for the practical area, however, are the non-financial indicators on the basis of identified key factors in performance.

## 5. CONCLUSIONS

The aim of the paper is to present the methodology for selection of social performance factors in the area of Information and Communication activities in the Czech Republic. The emphasis is on Key performance indicators (KPIs). Performance measurement is an important tool for sustainable management and sustainability is a term that can be more and more often heard from various areas of the Czech environment.

Before the company shall decide for the key performance indicators, it is important to understand how they can be best used and include them in the internal management and to support sustainable reporting.

Empirical research, which is an important part of the main goals of this article, deals with the factor analysis. Factor analysis has long been used almost exclusively in psychology. Significant growth in computing capability and extension of the method of factor solutions, increased efforts to develop indigenous practices, as well as alleviate some subjective elements of factor analysis and psychometric removing the sole interpretation, however, meant that in the last forty years has penetrated about factor analysis in other fields. With this in mind, this analysis was also used to explore the relationships between selected variables between the Czech IT companies, with the number of employees more than 250. Were uncovered some dependence indicators, however, for more detailed and qualitative analysis will need to select more relevant variables in order to comprehensively break down the bonds between the studied indicators. The factor analysis was helpful to find performance factors from the social area, especially were found indicators, which can help to companies plan and control their priorities and achieve their goals.

On the basis of the paper, there were evaluated three social factors from the area of working environment and two social factors from the area of local community, which are classified into different groups of indicators. The factors were named as: Employee, Training Courses and Work; Activities, Cooperation. These factors are in Czech IT companies important in connection with the term corporate performance system.

In close connection with economic performance factors is the social responsibility as one component of a sustainable business (sustainability). It is a kind of higher form of "good behavior" decent to employees, to customers, to nature, to the environment. To the main motivators can include cost savings, environmental protection, consumer demand or application of competitive advantage (Asociace společenské odpovědnosti, 2014). The company itself should select its key social indicators on the basis of their significance and from the point of its strategy, but due to long-term prosperity, it is appropriate to economic factors also include other performance factors from sustainable business.

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## REFERENCES

- ALLIO, M. Metrics that matter: seven guidelines for better performance measurement. *Handbook of Business Strategy*, 2006. Vol. 7, No. 3, pp. 255-263. ISSN 0894-4318.
- ASOCIACE SPOLEČENSKÉ ODPOVĚDNOSTI. *Udržitelnost MSP se stává běžným standardem* [online]. 2014 [cit. 2014-02-16]. Available from: <http://www.spolecenskaodpovednostfirem.cz/obsah/149/udrzitelnost-msp-se-stava-beznym-standardem/>.
- BOYD, N., GESSNER, B. Human resource performance metrics: methods and processes that demonstrate you care. *Cross Cultural Management*, 2013. Vol. 20, No. 2, pp. 251-273. ISSN 1352-7606.
- BUČIŮNIENĚ I., KAZLAUSKAITĚ R. The linkage between HRM, CSR and performance outcomes. *Baltic Journal of Management*, Oxford: Emerald Group Publishing Limited, 2012. Vol. 7, No. 1, pp. 5-24. ISSN 1746-5265.
- CARROLL, A. B. A Three-Dimensional Conceptual Model of Corporate Performance. *The Academy of Management Review*, 1979. Vol. 4, No. 4, pp. 497-505. ISSN 1930-3807.
- HAMMER, M., ERTL, J., BARVENČÍK, O., KUTÁLEK, D. Příspěvek k rozboru spolehlivosti výkonových olejových transformátorů – 3. část. *Elektrorevue*, 2011. Č. 32, s. 1-7. ISSN 1213-1539.
- HARVEY, J. KPIs – The Broader Strategic Context. *Credit Control*, 2005. Vol. 26, No. 4, pp. 65-66. ISSN 0143-5329.
- HRACH, K., MIHOLA, J. Metodické přístupy ke konstrukci souhrnných ukazatelů. *Statistika*, 2006. Vol. 86, No. 5, pp. 398-418.
- KOČMANOVÁ, A.; DOČEKALOVÁ, M.; HORNUNGOVÁ, J.; ŠIMBEROVÁ, I.; CHVÁTALOVÁ, Z.; HŘEBÍČEK, J.; TRENZ, O.; KUBÁLEK, T.; HODINKA, M.; POPELKA, O. *Měření podnikové výkonnosti*. Brno: Littera, 2013. 247 s. ISBN: 978-80-85763-77-5.
- KOČMANOVÁ, A.; ŠIMBEROVÁ, I. Multidimensional Modelling of Social Performance Indicators in Processing Industry Companies in the Czech Republic. *International Journal of Mathematical Models and Methods in Applied Sciences*, 2013. Vol. 7, No. 5, pp. 500-507. ISSN: 1998-0140.
- KERZNER, H.: *Project Management Metrics, KPIs, and Dashboards: A Guide to Measuring and Monitoring Project Performance*, New Jersey: John Wiley & Sons, 2011, p. 372, ISBN 978-1-118-02652-6.
- KUKAČKA, J. *Společenská odpovědnost firem – mikroekonomický přístup* (bachelor thesis). Praha: Univerzita Karlova, Fakulta sociálních věd, 2008.



- LASZLO, CH., ZHEXEMBAYEVA, N. *Embedded Sustainability. The Next Big Competitive Advantage*. Greenleaf Publishing, 2011. 288 s. ISBN 978-0-8047-7554-0.
- MARINIČ, P.: *Plánování a tvorba hodnoty firmy*. Praha: Grada Publishing, 2008, 232 s., ISBN 9788024724324.
- MINISTRY OF INDUSTRY AND TRADE. *Finanční analýza podnikové sféry za rok 2012* [online]. 2013 [cit. 2013-10-01]. Available from: <http://www.mpo.cz/dokument141226.html>.
- MOSKOWITZ, M. R. Choosing Socially Responsible Stock. *Business and Society Review*, 1972. Vol. 1, pp. 71-75. ISSN 1467-8594.
- PARMENTER, D.: *Key performance indicators: developing, implementing, and using winning KPIs*. New Jersey: John Wiley & Sons, 2010, p. 299, ISBN 978-0-470-54515-7.
- PORTER, M. E., KRAMER, M. R. The competitive advantage of Corporate Philanthropy. *Harvard Business Review*, 2002. Vol. 80, No. 12, pp. 57-68. ISSN 0017-8012.
- PORTER, M. E., KRAMER, M. R. Strategy and society: the link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 2006. Vol. 84, No. 12, pp. 78-91. ISSN 0017-8012.
- ROBINS, F. Why corporate social responsibility should be popularised but not imposed. *Corporate Governance*, 2008. Vol. 8, No. 3, pp. 330-341. ISSN 1472-0701.
- SPIRIG, K. *Social Performance and Competitiveness, A Socio-Competitive Framework*. In: Schaltegger, S. and Wagner, M. (Eds.). *Managing the Business Case for Sustainability*. Sheffield: Greenleaf Publishing, 2006. pp. 82-106. ISBN 1-874719-95-0.
- SVOBODA, J. *Význam konceptu společenské odpovědnosti organizací (CSR) a jeho využívání v České republice* (doctoral thesis). Zlín: Univerzita Tomáše Bati ve Zlíně, Fakulta managementu a ekonomiky, 2010.
- ŠKALOUDOVÁ, A. *Faktorová analýza* [online]. 2010 [cit. 2013-08-14]. Available from: <http://userweb.pedf.cuni.cz/kpsp/skalouda/fa/>.
- TSOUTSOURA, M. Corporate Social Responsibility and Financial Performance [online]. 2004 [cit. 2012-10-18]. Available from: <http://escholarship.org/uc/item/111799p2>.
- VANCE, S. C. Are Socially Responsible Corporations Good Investment Risks? *Management Review*, 1975. Vol. 64, No. 8, pp. 19-24.
- WADDOCK, S. A., GRAVES S. B. The Corporate Social Performance-financial performance link. *The Strategic Management Journal*, 1997. Vol. 18, No. 4, pp. 303-319. ISSN 1097-0266.
- WAGNER, J. Měření výkonnosti – vývojové tendence 2. poloviny 20. století. *Politická ekonomie*, 2011. Č. 6, s. 775-793. ISSN 0032-3233.
- WOOD, D. J. Measuring Corporate Social Performance: A Review. *International Journal of Management Reviews*, 2010. Vol. 12, No. 1, pp. 50-84. ISSN 1468-2370.