# Analysis of evolution and interdependence of FAO food indices

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#### Abstract

International Organization FAO publishes in its activities the FAO Food Price Index (FFPI) which aims to help in monitoring developments in the global agricultural commodity markets. It consists of the average of five commodity group price indices, Meat Price Index, Dairy Price Index, Cereals Price Index, Oil and Fat Price Index, Sugar Price Index. The aim of the paper is to identify statistically significant effect of selected variables operate on meat index through a linear regression model.

Key words Food Price Index, FAO, Econometric model

#### 1. INTRODUCTION

Food and Agriculture Organization of United Nations (FAO), an intergovernmental organization, has 194 Member Nations, two associate members and one member organization, the European Union. Its employees come from various cultural backgrounds and are experts in the multiple fields of activity FAO engages in. FAO's staff capacity allows it to support improved governance inter alia, generate, develop and adapt existing tools and guidelines and provide targeted governance support as a resource to country and regional level FAO offices. Headquartered in Rome, Italy, FAO is present in over 130 countries.

#### The main mission of FAO

- Help eliminate hunger, food insecurity and malnutrition
- Make agriculture, forestry and fisheries more productive and sustainable
- Reduce rural poverty
- Increase the resilience of livelihoods to disasters

#### Five main areas of FAO's activities

- Putting information within reach and supporting the transition to sustainable agriculture.
- Strengthening political will and sharing policy expertise.
- Bolstering public-private collaboration to improve smallholder agriculture.
- Bringing knowledge to the field.
- Supporting countries prevent and mitigate risks. (FAO, 2014)

#### 2. MATERIAL AND METHODS

#### The FAO Food Price Index (FFPI)

The FAO Food Price Index (FFPI) was introduced in 1996 as a public good to help in monitoring developments in the global agricultural commodity markets. The only major modification made to it – until now – was in 2009, when its base period was updated to 2002–2004.

The index includes the following 5 groups of 23 commodities (The Monthly Bulletin of Statistics, 2014):

- Meat Price Index: Consists of 3 poultry meat product quotations (the average weighted by assumed fixed trade weights), 4 bovine meat product quotations (average weighted by assumed fixed trade weights), 2 pig meat product quotations (average weighted by assumed fixed trade weights), 1 ovine meat product quotation (average weighted by assumed fixed trade weights): the 4 meat group average prices are weighted by world average export trade shares for 2002-2004.
- Dairy Price Index: Consists of butter, skimmed milk powder, whole milk powder, cheese, casein price quotations; the average is weighted by world average export trade shares for 2002-2004.
- Cereals Price Index: This index is compiled using the grains and rice price indices weighted by their average trade share for 2002-2004. The Grains Price Index consists of International Grains Council (IGC) wheat price index; itself average of 9 different wheat price quotations, and 1 maize export quotation; after expressing the maize price into its index form and converting the base of the IGC index to 2002-2004. The Rice Price Index consists of 3 components containing average prices of 16 rice quotations: the components are Indica, Japonica and Aromatic rice varieties and the weights for combining the three components are assumed (fixed) trade shares of the three varieties.
- Oil and Fat Price Index: Consists of an average of 11 different oils (including animal and fish oils) weighted with average export trade shares of each oil product for 2002-2004.
- Sugar Price Index: Index form of the International Sugar Agreement prices with 2002-2004 as base.

This construction includes the use of 73 price series.

The objective of using an econometric model is to quantify the effect of selected explanatory variables on the explained variable. The aim is to find and develop the best linear model showing the dependencies between selected variables. The data in the model are annual data from 1990 to 2014 obtained from the FAO database. The basic design model reflects the impact of all these explanatory variables on the explained variable - **Mpi**.

The model was made in freely available comprehensive statistical and graphical programming language R (version 2.13.1.). For creation a linear model and its testing were loaded packages **Akima**, **fBasics**, **Imtest**, **car** and the following data:

- *Mpi* (Meat price index) **Explained variable**
- *Dpi* (Dairy price index)
- *Cpi* (Cereals price index)
- *Opi* (Oils price index)
- Spi (Sugar price index)

**Explanatory variables** 

#### Normality of residues testing – Jarque-Bera Test

Normality of the distribution of casual failures is the basis for statistical inference of the model (model parameters and testing the model as a whole, interval estimation of parameters etc.). The test measures the difference between selected skewness and kurtosis of residues and skewness and kurtosis of normal distribution

H<sub>0</sub>: 
$$u_t \sim N(0, \sigma^2)$$
  
H<sub>1</sub>:  $u_t \neq N(0, \sigma^2)$ 

# Heteroscedasticity testing - Breusch-Pagan Test

Heteroscedasticity is inconstancy of casual failures and residues variance. It is a violation of the assumption of dispersions constancy in linear econometric model. Heteroscedasticity causes that the parameter estimates of econometric model, obtained by the method of least squares, lose some optimal properties (undistortion).

Breusch-Pagan test compared to other tests for the presence of heteroscedasticity in the examined model covers a wider range of alternative hypotheses to the null hypothesis of homoskedasticity.

H<sub>0</sub>: Heteroscedasticity is present in the model

H<sub>1</sub>: Heteroscedasticity is not present in the model

#### Autocorrelation testing - Durbin-Watson Test

The second requirement is the zero covariance assumption of off-diagonal elements in the covariance matrix of casual components. Unless this condition is fulfilled there is autocorrelation of casual components in the model. The consequences of autocorrelation are similar to those of heteroscedasticity. Estimated variances and standard errors, using conventional formulas, are biased and the quality of inductive conclusions is losing momentum. For testing autocorrelation we used Durbin-Watson test.

H<sub>0</sub>: Autocorrelation is present in the model

H<sub>1</sub>: Autocorrelation is not present in the model

#### Multicollinearity testing – VIF (variance inflation factor)

Multicollinearity is interdependence of explanatory (independent) variables and reduces the accuracy of the estimate of regression coefficients, due to the large standard errors of least squares estimator. Simple diagnostics of collinearity is VIF.

#### 3. RESULTS

The FAO Food Price Index is a measure of the monthly change in international prices of a basket of food commodities. It consists of the average of five commodity group price indices, weighted with the average export shares of each of the groups for 2002-2004.

Under the new approach, the index includes the following 23 commodities: wheat (10 price quotations monitored and reported by the IGC), maize (1 quotation) and rice (16 quotations) for cereals; butter, whole milk powder, skimmed milk powder (2 quotations for each) and cheese (1 quotation) for the dairy group; poultry (13 quotations), pig (6 quotations), bovine (7 quotations) and ovine (1 quotation) for the meat dairy group; sugar (1 quotation); the oils group consists of one oil price quotation for soybean, sunflower, rapeseed, groundnut, cotton seed, copra, palm kernel, palm, linseed and castor. This construction, thus, includes the use of 73 price series.

(FAO, 2014)

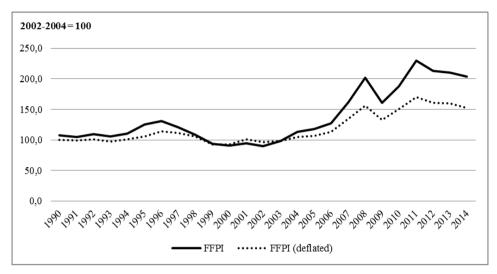


Figure 1 Development of indices over time Source: Food and Agriculture Organization of the United Nations

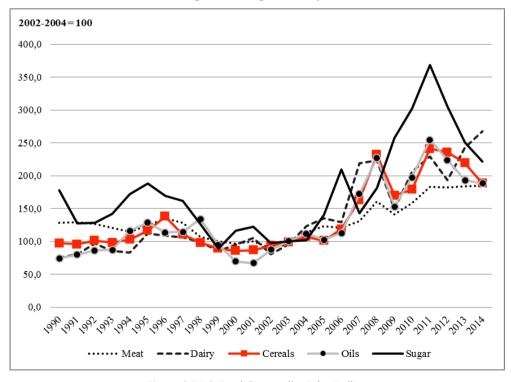


Figure 2 FAO Food Commodity Price Indices
Source: Food and Agriculture Organization of the United Nations

For creation a single-equation linear model we used following commands:

- > model1=lm(Mpi~1+Dpi+Cpi+Opi+Spi,data=data1)
- > summary(model1)

Estimated vectors of regression coefficients in the model generate impact of explanatory variables on the explained variable on significance level  $\alpha$ . Realized test of statistical significance of variables determine which explanatory variables we considered as important determinants of **Mpi**. This fact illustrates the following Table 1:

Table 1 Model 1 – coefficients

Residuals:									
Min	1Q	Median	3Q	Max					
-14.511	-10.336	2.430	5.768	18.0	21				
Coefficients:									
	Estimate	Std. Er	ror t	value	Pr(> t	)			
(Intercept)	59.50158	6.215	34	9.573	6.55e-09	***			
Dpi	0.17019	0.087	711	1.954	0.0649				
Cpi	0.42082	0.170	62	2.466	0.0228	*			
Opi	-0.25741	0.149	980 -	1.718	0.1012				
Spi	0.14527	0.054	190	2.646	0.0155	*			
Signif. cod	es: 0 '*	** <b>'</b> 0.001	\** <i>!</i>	0.01	'*' 0.05	`.'	0.1 '	<b>'</b> 1	
Residual standard error: 10.8 on 20 degrees of freedom									
Multiple R-squared: 0.8852, Adjusted R-squared: 0.8622									
F-statistic	: 38.55 01	n 4 and 2	20 DF,	p-va	<b>lue:</b> 3.91	17e-0	9		

Source: own processing in R 2.13.1

Table 2 Model 1 – tests

Normality test	<pre>jbTest(resid(model1))</pre>				
-	Jarque - Bera Normality Test				
	Test Results:				
	PARAMETER:				
	Sample Size: 25				
	STATISTIC:				
	LM: 0.972				
	ALM: 1.01				
	P VALUE:				
	LM p-value: 0.461				
	ALM p-value: 0.519				
	Asymptotic: 0.61				
Heteroscedasticity test	bptest(model1)				
	studentized Breusch-Pagan test				
	data: model1				
	BP = 8.1936, df = 4, p-value = 0.08474				

Autocorrelation test	dwtest(model1)				
	Durbin-Watson test				
	data: model1 DW = 0.6219, p-value = 4.735e-06				
Multicollinearity test	vif(model1)				
	Dpi Cpi Opi Spi 5.685721 16.353219 13.634986 3.299236				

Source: own processing in R 2.13.1

The test result indicates presence of autocorrelation in the tested model (p-value  $<\alpha$ ). The factor of changes in variability indicates strong multicollinearity if (VIF > 10). We need to remove unwanted present characteristics from the tested model [model1]. Therefore, it is necessary to replace the original variables with differentiate variables and create new model [model2].

- > model2=lm(diff(Mpi)~1+diff(Dpi)+diff(Cpi)+diff(Opi)+diff(Spi),data
  =data1)
- > summary(model2)

Table 3 Model 2 – ceofficients

Residuals:									
Min	1Q	Median	3Q	N	Иах				
-11.7284 -	-4.7067	0.5927	5.079	94 11.	.7570				
Coefficient	s:								
Coefficient	s:								
	Estimate	Std. Err	or t	value	Pr(> t )				
(Intercept)	0.0629	4 1.57	1353	0.040	0.968511				
diff(Dpi)	0.1852	6 0.06	385	2.902	0.009145	**			
diff(Cpi)	0.3647	5 0.09	9203	3.963	0.000833	***			
diff(Opi)	-0.1458	8 0.08	3867 -	-1.645	0.116393				
diff(Spi)	0.0710	5 0.03	3960	1.794	0.088746				
Signif. cod	des: 0 '	*** <b>'</b> 0.00	)1 '**'	0.01	<b>'*'</b> 0.05	`.'	0.1 '	,	1
Residual standard error: 7.428 on 19 degrees of freedom									
Multiple R-	Multiple R-squared: 0.7099, Adjusted R-squared: 0.6488								
F-statistic	: 11.62	on 4 and	19 DF,	p-va	alue: 6.07	72e-0	5		

Source: own processing in R 2.13.1

Based on the model test, we removed the exogenous variables, which, according to the obtained t-value showed as not significant.

- > model2=lm(diff(Mpi)~1+diff(Dpi)+diff(Cpi),data=data1)
- > summary(model2)

**Table 4** Model 2 – coefficients (without insignificant variables)

Residuals:	Residuals:							
Min	1Q Me	edian 3	Q Max					
-17.430 -5	.085 1.4	187 5.60	7 12.577					
Coefficient	s:							
Coefficient	Coefficients:							
	Estimate	Std. Erro	r t value	Pr(> t )				
(Intercept)	0.40237	1.6777	3 0.240	0.8128				
diff(Dpi)	0.11027	0.0580	8 1.898	0.0715 .				
diff(Cpi)	0.28410	0.0676	0 4.203	0.0004 ***				
Signif. cod	les: 0 <b>\</b> **	** 0.001	`**' 0.01	<b>'*'</b> 0.05 <b>\.'</b>	0.1 ' ' 1			
Residual standard error: 7.963 on 21 degrees of freedom								
Multiple R-	squared: (	.6315,	Adjusted	R-squared:	0.5964			
F-statistic	: 17.99 or	n 2 and 21	DF, p-va	lue: 2.802e-	05			

Source: own processing in R 2.13.1

Gradually improved "model2" appears to be optimal, values of variables (Pr (> | t |)) are sufficiently low. "Model2" has a good explanatory power, it can be tested on significance level  $\alpha = 0.05$ .

Table 5 Model 2 – test

Normality test	jbTest(resid(model2))						
	Jarque - Bera Normality Test						
	Test Results:						
	PARAMETER:						
	Sample Size: 24						
	STATISTIC:						
	LM: 1.133						
	ALM: 1.273						
	P VALUE:						
	LM p-value: 0.38						
	ALM p-value: 0.419						
	Asymptotic: 0.567						
Heteroskedasticity test	bptest(model2)						
-	studentized Breusch-Pagan test						
	data: model2						
	BP = 0.7111, df = 2, p-value = 0.7008						
Autocorrelation test	dwtest(model2)						
	Durbin-Watson test						
	data: model2						
	DW = 1.5255, p-value = 0.1337						
Multicollinearity test	vif(model2)						
	diff(Dpi) diff(Cpi)						
	1.261427 1.261427						

Source: own processing in R 2.13.1

#### 4. CONCLUSION

Tested "Model2" based on test scores was no longer burdened by any of undesirable characteristics. Resulting effect of statistically significant explanatory variables (Dpi, Cpi) for explained variable (Mpi) can be interpreted as follows: if the Dairy Price Index increases by 1 unit than Meat Price Index increases by 0.11027 unit, if Cereal Price Index increases by 1 unit than Meat Price Index increases by 0.28410 unit. The impact of these indices on Meat Price Index is a natural result because both of them are logically closely linked with it.

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# ANALYSIS OF FINANCIAL HEALTH BY QUICK TEST AT ACCOMMODATION FACILITIES IN SLOVAKIA

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#### Abstract

The article is devoted to analyzing the impact of selected non-financial criteria for evaluating the financial health of accommodation facilities by using Quick test. The analysis is based on the financial statements of selected Slovak accommodation facilities for the years 2008 - 2011 and the financial situation has been selected by two variants of the Quick test. The connection between selected non-financial criteria and conditions of financial health were analyzed by using appropriate statistical methods, that confirmed that the evaluating the financial health of accommodation has affected the size of the company - number of employees and the number of beds, that are typical characteristics of enterprises providing accommodation services.

Key words creditworthy models, Quick test, financial indicators, non – financial criteria

#### 1. INTRODUCTION

Prediction of the financial situation of enterprises in financial business management plays an important role in the time of financial crisis. Predictive models are among the instruments of financial prediction and divided into creditworthy and bankruptcy. The essence of creditworthy models is selected financial ratios score entering the individual models. On the basis of a numerical scale, we can determine the level of the financial health of the company. Bankruptcy models are among the mathematics-statistical methods. They have greater representation in comparison with creditworthy models and the difference is in the fact that the creditworthy models are used for the significance of individual preference indicator weight, entering into the model and evaluate the financial situation with the possibility of the financial situation prediction of enterprises.

The group of creditworthy models are following:

- Argenti model (A-SCORE),
- Balance sheet analysis of Doucha,
- · Ouick test,
- Tamari risk index. (Kotulič et al. 2010, Růčková 2011, Zalai et al., 2010)

#### 2. ANALYSIS OF QUICK TEST

Quick test (QT) is based on the transformation of individual ratio values of financial indicators for points. The points are assigned according to point scales, which are generally established by expert methods. The advantage is speed and simplicity, but it is only an approximate picture of the financial situation of enterprises. The model consists of four indicators (QT1-QT4), two of which are focused on the assessment of financial stability indicators and indicators for the assessment of the income status of the two. The methodology for assigning points to each indicator and total evaluation of model is different by different authors.

In the following table the comparison of the methodologies of individual indicators by selected authors is presented. In the lines M1 – M8 are the ways of calculation shown in the following breakdown: M1 – Růčková (2011, p. 81), M2 – Marinič (2008, p. 58-59), M3-Vochozka (2011, p. 116), M4 - Vochozka (2011, p. 117), M5 – Zalai et al. (2010, p. 121), M6 – Kotulič et al. (2007, p. 123), M7-Jenčová (2011, with 157-158), M8 - Horváthová - Bednárová (2012, p. 74 -75).

**Table 1** Comparison of the methodology for the calculation of indicators on the QT

	QT1	QT2	QT3	QT4
M1	E/A	(FC -CB)/NCF	EBIT/A	NCF/TO
M2	E/A	(TD – CB)/NCF	EBIT/A	NCF/S
M3	E/A	L/NCF	NCF/S	EBIT/S
M4	E/A	(L + BL)/ NCF	Profit/A	NCF/S
M5	(E/TC).100	(FC – CB)/CFR	(CFR/TO).100	(EBIT/TC)*100
M6	(E/TC).100	(FC - FB)/CFR	(CFR/TR).100	(EBIAT/TC)*100
M7	(E/A).100	L/NCF	(NCF/TR).100	(EBIT/TC)*100
M8	(E/A).100	FC /NCF	(NCF/TR).100	(EBIT/A)*100

(Source: own processing according to the literature)

#### LEGEND:

E = Equity FC = Foreign Capital = TD = Total Debts TC = Total Capital = A = Assets

BL = Bank loans CB = cash + accounts at banks = cash TR = Total Revenue

L = Liabilities S = Sales P = Profit

NCF = netto cash flow = EAT + Depreciation TO = Total Output

 $CFR = EBT + Depreciation \pm Reserve$ 

EBIT = EBT + Interest expense EBIAT = EBIT (1-d) d = rate of income tax

Vochozka (2011, p. 116-117) for a quick test (QT) describes two variants - the original variant of the QT and modified variant of QT (MQT), and the difference is in the fact that the resulting values are compared with the percentiles according to the industry, what is difficult for application in the calculations for MQT model. At the same time stating that in the original QT are awarded grades from 1-5, in a modified version of the MQT is defined by the point rating from 0 - 4.

After comparing the methodologies for the calculation of indicators, we come to the following conclusion – Slovak authors use percentages for indicators mentioned, QT1, QT2 and QT3. In terms of the methodology for the calculation of the indicator QT1 for all these authors are consensus.

The differences can be found in the total evaluation of a Quick test for these authors. Some Slovak authors [Zalai et al., (2010); Jenčová, (2011); Horváthová – Bednárová, (2012)] indicate that

the calculated indicators are assigned points from 1-5. The resulting rating is the sum of these points. The total point value of the model is moving at an interval of 4 to 20 points. The construction of a scale model shows that the financial situation of an enterprise is better, where the enterprise obtains a lower total number of points. Higher number of points predicts a worse financial situation of the enterprise.

Table 2 Evaluation for Quick test - way 1

INDICATOR	Intervals-points rating scale						
	1 point	2 points	3 points	4 points	5 points		
QT1	≥ 30 %	≥ 20 %	≥ 10 %	< 10 %	< 5 %		
QT2	≤3 years	≤ 5 years	≤ 12 years	> 12 years	> 30 years		
QT3	≥ 10 %	≥ 8 %	≥ 5 %	< 5 %	< 2 %		
QT4	≥ 15 %	≥ 12 %	≥8 %	< 8 %	< 4 %		
Total evaluation	4 - 6	6,1 - 10	10,1 – 14	14,1 - 18	18,1 - 20		
Financial situation	very good	good	medium	bad	very bad		

(Source: processed by Jenčová (2011, p. 158-159))

Authors, such as Zalai et al. (2010) and Kotulič et al. (2007), indicate different scoring in comparison with the previous table and they assigned the highest number of points = 5 (conformity is only for the indicator 2) and other indicators are assigned by 5 points only if they achieved negative values, while Jenčová (2011) deals with identifies even stricter. According to Kotulič et al. (2007, p. 124) overall evaluation of model is based on the average of the marks. If the enterprise reaches an average mark of less than 2 is labelled as a creditworthy enterprise and if the average mark is greater than 3, then the company is going to be bankrupted.

Different perspective on the scoring of that model is presented in the following table.

**Table 3** Evaluation for Ouick test – way 2

	0 points	1 point	2 points	3 points	4 points
QT1	< 0	0 - 0,1	0,1-0,2	0,2-0,3	> 0,3
QT2	> 30	12 – 30	5 -12	3 - 5	< 3
QT3	< 0	0 - 0.08	0,08 - 0,12	0,12-0,15	> 0,15
QT4	< 0	0 - 0.05	0,05-0,08	0,08 - 0,1	> 0,1

(Source: processed by Růčková (2011, p. 81), Marinič (2008, p. 95))

The authors of the Růčková (2011, p. 81) and Marinič (2008, p. 96) state that the evaluation of enterprises is carried out in three steps, shown in the following table.

Table 4 Evaluation methodology of using the Quick test

Table 4 Evaluation methodology of using the	Table 4 Evaluation methodology of using the Quiek test				
Verbal description		Mathematical expressions			
Evaluation of financial stability		FS = (QT1 + QT2)/2			
2. Evaluation of revenue situation		RS = (QT3 + QT4)/2			
3. Evaluation of the overall situation		OS = (FS + RS)/2			
TOTAL EVALUATION	> 3	creditworthy enterprise			
	1 - 3	grey zone			
	< 1	problems in financial management			

(Source: processed by Růčková (2011, p. 81), Marinič (2008, p. 96))

We can conclude that points moving in the range of 0 - 4 and are assigned in the opposite sense, as with previous authors, therefore the best values of the variables are assigned 4 points, the worst again 0 points.

The resulting evaluation of QT and MQT, which can be found at Vochozka (2011, s. 116, 118), is summarized in the following table.

Table 1 A comparison of evaluation Quick test and modified Quick test

The results of QT	Evaluation	The results of MQT	Evaluation
$1 \le QT \le 2$	creditworthy enterprise	$3.5 \le MQT \le 4$	very good enterprise
$2 \le QT \le 3$	grey zone	$2,5 \leq MQT < 3,5$	good enterprise
$3 < QT \le 5$	enterprise in bankruptcy	$1,5 \le MQT < 2,5$	the average enterprise
		$0.5 \leq MQT < 1.5$	weak enterprise
		$0 \le MQT < 0.5$	very weak enterprise

(Source: processed by Vochozka (2011, s. 116 a 118))

The quick test consists of four indicators, the first two indicators of which are focused on the assessment of financial stability and the other two on the assessment of the status of the income of the enterprise.

In the previous part of this paper different variants of this model have been compared, published in various professional resources.

For further processing, two variants of Quick test (QTM2 and QTM5) have been chosen due to differences in the methodology for the evaluation of the Quick test.

A variant of the QTM5 is based on a 5-point scale assessment of indicators, which are assigned in such a way that, in the overall evaluation of the financial situation of an undertaking the higher number of points indicates a negative assessment of the financial situation. The overall evaluation of the financial situation, it is provided for up to 5 zones (financial situation-very good, good, medium, bad, very bad).

The model QTM2 uses different scoring indicators ranging from 0 to 4 points and an overall evaluation is as follows:

$$QTM2 = [(QT1+QT2)/2 + (QT3+QT4)/2]/2$$

For the overall evaluation of the financial situation for the RTM5 are created by 3 zones:

- zone for creditworthy enterprise (the value of RTM5 should be greater than 3 points),
- the grey zone (enterprises which reached evaluation in the range of 1 to 3 points),
- zone for enterprises that have achieved evaluation less than 1 point and have problems in financial management.

A Quick test for the modification of the M2:

$$RTM2 = E/A + (TD - CB)/NCF + EBIT/A + NCF/S$$

A Quick test for the modification of the M5:

$$RTM5 = (E/TC).100 + (FC - CB)/CFR + (CFR/TO).100 + (EBIT/TC).100$$

When comparing the models RTM2 and RTM5, we can say that the difference is only for one indicator (RTM2 – NCF/S and RTM5 – (CFR/IT)) and other indicators are the same.

#### 3. MATERIALS AND METHODS

Article deals with analysis of the financial health of accommodation facilities by using the Quick test (QTM2 and QTM5) and deals with searching contexts between selected non-financial indicator and the financial health status of the selected enterprises.

The population set consists of accommodation facilities in Slovakia, which are based on the statistical classification of economic activities NACE Rev. 2 section I – Accommodation and catering services and sections 551 – hotel and similar accommodation. The research sample was created by a random selection of the population and consists of 46 enterprises, which financial statements for the period 2008-2011, will become the basis for the assessment of the financial situation by using Quick test.

Processing of evaluation financial health has been implemented in MS EXCEL. For prediction of the financial health development non-linear regression analysis was applied using STATISTICA V.10.

For analysis were selected 4 non-financial indicators such as the legal form, the class of accommodation, the number of employees and the number of beds in accommodation. Using statistical CHÍ-square test was verified the existence of contexts between selected non-financial indicators and financial health status evaluated by using RTM2, RTM5 and RTM5-2

#### 4. RESULTS AND DISCUSION

Assessment of the financial situation for the research sample is brought in the following graphical view.

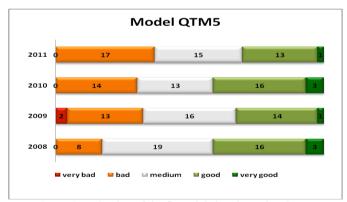
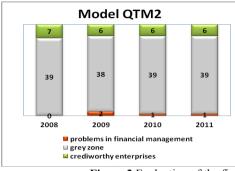
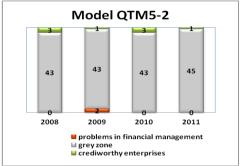


Figure 1 Evaluation of the financial situation using QTM5 (Source: own processing)

Very bad financial situation zone had only 2 enterprises in 2009. The number of enterprises in the zone of bad financial situation grew gradually. In 2008 there were only 8 such enterprises, in 2011 their number increased to 17, representing a 112.5% increase compared to 2008. Assessment of the financial situation was the highest for medium zone in 2008, where such enterprises were 19 (41.3% of the research sample). In the following years, their number decreased by 3 enterprises, and their number grew to 15 in 2011. 16 enterprises were in a good financial situation in 2008 and 2010, representing a 34.78 % proportion of the total number of enterprises. In a very good financial situation there were 3 enterprises in 2008 and 2010, in 2009 and 2011 in this zone there was included only 1.





**Figure 2** Evaluation of the financial situation using QTM2 and QTM5-2 (Source: own processing)

Interesting results were obtained by applying QTM2. The big surprise is 84.78% share of the undertakings included in the gray zone over the whole period. In this zone there were 39 enterprises. It was slight difference only in 2008, where their number decreased by 1 enterprise. The situation was stabilized in zone creditworthy enterprises. In 2008, this zone included 7 enterprises. In recent years, there were 6 enterprises that were roughly 13% of the total number of enterprises. The surprise in the assessment the financial situation of enterprises was that in the zone of problems in financial management was not any company in 2008. In 2009, only 2 enterprises belonged to this zone, in the following years the situation was the same (1 enterprise).

For the comparison of the results of the evaluation by using the QTM2 and QTM5, it was necessary to rethink 5-degree zone of QTM5 to 3-degree zone as QTM2. We have merged the financial situation as follows: zone "very good" of QTM5 as zone – creditworthy enterprises of QTM2. Into gray zone of QTM2 were included 3 zones of the QTM5 (good, medium, bad). The zone of very bad was assigned to the zone - problems in financial management. Assessment of the financial health enterprises using the OTM5-2 is approaching evaluation using the OTM2 what we could see in the previous graphic view.

Using regression analysis, we have compiled a non-linear models for the assessment of the financial situation for models RTM2 and RTM5 the average and median values of the financial situation enterprises the research sample.

Table 6 Overview of regression models for RTM2

Model		Regression model	p - value	$R^{2}(\%)$	Prediction	Zone
QTM2	Ø	$Y = 2,36 - 0,2X + 0,03X^2$	0,6432	58,63	2,11	2
QTM2	Me	$Y = 2,56 - 0,39X + 0,06X^2$	0,2582	93,33	2,19	2

(Source: own processing)

On the basis of results of applying of regression analysis, there could be concluded that the non-linear regression model of the median values for RTM2 reached a higher degree of variability than the non-linear model of the average values. P-value was not complied and regression models cannot be regarded as statistically significant. Prediction using the regression models included the research sample always into the gray zone, which ultimately can be considered average development within the group of enterprise engaged in the accommodation services.

Table 7 Overview of regression models for RTM5

Model		Regression model	p - value	$R^2(\%)$	Prediction	Zone
RTM5	Ø	$Y = 10,4946 + 0,9033X - 0,1141X^{2}$	0,6031	63,63	12,16	2
RTM5	Me	$Y = 10,125 + 1,075X - 0,125X^2$	0,3078	90,53	12,38	2

(Source: own processing)

Based on the above calculations we conclude that the non-linear regression models cannot be considered as statistically reliable, they have not been respected values of p. The development in the following period for both regression models estimates the RTM5 inclusion into the gray zone.

#### ANALYSIS OF SELECTED NON-FINANCIAL CRITERIA

Next part of the article deals with the analysis of contexts between selected non-financial criteria and condition of the financial health of the selected enterprises. The first non-financial criteria is a legal form. The research sample has represented 56.5% of the limited liability company and 43.5% of joint stock companies. The second of non-financial criteria represented class of accommodation (number of stars). The third non-financial criteria is the size category, which was examined in terms of the number of employees and in terms of the number of beds for accommodation facilities.

**Table 8** The distribution of enterprises by number of employees and by number of beds

Category of size enterprise	Number of employees	Number of enterprises	Category of facilities	Number of beds	Number of enterprises
Micro	4 – 9	5	Small	to 25	2
Small	10 – 49	22	Medium	25 - 99	11
Medium	50 – 249	17		100 - 249	23
Large	250 - 499	2	Big	over 250	10

(Source: own processing)

Using a statistical test Chi - square, there was tested if there is a connection between the selected non-financial criteria (legal form, class of accommodation, number of employees and number of beds) and condition of the financial health of hotel enterprises, that has been determined by Quick test. The results of this testing are given the next table.

**Table 9** Evaluation of the relation between non-financial criteria and financial health

NON-FINANCIAL CRITERIA	MODEL	CHÍ – SQUARE TEST	P - value
Legal form	RTM2	10,204	0,006
	RTM5	5,687	0,058
	RTM5-2	8,134	0,017
Class of accommodation	RTM2	9,565	0,297
	RTM5	11,046	0,199
	RTM5-2	3,961	0,861
Number of employees	RTM2	5,057	0,536
	RTM5	36,709	0,001
	RTM5-2	7,467	0,280
Number of beds	RTM2	9,061	0,170
	RTM5	19,151	0,004
	RTM5-2	4,309	0,635

(Source: own processing)

On the basis of the results obtained, it can be concluded that the connection between selected non-financial criteria and evaluating the financial health using the Quick tests in selected Slovak accommodation has not been demonstrated for non-financial criteria - class of accommodation.

A statistically significant connection was demonstrated for non-financial criteria - legal form and the financial situation by using RTM2 ( $\chi 2 = 10.204$ , p = 0.006) and RTM5-2 ( $\chi 2 = 8.134$ , p = 0.017). For non-financial criteria - number of employees was demonstrated statistically significant connection with the evaluation of the financial health enterprises using the model RTM5 ( $\chi 2 = 36.709$ , p = 0.001). A significant connection was demonstrated between the non-financial criteria - number of beds and condition the financial health of accommodations by using RTM5 model ( $\chi 2 = 19.151$ , p = 0.004).

#### 5. CONCLUSION

In the article the evaluation of the financial health by selected creditworthy prediction model - the Quick test (two variants of this model - RTM2 and RTM5) was analyzed.

In the analysis of the connections between the non-financial criteria (the legal form, the number of employees, the class of accommodation and the number of beds) and the evaluation of the financial health by using the Quick test (QTM2, QTM5 and QTM5-2) there is a statistically significant connection demonstrated for the non-financial criteria – the legal form, the number of employees and the number of beds

In conclusion we can conclude that Quick Test (its modify QTM5) as a model for prediction of the financial situation is recommended for Slovak enterprises providing accommodation services.

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# Application of non-financial indicators in evaluating the enterprise performance using the statistical methods

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#### Abstract

Business performance measurement has become an important phenomenon. To evaluate the performance the variety of methods are used. Nowadays conventional performance evaluation of enterprise with the use of financial indicators is not sufficient. This way of performance evaluation has some weaknesses, which can be removed by taking into account also non-financial indicators. The aim of this paper is to determine the influence of selected non-financial indicators on the enterprise performance. In meeting the objective and solving mentioned problem, standard research methods, such as comparative analyses and the method of analysis and synthesis are used. To verify the correctness of the selection of non-financial indicators and to analyse relationships between these indicators, the correlation matrix is applied. In addition to above mentioned methods, when creating strategic management map, the method of modelling will be used. The research and measurements conducted will result in the proposal of the strategic model, where the prognosis of strategic objectives until 2015 is carried out.

**Key words:** Balanced ScoreCard method, Correlation matrix, Economic Value Added, Non-financial indicators, Performance, Strategic management map

#### 1. INTRODUCTION

Nowadays the conventional performance evaluation of enterprises with the use of financial indicators is inadequate. When evaluating the performance of the company, the need to use new methods, tools and indicators assessing the financial aspects as well as other functional areas of the company, emerges more frequently. The increasing emphasis is given to the non-financial indicators, which contain measures focused on the assessment of the customer base, internal processes evaluation, assessment of the level and quality of personal staff, safety evaluation, supplier-consumer relations and many other indicators.

Despite the criticism of excessive use of the financial indicators in enterprise performance evaluation these indicators continue to be the most important. The values of these indicators reflect the impact of other perspectives and indicators of the Balanced ScoreCard method (BSC) (Kaplan, Norton, 2007). Financial perspective, as one of the four perspectives BSC, represents the financial performance of the enterprise. But in this perspective, it is necessary to shift to new indicators and methods of performance evaluation too.

#### 2. THEORETICAL DEFINITION OF THE PROBLEM

Currently the evaluation of the Slovak enterprise performance is applied with the use of three basic methods (Kislingerová, 2011)

- Evaluation using the set of indicators usually from the five areas of evaluation liquidity, activity, capital structure, profitability and market value. These groups are mutually independent and they constitute a parallel set of indicators. Some of these measures are key Performance Indicators (ROA Return on Assets, ROE Return on equity, Current liquidity, Interest coverage, Capital turnover, etc.).
- Evaluation with the use of set of indicators compiled as (arranged into) pyramidal decompositions, on the top of which is key synthetic indicator, as for example ROA - Return on assets or ROE - Return on equity. The latest pyramidal decomposition, developed in the Czech Republic is INFA model (Neumaierová, Neumaier, 2002).
- Evaluation with the use of one synthetic indicator which connects partial indicators and other statistical data into a single unit – one of the prediction models (Z – score, Taffler index, Credit score as well as the models of above mentioned authors - Inka Neumaierová and Ivan Neumaier – IN99, 01,05.)

These financial goals and measures represent focus point at which the goals and measures of other areas of business are targeted. Without considering the financial aspects of the business and without long-term profits the company would not exist. It is necessary to define objectives demonstrating the eligibility of future existence of the company, i.e. such capitalization of equity that in the view of other options represents the best solution. For this purpose, it is appropriate to use indicators of profitability and turnover, as well as indicators related to the liquidity of the company (Cash flow, Cash-to-cash, etc.). According to surveys conducted when implementing the system of performance evaluation in practice, among the most important performance measures occurred enterprise value measured by EVA - Economic Value Added, indicator FCF – Free Cash Flow, Return on assets, Liquidity, Cost ratio, Capital structure, WACC and other financial goals.

In the financial perspective it is important to monitor the satisfaction of the owners. In this context, it is necessary to measure the fulfilment of the most important objective – Net Present Value expressed by the EVA indicator. Model of corporate financial management INFA (Neumaierová, Neumaier, 2002) is the tool for value management in the financial perspective. It is a frame on which the other perspectives are based. Within the financial perspective the long-term as well as short-term enterprise performance measured by EVA indicator is monitored.

# 2.1 Selection of the appropriate financial objectives and indicators

When choosing financial objectives and indicators into the financial perspective, we have to pay attention to two facts.

The first of them states that when evaluating financial performance only on the basis of indicator of net profit and derived ratios, we get inaccurate data. We can make mistakes in the field of strategic management or remuneration for the following reasons:

- uncertainties from the accounting system (the precautionary principle, the accrual accounting system, etc.),
- the choice in the area of accounting procedures (form of depreciation, reserves, etc.),

#### - giving preference to the creditor's claims over the demand of owners and other distortions.

Therefore much more appropriate measure to evaluate the financial performance is the EVA (Economic Value Added) indicator reflecting the impact of the Cost of equity. It is in fact economic profit which evaluates the benefits for enterprise owners after paying the Rate of equity.

The second issue is related to the selection of financial targets. These targets may change during the life cycle of an enterprise and at every stage of this cycle different financial goal can be important. This fact should be taken into account in constructing the financial perspective of BSC. According to this, the enterprise sets financial goals ranging from aggressive growth to stability, closure and disposal. Simply we can say that there are three basic stages of the business life cycle: growth, expansion and mature (Kaplan, Norton 2007).

#### 2.2 Why are financial indicators not sufficient?

In all the above-mentioned evaluations, the financial indicators are dominant. The majority of these financial indicators are based on the financial accounting, which is established on accounting standards. These indicators are important for the measurement of financial performance, for tax purposes and also for capital markets (Kislingerová, 2011).

As the main weaknesses of these indicators are considered:

- most of the indicators are based on the historical data because they come from the financial statements, focus on these indicators leads to meeting short-term objectives and neglecting of long-term ones, connection to the strategy is missing, they often leads to thoughtless cost reduction at the expense of future development of the enterprise.
- these indicators do not affect any significant strategic areas, they are not suitable for forecasting the future development of the enterprise and formation of the corporate strategy, because they are considered to be lagging indicators,
- they are used to express objectives, particularly focusing on profitability, while there is a risk of customization of the results by enterprise management,
- some of them do not accept influence of environment, innovation, customer satisfaction, importance of intellectual capital, etc.,
- these indicators are often unreliable.

#### 2.3 Non-financial indicators

Above mentioned weaknesses of financial indicators can be removed by the use of non-financial ones. Application of non-financial indicators ensures incorporation of other areas and aspects of performance, which lead to long-term prosperity, to the measurement and management of performance. These indicators are considered to be leading indicators.

The establishment of non-financial indicators is closely related to the attempts to determine factors of the enterprise success. In the early 80s Peters and Waterman (1982) proposed eight factors leading to the business success, subsequently Chung, Daniel and Rockart designed also the critical factors of enterprise success. In the late 80s the Malcom Baldrige National Award, granted to excellent organizations in accordance with the seven criteria, was established in the USA. The aggregate concept of enterprises evaluation – the Balanced ScoreCard method - was introduced by Kaplan and Norton (2007). These authors added into assessment and measurement of performance also non-financial indicators in four perspectives. Resulting from their effort the strategic management map consisting of indicators of

financial perspective, customer perspective, internal business processes perspective and perspective of learning and growth was constructed. This strategic management map contains not only the objectives but also their drivers. Another method of enterprise evaluation utilizing non-financial indicators is the method of Harry Pollak (2004). In the early 90s the recommendations for creating excellent organization were formulated and The European Quality Award was also awarded. EFQM - Excellence Model emerged from the BSC concept, which reveals the strengths and weaknesses in order to improve the position of enterprise in the global world and competition.

#### 2.4 How to determine non-financial indicators

The determination of the non-financial indicators has to be based on long-term goals and strategies of the enterprise. Particularly demanding is the measurability of these indicators. Mentioned indicators are classified into tangible indicators, which are measurable as for example increase in the number of customers, increase in market share, reducing the time of customer service and others. The most difficult is the measurement of the second group of indicators, so called intangible indicators, as for example innovation, corporate culture, customer satisfaction, customer loyalty and others. If we are not able to express some of these indicators in physical units, we have to choose different indicator.

#### 2.5 The procedure for the selection of the indicators

Measurement of the enterprise performance with the use of indicators can be divided into three phases, according to which we proceed in the presented contribution.

- 1. Identification of the key measurable performance indicators.
- 2. Indicators measurement.
- 3. The use of indicators to plan in practice.

Since there are various non-financial indicators, it is necessary to classify them by:

- enterprise market position brand, market growth, market share, product price, the proportion of new products,
- customers customer satisfaction, customer loyalty, the speed of orders fulfilment,
- innovation new products and services, quality of the products and services, technological support and others.
- productivity new technologies, environment,
- employees employees satisfaction, fluctuation, training and others.

Ittner and Larcker (2003) introduce the following method of selecting non-financial indicators:

- to propose causation strategy model and set out key areas and indicators,
- to examine enterprise databases and the location of non-financial indicators in these databases.
- to verify the model and the relationships in it,
- to constantly upgrade the model, particularly in relation to the external environment,
- to implement activities based on the results and to use outcomes in decision-making,
- to control the results constantly, mainly on the basis of ex-post analysis.

Implementation of new and progressive package of indicators represents investment into IT systems, which have to be connected to the number of databases.

#### 3. DATA PROCESSING AND METHODS USED

The sample for the performance calculation and evaluation consists of companies running a business within the energy industry, namely three companies active in the field of electricity distribution in the Slovak Republic with the largest share on this market. As a source of information web pages and annual reports of these companies (Východoslovenská distribučná, a.s.), (Západoslovenská distribučná, a.s.), (Stredoslovenská energetika, a.s.) as well as web page of "Regulatory Office for Network Industries" are used. Whereas these companies require not to publish the data provided, they will be mentioned in this contribution only as DIS1, DIS2 and DIS3.

In this paper we focus on determining the impact of the selected fundamental factors on the enterprise performance. We put emphasis on the selection and application of the non-financial indicators specific for the analysed industry. In the light of above-mentioned, the following scientific problem is formulated: "Can the selection of non-financial indicators influence the final evaluation of enterprises performance"?

The choice of non-financial indicators influencing performance evaluation of the enterprise can be realized with the use of Balanced ScoreCard method (Kaplan, Norton, 1996), INFA model (Neumaierová, Neumaier, 2002), factor analysis (Grunwald, Holečková, 2009) and mathematical and statistical methods. Enterprise performance is measured and calculated with the use of the EVA indicator generally considered to be the top indicator of the enterprise performance evaluation. Established objectives and tasks are implemented with the use of mathematical and statistical methods.

For the transformation of the non-financial indicators and EVA indicator to the scores, the method of scoring is used. Each of the given indicators is assigned by corresponding number of points. The maximum score is 8 points. Indicators which fail to reach maximum number of points will be assigned the score with the use of formulas (1) and (2).

We calculate the scores of indicators, development of which should be growing, by putting the highest value of the indicator to the denominator of the equation (1).

$$\boldsymbol{b}_{ij} = \frac{x_{ij}}{x_{imax}} \times \mathbf{8} \tag{1}$$

We calculate the scores of indicators, development of which should be declining, by putting the lowest value of the indicator to the numerator of the equation (2):

$$\boldsymbol{b}_{ij} = \frac{x_{imin}}{x_{ij}} \times \mathbf{8} \tag{2}$$

Where

 $x_{ij}$  is the value of the j-th explanatory variable associated with enterprise i

is the highest value of the j-th explanatory variable assessed by 8 points, it refers to the indicators, development of which should be growing

x<sub>imin</sub> is the lowest value of the j-th explanatory variable assessed by 8 points, it refers to the indicators, development of which should be declining

b<sub>ii</sub> is the score of the enterprise i for the j-th explanatory variable

To assess the impact of the selected non-financial indicators on the EVA indicator the correlation matrix is applied. Its results are used to determine key non-financial indicators involved in the financial performance development of the selected companies.

Individual correlation matrices are processed with the use of software Statistica. This software in each of correlation matrices marks the correlations, in which P values are less than significance level of 0.05. In these cases we reject the null hypothesis  $H_{0x}$  in favour of the alternative hypothesis  $H_{1x}$ . Therefore we conclude that the studied linear relationship between given variables is statistically significant.

In meeting the target and solving the problem, other standard methods of research are used, such as comparative analysis, logic and the methods of analysis and synthesis. In addition to above mentioned methods, when creating strategic management map the method of modelling is applied.

In accordance with the stated objective and mentioned methods of solution, four scientific hypotheses were set up. These hypotheses were tested with the use of correlation matrix.

- $H_{01}$ : There is no statistically significant linear relationship between selected non-financial indicators
- H<sub>11</sub>: There is statistically significant linear relationship between selected non-financial indicators.
- $H_{02}$ : There is no statistically significant linear relationship between selected non-financial indicators and the EVA indicator.
- H<sub>12</sub>: There is statistically significant linear relationship between selected non-financial indicators and the EVA indicator

#### 4. RESULTS AND DISCUSSION

The first step in our research was the identification of the key non-financial performance indicators in terms of the selection procedure of non-financial measures. Since the energy industry and specifically companies active in the field of electricity distribution represented our research sample, we selected sectoral indicators of those companies as the non-financial indicators. The correctness of the selection of these indicators was verified using the correlation matrix (Table 4). When selecting indicators we have complied with the measures classification in accordance with the theory of Kaplan and Norton (2007). Selected set of indicators is given in Table 1.

Table 1 Selection of non-financial indicators for performance assessment

Evaluated area	Indicators	Unit of measure	Rationale for the selection
Financial perspective	Cost consumption (CC)	€/Point of supply	Key performance indicator in terms of the financial perspective
Financial perspective	Return on investment (ROI)	Ratio	Key performance indicator in terms of the financial perspective
Customer perspective	Point of supply profitability ( PSP)	%	Key performance indicator in terms of the customer perspective
Customer perspective	Tariff for electricity distribution without losses including electricity transmission - Voltage level Mv (TED)	€/MWh	Key performance indicator in terms of the customer perspective

Internal perspective of BSC	Energy efficiency of electricity distribution (EE)	%	Key performance indicator in terms of the internal perspective of BSC
Internal perspective of BSC	Share of losses in the electricity distribution (SL)	%	Key performance indicator in terms of the internal perspective of BSC
Internal perspective of BSC	Average interruption duration of electricity distribution to point of supply – Voltage level Mv (AID)	Minutes/Point of supply	Key performance indicator in terms of the internal perspective of BSC
Perspective of BSC potentials	Number of failure to comply with standard of quality events to recorded events (NFRE)	%	Key performance indicator in terms of the perspective of BSC potentials
Perspective of BSC potentials	Number of failure to comply with standard of quality events to employee (NFE)	Number/Employ ee	Key performance indicator in terms of the perspective of BSC potentials
Perspective of BSC potentials	Employee labor productivity (ELP)	€/Employee	Key performance indicator in terms of the perspective of BSC potentials

Source: Own processing

These indicators met the condition of measurability (Table 2) as well as condition of ensuring mutual relations between indicators (Table 4). This file consists of indicators reporting significant relationships of mutual dependence. The only indicator showing no relationship with non-financial indicators in the file is *Return on investment*; however, this indicator affects overall enterprise performance.

Table 2 Values of the selected non-financial indicators

Indicators	DIS1	DIS1	DIS2	DIS2	DIS3	DIS3
	2010	2011	2010	2011	2010	2011
Cost consumption	0.42	0.56	0.29	0.36	0.13	0.16
Return on investment	0.54	0.40	0.52	0.42	0.46	0.48
Point of supply profitability	5.80	10.24	15.18	17.89	30.77	33.71
Tariff for electricity distribution without losses including electricity transmission - Voltage level Mv	13.38	13.35	17.00	16.91	9.49	9.31
Energy efficiency of electricity distribution	93.33	94.13	90.48	92.08	91.55	91.87
Share of losses in the electricity distribution	6.54	5.74	9.30	7.70	8.33	7.99
Average interruption duration of electricity distribution to point of supply – Voltage level Mv	419.57	206.57	526.71	484.57	251.98	42.21
Number of failure to comply with standard of quality events to recorded events	2.05	4.06	2.52	1.59	1.14	0.44
Number of failure to comply with standard of quality events to employee	598.00	522.00	483.00	251.00	650.00	148.00
Employee labour productivity	1 003.83	1 129.10	850.52	980.88	3 457.7	3 048.71

Source: Own processing

Values of selected indicators were transformed to the scores. The total scores of the enterprises demonstrate that the best performance, assessed with the use of non-financial indicators, achieved enterprise DIS3. This enterprise in each of the selected indicators achieved nearly 8 points. Worst evaluated indicator for this company is indicator *Share of losses in the electricity distribution*. The lowest score of 37 points was achieved by enterprise DIS 2.

Table 3 The scores of selected non-financial indicators

Indicators	DIS1	DIS1	DIS2	DIS2	DIS3	DIS3
	2010	2011	2010	2011	2010	2011
Cost consumption	3	2	4	3	8	7
Return on investment	6	8	6	8	7	7
Point of supply profitability	1	2	4	4	7	8
Tariff for electricity distribution without losses including electricity transmission - Voltage level Mv	6	6	4	4	8	8
Energy efficiency of electricity distribution	8	8	8	8	8	8
Share of losses in the electricity distribution	7	8	5	6	6	6
Average interruption duration of electricity distribution to point of supply – Voltage level Mv	1	2	1	1	1	8
Number of failure to comply with standard of quality events to recorded events	2	1	1	2	3	8
Number of failure to comply with standard of quality events to employee	2	2	2	5	2	8
Employee labour productivity	2	3	2	2	8	7
Score	38	40	37	43	58	75

Source: Own processing

We applied correlation matrix to analyse relationships between indicators. Correlation matrix pointed out the significant dependencies between the indicators. Statistically significant relationship is between the indicators Cost consumption and Point of supply profitability, Cost consumption and Number of failure to comply with standard of quality events to recorded events. Between the indicators Point of supply profitability and Employee labour productivity is the same relationship, while Employee labour productivity shows also dependence with Tariff for electricity distribution without losses. Statistically significant linear relationship is between the indicators Energy efficiency of electricity distribution and Share of losses in the electricity distribution - it stands to reason because the losses in the electricity distribution negatively influence energy efficiency. Selected indicators do not show statistically significant linear relationship with EVA indicator, but correlation coefficients are sufficiently high. It can be concluded that there is relationship, but non-linear.

Table 4 The correlation matrix for non-financial indicators

		Maalaa		orrelatio	,			,	0 N-6		
				tions are				<u> </u>			
	CC	ROI	PSP	TED	EE	SL	AID	NFRE	NFE	ELP	EVA
CC	1.0000	2924	8774	.5158	.7553	7715	.2671	.8655	.2068	7940	.6889
	p=	p=.574	p=.022	p=.295	p=.082	p=.072	p=.609	p=.026	p=.694	p=.059	p=.130
ROI	2924	1.0000	1365	.0052	3720	.3788	.2917	2949	.2180	0600	4464
	p=.574	p=	p=.796	p=.992	p=.468	p=.459	p=.575	p=.570	p=.678	p=.910	p=.375
PSP	8774	1365	1.0000	6536	5175	.5334	5935	7632	4123	.8945	6318
	p=.022	p=.796	p=	p=.159	p=.293	p=.276	p=.214	p=.077	p=.417	p=.016	p=.178
TED	.5158	.0052	6536	1.0000	1272	.0989	.8647	.4740	0418	8977	.3512
	p=.295	p=.992	p=.159	p=	p=.810	p=.852	p=.026	p=.342	p=.937	p=.015	p=.495
EE	.7553	3720	5175	1272	1.0000	9995	2845	.5227	.1885	2525	.6126
	p=.082	p=.468	p=.293	p=.810	p=	p=.000	p=.585	p=.287	p=.721	p=.629	p=.196
SL	7715	.3788	.5334	.0989	9995	1.0000	.2642	5342	1777	.2779	6220
	p=.072	p=.459	p=.276	p=.852	p=.000	p=	p=.613	p=.275	p=.736	p=.594	p=.187
AID	.2671	.2917	5935	.8647	2845	.2642	1.0000	.2595	.2742	7208	.3860
	p=.609	p=.575	p=.214	p=.026	p=.585	p=.613	p=	p=.620	p=.599	p=.106	p=.450
NFRE	.8655	2949	7632	.4740	.5227	5342	.2595	1.0000	.4421	6723	.5952
	p=.026	p=.570	p=.077	p=.342	p=.287	p=.275	p=.620	p=	p=.380	p=.144	p=.213
NFE	.2068	.2180	4123	0418	.1885	1777	.2742	.4421	1.0000	0704	.5137
	p=.694	p=.678	p=.417	p=.937	p=.721	p=.736	p=.599	p=.380	p=	p=.895	p=.297
ELP	7940	0600	.8945	8977	2525	.2779	7208	6723	0704	1.0000	4598
	p=.059	p=.910	p=.016	p=.015	p=.629	p=.594	p=.106	p=.144	p=.895	p=	p=.359
EVA	.6889	4464	6318	.3512	.6126	6220	.3860	.5952	.5137	4598	1.0000
	p=.130	p=.375	p=.178	p=.495	p=.196	p=.187	p=.450	p=.213	p=.297	p=.359	p=

5. Source: Own processing

# 5.1 The procedure for the selection of the indicators

In terms of the theory of Ittner and Larcker (2003), who introduced the way of the selection and application of non-financial indicators, the selection and verification of the indicator's choice is followed by the formation of a strategic model (Figure 1).

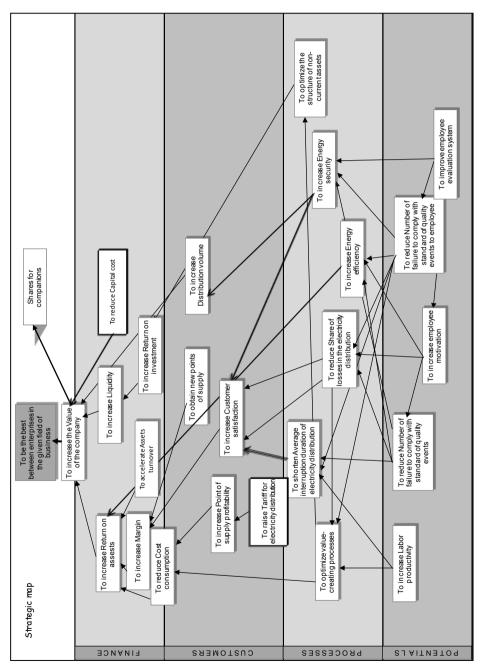


Figure 1 Strategic management map

Source: Own processing

When creating this model we applied selected indicators, as well as variables representing other perspectives of BSC model and propose strategic management map. This map is based on synthetic performance variable – EVA indicator. Strategic management map is divided into four perspectives; each of them contains selected number of targets and measures. Non-financial indicators occur mainly in customer perspective, internal perspective of BSC and perspective of BSC potentials.

This process does not finish by the proposal of strategic management map. It is necessary to monitor implementation of the objectives set out in the prognosis. The most appropriate way for pursuing objectives is the database which includes goals, measures, prognosis and control over its implementation (Table 5).

Table 5 Database of strategic objectives

No.	Perspective	Strategic objectives	Indicator	Measure	2012	2013	2014	2015
1	Finance	To increase the Value of the company	EVA	€	-75 610	-60 000	-4 000	0
2	Finance	To increase Return on assets	ROA	%	3.94	4.19	4.79	5.50
3	Finance	To accelerate Assets turnover	AT	Ratio	0.47	0.51	0.58	0.67
4	Finance	To increase Return on investment	ROI	%	4.20	4.50	4.90	5.89
5	Finance	To increase Margin	M	%	2.29	6.56	6.57	6.58
6	Finance	To reduce Capital cost	WACC	%	12.85	12.85	4.70	4.70
7	Finance	To increase Liquidity	CL	Ratio	0.66	1.05	1.21	1.33
8	Finance	To increase Cost consumption	CC	€/Number of points of supply	0.49	0.51	0.57	0.61
9	Customers	To increase Customer satisfaction	Questionnaire	Points	60.00	70.00	75.00	79.00
10	Customers	To increase Tariff for electricity distribution	Tariff	€/MWh	16.91	16.98	17.00	17.21
11	Customers	To increase Point of supply profitability	Profit/Point of supply*100	%	17.89	18.00	18.21	18.45
12	Customers	To obtain new Points of supply	Number of points of supply	Number	618 029	640 000	655 000	700 000
13	Customers	To increase Distribution volume	Distribution volume	TWh	3.90	4.00	4.10	4.20
14	Processes	To shorten Average interruption duration of electricity distribution	Period	Minutes	484.57	450.00	440.00	410.00
15	Processes	To reduce the Share of losses in the electricity distribution	Share of losses in the electricity distribution	%	7.70	7.60	7.50	7.45

16	Processes	To optimize the structure of non-current assets	OM	Ratio	0.47	0.51	0.58	0.67
17	Processes	To optimize value- creating processes	The number of optimized activities/ Number of activities	Ratio	0.10	0.15	0.20	0.25
18	Processes	To increase Energy efficiency of electricity distribution	The Amount of electricity supplied/overall distribution capacity	%	92.08	93.00	93.50	94.00
19	Potentials	To reduce Number of failure to comply with standard of quality events	Number of failure to comply with standard/ Number of events *100	%	1.59	1.56	1.54	1.50
20	Potentials	To reduce Number of Failure to Comply with Standard of Quality Events to Employee	Number/ Employee	Number/ Employee	251.00	230.00	200.00	170.00
21	Potentials	To increase employee motivation	Percentage of Turnover	%	10.00	8.00	6.00	5.00
22	Potentials	To increase employee labour productivity	Labour productivity	€/ Employee	980.88	990.00	995.00	1 000.00
23	Potentials	To improve employees evaluation system	Questionnaire	Average number of points per employee	78.00	80.00	83.00	87.00

Source: Own processing

For the successful application of the Balanced ScoreCard strategic model it is necessary to implement these steps:

- to build strategic causal model and set out its key areas and indicators,
- to verify enterprise databases and the location of non-financial indicators in them,
- to verify the model and the relationships inside it,
- to constantly upgrade the model, particularly in relation to the outside surroundings,
- to implement activities based on the results and to use the results in decision-making,
- to constantly supervise the results mainly on the basis of post analyses.

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# Benchmarking method for quality evaluation in hotel industry

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#### Abstract

Benchmarking is the process of comparing one's business processes and performance metrics to industry bests and/or best practices from other industries. There is no single benchmarking process that has been universally adopted. The wide appeal and acceptance of benchmarking has led to various benchmarking methodologies emerging. Benchmarking is successfully applied in the international hotel industry. This method gives answers to questions about the quality of hotel product. This paper treats the specific application of benchmarking for assessing the quality of hotel products. It analyzes the various types of benchmarking and assessing the most suitable species for use in hospitality. By using benchmarking method hoteliers can see how the clients compare their hotel to the other hotels. Competitive benchmarking compares on the following main criteria: prices, product, level of service, location, distribution channels. Benchmarking is undertaken in order to anticipate competitors' strategies. It can give two main answers: How will their selling strategies by segments evolve? How will that impact our demand to come to our hotel?

**Key words** benchmarking, hotel product, quality, evaluation, competitors

#### INTRODUCTION

The study of management is widespread in higher education institutions around the world, so, our country is no exception. Theoretical approach to management involves different techniques and methods, with the aim of realization of the vision, mission and strategy of the companies. Benchmarking is a method that is widespread in practice of management. However, it seems that in our country benchmarking still remains at a theoretical level. This is especially true of access to benchmarking as a method of evaluating the quality of products and services.

The subject of this paper is the application of benchmarking in the hotel industry. Hotel industry is a heterogeneous and complex economic sector. It is the material basis of tourism. The level of hotel industry development directly reflects the development of tourism. In Serbia, the hotel industry still comes across as a limiting factor for the development of tourism. Therefore, the aim of this paper is to show the possibility of the benchmarking methods application in order to create, maintain and improve hotel product quality.

#### BENCHMARKING AS A METHOD OF MANAGEMENT

In the literature one can find numerous definitions of "benchmarking":

• External view of internal activities, functions or operations in order to achieve continuous improvement (Ahmed and Rafiq, 1998., according to McNair and Leibfreid, 1992.)

- The process by which entrepreneurs identify and are financed by the industry leaders, comparing their products, services and practices and implement procedures to improve their performance to become equal to or better than the competition (Jafari, 2000.)
- Continuous, systematic process of evaluation of products, services or business organizations that are recognized as best practice with the aim of organizing improvement (Spendolini, 1992).
- The art of determining how and why some individuals or companies do business better than others (Kotler, 1994).
- Measuring your results with others and learning from others, most direct competitors. He begins by
  comparing their own strategies with the strategy competitors, continues to comparison of various
  business processes, products, technical solutions and functions of the competitors with their own
  solutions and functions, and therefore to know the current shortcomings and to assess opportunities
  to become better than your competitors (Ferišak, 1998.)
- A systematic procedure for comparative measurements with the aim to realize a continuous improvement (Wöber, 2002.)
- Techniques and tools to improve performance and to establish quality process directed toward the best (Fong, Cheng, Ho, 1995.)
  - The term benchmarking comes from the term benchmark. Benchmark is a norm or standard by which some phenomenon can be measured and assessed. Here comes to the fore the meaning of benchmarking as a method of quality evaluating. It is known that the quality of products and services is a market category that can be measured. So it is a comparison in relation to established standards that characterize the performance of products, services and processes. Benchmarking is a continuous process of identifying, understanding and adaptation of equipment, processes, products and services of organization with the best results in order to improve their own business (Kosar, Đurišić, 2010).
  - There are many different types of benchmarking:
- **Process benchmarking** the initiating firm focuses its observation and investigation of business processes with a goal of identifying and observing the best practices from one or more benchmark firms. Activity analysis will be required where the objective is to benchmark cost and efficiency; increasingly applied to back-office processes where outsourcing may be a consideration.
- Financial benchmarking performing a financial analysis and comparing the results in an effort to assess your overall competitiveness and productivity.
- Benchmarking from an investor perspective- extending the benchmarking universe to also compare to peer companies that can be considered alternative investment opportunities from the perspective of an investor.
- **Performance benchmarking** allows the initiator firm to assess their competitive position by comparing products and services with those of target firms.
- **Product benchmarking** the process of designing new products or upgrades to current ones. This process can sometimes involve reverse engineering which is taking apart competitors products to find strengths and weaknesses.
- Strategic benchmarking involves observing how others compete. This type is usually not industry specific, meaning it is best to look at other industries.
- Functional benchmarking a company will focus its benchmarking on a single function to
  improve the operation of that particular function. Complex functions such as Human Resources,
  Finance and Accounting and Information and Communication Technology are unlikely to be
  directly comparable in cost and efficiency terms and may need to be disaggregated into processes to
  make valid comparison.
- Best-in-class benchmarking involves studying the leading competitor or the company that best carries out a specific function.

 Operational benchmarking - embraces everything from staffing and productivity to office flow and analysis of procedures performed (Dumford, 2007).

In business practice there are two basic types of benchmarking: internal and external. Internal benchmarking is carried out within the organization, to identify delay Strengths, Weaknesses, Opportunities and Threats (SWOT analysis). In this way, it made business insight, and conducts a kind of quality control of products, services and processes. External benchmarking is a process of comparison with other organizations. It appears in several forms: competitive, trans-industrial and sector benchmarking. When done in comparison with organizations within the same sector, then it is the competition benchmarking. When comparing the organization performs relative to the aggregate indicators concentrate on the level of sectors or industries, then it is the sector benchmarking. Sector benchmarking is territorially defined. When it comes to comparison with other organizations in the sector, thus non-competitors, then it is the trans-industrial benchmarking. Trans-industrial benchmarking can be conducted in relation to the activities of other organizations operating in the same socio-political conditions (Kosar, Đurišić, 2010).

#### BENCHMARKING APPLICATION IN HOTEL INDUSTRY

Benchmarking is applied in hotel management. It is often used in order to achieve business strategies, and less as a method of quality evaluation. International consulting companies use benchmarking methods in their research, to analyze the situation and to project the future development of hotel industry in a certain area. The work of these companies can be considered a sector destination benchmarking. Destination benchmarking can have a very great deal of space. It can be seen in the tabular overview that follows.

Table no. 1- Word Regions - Main Hotel Industry Results

August 2011 vs August 2010 (in Euros)											
Region	Occ %		AI	ADR		RevPAR		% Change from 08 10			
	2011	2010	2011	2010	2011	2010	Occ	ADR	RevPAR		
Asia Pacific	68,1	68,0	98,74	100,24	67,27	68,21	0,1	-1,5	-1,4		
Central&South Asia	52,3	56,8	95,71	106,99	50,07	60,73	-7,8	-10,5	-17,6		
Northeastern Asia	68,9	69,5	90,99	96,07	62,65	66,73	-0,9	-5,3	-6,1		
Southeastern Asia	66,2	63,7	98,84	98,66	65,47	62,80	4,0	0,2	4,2		
Australia&Oceania	74,6	72,6	122,19	111,98	91,12	81,31	2,7	9,1	12,1		
Americas	66,3	64,1	72,28	79,34	47,93	50,84	3,5	-8,9	-5,7		
North America	66,4	64,1	71,61	78,77	47,53	50,48	3,6	-9,1	-5,8		
Caribbean	59,8	60,3	99,66	110,49	59,63	66,65	-0,8	-9,8	-10,5		
Central America	58,4	60,9	72,93	83,03	42,57	50,55	-4,1	-12,2	-15,8		

South America	68,4	67,4	99,00	93,88	67,76	63,26	1,6	5,5	7,1
Europe	71,0	69,2	94,96	96,53	67,37	66,80	2,5	-1,6	0,9
Eastern Europe	65,8	61,9	72,37	72,91	47,60	45,10	6,3	-0,7	5,5
Northern Europe	77,2	74,8	84,75	89,25	65,45	66,78	3,2	-5,0	-2,0
Southern Europe	68,5	66,2	111,29	110,90	76,29	73,46	3,5	0,4	3,8
Western Europe	66,3	66,3	102,26	101,05	67,83	67,04	0,0	1,2	1,2
Middle East/Africa	48,3	53,4	103,44	104,35	49,98	55,71	-9,5	-0,9	-10,3
Middle East	45,4	48,9	137,70	135,21	62,47	66,12	-7,2	1,8	-5,5
Northern Africa	44,1	61,6	48,38	64,41	21,36	39,70	-28,4	-24,9	-46,2
Southern Africa	56,3	53,8	90,21	97,64	50,78	52,50	4,7	-7,6	-3,3

Source: 2011 STR Global Limited, www.strglobal.com

Explanations of abbreviations:

ADR – Average Daily Rate (Room revenue divided by rooms sold);

Occ – Occupancy (Rooms sold divided by rooms available multiplied by 100);

RevPAR – Revenue Per Available Room (Room revenue divided by rooms available).

Based on data from the Table no. 1, achieved results can be compared toward regions. It is also possible to see the best relations between the presented indicators. This form of sector destination benchmarking is suitable for defining and implementing the development strategy of regional professional associations dealing with tourism and hotel industry.

The second example also applies to external, sector and destination benchmarking. This time the focus is on hotel chains which operate hotels with 4 and 5 stars in selected European cities that are famous tourist destinations. The benchmarking survey is undertaken by TRI Hospitality Consulting.

Table no. 2 - Selected European cities - Main Hotel Industry Results (December 2010, in Euros)

City	Occ %	ARR	RevPAR	TrevPAR	Payroll %	GOPPAR
Amsterdam	58,4	151,75	88,63	136,57	35,7	41,54
Barcelona	45,1	109,01	49,20	75,81	50,1	4,30
Berlin	59,4	113,11	67,21	113,33	31,3	34,27
Budapest	47,4	82,61	39,15	70,47	39,6	5,62
Frankfurt	59,0	99,50	58,68	100,45	33,3	27,26
London	76,5	177,16	135,60	205,14	24,3	108,83

Paris	69,0	173,72	119,82	192,88	44,0	47,51
Prague	58,0	80,74	46,79	92,82	25,0	23,13
Vienna	74,7	136,56	102,04	178,70	33,9	59,74
Zurich	73,7	151,14	111,39	206,67	35,1	63,52

Source: TRI Hospitality Consulting 2010, http://www.hotstats.com/Home.apx?pID=57-0

Explanations of abbreviations:

ARR – Average Room Rate (the total bedroom revenue for the period divided by the total bedrooms occupied during the period);

TrevPAR – Total Revpar (the combined total of all revenues divided by the total available rooms during the period);

Payroll - the payroll for all hotels in the sample as a percentage of total revenue;

GOP PAR - the Total Gross Operating Profit for the period divided by the total available rooms during the period.

London, Vienna and Zurich are the cities with hotel occupancy percentage above 70. The highest average room rate was achieved in London, Paris, Amsterdam and Zurich, over 150 Euros. The largest revenue per room was realized in London, Paris, Zurich and Vienna, over 100 Euros. The leading cities of the total revenue per available room are Zurich and London (over 200 Euros), as well as Paris and Vienna (over 150 Euros). The largest share of the payroll in total revenue can be seen in Barcelona and Paris, and the smallest in London and Prague. The highest Total Gross Operating Profit per available room is realized in London, over 100 Euros. It can be concluded that London is the European city with the best indicators of hotel chain business in hotels with 4 or 5 stars. London could serve as a benchmark for the development of hotel industry in European cities. According to indicators realized in London, limited standards required to achieve an adequate level of quality can be set by hotel companies and municipal tourist and hotel associations.

#### BENCHMARKING AS A TOOL FOR HOTEL PRODUCT QUALITY RATING

An external type of competitive benchmarking as a tool for measuring quality is usually applied in the hotel industry. Applying this type of benchmarking is widespread among international hotel chains. Each hotel chain has its own internal standards which are obligatory for all hotels under the same name. These standards apply to all the key tangible and intangible components of an integrated hotel product. They may be the subject of external competitive benchmarking. These standards are intended to perceive own position in relation to competitors who achieve the best results in the market. Comparative analysis of own and competing standards can assist in reviewing and setting new standards in those parts of the hotel where the worst results are achieved.

Customer satisfaction is an important indicator of hotel product quality that is used in benchmarking. The main indicator of customer satisfaction is the Customer Satisfaction Index (CSI). Among the best known techniques of objective measurement of customer satisfaction of products and services is the U.S. index of consumer satisfaction / ACSI - American Customer Satisfaction Index / (Gerson, 1994). ACSI model determines the degree of customer satisfaction on a particular methodology, based on measurement of customer expectations, perceived (received) and perceived quality (derived) values. Customer expectations are formed based on the perceived needs and external stimuli. For example, condition, location, layout and equipment of the tourist and hotel facilities, or conduct, professionalism, appearance of employees can have a significant impact on the formation of expectations. Perceived quality of customer experience includes the value of services carried out. Perceived value is a value that

expresses the degree of compliance of the customer's expectations and perceived quality of services implemented. The average ACSI is expressed as a percentage (of a possible 100%) and the result is derived on the basis of three key components: the degree of overall satisfaction, the degree of fulfillment of expectations and the degree of deviation from the ideal.

Modeled on the U.S., the ECSI (European index of consumer satisfaction) has developed to be based on its own methodology to objectively investigate the behavior of European consumers and their degree of satisfaction. Taking into account the variations in consumer behavior depending on the impact of ethnosociological, socio-economic and physical-geographical factors, many countries have developed their own methodology for calculating the index of consumer satisfaction (Kosar, Đurišić, 2010).

The example of the best ranked hotels in Berlin, based on the Customer Satisfaction Index in the period from March 2010 to February 2011 is presented in Table no. 3.

Table no. 3 – The Best Hotels in Berlin according to GRI

Table 10. 5 The Best Hotels in Berlin according to GRI			
Hotel	GRI %		
The Ritz-Carlton Berlin (The Ritz-Carlton Hotel Company)	94,69		
The Regent Berlin (Rezidor Hotel Group)	94,36		
Casa Camper Berlin (Casa Camper)	94.02		
Alma Schlosshotel im Grunewald (AlmaHotels)	93,93		
The Circus Hotel (The Circus)	93,88		
Grand Hyatt Berlin (Hyatt Hotels Corporation)	93,16		
Adlon Kempinski Berlin (Kempinski Hotels)			
Swissôtel Berlin (Swissôtel Hotels & Resorts)			
Hotel de Rome (The Rocco Forte Collection)	92,47		
The Mandala Hotel (The Mandala Hotel GmbH)	92,22		

Source: ReviewPro. March 8, 2011, <a href="http://www.reviewpro.com/reviewpro-announces-top-10-hotels-in-berlin-according-to-online-guest-satisfaction-2238">http://www.reviewpro.com/reviewpro-announces-top-10-hotels-in-berlin-according-to-online-guest-satisfaction-2238</a>

The ranking is based on the Global Review Index (GRI), a proprietary algorithm developed by ReviewPro in conjunction with leading hotel industry experts. ReviewPro provides the analysis, customer intelligence, competitive benchmarking and reporting needed to help hotel professionals more effectively manage their organization. GRI enables hotels to know their current quality score, track their performance over time and compare their online reputation to their competitors or to other hotels within their chain with a single index. The GRI takes into account user reviews from over 70 million online reviews across 60 travel review sites and Online Travel Agencies. Currently, the Global Review Index is being used both as a key internal metric and to establish online reputation objectives for numerous hotels around the world.

The efficiency of benchmarking in the process of evaluation hotel product quality is based on the availability of necessary data and information and on their mutual comparability. Hotels that have been introduced to the QMS ISO9001 standards are at an advantage compared to others. Documentation

Management is an integral part of the QMS. It enables permanent monitoring of basic indicators of business. This ensures comparability with its competitors in the process of benchmarking.

During the introduction of the QMS in the hotel it is important to properly define all the components of hotel product quality, as well as the means of their monitoring and measurement. QMS requires constant improvement as one of eight key principles. To make these improvements contributed to the achievement of hotel strategic goals it is necessary to apply the benchmarking method.

The internal benchmarking is also applied in the hotel industry. This type of benchmarking is mostly used by international hotel chains. International hotel chains compare hotel business consisted, and measure possible deviations from established standards. However, internal benchmarking can be applied inside a hotel. It is known that the hotel product consists of different components, so it is difficult to achieve consistent quality of each. Also are known the specificities of consumption of multiple products during the hotel guest's stay at the hotel. These specificities may be authorized to inconsistency of hotel product quality. It is therefore important to build a methodology for internal benchmarking. In this way we can compare the quality of the components of different organizational units in the hotel.

For business efficiency in the hotel industry should be applied various types of benchmarking, both external, and internal.

#### CONCLUSION

For the successful implementation of benchmarking it is necessary to develop the activities of specialized companies that follow the main indicators of doing business in hotel industry and develop instruments for measuring quality, hiring top hotel experts. The paper demonstrates that such companies exist in developed countries. In Serbia, even in the nearest environment, the use of benchmarking in hotel industry is still at an early stage. A good idea would be to form regional associations of hotel experts who would through their consulting activities and services provide benchmarking. This means help in choosing the appropriate type of benchmarking, indicators of quality that are the subject of comparisons, as well as determining the limits of standards that guarantee the success of the business. On this way it is possible to achieve a significant contribution to increasing the quality of hotel products and to developing hotel industry by using benchmarking methods.

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## Decision-making and problem solving in real life using parallel Monte Carlo Simulations.

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#### Abstract

Every day, millions of people solve problems and make decisions based on their intuition or other soft skills. Using some of the decision-making methods, we can solve many of those situations more precisely. One of such a method can be Monte Carlo Simulations. The first part of this article is short introduction to Monte Carlo with few examples. The second part contains definition of real-life personal logistic problem and solution with Monte Carlo Simulation. Algorithm is implemented using MPI and C++ and simulated on computer cluster. The speedup of parallel computation is compared with serial algorithm.

Key words Monte Carlo simulations, Monte Carlo Method, problem solving, logistic

#### 1. INTRODUCTION

Monte Carlo methods are computational algorithms that rely on repeated random sampling to obtain numerical results. For example, by running simulations many times over in order to calculate those same probabilities heuristically just like actually playing and recording the results in a real casino situation. Monte Carlo methods are mainly used in three distinct problems: optimization, numerical integration and generation of samples from a probability distribution.

There is no consensus on how Monte Carlo should be defined. For example, Ripley [7] defines most probabilistic modeling as stochastic simulation, with Monte Carlo being reserved for Monte Carlo integration and Monte Carlo statistical tests. Sawilowsky [8, pp. 218-225] distinguishes between a simulation, a Monte Carlo method, and a Monte Carlo simulation. Kalos and Whitlock [4] point out that such distinctions are not always easy to maintain. For example, the emission of radiation from atoms is a natural stochastic process. It can be simulated directly, or its average behavior can be described by stochastic equations that can themselves be solved using Monte Carlo methods.

#### 2. SIMPLE EXAMPLES

#### 2.1 Birthday paradox

Simple examples of Monte Carlo Simulations are really very simple. We can use one of the most classic problems in probability – birthday paradox. This is simple problem with quite long answer.

The basic idea is to find out, if in a group of n people at least two people share the same birthday. There are three assumptions:

- We assume that all 365 days of the year (for simplicity, we ignore leap years) are equally likely birthdays.
- b) There are no twins in the room.
- c) There are no more than 365 people in the room. In case of n > 365, the probability is equal to 1.

#### 2.1.1 Classical approach

We can ask every person in the group of *n* people to reveal their birthday, we get an ordered n-tuple of birthdays. The sample space  $\Omega$  is the set of all n-tuples of birthdays and  $|\Omega| = 365^n$ .

Based on assumptions, each outcome of  $\Omega$  is equally likely to occur with probability  $1/365^n$ . We would like to know probability of event  $A = \{there \ is \ at \ leas \ one \ match \ among \ the \ n \ birthdays\}$ . Since there are a lot of cases to consider while computing |A| directly, it is simpler to compute complementary event  $A' = \{there \ is \ no \ match \ among \ the \ n \ birthdays\}$ .

The outcomes in  $\mathbf{A}$ ' are ordered arrangements of n numbers chosen from 365 numbers without repetitions. Therefore:

$$|A'| = 365 \times 364 \times 363 \dots (365 - n + 1)$$

The probability of no match is:

$$P(A') = \frac{365 \times 364 \times 363 \dots (365 - n + 1)}{365^n}$$

And the probability of at least one match is:

$$P(A) = 1 - \frac{365 \times 364 \times 363 \dots (365 - n + 1)}{365^n}$$

Even for small groups (small *n*) the probability is surprisingly large:

- For n=23, P(A)=0,507. For group of 23 people, there is more than half chance of having the same birthday.
- For group of 106 people (n=106), the probability of birthday match is almost certain: P(A) = 0.99999999.

#### 2.1.2 Monte Carlo solution

Using Monte Carlo simulation to solve this problem can be summarized into simple 4-step algorithm [5, p. 2]:

- 1) Pick n random numbers (days) in the range: 1 365.
- 2) Check if any of the n numbers are equal.
- 3) Go back to step 1 and repeat 10 000 times.
- 4) Report the fraction of trials with sucesfull match.

#### 2.2 Estimating $\pi$ with Buffon's needle experiment

Buffon's Needle is one of the oldest problems in the field of geometrical probability. The problem was first posed by the French naturalist Buffon in 1733 [2, pp. 43-45] and reproduced with solution by Buffon in 1777 [1, pp. 100-104].

Buffon's Needle refers to simple Monte Carlo method for the estimation of the value of  $\pi$ . The idea assumes there is a paper with parallel lines that are equally spaced (e.g. 10 cm) and needle, which is also 10 cm long. During the experiment, the needle is dropped on the paper, which produce two possibilities:

- a) The needle touches or crosses one of the lines.
- b) The needle does not cross or touch the lines.

Experiment is based on numerous repetition of the needle dropping (see. Fig. 1) and keeping track of both the total number of times the needle is randomly dropped on the paper (N) and the number of times it crosses (or touches) a line (C). If experiment is repeated enough, the number 2N/C approaches the value of  $\pi$ .

Source: Author's design.

Fig. 1: Buffon's Needle experiment.

#### 3. PARALLEL COMPUTING - TECHNICAL AND SOFTWARE SOLUTION

When designing the implementation of parallel computing algorithm, it is necessary to, in addition to the algorithm itself, choose the right platform that enables the optimal use of allocated resources and thus accelerate the calculation. There are several possibilities: from the large, millions dollars, "supercomputers" to simply connect standard PCs using a standard network and the necessary software. The new and increasingly popular option is renting capacity in a Cloud. This method allows us dynamically allocate technical resources and optimize expenses.

During the development stage, the PC with dual-core processor was used. This solution allowed us to use parallel computation and communication with 2 physical units (cores) without multicore simulations. The algorithm was tested on a cluster located within the United Institute of Nuclear Research in Dubna in Russia.

As important as parallel platform are appropriate software tools. To implement the algorithm, we chose a higher programming language C++. Greater abstraction language allowed us to focus more on the algorithm itself, while a high-performance of language meet our requirements. The implementation of the algorithm uses only the standard C++ libraries with the exception of MPI (Message Passing Interface) and Mersenne Twister pseudo-random number generator implementation in C++ by Jasper Bedaux.

Because of the required summarization of calculated data from different cores into the main one, it was necessary to choose efficient interprocess communication mechanism. Unofficial standard in this area-MPI - was selected. Standard specification defines the MPI library subroutines, which contain communication functions to transfer data between processors, functions performing collective operations over some set of processors, and many other functions that deal with the transmission of messages and dynamically creating new processes. There are three popular implementation of MPI. There is a highly portable implementation of the MPI standard - MPICH, for a variety of parallel and distributed computing environments. OpenMP model is suitable for multiprocessor systems with shared memory. For this implementation we chose OpenMPI library, for its high adaptation on high-performance clusters in the world, including the one in Dubna. The MPI core functions have been used for interprocess communication including MPI Reduce.

#### 3.1 Mersenne Twister

Monte Carlo Simulations are based on probability and randomness and thus algorithm requires high quality number generator. Mersenne Twister (MT) is a pseudorandom number generating algorithm developed by Makoto Matsumoto and Takuji Nishimura (alphabetical order) in 1996/1997. [6, pp. 3-30] Main advantages of MT and reasons for using in Monte Carlo simulations are:

- Fast generation.
- It is designed with consideration on the flaws of various existing generators.
- Efficient use of the memory.
- Far longer period and far higher order of equidistribution than any other implemented generators. It is proved that the period is 2<sup>19937</sup>-1, and 623-dimensional equidistribution property is assured.
- High quality implementation in C++ by Jasper Bedaux.

#### 4. MORNING MEETING PROBLEM

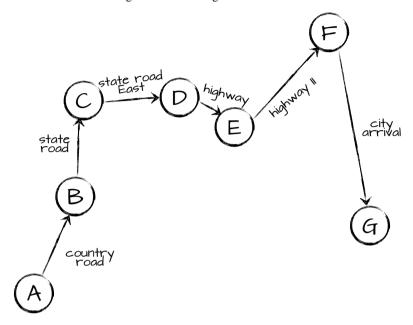
There are much more complex problems which can be solved by Monte Carlo Simulations. But for demonstration purposes, the "morning meeting problem" was chosen. Its simplicity allowed us to demonstrate algorithms and ideas behind Monte Carlo Simulation. "The morning meeting problem" is based on ideas in Armando Jeronymo's article "Running Monte Carlo Simulations in PHP" [3].

Problem is based on logistic route planning from home to the meeting in the other city. Person, call him David, has a very important Monday morning meeting. David must not be late, so he is planning his route and timing in advance. He split the path into several parts, based on type of road (see Fig. 2).

After that, he realized that there might be some extra events before or during the ride. These events might affect arrival time and thus make him come to meeting late. In this model, we choose two events. First one is taking child to school and second one is about checking tires.

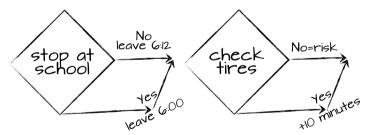
First event is purely based on personal feelings. If he takes daughter to school, he will have to leave 10 minutes earlier but it will help his wife. Checking tires is different situations. If he will stop and check the tires, he would be certain of their pressure. Otherwise, he would have to travel with the uncertainty. Poor tire pressure could have an effect on driving stability and speed. Both events are sketched on Fig. 3.

Fig. 2: Sketch of stages of route.



Source: Author's design.

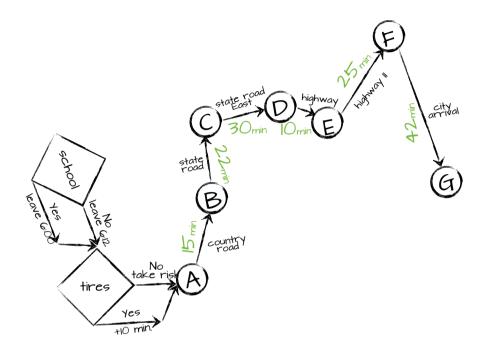
Fig. 3: Events.



Source: Author's design.

After consideration of all possible events, he adds travel time to each stage of the route. These estimations are based on memory or other sources like GPS. Final route sketching is on Fig. 4. Until now, this is only very simple logistic problem. But real life is, in most situations, not based on our simple planning and requires some amount of probability. Even with some time reserves, one or two unexpected events like traffic jam or accident might slow down Dave and cause late arrival. We will use Monte Carlo method to add some level of randomness to this model and run calculations many times to get probability of our successful route.

Fig. 4: Full sketch of route with estimated times.



Source: Author's design.

#### 5. MONTE CARLO SIMULATION IMPLEMENTATION

Solution to the Morning meeting problem is quite simple with Monte Carlo Simulation. We just need to add some random probability to each stage of route. The estimated time en route is 144 minutes, without events. Our ETA (estimated time of arrival) might change because of the unpredictable events like fog, accidents, traffic etc. We set probability of up to 20% of being late. So each stage of route may last up to 20% longer. On the other side, good weather, low traffic and other elements may impact our ETA positively, so we make get to the meeting sooner. For this situation, we choose up to probability 10% of positive situation, so each stage of route may take as low as 90% of planned time. It is up to decision maker to determine the optimal dispersion.

To make situation more real, we added events into the story. These are decision-making points, whether to take more time, to start earlier, to take or not to take risk etc. In the described situation, we have two events. Taking the child to school and checking tires. We can estimate the time required for each event. As with stages of route, time required for events can also extend or reduce. We set 96% - 106% variability of event time.

We cannot skip part of the route but we can skip event. Because of that, algorithm has 3 settings for events. First one means that we skip all events. The absolute opposite is third option, where we take all events. The second option is based of generated probability. There is 50% chance of event happening.

Algorithm will take all these settings and will, with configured probability, calculate time required for trip. Because Monte Carlo simulation relies on the convergence of the mean result of a sequence of identical experiment, we run these calculations a lot of times with different random generated values and program returns us "confidence level" which indicates what is probability of getting to other city on time.

We run **5830** iterations of computation on **4** processors. **4652** successful on time arrives equals **0.7979** confidence level or **79%** probability or arriving on time.

#### 5.1 Bigger simulation

To make things more interesting and parallel solution more visibly effective, we multiply number of route segments and events. Algorithm will generate all required data. For testing purposes, we use these settings:

• Number of Route segments: **80 000** 

Time reserve: 14%Number of Events: 200

Number of iterations: 5 830 000
Length of one segment: 1 - 40
Length of one event: 1 - 10

• Random variability of length of route segment: 90% - 125%

Probability of event: 50%

• Random variability of length of event: 96% - 106%

In this simulation, total number of calculations is **467 566 000 000**. Although each calculation is only simple multiplying and random number generation, the number of them is pushing us to use parallel computation. Parallelization was realized by simply splitting iterations between multiple processors. To preserve randomness, each processor has its own unique seed. After processors finish the calculations, first processor will gather results using **Reduce** method. The time required for calculations on different processor configurations is in Tab. 1.

Tab. 1: Speed-up of parallel algorithm.

Number of procesors	1	20	
Time of calculation	6 hours 27 minutes	42,2 minutes	
Speed-up		9,21	

Source: Author's research.

#### 6. CONCLUSION

Although all mentioned examples of Monte Carlo simulation are very simple, they clearly show that Monte Carlo Simulation is a very potent tool. One of the biggest advantages is simple parallelization and great speed-up. Some Monte Carlo Simulations are so complex that they require few days to calculate enough iterations to get required accuracy of confidence.

Monte Carlo simulation is used in different fields. For example in Physical sciences, Engineering (in wind energy yield analysis), computational biology, computer graphics, applied statistics (to compare competing statistics for small samples under realistic data conditions), artificial intelligence for games, finance and business etc.

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# Development strategies of SMEs: interconnectivity to regional innovation strategies and support programs

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#### Abstract

The success and growth of regions is based on its capacity to create, disseminate and apply knowledge, to innovate and develop new technologies. When discussing regional development processes small and medium sized enterprises (SMEs) must be taken into consideration because this group represents important actor of regional development. In this context the attention is paid to examining the relationship between implementation of regional innovation strategies and innovation strategies (processes) of SMEs in the Prešov Region. The aim of this paper is to present partial results of the survey focused on the creation and implementation of innovative strategies at the level of SMEs within the Prešov Region (PSK).

**Key words:** innovation, strategy, regional innovation strategy, small and medium sized enterprises

#### 1. INTRODUCTION

SMEs play a crucial role for the acceleration of economic growth as well as for socio-economic development of the regions. Developed sector of SMEs is a pillar of developed economy (at national, regional and local level). According European Commission (2013) SMEs are the backbone of Europe's economy and are at the heart of regional policy. They represent 99% of all firms and contribute to almost 60% of GDP and around 70% of the total EU workforce. SMEs and entrepreneurs are crucial for fostering growth, for creating quality jobs and for improved social integration. Due to their more flexible structures and more dynamics the SME act as agents of change and give important contribution for value creation to all the society (Dumbrava et al., 2007).

Many empirical studies when examining innovation potential perceived large firms as those that have better innovation potential – according to Heimonen (2012) it was based on the hypothesis that large firms tend to have a resource advantage over smaller ones in terms of development and commercialization of new technologies. However, small firms are widely regarded as promoters of economic growth (Westhead & Storey, 1994, in Heimonen, 2012) and as being capable of creating, transferring and exploiting innovations (Autio, 1998; Fontes, 1997; Kuratko & Hodgetts, 2001, in Heimonen, 2012). Moreover, small firms have a strong positive effect on employment (Storey, 1994) and their presence alongside large companies "provides important competitive and structural balance to industries and marketplaces that would otherwise be dominated by a few large players" (Beaver &

Jennings 2000; Peacock 2004, in Wang et al., 2007). In addition, SMEs (in terms of entrepreneurial activity) often occupy fragmented or niche markets which large firms either cannot economically enter or are reluctant to enter because of risk-return considerations (Brouthers et al. 1998, in Wang et al., 2007).

#### 2. INNOVATION STRATEGIES OF SMALL AND MEDIUM SIZED ENTERPRISES

Innovation is associated with enhanced performance and success of firms. It may refer to different kinds of "newness" regarding products, production methods and technologies, markets, and organizational configurations (Varis & Littunen, 2010). The way of innovation execution in the companies is not easy. This raises the need for properly formulated and implemented innovation strategy. The innovation strategy is a part of overall strategy of a company/enterprise. It defines the role/importance of innovation and sets the direction for innovation processes within the company.

The negative phenomenon in current practice is the lack of strategic planning in SMEs. Wang et al. (2007, p.3) argue that SMEs engaged in strategic planning "are more likely to be those enterprises that are more innovative, that have more newly patented products, that employ new process and management technologies, and that achieve international growth".

Wang, Walker and Redmond (2007) tried to explain the lack (or low levels) of strategic planning in SMEs. The most frequently mentioned barriers of strategic planning are:

- · Lack of time
- Lack of expertise
- Inadequate knowledge of planning processes
- Reluctance to share strategic ideas with employees & others
- Environmental uncertainty/turbulence
- Size of business
- Type of industry
- Internal implementation barriers
- Business life-cycle/stage of development

Another problem of the strategic planning deficiency could be the reluctance of company's managersowners. In owner-managed SMEs power and decision-making processes are centralized i.e. concentrated in the entrepreneur hands. Owner-managers tend to be less amenable to others' advice and are reluctant to delegate decision-making to others (which easily leads to reduced innovativeness). Also, strategic decisions are often framed within the constraints of family and individual goals, rather than maximization of firm potential (Dyer & Handler, 1994; Dobbs and Hamilton, 2007, in Varis & Littunen, 2010).

### 3. SURVEY ON CREATION AND IMPLEMENTATION OF INNOVATION STRATEGIES AT THE LEVEL OF SMALL AND MEDIUM SIZED ENTERPRISES

During January 2014 was carried out partial survey on the creation and implementation of innovation strategies in SMEs. The survey was conducted within the Prešov Region (Prešov Self-governing Region) and on the survey participate 36 respondents – representatives of SMEs in the region.

Innovation process is critical for creating unique products and thus for sustaining company's growth. That is why a well-defined, integrated and implemented innovation strategy has a key role. The aim of

the survey was to determine whether SMEs in the Prešov region have (elaborated) formalized development (innovation) strategy.

Public research and development funding represents one of the most important instruments for supporting and increasing innovation and the generation of intellectual property rights in firms (Santarelli & Piergiovanni, 1996, in Heimonen, 2012). Structural Funds as long-standing supporters of SMEs have become a major instrument in achieving the Europe 2020 objectives for smart, sustainable and inclusive growth (European Commision: Guidebook Series, 2013). Following this, we investigated to what extent the preparation of their development (innovation) strategy was based on existing innovation strategies and support programs, which are publicly available.

Regarding the aim of the survey we investigated the answers to the following questions:

- 1. Does surveyed company/enterprise have formalized innovation development strategy?
- 2. Which of the available public support programs and strategies do or did companies/enterprises apply and embrace when creating their own development and innovation strategy?
- 3. Do or did surveyed company/enterprise participate in the creation of regional innovation strategy (or other local/regional strategies)?

#### Presentation of results of the pilot survey among SMEs in region

#### 1. Existence of formally processed innovation development strategy:

To the question concerning the existence of formally processed innovation development strategy the surveyed companies responded as follows: of the total 36 enterprises 19 companies have and 12 companies do not have formally processed innovation development strategy. Five companies chose a response "other" (Figure 1).

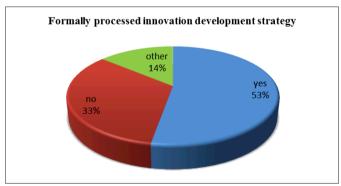


Figure 1 Existence of formally processed innovation development strategy

Source: authors

#### 2. Using of regional innovation strategy in formulating the company's development strategy:

In the survey, we investigated whether in formulating the company's development strategy was used/applied regional innovation strategy. The results show that only a small part (11%) of SMEs in the Prešov region used regional innovation strategy in developing/formulating its own strategy. The results are shown in Figure 2.

Regional innovation strategy in formulating the company's development strategy

other 21%

no 68%

Figure 2 Using of regional innovation strategy in formulating the company's development strategy

Source: authors

#### 3. Using of Operational programmes in formulating the company's development strategy:

In response to the previous question, we also investigated whether in formulating the company's development strategy was also used Operational programmes (Structural Funds 2007-2013). Respondents in formulating the company's development strategy to a greater extent use/apply Operational programmes (47% of them replied in the affirmative) (see Figure 3).

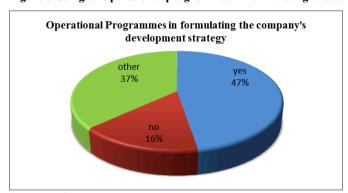


Figure 3 Using of Operational programmes in formulating the company's development strategy:

Source: authors

## 4. Using of EU programmes (6th and 7th framework programme) in formulating the company's development strategy:

Small and medium enterprises in the region when developing their own strategies only to a minimum extent use EU programmes since only 10% answered the question in the affirmative and almost 80% answered in the negative (Figure 4)

Figure 4 Using of EU programmes (FP6, FP7) in formulating the company's development strategy



Source: authors

### 5. Participation of the company/enterprise in the creation of regional innovation strategy (or other local/regional strategies):

The results are not very positive, since only 5% of small and medium enterprises participate or participated in the creation of regional innovation strategy (or other local/regional strategies) (Figure 5).

Figure 5 Participation (present/past) of the enterprise in the creation of regional innovation strategy



Source: authors

#### 4. SUMMARY

The survey results showed that companies in creating their own development of innovative programs to the greatest extent use the support programs based on the Structural Funds (47 %). This is mainly for practical reasons, since those programmes (Structural Funds) are used by companies mainly for investing activities (technological innovation based on technology transfer and modernization of production base). These results are consistent with the arguments of European Commission (Guidebook

Series, 2013) according to which Structural Funds are most adapted to the local context in which small and medium-sized enterprises develop mainly due to shared management and the involvement of regional stakeholders in the definition and implementation of operational programmes. "The shared management of Structural Funds as well as the joint monitoring and evaluation procedures are examples of the partnership approach put in practice" (European Commission: Guidebook Series, 2013).

Knowledge from the regional level (mainly RIS – regional innovation strategy) and EU level (FP programs and others) are of little interest for companies (around 10% positive responses) while in further and broader research we assume even smaller number of about 5% or less, which follows from the statistics of involvement of Slovak companies to FPs – this is either linked to small and over time late benefits (RIS) or to excessive difficulty of obtaining support (EU programmes, language barriers, high demands on the expertise, time consuming benefits etc.).

Directly related to this issues the share of companies directly or indirectly participating in the creation of regional (local) development plans (notably RIS), among which were recorded only 5 % of positive responses. This is due to the involvement of the companies, but also due to the methods of work of support structures of Self-governing region in the preparation of RIS and the associated mapping of strategies and needs of SMEs.

The results obtained in our survey correspond with the findings of other studies. As indicated by Wang et al. (2007) (referring to the works of: Robinson & Pearce, 1984); Sexton & van Auken, 1985; Berman, Gordon & Sussman, 1997; Orser, Hogarth-Scott & Riding, 2000; Sandberg, Robinson & Pearce, 2001; Beaver, 2003) research has consistently shown that most SMEs are not engaged in strategic planning.

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# Language learning strategies and their role in the context of effective language learning

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#### Abstract

Knowledge of a foreign language, especially English, is a valuable tool in today's international, globalized world. It opens the door to the whole world in the way of knowing, understanding and communicating with other cultures. The call for the strengthening of linguistic competences by improving the quality and efficiency of education and training has been announced by the Education Council of European Union. Therefore, language learning strategies, as factors affecting success or failure of language learning process, should be taken into consideration.

**Key words** Language learning, Language learning strategies, Effective language learning

#### 1 LANGUAGE LEARNING STRATEGIES

The word strategy comes from the ancient Greek word *strategia*, which describes "*steps or actions taken for the purpose of winning a war. The warlike meaning of strategia has fortunately fallen away, but the control and goal directedness remain in the modern version of the word* (Oxford, 2003, p. 8). Although language learning strategies have been widely defined by many researchers of foreign/second language learning, there has been little agreement on defining language learning strategies among researchers for a long time.

Oxford (1990, p. 1) presented a definition that language learning strategies are "specific actions, behaviors, steps, or techniques students use-often consciously-to improve their progress in apprehending, internalizing, and using the L2". However, Cohen (1998, p. 4) described language

learning strategies as "learning processes which are consciously selected by the learners and which may result in action taken to enhance the learning of a second or foreign language, through the storage retention, recall, and application of information about that language". Moreover, Chamot (2004, p. 14) defined language learning strategies as "the conscious thoughts and actions that learners take in order to achieve a learning goal".

Due to controversial debates over defining language learning strategies various technical terms have been introduced in defining language learning strategies: *mental process* (O'Malley and Chamot, 1990), *behaviors* or *actions* (Oxford, 1990), *skills* or *operations* or *plans* (Rubin, 1975), *techniques* (Stern, 1975), *thoughts* (Chamot, 2004), etc. Language learning strategies, as a mental process, have been identified by many researchers. Ehrman, Leaver and Oxford (2003) argued that there had been potential vagueness in language learning strategies definition due to no explicit definition of cognitive learning. In the same sense, Dörnyei and Skehan (2003) pointed out that clear theoretical demonstration had been missing to decide whether strategies are cognitive processes, behavioral actions, or psychological responses. In defining learning strategies, Macaro and Cohen (2007) explained that strategies are not simply knowledge but contain a mental action that can be described by the teacher or researcher. Therefore, in the field of foreign/second language learning, researchers have focused on questioning how language learners themselves contribute cognitively and psychologically to learning language concerning how language learners learn, comprehend, store language, and retrieve it for use.

#### 1.1 THE ROLE OF LANGUAGE LEARNING STRATEGIES

Although already mentioned academic consensus on definition of language learning strategies is missing, the role of language learning strategies is unquestionable. As widely known, some language learners are more successful than others in their language learning, because of the use of language learning strategies. Oxford (1990, p. 1) stated that "strategies are especially important for language learning because they are tools for active, self-directed involvement, which is essential for developing communicative competence. Appropriate language learning strategies result in improved proficiency and greater self-confidence".

When a language learner consciously chooses strategies which fit his or her learning style in her or his language learning process, these strategies become a "useful toolkit for active, conscious, and purposeful self-regulation of learning" (Oxford, 2003, p. 2). Strategies can be used in combination with other strategies or used simultaneously. As proposed by Oxford (1990), there is no good or bad strategy; strategy is essentially neutral until its use is thoroughly considered. And now the question is "What

makes a strategy positive and helpful for a given learner? A strategy is useful if the following conditions are present: (a) the strategy relates well to the L2 task at hand, (b) the strategy fits the particular student's learning style preferences to one degree or another, and (c) the student employs the strategy effectively and links it with other relevant strategies" (Oxford, 2003, p. 8). Strategies that fulfill these conditions "make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (Oxford, 1990, p. 8). In addition, learning strategies can also enable students to become more independent, autonomous, lifelong learners. (Oxford, 2003)

Furthermore, Oxford (1990, p. 9) presented the key characteristics or features of language learning strategies as follows: " 1) contribute to the main goal, communicative competence, 2) allow learners to become more self-directed, 3) expand the role of teachers, 4) are problem-oriented, 5) are specific actions taken by the learners, 6) involve many aspects of the learner, not just the cognitive, 7) support learning both directly and indirectly, 8) are not always observable, 9) are often conscious, 10) can be taught, 11) are flexible, and 12) are influenced by a variety of factors". Oxford (1990) further emphasized that these characteristics of strategies instruction help to facilitate a learner driven learning atmosphere rather than the transmission of knowledge from teachers to learners.

The main reasons for using language learning strategies in the foreign language learning process are presented as follows:

- Strategic differences between more and less effective learners have been documented. Better learners have greater metacognitive awareness, which helps them select appropriate strategies for a specific task.
- Most students can learn how to use learning strategies more effectively.
- Many strategies can be used for a variety of tasks, but most students need guidance in transferring a familiar strategy to new problems.
- Learning strategies instruction can increase students' motivation in two main ways: by
  increasing students' confidence in their own learning ability and by providing students with
  specific techniques for successful language learning.
- Students who have learned how and when to use learning strategies become more selfreliant and better able to learn independently. (Teaching language learning strategies, p.3)

#### 1.2 OXFORD'S CLASSIFICATION OF LANGUAGE LEARNING STRATEGIES

The Oxford's classification is well-known and has been referred to in many studies. She categorized language learning strategies into six major categories: memory strategies, cognitive strategies,

comprehension strategies, metacognitive strategies, affective strategies, and social strategies. Direct strategies include memory, cognitive, and compensation strategies which "involve direct learning and use of the subject matter, in this case a new language" (Oxford, 1990, p. 11) whereas Indirect strategies fall into the metacognitive, affective, and social strategies, which "support and manage language learning without directly involving the target language" (Oxford, 1990, p.135)

Direct Memory strategies help learners store and retrieve new information. Various memory strategies enable learners to learn and retrieve information in an orderly string (e.g., acronyms), while other techniques create learning and retrieval via sounds (e.g., rhyming), images (e.g., a mental picture of the word itself or the meaning of the word), a combination of sounds and images (e.g., the keyword method), body movement (e.g., total physical response), mechanical means (e.g., flashcards), or location (e.g., on a page or blackboard). For language learning, the arrangement and associations must be personally meaningful to the learner, and the material to be reviewed must have significance. Memory strategies enable learners to store and then retrieve new information when needed for communication. Moreover, structured reviewing helps learner move information from the "fact level" to the "skill level", where knowledge is more procedural and automatic. Although memory strategies are viewed as powerful contributors to language learning, some researches (e.g. Nyikos and Oxford, 1987) reported that language students rarely use these strategies. (In: Oxford, 1990)

Direct Cognitive strategies enable the learner to understand and produce new language by many different ways, e.g., through reasoning, analysis, note-taking, summarizing, synthesizing, outlining, reorganizing information to develop stronger schemas (knowledge structures), practicing in naturalistic settings, and practicing structures and sounds formally. Cognitive strategies are considered to be essential in language learning, moreover, are reported to be the most popular among language learners. The findings of O'Malley et al (1985) (In: Oxford, 1990) showed that high school and college students of foreign/second language use more cognitive strategies than metacognitive. The leading position among the cognitive strategies belongs to strategies for practicing. There is not enough practicing the language not only in class but also outside the class. The researches (Bialystok, 1981, Ramirez, 1986) highlighted naturalistic practicing (e.g. authentic material) at all levels of language learning. (In: Oxford, 1990)

Direct Compensatory strategies (e.g., guessing from the context in listening and reading; using synonyms and "talking around" the missing word to aid speaking and writing; and strictly for speaking, using gestures or pause words) allows learners to use the language despite their often large gaps in

knowledge because of inadequate learners' repertoire of grammar and, especially, of vocabulary. Compensation mostly occurs not just in understanding the new language but also in producing it, i.e. compensation strategies allow learners to produce spoken or written expression in the new language without complete knowledge. In addition, compensatory strategies help learners overcome limitation connected with the knowledge of the target language in all four language skills and at all levels of the language competence. Furthermore, learners skilled in compensatory strategies can communicate better than learners who know more target language words and structures when they run into the knowledge roadblocks. Researches (e.g. Rubin, 1975) (In: Oxford, 1990) pointed out that good language learners can guess the meaning of the unknown word/structure correctly due to their prior experience, knowledge. On the other hand, not so successful students get anxious, look every word up in dictionaries, which make their learning process slower, moreover, have negative influence on their motivation and further language learning. (Oxford, 1990)

Indirect Metacognitive strategies allows learners to control their own cognition – their own learning process, i.e. to coordinate the learning process by using functions such as centering, arranging, planning, evaluating (e.g., identifying one's own learning style preferences and needs, planning for an L2 task, gathering and organizing materials, arranging a study space and a schedule, monitoring mistakes, and evaluating task success, and evaluating the success of any type of learning strategy). They are considered to be essential for successful language learning, especially accurately evaluating progress in language learning and seeking practice opportunities are considered to be crucial. Although metacognitive strategies are extremely important, research by Chamot et al (1987) (In: Oxford, 1990) shows that learners use these strategies sporadically and without much sense of their importance. In several studies of foreign language learning students used metacognitive strategies less often than cognitive strategies and were limited in their range of metacognitive strategies, with planning strategies most frequently employed and with little self-evaluation and self-monitoring. (Oxford, 1990)

Indirect Affective strategies help to regulate emotions, motivations, attitudes, and values (e.g. identifying one's mood and anxiety level, talking about feelings, rewarding oneself for good performance, and using deep breathing or positive self-talk). The affective side of the learner is probably one of the biggest influences on language learning success or failure. Good language learners are often those who know how to control their emotions and attitudes about learning because negative feeling can stunt language learning progress, whereas positive emotions and attitudes can make language learning far more effective and enjoyable. In addition, research findings (e.g. Gardner et al, 1985) (In: Oxford, 1990) suggested that the combined attitude/motivation factor strongly influences whether the learner loses or

maintains language skills after language training is over. Self-encouragement strategies are powerful ways to improve attitudes and, thus, motivation. Another study (Naiman et al, 1978) (In: Oxford, 1990) discovered that tolerance for ambiguity is one of the two factors that predicts success in foreign language learning. Other studies (e.g. Chapelle, 1983, Ehrman and Oxford, 1989) (In: Oxford, 1990) have found that language learners who are tolerant of ambiguity are more successful in certain language tasks and may use somewhat more effective learning strategies. Few studies (Chamot et al, 1987) (In: Oxford, 1990) have examined the frequency of use of affective strategies, the results reveal that these strategies are underused - reported about 1 in every 20 language learners. (Oxford, 1990)

Indirect Social strategies help the learner learn through interaction with others and understand the target culture as well as the language (e.g., asking questions to get verification, asking for clarification of a confusing point, asking for help in doing a language task, talking with a native-speaking conversation partner, and exploring cultural and social norms). Language is a form of social behavior, it is communication, and communication occurs between and among people. Therefore, social strategies are very important in language learning process. One of the most basic social interactions is asking questions. The conversation partner's response to the learner's question indicates whether the question itself was understood, thus providing indirect feedback about the learner's production skills. In addition, cooperating in with peers and with more successful learners of the target language is imperative for language learners. Many studies (e.g. Sharan et al. 1985, Dansereau, 1988) (In: Oxford, 1990) outlined that cooperative learning shows the following significant effects: higher self-esteem; increase confidence and enjoyment; greater and more rapid achievement; more respect for the teacher, the school and subject; use of higher level cognitive strategies; decreased prejudice; increased altruism and mutual concern, better student and teacher satisfaction; stronger language learning motivation; more language practice opportunities; more feedback about language errors, and greater use of different language functions. However, research (Reid, 1987) (In: Oxford, 1990) showed that language learners do not typically report a natural preference for cooperative strategies. It can be due to competition which is strongly promoted in competition for approval, attention, and grades among students in school environment. Therefore, it should be crucial for teachers to create cooperative language learning environment. (Oxford, 1990)

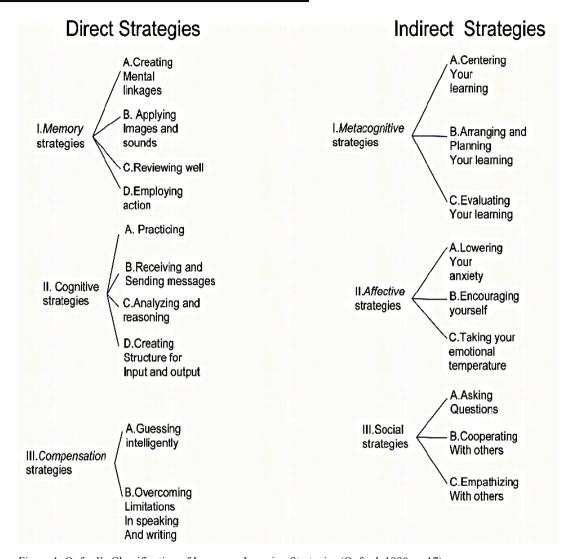


Figure 1 Oxford's Classification of Language Learning Strategies (Oxford, 1990, p. 17)

#### 2 CONCLUSION

Despite of the missing agreement on definition, it can be said that language learning strategies could be described as some kind of decisions or steps affecting learner's behavior in his or her language learning process in order to maximize the effort on his or her path of enhancing the target language learning. Students are not always aware of the power of consciously using language learning strategies for making their learning quicker and more effective. Therefore, skilled teachers should be the one who would help

their students develop the awareness of language learning strategies and enable them to use a wider range of appropriate strategies for further success in their students' language learning.

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## Nutrition policy and the reality of the first stage of constructing socialism in Slovakia

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#### Abstract

The study aims to describe the most important changes in public nutrition during the first stage of socialism in Slovakia. It explains the essence of the state Communist ideology's involvement in people's eating habits and the reality of socialist food production and distribution in the 1950s when the acquirement of even basic foodstuffs was often accompanied by food shortage, bad quality, time losses related to food acquirement, and high prices in some cases.

Key words socialism, politics, nutrition

The political authoritarian regime under the leadership of the Communist Party of Czechoslovakia (CPC), established in our country in 1948, was massively involved in an entire complex of functions and norms of the society. In addition to its primary aim to win and consolidate its power, the democratic people's Czechoslovakia, especially during the first stage of construction that formed its ideological basis and essence, also had a vision of creating "new" socialist people behaving and living in line with the established political line. The "new" man was one of the central figures of the socialist era in general. Their newness was in sharp contrast with tradition, but the very idea of the new model of humanity was based on the European tradition of modernity. This model promoted the independence of individuals from family and the representation of family ties by other types of collective feelings of belonging, and reflected the symptoms of general civilisation changes, such as technical progress, urbanisation, mass migration, women's emancipation, and the general cultural emancipation of the society. The socialist propaganda often referred to these phenomena and adopted them to its ideological needs (Brzóstowicz-Klajn, 2004, p. 147). It was characteristic for this regime that it sought to form "new" people by influencing all parts of their lives, including the most intimate ones. One of the aims was to transform the "backward" rural population into a modern conscious class (Búriková, 2006, p. 83). This process resulted in the fact that most every-day situations ceased to have an individual nature and became society-wide issues. This concerned housing, clothing, education, culture, religion, sports, and, naturally, eating (Piotrowski, 2005, p.143).

With regard to production, modernisation in the socialist perception primarily focused on the development of the heavy industry and on infrastructure construction. As a result of the nationalisation of the means of production, farmers and workers did not produce for their own consumption, but sold their labour force to the state for money in the form of a salary. The fact that the means of production were owned by the state and not by the people who used them shifted their relationship to material culture towards consumption. Since collectivisation and nationalisation, most material items became the object of a consumer relationship, and not of a production one. Socialism thus completed the

consumption revolution in Slovakia. These changes in consumption were presented as gradual modernisation of the society and as a success of socialism (Búriková, 2006, p. 83). The level of consumption – its affluence or shortage – also formed people's relationship towards the socialist regime. On one hand, increased consumption and the provision of people's basic needs served the Communist Party to legitimise its power; on the other hand, the shortage of goods (especially basic foodstuffs) was reflected in their critical evaluation of the socialist reality (Miller, 1995, p. 15-16).

This work seeks to explain the most important changes in public nutrition during the first stage of socialism in Slovakia, as well as the substance of involvement of the state Communist ideology in eating habits, supported by testimonies published in contemporary scientific works.

In 1948, the leadership of the Communist Party of Czechoslovakia set out the directions and tasks of the agricultural and nutrition policy. These were closely linked to the collectivisation of agriculture, the building of farmers' cooperatives, and the paternalist administrative and directive management of economy and of the society. The centralised production planning through the Ministry of Agriculture, the State Planning Authority, and agricultural offices at regional, district and local levels were supposed to restrict or eliminate the "decision-making of capitalists and small producers" (Hlavová, 2006, p.131–143). However, a large part of farmers did not welcome the nationalisation of agricultural production with enthusiasm. Local authorities sought to force those who hesitated entering a cooperative by means of material support and promises, but also under various kinds of pressure, benefits scheduling, strict exaction of unfulfilled tasks, high taxes, firing of relatives from employment or schools, or by calling "kulaks" in the army work units (Lipták, 2000, p. 297).

Although the Communist propaganda was keen on accentuating the building successes of the nationalised industry and state agricultural cooperatives, the economic production sector failed to ensure sufficient supplies of products and foodstuffs to the population on the free market. As a result of this situation, the Communists were forced to introduce a food rationing system in the period from 01 January 1950 till 31 May 1953. Under this system, food rations were limited and allocated according to people's age and occupation. The groups privileged by the regime, such as miners, metallurgists, the police, and Communist cadres, could benefit from increased rations on the controlled market in which they could purchase products in exchange for coupons. Some categories of people were excluded from the rationing system, such as senior officials, police and army officers from the 1st Czechoslovak Republic, owners of larger agricultural companies, trade licence holders, traders, etc. They could only purchase products on the free market for prices several times higher. Also smaller farmers who failed to meet the mandatory supplies of meat, milk and eggs, did not get coupons for sugar and other products. Members of bad-performing agricultural cooperatives that failed to ensure the set amounts of food supplies to the public sector were in a similar situation. The decree of the Ministry of Internal Trade also specified a group of self-suppliers - owners of land of over 0.5ha - who were not entitled to food coupons. The rationing coupon system was cancelled one day before the money exchange under which people could exchange their former money of up to 300 Czechoslovak crowns at a rate of 5:1, and higher amounts and deposits at a rate of 50:1 (Jirásek, Z.-Šůla, J., 1992, 16–20).

#### Attempts to change the nutrition of socialist people

The death of J. V. Stalin in 1953 meant a turn towards greater interest in people's living standards in the entire Soviet bloc. In 1951, the *Institute for the Research of People's Nutrition* was established in Prague, and in 1953, an institute under the same name launched its activities in Bratislava.

The professional discourse on nutrition was similar to the one on other areas of life. It highlighted not only the big importance of nutrition for the society, but also its health impacts and, secondarily, its

economic aspects as a means to increase the productivity of people's work. In the 1950s, the progress in food quality was also constantly accentuated as compared to the interwar period.

A general feature of contemporary expert nutrition studies was the faith that the new people's democratic and later socialist society would bring a new life-style also in the field of nutrition by respecting the health needs of people without the desire of food producers to earn profits... Nutrition manifested most clearly the class character of the old capitalist society, while the socialist system enables full respect for the biological aspects. Food ceases to be the subject of profit and becomes the means for a new socialist man to be healthy and fully efficient... This is a quote from the resolution adopted at the working conference of the Association for Proper Nutrition in 1950. For most experts, especially for physicians, this meant that they could influence people's eating habits to an extent that was previously unthinkable. The vision of a society managed by scientists was a synonym for socialism for many nutritionists in the 1950s (Franc, 2003, p. 25-29).

From the mid-1950s, Czechoslovakia launched a campaign in line with the changes in the nutrition policy, emphasising the benefits of new technologies and the need for a total transformation of people's eating habits. It was related to contemporary modernist ideas associated with the promotion of scientific knowledge in everyday life. The symbols testifying the importance of technical and biological sciences in the field of nutrition included, in particular, various kinds of processed food, especially intermediate products and different ways of food preservation. The professional and promotional materials constantly stressed that people's distrust in such food does not have actual justification; on the contrary, such processed foodstuffs bring significant time savings. The growth of intermediate food products was also related to the process of "liberation" of socialist women from housework and with the development of common catering, i.e. forms of eating habits which, according to contemporary technocratic experts in proper nutrition, should be part of the socialist presence and later of the Communist future. It was envisaged to centralise production to a maximum extent possible, and to establish an intermediate product industry as a separate food industry sector. Despite all proclaimed benefits, the popularity of intermediate food products was not as their proponents had imagined. The reason behind, according to contemporary experts, was the ignorance of the economic importance of time in preparing meals at home (Hrubá, 1964, p. 121), Greater dissemination of intermediate products in the countryside was prevented by the problem related to their distribution, storage, prices, and traditional eating habits.

The technical and technological development in the field of nutrition was also accompanied by a planned shift to automated, continuous food production with high production hygiene as one of the expected positive results. The issue of suitable food packages, especially for meat, fat and milk, was of special interest (Kocián, 1951, pp. 69–70, 98–100, 123–125).

Besides technological problems, the situation was complicated by the fact that compared to more developed countries the purchase of food constituted a significant burden for Czechoslovak citizens. Economists explained this situation by the fact that other living costs, such as the costs of housing, healthcare, culture and taxes, were lower compared to capitalist countries. The high proportion of food costs, however, led to a situation where most households considered proper and healthy nutrition which was extremely expensive a luxury. People mostly criticised the high prices of meat, exotic fruit and butter.

Nutritionists therefore sought to manipulate the public opinion in order to improve the conditions of public nutrition. They promoted cost advantageous foodstuffs to increase their consumption. For example, in times of insufficient consumption of milk and milk products or eggs, they stressed the low prices of this rich source of animal proteins. One of the leitmotifs of promoting a healthy diet, in addition to variety, was the need for moderation due to enormous increase in fat and sugar consumption mainly as a result of the food coupon system. The public catering system offered another possibility for

food price manipulation and constituted one of the priority efforts of those advocating proper nutrition in the 1950s. Public catering was to become the main source of positively influencing the eating habits of the general public.

In spite of the awareness raising efforts, the majority of the population continued to maintain the traditional concept of "good" food, which was also acknowledged by nutrition researchers. The quality of meals in many households was negatively influenced by the typical socialist economic phenomenon: households' long-term savings to buy a car, a motorcycle, electrical appliances, a weekend-house, a flat, etc. which were very expensive considering the earnings in the socialist Czechoslovakia (Franc, 2003, pp. 30, 169-183).

#### Results of the contemporary research in the nutrition of Slovak citizens

In the mid-1950s, public nutrition was studied by the researchers from the People's Nutrition Institute in Bratislava. The results obtained under the leadership of MUDr. Juraj Budlovský (1960) offer a large amount of data documenting the socialist reality in the field of nutrition. The part analysing the contents of menus in examined families represents a relevant source of information. The following facts summarise the findings:

Lunches and dinners, and especially lunches, were very different in urban and rural areas with regard to quality. A lunch in an urban area usually consisted of several courses with various kinds of soups, meat meals, stews and flour dishes. In the countryside, certain, mainly typical regional dishes were served several times a week or even constantly throughout the week, except Sunday. This eating stereotype was the main differences between towns and the countryside, and was present all over Slovakia. People in towns ate less, but more frequently; the menus were more varied and balanced, and special attention was paid to regularity and food preparation. The biggest problem of nutrition in the countryside, especially in the northern regions, was a limited number of basic foodstuffs: cereals, potatoes, sauerkraut, and milk, i.e. foodstuffs (other than milk) containing carbohydrates which, with the low consumption of meat and eggs, had small protein content. The meals were therefore rather unbalanced in terms of nutrients. These results are very similar to those obtained in Czechoslovakia in the 1930s (Pelc, 1940), during the economic crisis. This means that not even after seven years of the building of socialism could one witness a positive turn in the quality of nutrition of the rural population.

Interesting information on the given period can also be found in the part of the book by J. Budlovský which analyses the economic factors of public nutrition, especially those related the distribution of foodstuffs. This part of the book presents a number of important facts. In the first half of the 1950s, it was mainly the lack of distribution of some basic foodstuffs in Slovakia; cream, curd, fresh meat, fruits. and vegetables. The production and distribution sectors were not even able to ensure nutrition for babies in the form of milk powder. Another problem was the imbalanced distribution between urban and rural areas; some basic foodstuffs (bread, for example) were not distributed to rural grocery stores at all, or only sporadically. As evidenced by ethnographic research, this situation persisted in the next years (Markuš, 1956, pp. 283–324). In addition to insufficient and often inadequate food supplies, also other negative factors influenced the eating habits in the countryside, such as insufficient networks of grocery stores, or seasonal character of foodstuffs due to which the contemporary distribution was not able to satisfy people's needs, i.e. to ensure enough fish during fasting periods, or enough butter, curd, eggs, meat, and fruit during festive days, etc. On the other hand, sugar consumption largely increased, which was considered a positive result, but from the point of view of proper and healthy nutrition it was rather seen as a negative condition with long-term health consequences on the Slovak population. It is apparent that the research in public nutrition in 1955/1956 did not bring very optimistic results, but rather the opposite. In the concluding part of his book, J. Budlovský therefore presented some proposals to improve this situation.

In spite of sincere efforts of mainly scientists seeking to ensure availability, nutrition balance, variety, health and safety of foodstuffs, the reality of socialist food production and distribution in the 1950s did not reach the quality claimed by the regime. The acquisition of basic foodstuffs was often associated with feelings of discomfort in people – due to the lack of foodstuffs and their bad quality, loss of time related to food acquirement, and high prices in some cases. Naturally, these facts had a negative impact on the nutrition models of people, as families were often forced to improvise in the preparation of meals, to replace foodstuffs with those of lower quality, or often eat the same meals throughout the week.

These conditions gradually improved in the period from the 1960s to the 1980s, but food production and distribution in the socialist Czechoslovakia never attained the level of developed capitalist countries connected to the globalised market. Consumption researchers (Slater, 2004, Miller, 2005) therefore note that one of the key failures causing the fall of the socialist regime was the failure to satisfy the everyday needs of people.

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# OCCUPATIONAL STATUS OF WOMEN IN THE LABOUR MARKET IN POLAND: ANALYSIS OF THE PHENOMENON

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**Abstract.** For many years, the phenomenon of entrepreneurship has been the focus of scientific discussions in the field of economic and social sciences in developed countries. Women represent a substantial potential from the standpoint of the economic growth. In the public domain, their presence in the labour markets seems to be one of the most important achievements of the 20th century. Despite equal legal opportunities in the labour market, significant differences continue to exist, especially between the salaries for women and men. The variety of factors that affect professional careers of women and their professional activity causes that the analysis of the phenomenon compared with other countries of the European Union necessitates distinct determination of the causes for development of particular structures and tendencies. The aim of this paper is to analyse the occupational status of women in the labour market in Poland based on a statistical survey.

Keywords: professional activity, entrepreneurship of women, labour market., occupational discrimination.

#### 1. THE CONCEPT OF ENTREPRENEURSHIP

There are a variety of definitions of entrepreneurship. Therefore, it is difficult to present a uniform and coherent theory of entrepreneurship, both in the field of the economy and other sciences since it represents a multi-dimensional category. Entrepreneurship is frequently related to economic activity and the person of entrepreneur. In the literature, the definition of this concept was first introduced by J.B. Say, who argued that an entrepreneur (owner) is a person who skilfully manages different factors of production through transfer of economic resources from the areas of smaller to greater performance and higher profits [9]. In the economic literature, the entrepreneurship is considered as a specific form of working or an independent factor of production. It determines the effectiveness of management through the choice of directions of the activity, using manufacturing techniques and adjusting them to the previously set goals of the enterprise under current conditions of business surroundings [4].

#### 1.1 Entrepreneurship of women in Poland

Entrepreneurship of women represents a multifaceted research area. It is the area of particular interest, which is conducive to development of statistical and survey-based methods. From the economic standpoint, economic growth necessitates promotion of entrepreneurship among women and the increase in their share among enterprise owners. Nowadays, the opportunities for finding resources for starting and development of business activity using state or EU's funds are easily available. There are a variety of institutions that support business and broadly understood entrepreneurship. Both commercial and non-commercial organizations help promote entrepreneurship. One of the organizations to support both present and newly created enterprises is Polish Agency for Enterprise Development (Polska Agencja Rozwoju Przedsiębiorczości, PARP) [11]. Since its beginnings, PARP has been committed to the activities aimed at development of entrepreneurship, innovativeness and implementation of structural policy of the European Union. The aim of PARP's activities is to implement programs for development of the economy that support innovation and research activities of small and medium-sized enterprises, regional development, export, development of human resources and the use of new technologies.

Similar to other European countries, occupational situation of women in the labour market differs from the status of men. Entrepreneurship of women and their professional activity has been analysed particularly from the standpoint of differences in education compared to men, qualifications, salary inequality, legal regulations and practices used during employment. When implementing legal laws that prevent sexual discrimination, the European Union obliged all the member states to use them. A substantial effect on the economic conditions in a country or a region is from the percentage of professionally active people. The diagram below presents a graphic interpretation of the economic activity rate in Poland and in the countries of the European Union in 2000-2012.

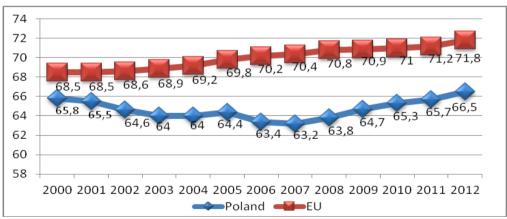


Diagram 1. Economic activity rate in Poland and the EU in 2000-2012 [%] Source: author's own elaboration based on the data from Eurostat [10]

Economic activity rate is measured for the population who constitutes manpower supply. It demonstrates the percentage of professionally active people in the population. The people at the working age are women aged 18-59 years and men aged 8-64 years. It can be observed that the economic activity rate in the countries of the EU was increasing in the period studied, reaching the level of 71.8% in 2012. The country with the highest economic activity rate in the EU is Sweden, with its age range of 15-64 years including 80% of both employed and unemployed. In Poland, this rate is lower than the mean for the

European Union. Since 2007, the number of professionally active people has been rising continuously. However, the difference remains substantial.

Although it is possible to define the discrimination of women in the labour market, presentation of this phenomenon in quantitative terms is much more complex. Discrimination occurs if women who are educated, have sufficient knowledge, experience and working performance at the same level as men experience problems with being employed, receive lower salaries and their careers progress much slower than those observed in men [8]. Despite the sexual equality guaranteed by the Polish legislature, Polish women are facing challenges in the field of employment, whereas the rights they have are not always respected. Sexual stereotypes significantly affect occupational segregation in the Polish labour market. A feminization of a part of occupations and certain divisions of the economy can be observed. Table 1 presents the data concerning the share of the employed according to sex and selected divisions of the Polish Classification of Business Activities in 2013.

Specification	Total [in thousands]	Men [in thousands]	Women [in thousands]	Share of women in overall number of the employed [%]
Public administration and national defence; compulsory social security	1 056	517	539	51.0
Construction	1 220	1 127	93	7.6
Financial and insurance services	383	128	255	66.6
Professional, scientific and technological activities	511	222	289	56.6
Education	1 208	262	947	78.4
Mining and extraction	268	240	27	10.1
Hotels and food services	316	96	220	69.6
Information and communication services	334	227	107	32.0
Health and social care	952	187	765	80.4
Industrial processing	3 045	2 120	926	30.4
Agriculture, forestry, hunting and fishing	1 918	1 134	784	40.9
Transport and warehousing	926	734	192	20.7

Table 1 Employees according to sex and selected divisions of the Polish Classification of Business Activities in the 3rd quarter of 2013 in Poland

Source: author's own elaboration based on "Aktywność ekonomiczna ludności Polski III kwartał 2013" GUS, Warsaw 2014 [1]

Analysis of the structure of employment in Poland reveals a partial feminization of certain industries and sectors. Women dominate health and social care, education, hotels, food services and financial agencies. In other sectors, such as construction, mining and extraction, women represent less than 20% employees. For comparison, recent 20 years have seen a decline in employment of women in public administration and national defence (from 58.8% in 1993 to 51% in 2013). Small increase in the percentage of the women employed was observed in education (73.1% in 1993). Women remain to choose working in education, health care and social assistance, even if these occupations are less profitable. Differentiation of the salaries results from the subjective choice of the university majors: women prefer humanities, which consequently leads to choosing different jobs [8].

An exception from the principle of equality of women and men in Poland is the prohibition of employing women in jobs that can be particularly burdensome to women's health. In 1996, there were 90 professions prohibited for women [2]. At present, this problem is regulated by the ordinance of the Council of Ministers as of September 10, 1996 [6]. According to this ordinance, women cannot start jobs connected with physical effort and transport of heavy goods, forced body position, working underground and working at heights and working under noise and vibration conditions.

An important factor in changing the role of women is their education. More women then men have now higher education [see Table 2].

Educational level	Total [in thousands]	Men [in thousands]	Women [in thousands]	Share of women in overall number of the employed [in %]
Total	15 738	8 748	6 990	44.4
Higher	4 882	2 118	2 764	56.6
Post-secondary and secondary vocational education	4 299	2 419	1 880	43.7
Comprehensive secondary education	1 394	655	739	53.0
Basic vocational education	4 164	2 903	1 260	30.3
Junior, primary and incomplete primary education	1 000	653	347	34.7

Table 2 Employees according to education in the 3rd quarter of 2013 in Poland

Source: author's own elaboration based on "Aktywność ekonomiczna ludności Polski III kwartał 2013" GUS, Warsaw 2014 [1]

Analysis of the above data reveals that men choose basic vocational education more often than women. More specifically, the group of the people employed with higher education level is dominated by women. Increasing education level among women offers opportunities for better vocational position. Although women represent almost half of the employed, none country have similar female representation among managers. Low share of women on high managerial positions does not result from the fact that women's education or skills necessary to perform these functions is insufficient. On the contrary, women dominate among students in universities and post-graduate courses. More and more women decide to participate in MBA (Masters of Business Administration) courses.

However, analysis of the status of the women employed should not be based only on the employment range. The status of women in the labour market is also characterized by the inequalities with respect to men and discrimination towards them concerning promotion and, consequently, their access to higher salaries. One of the most serious problems is direct discrimination in terms of salaries. Women often earn salaries much lower than men while performing the same duties and having the same level of education and vocational competencies. Table 3 compares mean gross salaries according to groups of professions as of October 2012 (in Polish zlotys).

Analysis of the data contained in Table 3 reveals that female salaries are lower than those earned by men in all the groups of professions analysed. Proportions of salaries vary from group to group. In general, the higher salaries the higher disproportions in salaries earned by women and men. The highest percentage of women are employed in the group of high-skilled jobs (35% of women employed in general) [7]. This group includes typically female groups of professions, such as nurses or midwives. The difference in salaries between women and men in this group is one of the highest (27%). Another numerous female group of professions is employees in the service-providing sector and salespersons.

These women account for 14.1% of women employed in general [7]. The highest difference between salaries was observed among industrial workers and craftsmen (34%). This group is dominated by men, with 23.5% of all men and only 4.8% of women employed in general. The lowest difference between the salaries (2%) was recorded among office workers. However, it should be emphasized that the differences in salaries earned by women and men are gradually fading. It was in the mid-nineties of the 20th century when statistical female Pole earned 75% of the statistical male Pole [5]. The differences in the salaries are gradually reducing due to the fact that employers are more willing to employ well-educated and competent women and due to changing awareness among women. Women know their vocational competencies and skills and show sufficient knowledge of the rights they have [3].

Group of professions	Men [in Polish zlotys]	Women [in Polish zlotys]	Salary earned by women as a percentage of those earned by men [%]
Representatives of public authorities, higher-level public servants and managers	9295.30	6748.69	73
High-skilled jobs	5677.13	4320.92	76
Technicians and junior staffs	4458.30	3436.85	77
Office workers	3236.68	3174.71	98
Service providers and salespersons	2482.36	2158.84	87
Farmers, gardeners, foresters and fishers	2659.36	2519.32	95
Industrial workers and craftsmen	3294.91	2185.36	66
machinery operators and engineers	3346.22	2611.44	78
Employees performing simple works	2568.69	2019.01	79

Table 3. Mean gross salaries according to groups of professions as of October 2012

Soruce: author's own elaboration based on "Struktura wynagrodzeń według zawodów w październiku 2012 r.", GUS, Warsaw 2014 [7]

Both women and men in Poland are characterized by lower employment ratio than the average employees in the respective sexes in the countries of the European Union. Diagram 2 presents employment rate for men and women in Poland compared to selected countries of the European Union according to the situation in the labour market in Poland in 2011.

Poland is among the countries with one of the lowest female employment rates (53.1%). Compared to Poland, the countries with substantially higher employment ratios among women are Denmark (70.4%), Germany (67.7%), Finland (67.4%) and Austria (66.5%). It should also be stressed that Poland is the country with one of the lowest male employment ratio compared to the countries of the European Union, which was 66.3% in 2011. Lower ratios were recorded only in Hungary (61.2%), Romania (65%) and Latvia (62.9%).

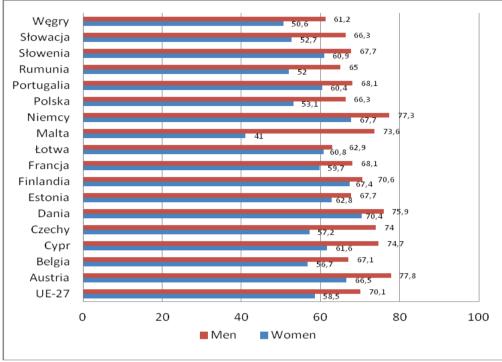


Diagram 2. Employment rate for both sexes in Poland and the countries of the European Union in 2011 (%)

Source: author's own elaboration based on the data from Eurostat [10]

#### 2. CONCLUSIONS

Women's entrepreneurship necessitates a professional support from a variety of commercial institutions that are committed to promotion of professional activity and creation of conditions for popularization of modern technological solutions for the economy aimed to improve the quality of interpersonal opportunities through education, training and counselling. A wide range of services are offered by the European Social Fund aimed at preventing unemployment and development of human resources, which is one of the EU Structural Funds. The areas of support include [12] initiatives in the labour market through promotion of the solutions that equalize opportunities in the labour market, ensuring access to trainings and counselling and improving chances of women to find jobs and make professional careers. The resources of the Fund help finance trainings and vocational practices, vocational counselling and agencies as well as analyses and surveys in the labour market.

From the standpoint of the state institution, it is essential to implement activities aimed at levelling social barriers of the entrepreneurship. It is also essential to promote similar attitudes toward the roles performed in society by men and women, and to depart from stereotypical approach to typically male and female activities. Institutional support is necessary, especially for entrepreneurship of unemployed women who are graduates from secondary schools and universities or mothers who return to work after a maternity leave or child care leave.

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# ORGANIZATION OF SUPPLY CHAIN FOR INTERNATIONAL CONSIGNMENTS OF LTL CARRIER ON THE MARKET

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#### Abstract

The purpose of this article is to bring solutions used in the forwarding companies, within the framework of the construction of international supply chains. This is an extremely important aspect which is already at the stage of creating a strategy for the development of the portfolio of services provided by the shipping company. Discusses system forwarding transport process, what they use and what services they offer. The last part of the article shows a comparison of the two models used to carry out the international transport of general cargo (LTL)-bilateral cooperation between the two freight forwarding companies of two countries and the international distribution system that connects a number of partners. Shown here are the pros and cons of both solutions. However, they are pretty much balanced, therefore, shows both solutions, but the final choice of one of them may be subject to several very individual factors to be taken into account by the managers making the choice.

**Key words** pickup and delivery models, operation strategies, logistic networks, forwarding, international supply chain management

#### 1. INTRODUCTION

The themes of the forwarding company is closely linked to the process of organization of the supply chain, which is an ordered scheme of the actions taken in order to provide the product in place and time, which corresponds to the needs of the buyers. The supply chain is also characterized as interconnection between suppliers and consumers, on the basis of processes and activities, which, as the final product to give services to clients.(Kot, Starostka – Patyk, Krzywda, 2009)

The concept of the supply chain organization, which is affiliated with the international means of transport can be described as a collection of actions that are related to the overcoming of differences (temporal and spatial), and which are on the line of production and consumption. (Kramer, 2004)

Similarly, referred to it as an activity consisting in the sale and delivery of the product obtained the final consumer, in accordance with the previously defined needs or desired quantity, at the right time and place for it. (Grabarski, Rutkowski, Wrzosek, 2001)

#### 2. SOLUTIONS OF THE INTERNATIONAL SUPPLY CHAIN

Supply chain cargo consignments in the international distribution system, in the context of the agent handling is done in two ways. Forwarders to begin construction of the product of the international

General cargo face a choice of whether to become a participant in one of the available distribution systems or establish direct cooperation with similar partner – shipping company in the country. To make a choice between should become, therefore, the way in which the company wants to solve the problem-there are two ways to specify them: as "upward causation—everything" (separation problem on its actual smaller components) or "holistic" (where the links between the components of the problem and looking for a holistic solution for him). (Kot, Starostka – Patyk, Krzywda, 2009)

Such activities are aimed at building an international distribution channel, which is understood as a system dependent companies that deal with the physical flow of the products from their manufacture to the final client, as well as streams of payments, property rights, information and promotion. (Duraj, 2004)

Focusing only on the line of organizing transport FTL and PTL, for example, does not give an adequate level of profitability services. The relationship is also closely linked with marketing concept, which must be targeted at market orientation of the company. Overriding value in that case must be customer starts and their needs. Developing a portfolio of product in this field is an increase to meet the needs of the customer at an angle of the place, time and quality of service. (Szymczak, 2000)

Also the fragmentation of business on many smaller clients may produce better liquidity, even if one of the operators will be late with a payment for freight, which on the local market for freight transport services is quite widespread. Such a system is characterized by great potential for their own, which gives opportunities to perform tasks in his framework, and consists at him five main factors, namely: technical, technological, the socio-economic-organizational and financial information. (Dembińska – Cyran, Jedliński, Milewska, 2001)

## 3. THE DETERMINANTS OF THE DEVELOPMENT OF FREIGHT FORWARDING COMPANIES

By analyzing the problem in example: XYZ Company offers shipping services FTL and PTL. However, the market is moving constantly towards fragmentation. Companies do not want to build stocks on their warehouses, however, large quantities of products or semi-finished products and prefer to receive smaller quantity at increased frequency in spite of higher costs of such services. It also increasingly spread the idea of Just-in-Time supply, (Dima, Grabara, Pachura, 2010) that do not focus on full loads. Global business strategy for companies, such as ranges as well: the reduction of CO2 emissions, reducing the amount of energy needed to transport, and to reduce the volume of traffic in cities, promotes the development of the product general cargo transport. (Popa, 2011)

If company is not going to be determined to develop cooperation in this field, can bounce on it negatively in terms of economic performance. This is due to too high or too low levels of customer service. In the case where the level of customer support is higher than its financial capacity, the company will suffer significant losses associated with rotation. If, however, it will not guarantee the quality of services to field competitive companies can.(Kempny, 2001) Business strategies related to the long-term maintenance of key customers are geared more towards the reduction of operating costs than on an increase in the price level of services. For those companies to service clients-decision-making forwarding still a key role is played by the rates on the service even if the market position of the supplier services.(Kot, 2010) Thus, through marketing approach – you can look at the wider logistic market and found common benefits by several partners within a single distribution system. (Ciesielski, 2006) Attention should be paid also to cover the cost of logistics. Continuous examination of the level of costs is extremely important, especially in terms of logistics and forwarding companies can not forget in any way about them as is the case with the level of logistical costs in any other undertaking.(Man, Nowicka – Skowron, 2010)

#### 3.1 The international distribution system

In Europe there are more than a dozen international distribution systems. Among them we can highlight:

- ONLINE Systemlogistik GmbH,
- System Plus Logistic Service GmbH & Co. KG.
- IDS Logistik GmbH
- The Pall-Ex Group
- TPN The Pallet Network

They all have similar features, as well as the rules for participation in these works. The principle of their operation is to create one central HUB for cross-dock, whose office should be located in the central part of Europe, so as to guarantee the shortest commute times from all the neighboring countries, which are members of the system. Having prepared for operations in the system overnight HUB, the company recruits participating, on the basis of quazi franchises.

#### 3.2 Direct cooperation

Another commonly used solution is to establish by shipping direct cooperation with another company in the expedition of the State with which the company wants to start exchange of goods transport. Bilateral cooperation-how is determined the market cooperation, works in a very similar way to the system of international distribution, however, combines two companies mentioned only (one from each Member State); or several companies from one Member State to the one from the other. Such a combination between service providers, a kind of competitive, gives a similar effect as the service provider of the connection with the client. The merging companies must pay attention to the proper preparation of the project, its subsequent control and constantly review the progress in mutual learning processes.(Popa, 2010)

The introduction of solutions to everyday connection can be used in the case of guarantees for the satisfactory or pipe. Currently, transport policy is created in a rather innovative way in Central and Eastern Europe, particularly as a result of the enlargement of the European Union, and to facilitate the exchange of goods. See also the significant impact of technological advances on the transport sector, which gives you the ability to use the latest technology (even) in the context of the development of services offered. (Kot, 2008)

#### 4. RESEARCH ANALYSIS OF REVENUE

To analyze the case, comparing both solutions for revenue, cost and profit data on actual dates of company SwissLogis Ltd for 2012, there is need to look at in detail on the number of items handled by the company during the period from March to December of 2012. The data presented in Table 1 show the quantities of items in terms of monthly, as well as the sum of revenues, costs and the income generated from the sale of a product of international transport general cargo on the Poland-Italy. The company has used during this period only from bilateral cooperation arrangements with the Italian partner operators.

Table 1. Number of shipments handled in the framework of the international distribution by SwissLogis Ltd in period for from 03.2012 to 12.2012

MOUNTH	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
NUMBER OF SHIPMENTS	8	16	32	45	29	43	56	48	34	311
REVENUE(TOTAL EUR)	2596,8	4021,4	11334,4	14341,5	8804,4	14426,5	16732,8	15451,2	10482,2	98191,2
COST (TOTAL EUR)	1388,48	2795,69	5835,52	7733,25	4925,36	7678,08	10092,88	8200,8	5949,32	54599,38
GROSS PROFIT (TOTAL EUR)	1208,32	1225,71	5498,88	6608,25	3879,04	6748,42	6639,92	7250,4	4532,88	43591,82

Source: Own elaboration based on information obtained from the shipping company SwissLogis Ltd. 2013

The data presented in Table 1 indicate the tendency of the development of the company. Since March the amount increased gradually supported. Growth was reported for July. In August, followed by a decrease (due to economic circumstances is a period of vacation home in Italy - the parable of the authors) to again increase recorded in September and October and following slight declines by the end of the year (November and December). The company in this period for recorded income from sales of this product of EUR 43591,82.

Table 2. Illustrative data on consignments accepted into the detailed analysis in the cost comparison of both solutions.

SENDER	RECIVER	From [post code– first part]	Where [post code – first part]	Income [EUR]	Costs – bilateralcooperation [EUR]	Costs – distribution system [EUR]	
REG	SPO	PL30	IT81	116,9	83,50	107,55	
BEL	TIR	PL30	IT50	217,1	155,07	168,97	
REG	SPO	PL30	IT81	116,9	83,50	91,89	
ZAP	CED	PL35	IT20	329	235,00	288,77	
CHR	PAN	PL26	IT90	287	195,00	245,30	
ELP	REC	PL44	IT30	217,1	155,07	165,74	
CHR	MES	PL26	IT00	254,7	176,40	182,30	
FAS	CAT	PL40	IT23	36,4	26,00	34,60	
ELP	NES	PL44	IT06	312,3	223,07	237,21	
CHR	PAN	PL26	IT90	652,2	405,60	438,06	
LES	PAV	PL63	IT31	72	50,50	60,73	
MOL	DEL	PL83	IT10	314,3	224,50	248,63	
AMK	PIZ	PL96	IT55	168,6	120,43	145,69	
POL	BES	PL30	IT20	43,5	31,07	43,97	
BEA	SEA	PL21	IT50	231,2	165,14	189,60	
CHR	PAN	PL26	IT90	652,2	465,83	552,26	
	•		AVERAGE	251,34	174,73	200,08	

Source: Own elaboration based on information obtained from the shipping company SwissLogis Ltd, 2013

Table 2 shows the 16 representative cases – consignments which have been handled by the company SwissLogis Ltd in month of may 2012. Looking at the coverage of the whole year to be tempted by an analysis of the income projections in terms of the whole year. Such a calculation can be done by the average business expenses for one shipment, calculated on the basis of representative 16 consignments presented in Table 2 in comparison with actual income. A detailed calculation of the forecast data presented in Table 3.

Table 3. In terms of income forecast throughout the year on the basis of a system of international distribution.

MOUNTH	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
NUMBER OF SHIPMENTS	8	16	32	45	29	43	56	48	34	311
REVENUE(TOTAL EUR)	2596,8	4021,4	11334,4	14341,5	8804,4	14426,5	16732,8	15451,2	10482,2	98191,2
COST (TOTAL EUR)	1606,4	3212,8	6425,6	9036	5823,2	8634,4	11244,8	9638,4	6827,2	62448,8
GROSS PROFIT (TOTAL EUR)	990,4	808,6	4908,8	5305,5	2981,2	5792,1	5488	5812,8	3655	35742,4

Source: Own elaboration based on information obtained from the shipping company SwissLogis Ltd, 2013

Projected income, which would be developed in the case of participation in the international distribution system in accordance with the data in Table 3 would be EUR 35742,40. To compare and choose the preferable solution for the company, as well as during the actual case to evaluate whether the company has taken the right decision in terms of the selection there is need to compare monthly income and annual for both variants. It is understood that if the income is generated in the effort smaller compared with the not worst of customer satisfaction, and maintaining the quality of the service, this solution should be considered. In addition to the increase of income, it should be also keep in mind that the same increase circulation company generates additional benefits. Even increasing the level of cash in circulation.(Ślusarczyk, Kot, 2012)The compilation is presented in Table 4.

*Table 4. A comparison of the actual income from prepared forecasts.* 

MOUNTH	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
NUMBER OF SHIPMENTS	8	16	32	45	29	43	56	48	34	311
REVENUE(TOTAL EUR)	1208,32	1225,71	5498,88	6608,25	3879,04	6748,42	6639,92	7250,4	4532,88	43591,82
COST (TOTAL EUR)	990,4	808,6	4908,8	5305,5	2981,2	5792,1	5488	5812,8	3655	35742,4
GROSS PROFIT (TOTAL EUR)	-217,92	-417,11	-590,08	-1302,75	-897,84	-956,32	-1151,92	-1437,6	-877,88	-7849,42

Source: Own elaboration based on information obtained from the shipping company SwissLogis Ltd, 2013

#### 5. ANALYSIS SUMMARY

The company opting to participate in the international distribution system would provide less income on an annual basis about EUR 7849,42 than using the bilateral cooperation arrangements with other forwarding. Analyzed the statement is confirmed by the quantitative benefits of bilateral cooperation. Looking at the pros and cons of global both variants of cooperation can, however, see the value added that is not often seen in the table, the digital approach.

Participation in the international distribution system carries many benefits for the partners of the acceding to it, the main ones are:

- Turnkey solutions to calculate shipping prices
- Availability of transport to many countries at the same time
- Joint, mutual responsibility for quality of service
   International Distribution System is unfortunately also the drawbacks of participation in it:
- A system of penalties for failure to comply with the terms of the agreement
- The need to fill in the items of the car line
- the cost of entry and participation in the system

Bilateral cooperation gives the company a lot of amenities, but also disadvantages. The most valuable aspects of the application are:

- Easy contact the immediacy of contact between partners
- Specialization in handling the country concerned
- Ease of settlement-no other intermediaries between partners
   Discussed bilateral cooperation, however, also has a few flaws:
- dependence on one supplier of services in the country
- the lack of options for potential development

#### 6. CONCLUSIONS

Shipping if someone want to develop in the direction of LTL freight services international, needs to decide how it wants to participate in this kind of supply chain. These distribution systems, as well as bilateral cooperation on developing capabilities like give company its product portfolio. Both solutions allow to meet the needs of customers forwarding, however, participation in the system allows to enter into supply and load in more countries by an extensive network of partners. Unfortunately, the cost of participation in them and the risk associated with additional costs, as not conducive to the development of the company in the context of strategic planning. Look also here clients of great importance, if the company that so far has not offered LTL transport services, in a short period of time, through the accession to the system, extends their capabilities in many countries, support of the distribution can be badly received. Consumers today increasingly prefer to choose a specialist with an industry, because, despite the slightly higher costs, they can get much better service. Specialization in a given direction of transport by far provides the cooperation between partners. Presented arguments confirm that the better choice is the progressive development and enabling future directions-the import export partner. This form of cooperation also provides greater transparency in the accounts and, with proper choice and efficient operating conditions and reliable contact and information about shipments.

Market leading in the direction of the fragmentation of the loads, it will also create opportunities for continuous product development LTL. Freight forwarding companies that in a professional manner will be provided their services offered to transport general cargo, to become the market leaders for directions, where in addition to a relatively competitive prices will offer very high-quality service. Solution of

distribution systems franchise quazi, should become a kind of complement to LTL freight services and provide support for the pipeline individual clients, and were occasionally pallet consignments, for a relatively low price.

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# Process model management trends in Slovakia's Tax revenue administration for Slovakia's economic performance

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#### Abstract:

Within the frame of the research on this matter, we came out form the existing functional organizational structures and tax administration systems not only in Slovakia but also in Hungary, Poland, Czech Republic and Slovenia, whereas the fundamental prerequisite of investigation was increasing efficiency of the system globally. On the basis of trend analysis we assume that upcoming reform of Tax and Customs administration will significantly contribute to the increasing efficiency of the system and in the end to the positive perception of taxes as a socially unpopular obligations.

Key words: taxes, tax reform, tax administration, efficiency, process management

#### INTRODUCTION

The examination of Slovakia's tax revenue administration should be perceived in a wider context. In order to it, it is necessary to start from the existing functional organisational structures and tax revenue administration systems in Slovakia, but also in the neighbouring countries, e.g. Hungary, Poland, the Czech Republic and Slovenia, while we think there is an objective need to change the organisational structure and to do its process-orientated optimisation, as well as to introduce marketing principles in the area of orientation on the customer in order to achieve a positive image of the tax revenue administration in the eyes of the public. We assume that the reform of the tax revenue and customs administration currently being prepared will significantly contribute to an increase in the effectiveness of the system and, eventually, also to the positive perception of taxes as socially unpopular obligations.

#### 1. DEVELOPMENT OF THE ORGANISATIONAL STRUCTURES OF TAX SYSTEMS

#### Structuring by type of tax

The basic criterion for the start of the oldest type of organisational structure of tax revenue administration was the structuring of executive bodies by individual existing types of tax. That type determined the creation of separate multifunctional departments for each type of tax, while such units functioned separately and mutually independently. The organisational structure divided in such a way fulfilled its purpose, but, despite that, it had its own functional shortcomings. It created space for the duplicity of functions, which caused ineffectiveness. If a taxpayer was subject of multiple types of taxes, the so adjusted system became complicated for him, with excessive amount of bureaucracy on the one hand and, on the other had, it was too complicated to manage the performance by taxpayers, separate control and debt collection. The ineffectiveness of the structure made around the type of tax is also underlined by the fact that there is an increased probability of unequal treatment of taxpayers and a decreased flexibility of the use of workers specialised in a certain type of tax. That eventually makes the planning and coordination of activities in the tax revenue administration managerially unsustainable.

#### Structuring by functional groups

This approach to the organisation of the tax revenue administration's work was made with the objective to improve the standardisation of work processes, to simplify the information flow and procedures concerning taxpayers, and to improve the operational effectiveness in general. Such an organisational structure places workers into functional groups (e.g. registration, accounting, information processing, control, collection, appeals, etc.), but, in general, works along a type of tax. When compared with the structure described in the previous chapter, created around types of tax, the application of the organisational structure based on groups increased the performance of the tax revenue administration (e.g. provided individual access points for tax enquiries, simplified the system of taxpayer registration, access to tax payments and accounting, etc.), and also increased the effectiveness of the tax control and debt collection. The modern theories of management, however, criticise such organisation of work for the division by functions, leading to the provision of poor, insufficient services and standardisation that does not bring effectiveness to the tax revenue administration due to taxpayers' varied and differing behaviours in the fulfilment of their obligations.

#### Structuring by individual types of taxpavers

The latest development in some developed countries has brought a model of organising services and law enforcement based on the principle of taxpayer segmentation (e.g. big taxpayers, small/medium-size taxpayers, employers, etc.). In this case the rationalisation in organising such functions by taxpayer types is in the fact that each group of taxpayers has different characteristics and behaviour and consequently represents a different level of risk in relation to the tax revenues. In order to manage those risks effectively, the tax revenue administration needs to develop and implement strategies (e.g. interpretation of the law, education of taxpayers, improving of the quality of services, focused tax inspections) that are suitable for the unique characteristics and ways of the fulfilment of tax obligations in the cases of individual types of taxpayers. From the management perspective, such a type of organisational structure creates space for the delegation of tasks and a vertical expansion of management, copying the needs of taxpayers, through the centralisation of key functional activities within a single management structure, which, consequently, improves the level of performance. Despite a multitude of advantages and its modern management approach, the application of such an organisational structure is, for the present, in its initial phase. In some countries, departments and divisions for big taxpayers are being introduced into the tax revenue administration system.

## 2. TRENDS IN THE MANAGEMENT OF THE TAX REVENUE ADMINISTRATION IN SLOVAKIA AND IN NEIGHBOURING COUNTRIES

Each of the monitored V4 countries and Slovenia declare the orientation of their tax revenue administrations that corresponds with the decisive parameters of the effective tax revenue administration of the European Union countries. The upcoming trends in the management of the tax revenue administration (TRA), in relation with the mentioned facts concerning the TRA management in the individual V4 countries and Slovenia, irrespective of the advancement of their economies, can be summarised into the following several points:

- a) Effort to increase the voluntary fulfilment of tax and health and social welfare insurance obligations, professionalism, partnership and correctness in the relations with the tax revenue administration clients;
- b) Continual activities supporting the decreasing of tax arrears and tax evasion;
- Building an organisation communicating with its employees and clients professionally, openly, intelligibly and timely;
- d) Effort to use human resources more effectively, to be an employer offering a job perspective and the growth of the employees' professional level;
- e) The utilisation of the information technology in the TRA with the objective to get closer to the taxpayer and to speed up the tax offices' work processes in the area of administration;
- f) To constantly look for new opportunities for the improvement, increasing of the quality and making services more effective without major modifications of the legislation;
- g) Education and training of workers in order to create a more versatile work potential;
- h) Effort to implement an effective system for the measurement of the quantity and quality of work at all levels of the tax revenue administration, set for each critical factor of success and representing a measurable value.

As a starting point of the upcoming trends in Slovakia' tax revenue administration we take the Government's Programme Declaration of 4.11.2002, which, in the part "Economic Policy", sets out the following objectives in the tax revenue administration: simplify the tax legislation, update the parts of the tax laws that allow ambiguous interpretation, simplify the sanction system in the area of tax revenue, decrease direct taxes, shift the tax burden from direct taxes to indirect taxes, reassess the application of property tax rates, unify income tax rates, analyse the possibility to introduce a flat tax, strengthen the tax revenues of municipalities, specify own tax revenues of higher territorial units, secure strict, direct, fair and effective collection of taxes, decrease tax rates, restrict tax evasion, and create a new system of horizontal financial balancing.

"Slovakia is the eighth most attractive European country from the perspective of tax systems. In the KPMG International's ranking, compiled on the basis of a survey of European company representatives' views on the attractiveness of domestic tax regimes, Cyprus was placed at the top, followed by Switzerland. Both countries obtained high ranking thanks to a unified interpretation of the tax legislation, minimum changes in tax laws and relatively low tax rates."<sup>2</sup>

<sup>&</sup>lt;sup>1</sup> http://www-8.vlada.gov.sk/index.php?ID=918 – Programme Declaration of the Government 2002

<sup>&</sup>lt;sup>2</sup>http://ekonomika.sme.sk/c/3685557/Slovensko-ma-osmy-najpritazlivejsi-danovy-system-v-Europe.html

The survey<sup>3</sup> was carried out by KPMG International<sup>4</sup> and its results reflect the views of more than 400 tax specialists in multinational companies in Europe. The evaluation criteria included the attractiveness, administrative demands, consistency, long-term stability, extent of legislation, tax rates and relations with tax offices. At the European level, according to the survey results, the least attractive area is the extent of the tax legislation. The order of the countries is specified on the basis of "absolute attractiveness", which was calculated as a difference between the percentage of the respondents according to whom the key aspects of their domestic taxation systems were attractive, and the percentage of not satisfied respondents.

Slovakia, and not just by the last tax revenue administration reform of 2007 or by the introduction of a flat tax rate, joined the progressive countries of the European Union and significantly boosted its attractiveness and competitiveness.

From the perspective of tax management levels within Slovakia, the current state can be defined as an officially two-level management, but by the transfer of some competences of the Slovak Tax Revenue Directorate (DR SR) to its detached offices (DO), it is, in fact, a three-level management, whose justification is based on the need to manage 102 tax offices, which is not possible to do from a single centre. Such organisation of the tax revenue administration is not optimal due to the following reasons:

- The performance of the main processes is fragmented by the territorial principle, while each tax office (TO) (small, medium as well as large) runs all processes related with the administration and control of taxes and tax execution, so it is not possible to achieve the optimisation of the performance of such processes or of costs of their performance from the perspective of the tax revenue administration as a whole;<sup>5</sup>
- The system of the deployment of tax offices is little flexible, as it does not allow to adapt the deployment of the basic organisational units to the needs of taxpayers;
- In the current system of management, DOs represent an administrative level of management, while there has been a long-term need in their work to concentrate the performance of some processes (e.g. accounting, payroll) that are unnecessarily split between the tax revenue directorate (DR SR) and the DOs and increase the administrative and communication demands;
- In the work of DOs' employees, there are problems that are characteristic for organisations that, along the line management, also apply other types of management (e.g. project, specialised-methodological, etc.). It is, for example, the case of the assignment of tasks by specialised managers of DR SR, which can collide in timing with tasks assigned by line DOs' managers.

On the basis of the above-mentioned, the concept of the reform being prepared takes into consideration the principle of justice, neutrality, simplicity, unambiguousness, efficiency and the exclusion of double taxation. The Financial Policy Institute's analyses dated to 2001 – 2004 show the reasons for the clear need of a reform:

- Complexity of the tax law lack of clarity;
- A lot of exemptions, liberations and reliefs, leading to social ineffectiveness, when the production and consumption is not influenced by the supply and demand, but also by tax advantages;
- Variability of the specification of the tax base, which allows the optimisation by the taxpayer, which increases administrative costs and decreases the possibility to control.

<sup>&</sup>lt;sup>3</sup> http://www.kpmg.com/SiteCollectionDocuments/2007CorporateandIndirectTaxRateSurvey.pdf

<sup>&</sup>lt;sup>4</sup>KPMG is a global network of companies providing services in the field of auditing, taxes and consulting. Its member companies operate in 145 countries and employ more than 123,000 workers

<sup>&</sup>lt;sup>5</sup> RAŠNER, J., RAJNOHA, R.: Nástroje riadenia efektívnosti podnikových procesov (Tools for Managing the Effectiveness of Enterprise Processes), Zvolen: TU in Zvolen, 2007.

From the perspective of the management and organisation of the tax revenue administration, as further reasons we can consider:

- Complexity of the organisational structure duplicity of functions and powers at the central and regional levels:
- A costly administrative tax revenue administration apparatus;
- Non-transparent project management, decreased possibility to control processes;
- The taxpayers' unwillingness to pay taxes;

The Slovak government's intention, declared in the mentioned Slovak Government's Programme Declaration, is to carry out the reform of the tax revenue administration in a way that makes it more effective, with the objective to methodologically help the taxpayers with a good taxpaying discipline and to uncover taxpayers that avoid the payment of taxes. The objective is to create conditions for an effective co-ordination of public administration bodies, to guarantee the access by citizens via the Internet, and to secure the interconnection of information systems of public administration bodies. The reform of the customs administration, with the vision of uniting the tax, duty and health and social welfare insurance premium collection processes, is also a priority task of the Slovak Ministry of Finance. The reform should take place in two phases: the first one will unite the tax revenue and customs administrations; in the second one, the tax, duty and health and social welfare insurance premium collection will be united.

The first phase has the name UNITAS I and part of it is a reform of the tax revenue and customs administration. For that phase it is proposed to examine the possibilities of process synergies in the tax revenue and customs administrations, to adopt legislative changes resulting from both audits and to subsequently coordinate the implementation of changes in both institutions. That determines the subsequent decision whether the optimization process will result in the uniting of the tax revenue and customs administrations or whether they will keep existing separately. It is proposed to develop a feasibility study, which would comprehensively assess the essential preconditions, possible benefits, and risks of uniting the tax, duty and health and social welfare insurance premium collection.

The second phase of the reform being prepared, also called UNITAS II, and its launch, will be influenced by the successful realisation of the benefits of the UNITAS I phase. In the UNITAS II phase, after the development of process models in the institutions concerned, a process model of the united collection should be developed, with a subsequent change in the legislation and the adaptation of the information technology (IT) support of the affected organisations.

The optimisation of the processes in line with the above-mentioned intentions focuses in particular on:

- Centralisation of the tax revenue and customs methodology at the Financial Directorate (FR SR);
- Centralisation of services for the public at the FR SR;
- Centralisation of the payment contact and of the accounting of taxes, fees and duties at the FR SR;
- Concentration of the execution process at Financial Offices (FOs);
- Concentration of the control process at the FOs;
- Concentration of taxes;
- Splitting of tax administrators' tasks by the character of activities and the uniting of tax administrators' registration and administrative activities;
- Centralisation of support processes at the FR SR;
- Unification and simplifying of forms for obliged taxpayers;

- Introduction of a unified identifier for natural persons and legal entities;
- Development of electronic services and elimination of paper-based communication;
- Development of electronic communication with other public administration bodies and with other bodies and institutions;
- Reduction of bureaucracy through the introduction of e-government, electronic communication and digitising of files;
- Reduction of the taxpayer's loading by the removal of the duplicity of the provision of information to public administration bodies.

Through that process, Slovakia is getting closer to an effective taxation system, which will mean an increased effectiveness and competitiveness of our country within EU countries. The impacts of the proposed changes can be split into two basic categories. The first one includes the benefits of the reform of the tax revenue and customs administration that have in particular the character of cost and time savings, of increased added value and work efficiency, etc. The second category is represented by the expenditures made to achieve the individual objectives on the reform of the tax revenue and customs administration. Both of the mentioned categories are further split into the impacts on the taxpayer, i.e. the user, and the impacts on the public administration. The expenditures and benefits of the reform either have a one-off, time-limited, or permanent character. From the financial perspective, the impacts with a permanent or repeating effect are of the greatest significance.

#### CONCLUSION

In the research of the issue, we started from the existing functional organisational structures and tax revenue administration systems not just in Slovakia, but also in Hungary, Poland, the Czech Republic and Slovenia, while the basic assumption of the examination was an increase in the effectiveness of the system as a whole, through a change in the organisational structure and its optimisation, as well as through the introduction of marketing principles in the area of orientation on the customer in order to achieve a positive image in the eyes of the public.

The introduction of the reform in Slovakia's tax revenue administration (TRA) that is being prepared lies in the optimisation of the number of tax offices (TOs) and in the change of the organisational structure, which will bring significant savings in their budgets. In the next phase, the uniting of the tax revenue and customs administrations is being planed with the objective to subsequently unify the collection of taxes, duties and health and social welfare insurance premiums.

From the managerial perspective, the following expectations of the benefits of the reform are significant:

- Better administration of the state's receivables with the possibility of their mutual compensation and a stronger position in receiverships;
- Optimisation of the number of employees by the elimination of the performance of duplicate activities and by the reduction of management positions;
- Decreased costs of the running of a united organisation.

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### Selected aspects of e-learning in educational process

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#### Abstract

The influence of the development of information and communication technologies and the emergence of "the information society" is changing a look of the current education and its importance. The emphasis is on the need for lifelong learning, which is determined by development of the company. E-learning is seen as a new approach to teaching, which use information- and communication- technologies. The development of these technologies is currently rapidly and so also the e-learning process is constantly upgraded. In our paper we deal with LMS Moodle, which represents one of the forms of e-learning in higher education. At the same time, we look at its use in high schools in Slovakia.

Key words: E-learning, education, modernization, LMS Moodle.

#### 1. BASIC CHARACTERISTICS OF E-LEARNING

In defining this concept we can come across on the disparity of terminology. This is due to the continuous development and also trying to find the best naming. In general, we can say that e-learning is a constantly changing system, which changes its form, scope and services offered.

Understanding this concept is far different in the US and in Europe. Liu and Wang (2009) summarize the concepts and definitions of western and eastern (China) e-learning to the following characteristics:

- e-learning is learning primarily based on the Internet,
- information is disseminated in the form of courses available on the network,
- it is possible a worldwide distribution and sharing of learning resources,
- it created a virtual learning environment,
- e-learning is one of the methods of study,
- learning is flexible (anytime, anywhere).

These characteristics of e-learning are shown in fig. 1.

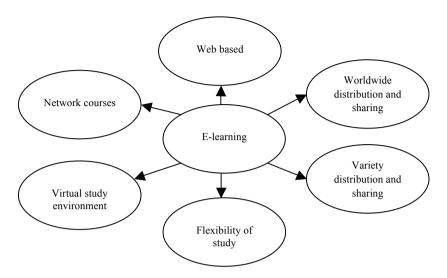


Fig. 1 The characteristics of e-learning Source: Liu and Wang, 2009

Kopecky and Vejvodová (2006) understanding the e-learning as any use of electronic material and didactic means to the effective achievement of educational goals (it is carried out, in particular, not only through computer networks). According to Wagner (2005) is e-learning an educational process, which uses information and communication technologies to the development of courses, to distribute course content between students and educators, and to the management of the study. This definition very aptly describes the concept and idea of e-learning.

E-learning in its present form did not exist in the past. The development of e-learning can be divided into several stages:

**CBT** (Computer Based Training) – education with the support of computers. This is the teaching without the use of the Internet. Teaching aids and materials are mostly found on the optical media, as DVDs or CDs (various animations, presentations, text, images, video and audio records, etc). This method is suitable for exercises or to verify knowledge

**WBT** (Web Based Training) – education with the support of web technologies. Education is carried out through the Internet. They created "virtual class", in which communicate tutor and student. On the Internet are accessible teaching materials, that student has to handle. Also included are links that refer to the additional information.

**LMS** (Learning Management System) – system of the management of teaching. It is a system of teaching with is using web applications. It is made up of a set of tools for communication, study management, like discussion forum and also makes available to students a teaching materials.

LCMS (Learning Content Management System) – system tool that is used to create or to the formulation of learning content. Unlike LMS LCMS allows you to combine different educational content already on the lowest levels, create your own training courses, interfere with educational content, etc. (Kopecký, Vejvodová, 2006).

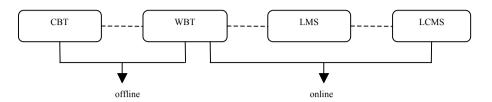
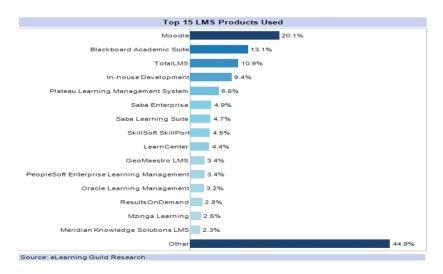


Fig. 2 The development of forms of e-learning Source: Kopecký, Vejvodová, 2006, p. 125

**Blended learning** – form of education based on a combination of e-learning and classical forms of teaching. It is about the integration of electronic resources in order to increase the potential of information and communication technologies, which is implemented together with the best methods of teaching. Basically it's a combination of classical college lectures with an electronic support.

#### 2. LMS MOODLE

Learning Management System – learning management system is currently the most widely used for supporting electronic forms of learning (well-defined online courses are a necessary condition) [8]. First version of e-learning environment Moodle was released on 02.20.2002 (Martin Dougiamas's birthday – founder). Moodle system belongs to the TOP 15 of most used learning management systems. It is rated as the most used between individual brands (graph 1).



Graph 1: LMS product usage, including education Source: http://www.learningsolutionsmag.com/articles/111/

There are many systems, from simple to extensive and complex, from academic to commercial and there are also large open-source applications. The Open-source category presents Moodle – Modular Object-Oriented Dynamic Learning Environment.

The Moodle system is a software package, which is available on the internet. It is provided free of charge as open source software (GNU Public License). Among the features of Moodle include modules, from which we can compile its content. Standard modules are study materials, discussion forums, automatically evaluated tests, dictionaries, databases and surveys.

#### 3. USE OF E-LEARNING IN HIGHER EDUCATION

In highest education practice may be encountered with the use of e-learning portals for more than 10 years. The most used software solution is the LMS Moodle, whose main advantage is the possibility of its free distribution. Despite this option, this tool was used in 2010 by twelve of the 33 high schools in Slovakia [7]. The website Moodle.org currently keeps track 208 e-learning portals in Slovakia, 1528 portals in Poland, 337 portals in Hungary and in the Czech Republic is registered 674 portals [4]. These numbers point to a different degree of implementation of Moodle in educational process. On the basis of these numbers we can see that at least is a e-learning used in Slovakia, it is most used in Poland.

In Slovakia, the highest degree of coverage of the individual courses or subjects has Faculty of chemical and food technology (Slovak University of Technology in Bratislava) and Institute of public policy and economics (Faculty of social and economic sciences, Comenius University in Bratislava). The high study coverage of the e-learning portal has Faculty of Educations (University of Prešov in Prešov), which has 391 courses broken down by individual study years and semesters.

For the improvement of the status of the use of e-learning these institutions (Faculty of chemical and food technology - Slovak University of Technology in Bratislava, Institute of public policy and economics - Faculty of social and economic sciences, Comenius University in Bratislava) implemented in 2010 survey in order to identify the status of the use of e-learning. The main objective of this research was the identification of relevant e-learning sites, which have been used in Slovakia in education and private sector. The target group was also students and teachers using e-learning in higher education. Through the e-questionnaire were contacted students, who studied public policy (Institute of public policy and economics). The aim of the survey was to identify the needs of the student in relation to the functioning of the e-learning portal with the aim of improving its functioning.

One of the biggest advantages of e-learning students included the availability of teaching materials, the rapid availability of results or important deadlines, improved orientation in study and easy communication with educators. Among the disadvantages students most frequently mentioned impersonal access, weak technical support system, excessive complexity of the system, the lack of literacy educators and poorly specified roles of educators [7].

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# SOCIAL NETWORKING SITE TWITTER AS A MARKETING TOOL OF CUSTOMER SUPPORT

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#### Abstract

The purpose of this article is to describe the specific aspects of social networking sites as a tool of marketing communication. Regarding evaluation of the direction of the given topic, the article summarises the theoretical outcomes of a social networking sites theme as a part of social media. It describes the current state of using social networking sites as a tool of customer support based on the performed analyses, with its attention being focused on the micro-blogging social network site Twitter. Another aim of the article is to evaluate the options that this topic offers to the marketers and also point out possible issues.

Keywords: E-Marketing, Social Media, Social Networking, Twitter, Customer Support

#### 1. INTRODUCTION

Global trends in online environment are dominated by social networking sites that as a part of the modern social media form a platform which in a sophisticated and efficient way provides space to perform the marketing activities of the companies. Marketers of the companies offering the services or products in the market are beginning to use social networking sites more and more frequently as an effective tool of customer support. One of these sites is the social network Twitter, which has considerably developed during last few years. Although it has started as an ordinary micro-blogging service, it is now considered to be a lively ecosystem with a diverse scale of user communities and brands trying to fully exploit the potential of this platform in order to achieve an effective communication with their target audiences.

#### 2. BASIC THEORETICAL OUTCOMES

Social media represent a phenomenon that has first appeared in the early 21st century, their essence is based on online applications that support the existence of informal user networking sites which enable to generate and share various kinds of digital content such as opinions, attitudes, texts, links, photographies, videos or music. (Karlíček, 2011)

Social media play a significant role in current electronic marketing. Trust put into classical advertising is decreasing, on the other hand the power of Word-of-mouth (good word) is beginning to fully appear

again. This power is intensified by Internet, which allows a return back to the "collective wisdom". (Janouch, 2010)

Social networking sites are unlike social media based on the social bonds that are mutually interconnected. These social ties can have various levels, from the individual (friends, family) to organizational or global (Van Dijk, 2006).

Based on this fact it can be concluded that social networks inherently represent specific categories of social media

An interesting point of view related to the topic of social networks has Olivier Blanchard (2011), which in his publication states that social networking sites represent a communication tool such as a phone or email, which serves to fulfil the essential corporate functions including public relations, marketing, management, customer service and market research.

Social networking sites as a part of social media generally represent services based on websites that enable individuals to create public or semi-public profile within a closed system, create a list of other users with whom they are connected, see and explore connections that were created by other users within the system. The character and distribution of these connections may vary from website to website. (Boyd - Ellison, 2007)

Based on the stated facts, we can summarise the most important features of social media (Bednar, 2011 - Tredaway, 2011 - Janouch, 2010):

- provide feedback
- social media are not only a source of information, but also a way to exchange and find information, create connections between members of social networks
- they form a place that allows to apply various types of advertising
- they help to acquire new clients
- enable to spread the reputation and positive feedback about the products

The authors Přikrylová, Jahodová (2010) describe the current situation and the use of social networking sites and states the following about the other options of marketing withing social networking sites: creating a profile of a brand in selected social networks

- collecting data about users and fans of the product or brand
- creating applications that allow users to come with the ideas that are related to the company or brand
- cooperation with the most active blogger or debater (mutually beneficial),
- monitoring attitudes and opinions in discussion forums
- uploading suitable videos and photographies on YouTube and other websites with shared content
- creating discussion forums and contributing to them
- creating a corporate blog
- publishing special press releases for the area of social networks

As author Dunda (2011) stated, in practice there are certain situations in which social networking sites help us to save time, obtain and process information, which we would not obtain within a reasonable time with the use of just conventional tools. Sharing these values offers companies the way to promote their products and services not only to the general public but also specific people, knowing that there exists a high probability that they would welcome the given offer.

#### 3. CUSTOMER SUPPORT WITHIN SOCIAL NETWORKING SITES

It is not news that social networking sites influence the way in which we spend time in online environment. Analysis of the company Experian Marketing Services (2013) which was focused on online users of the Internet in the U.S., UK and Australia, and their behavior for the period of the year 2012 points out to the fact that 27 % of time spent online is devoted to the social networks. Social networking sites are currently used worldwide by nearly every fourth person on earth with over 1.73 billion users. There is also an obvious trend of increase of the user base, with its YOY increase in 2013 predicted to be at 18.00 %. It is important to note that 67.70 % of Internet users worldwide in 2013 has used social networking sites services at least once a month, with predictions for year 2017 assuming that 78.80 % of internet users will use social networking sites services at least once a month. As it is clear by observing Figure 1, the increase of the number of social networking sites users has decreasing trend. On the other hand, it does not change the fact that the estimated number of users of social networking sites for 2017 is predicted to be at approximately 2.55 billion users. (eMarketer, 2013)

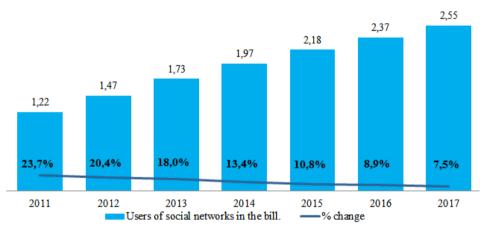


Figure 1 The number of users of social networks globally Source: Own work based on eMarketer.com

Results of the analysis of the company Fishburn Hedges and Echo (McNaughton, 2012) published in July 2012, responded to the question whether social networking sites form an appropriate and effective communication channel with existing or potential clients. The published analysis states that annually more than 18 million customers in the UK communicated with the brands through social networking sites. With the opinion that social media represent a better form of communication than traditional phone conversation with a call-center worker agreed 65 % of the interviewed clients who have used the form of communication through social networking sites.

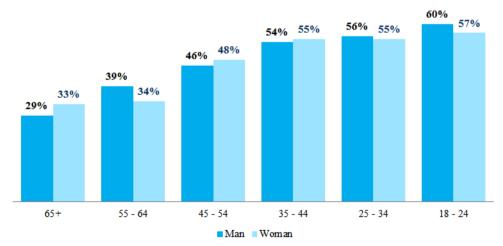
Another benefit of social networking sites as a relevant communication tool in the area of customer support are also the results of a survey of a marketing agency Conversocial (2013) published in October 2013, mainly investigating customer support within an environment of social networking sites. Published data point out that 81 % of the top 100 online sellers respond to stimuli of customer support through the social network Twitter. At the same time almost identical number- 80 % of the companies communicates ideas of customer support through the social network Facebook. An interesting discovery is that 50 % of retailers would close the complaint (issue that is being discussed) directed to the

customer support within an environment of a social network, without directing the problem further and involving the responsible department or workers.



Figure 2 An influence of social networks on customer support Source: Own work based on Heiligman - Lieu, 2013

Trend of using social networking sites as a relevant tool of marketing communication within the area of customer support is also confirmed by the results of research performed by Social Media Today and SAP (Heiligman - Lieu, 2012), where from the 118 surveyed companies 71.20 % stated that their company is actively using social networking sites as a tool for customer support. Within this group of respondents, more than 65 % of companies responded that they perceive the impact of social networking sites on customer support positively or very positively. 0.5 % of the respondents stated that social networking sites have a negative impact on their customer service (see Figure 2).



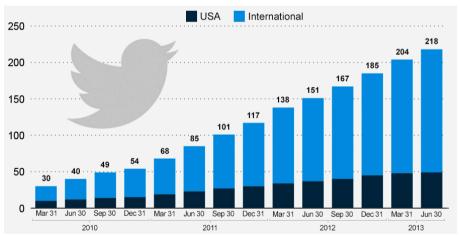
Graph 3 The use of social networking sites as a tool of customer support according to age Source: Own work based on NM Incite (2012)

Above described trends and matters are followed by the results of research by NM Incite (2012), observing the implementation of research and analyses within the media, focusing on the use of social media as a tool for customer support. The results of the research point out to the fact (see Figure 3) that more than 50 % of the surveyed respondents (2,000 respondents from the United States), all within the age group 18-44 years have used online social media as a tool for customer support.

#### 4. SOCIAL NETWORK TWITTER

At first, Twitter does not represent a classical model of social networking sites, but it is a popular microblogging platform in the form of sharing short messages "Tweets" with the maximum length of 140 characters between the users who follow your Twitter profile.

Social networking site Twitter with more than 500 million registered users (Semiocast.com, 2013), with 215 million monthly (MAP) and 100 million daily active users (DAP) (as of Oct. 2013) is the second most popular social networking site in ranking (Protalinski, 2013). The mentioned ranking is dominated by the social networking site Facebook, which with more than 1.11 billion monthly active users (MAP) and more than 665 million daily active users (DAP) represents the world's most widespread social networking site (Constine, 2013).



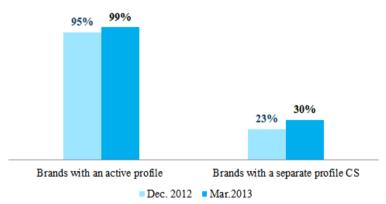
Graph 4 The number of monthly active users on the social networking site Twitter Source: Statista.com, 2013

A closer observation of the age structure of the social networking site Twitter is provided by an analysis of the Pew Research Center's Internenet & American Life Project (2013). The results of the analysis describe overally observed period from November 2010 until May 2013, whereby the data related to the period of year 2013 are built on the responses of 1,895 respondents living in the U.S., which had been collected during the months of April-May 2013. As stated, the fastest growing and the largest age group within the social networking site Twitter are users within the age range 18 to 29 years. Based on the stated data, it is possible to conclude that in all the observed age groups except for a group of users aged 65 + during the period between November 2010 and May 2013 has been recorded an increase of more than 100 %.

The country with the most users in a social networking site Twitter are the United States with a share of 24.3 %, followed by Japan with 9.3 % share which represents 38.27 % of the share of the United States. Regarding Europe, the ranking is dominated by the United Kingdom (4.3 %), followed by Spain (4.3 %), Russia (2.6 %) and France (2.1 %). Countries with a share of less than 1.9 % in an absolute ranking represent 26 % (Richter, 2013). Regarding the comparison in the case of evaluation of penetration (for this purpose the penetration means the value of monthly active users of the social networking site Twitter to the number of internet users in general), the United States (11 %) ranked only as the number eight. Ranking is dominated by Saudi Arabia (33 %), Indonesia (19 %), Spain (14 %) and the UK (12 %), (Richter, 2013b)

### 5. THE MEANING OF SOCIAL NETWORKING SITE TWITTER AS A TOOL OF CUSTOMER SERVICE

The significance of the social networking site Twitter as a tool of customer support is confirmed by the analysis of Simple Measured (2013) which during a period of the first quarter of 2013 evaluated the implementation of customer support on a social networking site Twitter within the top 100 global brands based on the ranking of the company Interbrand (2013). The results of the analysis indicate that as of March 2013, 99 % of brands actively communicated through their profiles with their fans, what in comparison with the period of December 2013 represents an increase of 4.2 % (see Figure 6). 30 % of brands in March 2013 in addition to the main profile also owned a profile specialised for addressing the complaints and the problems of the customers (see Figure 6). Another significant fact is that compared to the period of December 2013 within the observed variable, there is an increase of brands with the profile specialised for customer support by 30.4 %.



Graf 6 Share of the brands with Twitter profile and a specialised Twitter profile for the purpose of customer support

Source: Own work based on Simple Measured (2013)

Apart of that, analysis (Simple Measured, 2013) further shows that only 10 % of brands implementing customer service within an environment of social networking site Twitter is able to answer more than 70 % of stimuli - tweets (see Figure 7). In this case, it is important to state that some "tweets" of the users do not represent actual stimuli but an accompanying communication, which therefore does not require the response of the brand.

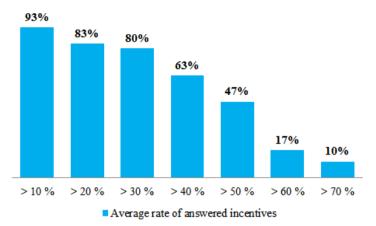


Figure 7 The average rate of answered initiatives directed at the profiles of the brands Source: Own work based on Simple Measured (2013)

However, in our opinion, in terms of building a positive image, it is necessary to reply to every initiative regardless of whether it is more or less relevant. Observing the data from a broader persepctive (Simple Measured, 2013), the analysis indicates that the average response rate during the period of first quarter of 2013 was 42 %. In the case of the observed variable response times of the brand to the stimuli from the users the average response time of 5.1 hours was achieved (Measured Simple, 2013). As Figure 8 states, only 10 % of the observed brands was on average able to respond to the users within one hour of receiving their message. It is essential to state that the enormous amount of the messages that is necessary to process, in the case of the top global brands is caused by the fact that it is not possible to respond to all these messages in a relevant way and within a reasonable time.

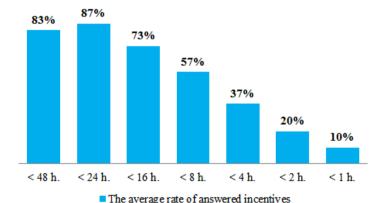


Figure 8 Reaction time of answering messages directed to the profiles of brands Source: Own work based on Simple Measured (2013)

The relevance of specific departments of customer support brands in an environment of social networking sites is generally confirmed by the fact that 42 % of social media users expect a reply of the customer support within one hour (Baer, 2013). In the case of an analysis of the author Belleghema (2013), which was performed on a sample of 2,450 respondents from different corners of the world, the

share of customers expecting a relevant response to their message through the social networking site Twitter until 4 hours was represented by 54 %.

#### 6. CONCLUSION

Global brands now begin to realise that mere presence on social networking sites is no longer sufficient. Current trends or results of the analyses (McNaughton, 2012; Conversocial, 2013 Pew Research Center 's Internenet & American Life Project, 2013 Simple Measured, 2013 Baer, 2013 Belleghem, 2013) prove that the implementation of customer support or even the existence of specific profiles for customer support of the brands on the social networks is now more than a competitive advantage. We dare to state that it is in some cases even essential. Generally, it applies that through the profiles and pages on social networking sites in order to build relationships with customers is possible to get and create a community of fans of the given brand. Page or profile of the brand in turn creates a space which enables users to effectively and immediately communicate all relevant activities. Therefore, it is possible apply a system of functioning social networks within the customer support on the model of public management, where the target group is not formed by potential and existing clients but the population of the region itself. Twitter profile of regional government would therefore as a communication channel in our opinion represent a suitable complement of the communication mix of the given organisation. Together with classical and established forms of communication with the citizens, it would represent an innovative and flexible channel which would solve the general questions of the citizens. Social networking sites in relation to customer support should be perceived as a part of building a positive image and at the same time the relationship between the customer and the brand or organisation. Implementation of customer support allows a flexible way to react to the stimuli, questions and issues without compromising the reputation of the brand.

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# Status of public administration and regional development in Slovakia

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**Abstract** The Slovak Republic is currently characterized by significant regional disparities between the various regions of Slovakia. Large regional differences are that geographically, historically, culturally and most significant differences are in the economic field. Development of public administration is essential for raising the standard of living and culture of the population. Raising the standard of living is only possible in cooperation of government and citizen. The aim of this paper is to highlight the importance of perception and the use of government as part of the company that performs certain specific functions within the Slovak regions.

**Key words** Public administration, regional development, region, regional policy.

#### 1. INTRODUCTION

Public sector business requires monitoring and evaluation, especially at the present stage the constantly changing economic and financial crisis, where special attention by all stakeholders focused on uncovering reserves, effective and efficient use of funds spent, naturally the permanent attention to quality improvement services, but also the revenue side of budget management (Bušík, 2009). Public administration immediately affects every citizen in particular its executive component state and municipal territorial authorities (municipalities and higher territorial units). Public administration thus can be defined as a decision-making activity carried out for this purpose and designated authorities empowered by law, to the extent commandments scope and powers and aimed at ensuring governance (Pala, 2010). Governments are part of the public sector with a specific status. Guided not by the public sector, but also controls the entire economy. We argue that the type of law is somehow also involved in the management of the entire company. At the same time forms the basis of the control system of the whole society, which is formed as a state.

Public administration in a democratic state is an important Organisational power that uses its activities and forms of social institutions, also defines " rules of the game " and thus ensures the performance of established social, political and socio - economic interests of the state. Individual activities of public administration are contained in the law of the state and at the same time are specified in the practical activities of state bodies ( Berčík , Zajac, 2007) . To modernize public administration and shaping tasks of government in a mixed economy it is necessary to take into account the growing influence of the globalization process, which result in conflict between society and the economy (Ivanička , 2004) . Constantly increasing the competitiveness of countries and regions puts all businesses new requirements. This fact requires new forms and tools to promote, in the area of business, investment and innovation environment, science and research, and in particular the interlinking of these areas. Similarly, competition between the regions themselves and attract new investments require special place for innovation in the system of regional development policy (Kiseľaková, 2007). Regional development is

directly related to the legislation of the country, as well as taking into account the importance of the development of the area governed by the National Development Plan supported by national legislation and EU regional policy (Bačík, Gbúrová, 2009).

#### 2. THEORETICAL GOVERNMENT AND REGIONAL DEVELOPMENT

The issue of regional development is very closely linked with the issue of regional policy, its basic orientation and manner of its practical application in specific regional contexts. In simplified terms, we could say that regional policy as such constitutes an active action to manage the process of economic development in different regions. Several authors point out that regional policy is focused the work of government (central, regional and local level) based on a dynamic and systematic development of the regions, the modification and the spatial structure of the national economy (traits Drobík, 2009).

Chądzyński et al. (2007, p. 43-44) the term regional development indicate a steady rise in the economic potential of the regions and the systematic and continuous improvement of their competitiveness and living standards of its people, which also deserves to socio - economic development of the whole country. "In general, regional development includes economic and social processes in natural - social environment of the region , which should be used but also respecting options , assumptions and peculiarities of the region . Regional development can be seen as ensuring economic growth and social potential of the region whose use has lead to an increase in the standard of living of its people, to social and economic development of the country, with the maintenance of sustainable development (Jánošová, 2010).

Economic level of regions significantly affect the resources that act as a factor of regional development. These resources are organized into the following order according to their impact on the economy of regions (Belajová, Fáziková, 2002):

- ullet localization companies and their frequency , sectoral structure and economic stability , intensity inside the regional economic ties and the type of organizational forms
- Natural resource regions, their availability and their degree of usability,
- demographics assessed through qualitative and quantitative characteristics of the population and its movement, the population of the region performs both the labor market and the market for products and services,
- direct and indirect effects of government economic policy , as well as regional policy and structural policy
- technical and social infrastructure in terms of complexity, quality and quantity, the technical infrastructure has an impact on meeting the needs of the population.

Bearers of development aid may not only domestic public and private, as well as international institutions. Financial security of regional development form (Bucek, 2008):

- the state budget and state funds, funds of the European Union,
- Appropriations budget autonomous regions and municipal budgets,
- means of natural and legal persons,
- loans
- the contributions of international organizations .

Public administration has its obligations not only to the population, but also the area in which the population lives and works. It is a relationship of permanent and purposeful effort to find his rational and efficient organization and utilization (Bušík , 2009). By Ivanička (2004) Economic globalization creates differentiation of large world, and therefore its destabilization. Large multinational companies create unlimited space, but social differentiation, which subsequently arises, calling for a different world order logic as well, and another type of rational function. Therefore, strong global movement that wants to revise the current course of globalization. This movement also asks recognize defining the role of the ordinary citizen and the state. Increasingly emerges the need for a new synergistic communicative

world. From an organizational perspective, the government fully institutionalized. It is composed of a set of institutions that have laws specifically designated place in the division of public power, as well as in their own 3trukt [Re (offices and institutions). They have clearly defined substantive, territorial and functional scope, authority and responsibility. Institutionalization of government is an essential way to safeguard the citizen against abuse of public power and public administration fundamentally different from other segments of society (Pala, 2010).

Decentralization is one of the most important processes in relation to changes in the public sector after 1989. Precisely define this concept is very difficult because the conditions of different countries may have different name. Concept of decentralization in different countries may represent different processes. In general we can say that " ... on shifting public authority and responsibility for the execution of public functions from central government to regional, local , quasi- independent state established by the organization or the private sector. " (Pirošík et al. , 2004) . Decentralisation is therefore one of the most important processes in the public administration started in Slovakia after 1989. It has become an indispensable part of democratic change, and had a significant impact on the current form of Slovak public administration. Decentralization can greatly help to deepen the democratic character of the political system (Krnáč , 2010) .

Economic or rather just the financial aspect of public administration dealing with public finances, so public expenditure. From an economic point of view the administration has a very specific position. On the one hand, it is one of the sectors of the national economy, and its achievements are counted in the gross domestic product. On the other hand, government institutions management system comprises not only the public sector but affects the whole society, also in the non-economic manifestations. In this sense, government is "above" all sectors and creates a "control system" of the whole community, formed in the state. An essential feature of effective state public sector balance and optimum. Complementary condition for this is that it must correspond to the fulfillment of public interest, and individuals are involved in public interest so that it either directly involved or may not impair its activity (Protection , 2001).

### 3. NATURE AND IMPORTANCE OF GOVERNMENT AND REGIONAL POLICY IN SLOVAKIA

From 1 January 2002, another level of local government, within the boundaries of administrative regions. In accordance with the Constitution is called the higher territorial unit - HTU. Public administration is therefore currently organized on three levels: country - region - municipality. Each level has its own elected representatives, tasks and responsibilities. Elected representatives of all three levels (National Council, local self-governments, city / municipal council) as well as mayors of cities / mayors and presidents of regional self-government are elected by universal, equal and direct suffrage by secret ballot for a period of four years. Since 1990 a separate model of public administration exists in Slovakia (government - territorial authorities), which operates on three levels: village - County - State (www.trencin.sk).

The Slovak Government has executive power. In accordance with the so-called. Competence Act, the individual ministries and other central government bodies of executive powers and responsibilities for the execution of state administration. The Ministry of Interior is also responsible for coordinating the local government within individual regions. Basic tasks of government are: economic policy, foreign policy, security policy, defense, civil defense, fire department, courts, prison, customs rights, currency, tax authorities (excluding local taxes), post offices, railway, highway system, I. grade, labor and employment services, higher education, selected medical, cultural and educational facilities, airfields (with regional municipalities and regions), planning, nature conservation and regional politics (shared with municipalities and regions). Cities and towns their self-governing (original) powers and

responsibilities in their municipalities may issue generally binding regulations and opinions. The original powers (autonomous operation) include: local roads, public transport, public spaces, greenery, cleanliness, nature and the environment, water management, municipal waste, urban planning, local development, housing, pre-school and school facilities, restrooms, clinics, some hospitals, culture, certification of documents, some offenses, local police, collection of local taxes and fees, participation in regional plans. In selected areas, where it is advantageous for the state, the municipalities entrusted the devolved powers of government. It is a registrar offices, building code and parts of competences in education. These tasks are performed on behalf of the state, the state is responsible for the management and quality of service and financing of these tasks ( www.trencin.sk ).

Since the early 70 20 years century in the EU classification system is used territorial statistical units known by the acronym NUTS (Nomenclature of French des Unités Territoriales Statistique) developed by Eurostat, which was created in order to subdivide the territory of the EU territorial units lower hierarchical range, than are the nation states, and to the needs of the territorial scope of regional statistics. NUTS system is based on a five step hierarchical classification, with three levels relate to the regional level ( NUTS 1 and NUTS 3 ) and two at the local level ( NUTS 4 and NUTS 5 ) (Freedom, 2006).

V within Slovakia, there are so-called parallel model in which the government fully separate, individual elements of public administration. In other countries it may be called an integrated model of public administration, in which some public administrations simultaneously state administration bodies and local government bodies. According to the classification of territorial units for statistics introduced EROSTATOM, three regional and two local levels. Whole territory of the Slovak Republic is defined as a NUTS 1, NUTS 2 regions consist of two to three NUTS 3 NUTS 3 units are the individual regions. Local levels are LAU 1, consisting of the districts and LAU 2 by the communes.

#### Territorial administrative units (www.nsrr.sk:

- NUTS 1 whole territory of the Slovak Republic combined NUTS 2)
- NUTS 2 regions combined (4 territorial units),
- NUTS 3 higher territorial units (8 regions),
- NUTS 4 districts (79 districts),
- NUTS 5 municipalities (2,930 municipalities, including the city of Bratislava and Kosice).

Associated regions (clusters of regions) - NUTS 2:

- Bratislava Bratislava region.
- West Slovakia the territory of Trnava, Trenčín and Nitra,
- Central Slovakia Žilina and Banská territory of the region,
- Eastern Slovakia the Prešov and Košice.

Higher territorial units (regions) - NUTS 3:

- Bratislava region defined area 8 districts, the county seat of Bratislava,
- Scotland defined area 7 districts, the county seat of Trnava,
- Trenčín defined area 9 districts, the county seat is Trenton,
- Nitra region defined area 7 districts, the county seat of Nitra,
- Žilina Region defined area 11 districts, county seat of Zilina,
- Banska Bystrica Region defined area 13 districts, the county seat of Banska Bystrica,
- Presov Region defined area 13 districts, the county seat is accurate,
- Košice region defined area 11 districts, the county seat is Košice.

Figure 1: The territorial divisions of the Slovak Republic to the regions

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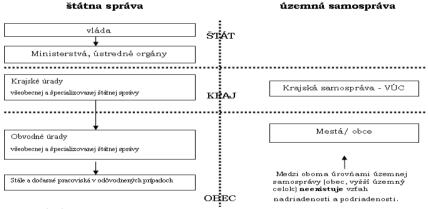
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Source: portal.statistics.sk

Chart 1: Structure of public administration since 2004



Source: www.trencin.sk

Public expenditure represents "strongly" an observed variable even within the EU and are also certain measure, a barometer of economic efficiency. Public administration is undoubtedly complicated legal, economic, political, social and cultural phenomenon. It is a historical category, not only as a comprehensive system, but also in the form of activities, ie highly sophisticated activity of specific professional bodies. Therefore, there is a diversity of individual systems of government, whether in the EU or even in the broader dimension (Bušík, 2009).

#### 4. CONCLUSION

In its conclusion, we can say that the position of the general government in national economic context and its constant modernization creates wide issue, which is currently beyond the borders of the country -

region. Public administration has to be seen as part of the social system, responding to the impact of globalization and the challenges arising from the globalization process. By Pal'o (2010) quite a serious problem still remains weak application of new management methods in public administration, as well as the absence of effective control methods in the public sector. Prediction and management of the plan depends mainly on the people, their creativity and professionalism. The government creates room for individual central government authorities, which would aim to create organizational and methodological framework conditions for development initiatives in the organizations administrative structures.

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# The application of systems of financial metrics in financial analysis

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#### Abstract

The fundamental factor for the interpretation of a company's success is to quantify the effects of the analytical indicators determining the overall profitability of the business as an entity. The overall state of the economy determines the ability of businesses to achieve target profitability. In the present context, to some extent in the area of financial management in general, as a subsystem of the overall system of corporate management, use of these financial indicators is imperative.

The aim of this paper is to highlight the relevance and importance of using pyramid models, involving financial metrics with considerable expressive ability, in the financial management of businesses.

Key words Model, Profitability Indicator, Returm on Assests

#### INTRODUCTION

The current competitive environment allows for the healthy functioning of firms that dominate trade and financial trends. A formalized method that allows for a determination of the financial situation, that is the overall financial health of a company, is its thorough financial and economic analysis, whether in terms of ex post or ex ante. One of the cardinal tasks of the financial analysis of any business is the analytical and systematic approach to analyze their individual activities. The purpose of a financial analysis is to prepare the groundwork for quality decision making and functioning of a company.

The most famous pyramid diagram system was first developed and used by the multinational chemical company Du Pont de Nemours and is called Du Pont Decomposition. The designation of Du Pont does not identify the author of the model, but rather the company, EI Du Pont de Nemours and Company, which in 1802 by founded by Eleuthera Irenee du Pont de Nemours. By Soucek (2010), a company that has the potential to achieve the best results is undoubtedly such a company that is able to best adapt to its environment, which currently means the global environment. Characterizing a successful business is difficult. Rating a successful business under one criterion, or by using a few criteria, can be quite misleading. Practice shows that this analysis is, while it is more appropriate to use indicators, for the overall assessment of effectiveness the most appropriate indicator of profit. By Zalai (2007, p.25), a system of evaluative indicators for such a company means a set of indicators for constructing, with respect to the requirement of a most faithful reproduction and descriptions, the examined economic reality. Logically interrelated sets of selected indicators are used as system indicators.

### SYSTEM OF FINANCIAL INDICATORS

When financial and economic analyses are applied, managers use financial indicators, which are grouped into a logical narrative matrix known as a matrix of system indicators. Indicators arranged next to each other are known as a parallel system of indicators, each indicator being in the system at the same semantic level and in a pyramid system of indices, where the progress bar is integrated from the most synthetic down. By Máče (2006, p. 45), one should evaluate a company's value by applying a pyramid system to interpret indicators on the one hand, including taxation of investments owned by the business owner, and secondly, to estimate the market value of the company's capital, that is to say its intrinsic value. It is the analyzed business entity that represents the owner of the invested funds net asset value, including net asset value per share. To study the impact of determining factors on synthetic factors, there are a variety of methods. The most widely used method is the chain-appointed logarithmic method, also called the functional integral method.

By Jenčová (2011), the sense pyramid system is explained by conversion of the behavior of the top pointer and then quantifying the impact of individual partial sections of indicators for the conversion of the synthetic indicator. Pyramidal systems of indicators are characterized by the (zero-order variable, synthetic, criteria, integrating) indicator that defines the area's synthetic character. Subsequent stages of the pyramid gradually degrade on partial analytical indicators.

We then quantify the degree of degradation and weight of synthetic indicators. Indicators are linked as additive, multiplicative and with mixed bonds. Vertical linkages are causal in nature. Horizontal linkages associated with indicators are identified as complementary. Use of these linkages on each of the analytical quantification indicators changes the synthetic indicator. FIG. 1 shows a general pyramidal decomposition in a simplified form. The Peak Indicator, that is the synthetic indicator is an indicator with zero order variables; below it are indicators of the first order, which gradually decompose further indicators of lower order.

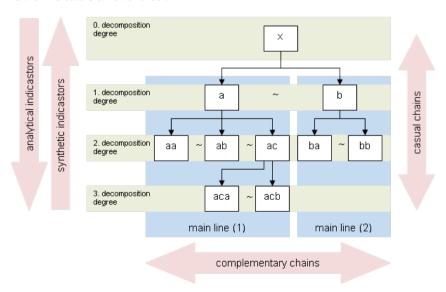


Figure 1 General model of pyramidal system Source: (Kotulič, 2007)

By Sedlacek (2007, p.82) using the logarithmic method is possible in a pyramid system of indicators:

- to quantify the intensity of the impact of the various sub-indicators on the top indicator explained by the development of the financial situation of the company between periods
- assess differences between actual and forecast values of the peak indicator
- convert comparisons with the performance of competitors
- monitor company performance differences compared to the situation characteristic of the department, or vis-à-vis best in the art
- predict future developments arising from the causal interdependence of indicators

Implementation of logarithmic methods in the analysis of a company is based on the indices of individual difference analysis indicators. These are interconnected multiplicative and mutual ties that take their values from the application of the logarithmic method (Kucharčíková 2007).

The most famous pyramid diagram system was developed and first used by the multinational chemical company, Du Pont de Nemours, and is called Du Pont Decomposition. The designation Du Pont in the model name does not identify the author model, but the company EI Du Pont de Nemours and Company, which in 1802 was founded by Eleuthera Irenee du Pont de Nemours. The author of this model was Frank Donaldson Brown.

Brown's first employer was General Electric, which he joined in 1903. In this job he used his expert knowledge of engineering. In 1909, he joined Du Pont first as a trader in explosives. By 1912, he was working as an analyst at Du Pont's headquarters. In 1914, he became assistant director and in 1918 as the CFO he was appointed to Director's Council and Executive Committee of the company. It was in 1912 that he created a model for the decomposition of return on assets (ROA), later known as the DuPont model. ROA is not an ideal tool for decision making by investors because it does not distinguish between capital appreciation for shareholders and creditors. This task is performed better by ROE, that FD Brown created in 1919. Disintegration of composition lies in the profit margin, asset turnover and financial leverage (Marek 2009).

$$ROE_{EAT} = \frac{EAT}{E} = ROA \times \frac{A}{E} = \frac{EAT}{EBT} \times \frac{EBIT}{S} \times \frac{S}{A} \times \frac{EBT}{EBIT} \times \frac{A}{E}$$

Use of the Du Pont equation is needed to quantify the decomposition of ROA or ROE. Decomposition of profitability of assets reflects the close relationship between profitability and inventory turnover ratio (how many times the property in question turns in annual sales, how many euros in sales produce one euro of the businesses' assets), that is the essential productive force of the company is given by the multiplicative product of financial indicators of profitability and sales turnover of assets. If we want to increase the profitability of assets, we must act on the turnover of assets or N profitability in the direction of improvement.

Decomposition is focused on ROE, return on common equity, which is determined by eight indicators. Senior ROE (Return on Common Equity) results in two branches and three orders of magnitude. The left branch metrics quantifies seven ROA (Returns on Assets) as the basic earning power, ROS (Return on Sales), OA (Sales to Total Assets), Total Assets Turnover Ratio, EAT (Earnings After Taxes), Sales and Assets. The right branch represents the shares of total assets, respectively. Overall capital that is invested in equity requires leverage metrics and Financial Gearing, which is the reciprocal of the equity Ratio. In the DuPont model these are implemented as combined custody. The multiplicative product of the bond is applied between indicators of profitability of assets and debt ratios in the first stage of decomposition.

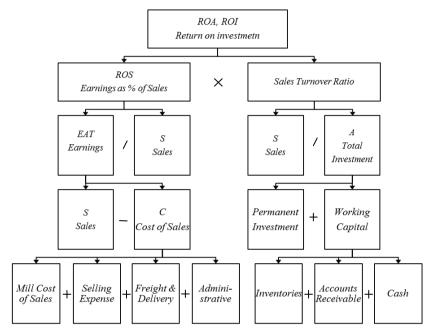


Figure 2 Du Pontov model ROA (Source: Marek, P. 2009.)

### PYRAMIDAL SYSTEM OF INDICES FOR SELECTED PRODUCTION CORPORATIONS

The choice of method used to solve this problem depends on the design of the analytical model, in particular on the links that exist between variables whose deviation analysis and indicators (factors) make assumption on causality. Enterprise-level financial managers generally utilize pre-profit additive, multiplicative and combined types of links. These bonds may be applied, for example by incremental indices, or other functional, logarithmic, and integral methods.

Business entities may be defined by a pyramid model INFA (Fig.3), on the basis of the financial statement balance sheets, and profit and loss accounting. The upper part of the pyramidal system of proportional financial indicators includes indicators that determine output sizes, that is total production of the firm, which in this form are not dependent on fiscal and financial policy. The center of the model is represented by the output power of the base. In the bottom of the pyramid system indicators represent determinant methods for allocating company production. Financial balance is given by liquidity conditions, the structure of assets and liabilities in terms of their life expectancy. Asset utilization is the upper part of the pyramid model and the use of liabilities is the lower part of the pyramid model called INFA.

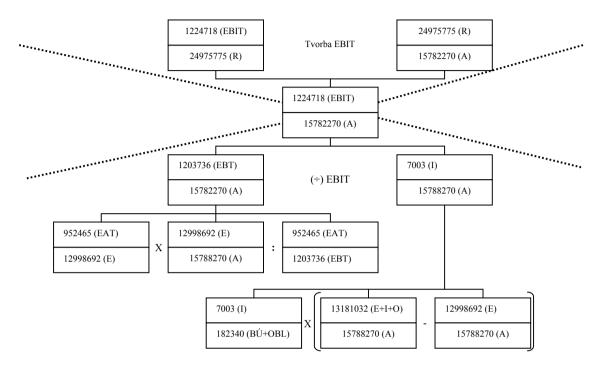


Figure 3 Model INFA Source: Own processing

EAT(Earnings After Taxes), EBT (Earnings Before Taxes), EBIT (Earnings Before Interest and Taxes) R (Rewenue), A (Assests), E (Equity), I (Interest), ROS (Return on sales), ROA (Return on assests), ROI (Return on Investment), ROE (Return on common equity)

### CONCLUSION

In this paper a pyramidal system of indicators and methods was applied to quantify the impact of determining factors that are used in several areas of a business entity. For the expert, accountant or financial manager, the implementation of system variables is of great importance. Systems of financial metrics assist financial managers in generating development concepts and options strategies, as well as in planning all financial aspects of an enterprise, whether in the short or long term.

Therefore, these systems should be given proper attention in any company. This is especially true with management companies, which should increasingly utilize financial models within their financial and economic analyses. Defining relationships has the greatest explanatory power with the application of appropriate methods to quantify the impact of determining factors.

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# The importance of language learning motivation in language learning process

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#### Abstract

We live in a global world where communicative skills, in more than one language, can be not just an added bonus but rather a true necessity. The knowledge of at least one foreign language, especially English, is besides other key competences (e.g. computer skills) the marker of general knowledge of individuals, moreover, the basic requirement of modern job market. The ultimate goal of every English language teacher should not only be teaching English as a foreign language for the moment, but instilling within a learner a sense of what it is like to be a lifelong English learner. Having English language learners more motivated can ideally have so much needed a long-term impact.

Key words Language learning motivation, Language learning process, Teacher

### 1 LANGUAGE LEARNING PROCESS

Why does language learning differ from learning other subjects? The possible explanation can be Williams's opinion (Dörnyei, 1998, p. 122): "There is no question that learning a foreign language is different to learning other subjects. This is mainly because of the social nature of such a venture. Language, after all, belongs to a person's whole social being: it is part of one's identity, and is used to convey this identity to other people. The learning of a foreign language involves far more than simply learning skills, or a system of rules, or a grammar; it involves an alteration in self-image, the adoption

of new social and cultural behaviours and ways of being, and therefore has a significant impact on the social nature of the learner".

As presented in Straková (2004, p. 6) most definitions describe learning "as a conscious process of internalization of new facts, retention of information or skill, gained mostly through formal instruction". It stands in contrast to acquisition, which is frequently defined as a process in which learners internalize facts, rules or skills subconsciously, unaware of the reception process and without the connection to formal instruction" (Straková, 2004, p. 6). However, Littlewood (Oxford, 1990, p. 4) states that "our knowledge about what is conscious and what is subconscious is too vague for us to use the [learning-acquisition] distinction reliably". In addition, Oxford (1990) mentions that some elements of language use are firstly conscious and then through practice they become unconscious or automatic. Moreover, many scholars suggested that both – acquisition and learning – are necessary for communicative competence, especially at higher skill levels. (Oxford, 1990)

Language learning proficiency will not come overnight. Learning a new language is a life-long process which is complex and dynamic, not necessarily connected with a classroom and a teacher. (Straková, 2004) Furthermore, there are many factors which have an influence on a language learning process. They can be divided into two groups, i.e. internal factors and external factors as presented in the figure below.

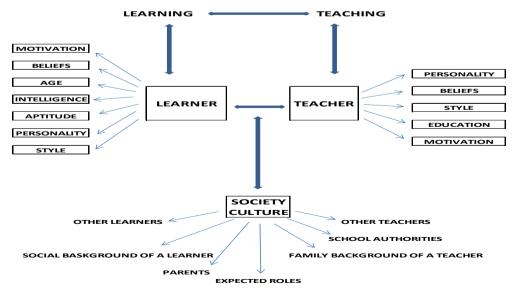


Figure 1 Factors Affecting Language Learning (Straková, 2004, p. 9)

# 2 LANGUAGE LEARNING MOTIVATION

In educational psychology, the definition of what it is to be motivated is quite simple: "to be motivated is to be moved to do something" (Ryan, 2000a, p. 54). However, further breakdowns of the term tend to become rather complicated. Many researchers have examined and defined motivation in foreign language learning, but yet a general agreement on the definition of motivation is missing.

Most of the scholars have elaborated on Gardner's (1985, p. 10) definition of motivation as "the extent to which the individual works or strives to learn the language because of a desire to do so and the satisfaction experienced in this activity". Additionally, he proposed that "effort alone does not signify motivation. The motivated individual expends effort toward the goal, but the individual expending effort is not necessarily motivated." (Gardner, 1985, p. 10) Therefore, he pointed out that motivation comprises four aspects: "a goal, effortful behavior, a desire to attain the goal and favorable attitudes toward an activity in question" (Gardner, 1985, p. 50). In other words, language learning motivation is defined as the combination of learner's effort, attitudes and inner desire to achieve the goal of mastering the language.

On the other hand, Dörnyei (1998, p. 118) claimed that L2 motivation "is multi-faceted construct, and describing its nature and its core features requires particular care". According to Dörnyei's definition (1998, p. 118), motivation "is a process whereby a certain amount of instigation force arises, initiate action, and persists as long as no other force comes into play to weaken it and thereby terminate action, or until the planned outcome has been reached". Richards and Schmidt (Al-Badi, 2011, p. 46) defined motivation in the field of language learning as "a combination of the learner's attitudes, desires, and willingness in expending effort in order to learn the second language", moreover, as "the driving force in any situation that leads to action". Richards and Schmidt (Al-Badi, 2011) reported that people are motivated to do something they feel is worth doing and they expect to be successful in doing. In these both cases motivation is seen as a force that makes a person initiate an action and keep on until the goal is achieved.

Furthermore, based on Deci and Ryan's Self-Determination Theory, which has been stated by researchers to be one of the most comprehensive and empirically supported theories of motivation available today, motivation was classified as intrinsic and extrinsic based on the degree of self-determination. It assumed that humans have inherent tendencies to be intrinsically motivated, to assimilate their social and physical worlds, and to integrate their external regulations into self-

regulations (Tanaka, 2008). In this theory human behavior is considered to be volitional and self-determined.

In a highly influential study of motivation, Crookes and Schmidt (1991) pointed out that researchers should focus not only on finding out what motivates students, but they should focus on what concepts of motivation teachers believe are critical for successful language learning as well. Furthermore, Dörnyei (2001a, p. 51) highlighted that "the most pressing question related to motivation is not what motivation is but rather how it can be increased". All teachers would agree that motivated students are easier to work with because they are willing to learn. Dörnyei (2003, p. 173) described this explicitly when he wrote the following: "The motivated individual expends effort, is persistent and attentive to the task at hand, has goals, desires and aspirations, enjoys the activity, experiences reinforcement from success and disappointment from failure, makes attributions concerning success and or failure, is aroused, and makes use of strategies to aid in achieving goals". Furthermore, it is interesting to notice Dörnyei 's (2001b) opinion that a demotivated person is someone who initially has had motivation to achieve a goal or to engage in an activity but has lost it because of negative external factors. Therefore, increasing students 'motivation in their language learning process should be the most important task for teachers in their teaching process.

# 2.1 THE ROLE OF LANGUAGE LEARNING MOTIVATION IN LANGUAGE LEARNING PROCESS

Although opinions differ as to the definition of language learning motivation, there is a general agreement on the important role that motivation plays in the success of language learning process. Dörnyei and Csizer (1998, p. 203) for instance, asserted that "L2 motivation is one of the most important factors that determine the rate and success of L2 attainment...without sufficient motivation, even individuals with the most remarkable abilities cannot accomplish long-term goals". As presented there is a generally accepted opinion that the motivation to learn a language is as important as any other factors affecting the language learning process, such as the learner's aptitude, attitude, style, personality, etc.

Teachers tend to consider that a foreign language learning motivation is the most important factor in advancing effective learning. (Dörnyei, 2001b) Furthermore, Dörnyei (1998) argues the importance of motivation by the statement that motivation provides learners the primary stimulus for initiating the language learning, and later motivation becomes the driving force to be persistent in demanding language learning process, so that learners may not be able to achieve their long term goals the without

the sufficient motivation. As seen motivation has a crucial and leading position among all factors affecting the success or failure of each individual learner's language learning process.

Moreover, worth noticing is Gardner's (1985) statement that language learning motivation itself is a dynamic process throughout language learning. In addition, motivation is perceived by Dörnyei (2001b) as cyclic, going up and down, affecting the language achievement and vice versa. It can be said that the flow of motivation changes over time, e.g. differs not only during a foreign language course, but also during the class/seminar or even during the task itself. Therefore, teachers should be aware of that flux in motivation and be ready not only to maintain, but also increase the language learning motivation in their students' learning process.

# 3 CONCLUSION

Successful students of English do not have to be only a teacher's dream – students motivated to work hard, adding their own goals to those of the classroom, focusing their attention on the task, using language learning strategies effectively, moreover, learning autonomously can be believed to be real in every English class. The teachers have to be aware of the fact that the reason why some language learners excel and others struggle lies in how much motivated learners are. The dream can come true by English teachers' focusing on increasing language learning motivation among their students.

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# The level of legal consciousness tax costs related to the customs and administrative enforcement proceedings

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**Abstract** The aim of the article is to introduce the complexity of relationships between the sectors in the procedural tax law, customs and administrative proceedings regarding the enforcement procedure and its regulations. The tax foreclosure procedure is a legal process, which is indeed relatively independent, specific and a relevant equivalent to legal proceedings, but which also has several features in common with other types of legal processes, such as the customs or administrative enforcement proceedings on the basis of which the applicable analysis notes legislative specifics with the same excursion due to their alternative actions. It also examines the relationships between similar and at the same time connecting characteristics.

**Key words** Tax regulations, tax execution regulations, toll regulations, toll execution regulations.

# 1. Relations between tax regulations and toll regulations

The term "procedure" should be generally understood an act (procedure, process) to be implemented in order to achieve the objective pursued. If one is associated with this procedure the effects of legal relevance (significance) towards achieving the legal consequences which the law associated with the expressed declaration of intent, it is the action or process of a legal nature (Girašek, 1981).

In the legal literature, the term "process" means the procedure of certain legal entities, leading to the achievement of the legal outcome. This procedure is governed by a rule of the law have certain specific position, these standards refer to as "standard process "as opposed to" substantive standards".

Tax procedures and customs clearance form subsystems of that system - the legal process. While customs clearance is de facto jurisprudence unanimously ranked among the subspecies of the administrative procedure, the tax proceedings such a unity of views there. The representatives of the jurisprudence of administrative law and science are quite frequently encountered with the view that the tax proceedings is a subspecies of the administrative procedure (Mrkývka 2004) respectively a part of the administrative procedural law (Ševčik, 2009).

At the legislative level can be between customs clearance and tax proceedings, since several of the institutes are treated equally, only to find a relationship of similarity. Thus, regulation of tax proceedings, as well as the rules of customs clearance, are not contained in a single act, but in various technical legislative motives. Specific procedural issues are governed even in its tax laws, ie in relation to the substantive question (eg date of filing the tax return, tax maturity, etc.).

Editing procedural questions of a general nature is contained in one common legal standards, because it would not be appropriate to repeat them in each tax law (Pauličková et al., 2009). Relationship customs clearances and tax proceedings in the area of legislation could be seen as the comprehensive assessment of the legislative structure relationship of customs clearance and customs enforcement proceedings, tax procedure and tax execution procedure and correlation customs enforcement proceedings and tax enforcement proceedings.

According to the Tax Code the tax execution procedure is defined as a procedure in which the tax ex officio recover delinquent tax, pecuniary imposed by the decision, enforcement costs and cash expenses (§ 88 paragraph . 1 Tax Regulations). In the field of legal science is indeed possible to encounter that the tax execution procedure is part of a tax ruling (Balko, Zajac, 2005)

Tax proceedings under Babčák (2008) is a specific legal concept of tax law, which was introduced in the first place in order to implement substantive tax and legal relations. Procedural rules of tax law provides for procedures for tax administrators, taxpayers and others, which seek a determination or levying taxes, the payment of the tax if the eventual recovery in the form of tax execution, unless the taxpayer has not complied with its tax obligations properly and on time. Said process, however, is much more complex than would be as the general characteristics of the indicated may seem. The tax in tax proceedings has a range of privileges, which acts on the taxpayers in the direction of meeting their tax obligations. Hereby authorized on the other hand correspond to the procedural obligations of taxpayers, without a legal refuge, where the right and timely taxes removal impossible. This does not mean that tax administrators have only the privileges and taxpayers have provided only obligation. Even administrators taxes imposed procedural rules of law more responsibilities while providing taxpayers also legal means by which they can protect their rights and legitimate interests.

In general procedural approach outlined tax administrators and taxpayers, if necessary, and other persons seeking to correct and timely payment of taxes is made in the tax procedure. The purpose of the tax procedure is to ensure that each tax by the relevant substantive tax and legal standards was delivered on time and within a set amount assessed and paid. To ensure this purpose must be procedural approach competent authorities towards its achievement, regulated in detail. Tax proceedings are relatively independent, and equal specific types of legal processes which are governed by the procedural rules of law which falls within the area of tax law. Currently, it owns a solid and indispensable place in the hierarchy of regulatory law proceedings. Tax conduct passes from its commencement to the termination charge certain well defined time and content sequence, which divided into preparatory and pick-examination proceedings.

Tax proceedings can be defined as process managers taxes, taxpayers and third parties involved in the procedure for issuing, reviewing and implementing individual tax and legal acts, which governs the procedural tax and legal standards. The tax procedure is to determine and collect taxes so that tax revenues be shortened (Boněk et al., 2001). Tax administrators, taxpayers are required for its implementation to proceed in accordance with the rules - principles of the tax case: legality, close cooperation of the tax authorities and parties, free evaluation of evidence, closed up procedure, officialdom, disposition, costs of informality, equality procedural status of taxpayers, two-step, document , preserve tax secrecy and material truth.

Tax proceedings are in addition to the budget process with the best possible law regulated the procedure carried out by financial authorities. Tax proceedings as a summary of the legal practice of the tax authorities, under which decides on the rights and obligations of taxpayers, is part of the administration. We understand her particular identification and registration of taxpayers and their search, verification of documents necessary for the proper and complete detection of taxes, tax procedures, tax control, recording taxes and advances, including the settlement of tax overpayments and tax arrears, tax enforcement proceedings and other activities directed towards the tax authorities to protect the interest of the State to levy tax on time and pay it to the relevant public budget (Rabbit et al., 2001).

Tax enforcement proceedings are proceedings of the tax authorities, in which ex officio recover delinquent tax, pecuniary imposed by the decision, enforcement costs and reimbursement of expenses. It is a legal term that defines the Law on Tax Administration. It should be added that the concept of tax execution procedure is characterized in the relevant sections of this act, the fact that the provision is missing, the fact that these proceedings ex officio. I am of the opinion that the legislature did not act in one twice actually define the same concept, and yet with such deviations.

Customs clearance is governed by several regulations primarily because of systematic customs legislation, particularly legislation of the EU, which, because of the division of competences between the EU institutions and taking into account the administrative and time requirements of each species Union's legislative process, include the Council of the Commission Regulation. It is also updated some procedural issues explicitly delegated to Member States, which is located in the Slovak Republic in the Customs Act and the Administrative Procedure alternative. Only relationship subsidiarity Administrative Regulations to the Customs Act can be compared to the relationship between tax policy and substantive law governing the various tax laws.

In the most general level clearance mark as one of the types of relevant legal proceedings that are an integral part of a major social phenomenon, which we refer to as the legal process (Babčák, 2006). According to P. Mrkývka, referred specify so that it is the administrative process acting to addressees outside the customs authority and the individual seeking to obtain financial and legal (administrative) of the Act. Regards the relevant legal procedure regulated mainly by secondary sources of EU, which are in accordance with Art. Paragraph 7 . 2 of the Constitution of the Slovak Republic directly applicable and binding on the Slovak Republic. Customs procedures, however, involve not only the process of customs, but also process natural or legal persons, whose rights and obligations in the proceedings and decisions are from the title of the declarant. (Babčák, 2008).

It should be noted that the legislative relationship to the plane of the implementation translates are extremely rare. "Not always after customs clearance automatically follows the customs enforcement proceedings. If the participant customs procedures (eg declarant or his representative) duly and timely fulfill its obligations, the office begins customs enforcement proceedings (Prievozníková, 2008).

Customs clearance is therefore understood as a procedure in which the rights and legally protected interests or obligations of persons in import, export or transit of goods decided by the customs authority (Rabbit et al., 2001). The purpose of customs clearance is to decide whether and under what conditions the goods under the proposed regime, or it is assigned a customs-approved treatment proposed. It starts with the filing of the declaration proposing the goods released, or another customs-approved treatment. The Customs Office shall not release the goods from the proposed scheme, if:

- customs debt incurred by adopting the written declaration is not satisfied or secured, except for temporary admission with partial relief from import duties,
- customs debts which ensure customs office requested is not provided,

• if the customs office doubts about whether the imported goods are not subject to prohibitions and restrictions, and these doubts cannot be removed before the results are known him inspections conducted.

The customs enforcement proceedings customs office can begin to recover arrears where a customs debt, penalties and other charges assessed and stored under customs regulations were not paid in due time. This issue is closely related to tax enforcement proceedings. Forced implementation of an enforceable title, the purpose of any enforcement proceedings conducted interference in absolute property rights mandatory. Carried out under the conditions and assumptions set out the procedural rules to meet the legitimate claim that he was granted enforceable decision and voluntarily fulfilled. Thus, if the debtor fails to comply voluntarily obligations arising from such decisions. Decision determining the customs debt, the decision on customs offense, the decision on customs office may proceed to force a requirement by setting up customs enforcement proceedings, those characterized by:

- can be performed only by the customs office which is authorized to perform all legal acts on behalf of the State. Coercive power of the state carries out customs office, which stands for each individual act, using the Act. 511/1992 Coll.
- is carried out ex officio.

Customs clearance is controlled by the principle of officialdom (ex officio), ie ex officio with the application of the principle is unacceptable. Unless the law provides otherwise, the customs office may carry out execution in a manner to be determined. When choosing a method, however, should take into account the provisions of the Act under which the debtor demands transactions should be selected only those remedies which have the least burdensome. In one borrower may be undertaken and execution in several ways simultaneously.

When customs enforcement proceedings apply different methods for performing tax execution under Law no. 511/1992 Coll. The customs office thus by execution:

- · deductions from wages and other income,
- garnishment,
- sale of movables,
- Removal ready money and other things for which no sale,
- · sale of securities.
- sale of real estate, apartment or office space
- sale of a business or part thereof,
- Disability property rights attached to shares by a shareholder in the company.

The most common way of execution carried out by customs offices can serve a garnishee order. In this method, we distinguish the following methods of execution:

- serve a garnishee order from an account in a bank,
- the attachment of other monetary claims,
- execution disabilities of other proprietary rights.

If a body of customs procedures (eg declarant or his representative) duly and timely fulfill its obligations, the office begins customs enforcement proceedings. However, it should also point out that customs enforcement proceedings I depend on the existence of customs procedures.

Unless the clearance decision on the rights and obligations of entities customs procedure designed to release the goods, imported, exported or transported through the territory of the Slovak Republic for the customs procedure, or assign the proposed customs-approved treatment or use of customs enforcement proceedings regards that the specific obligation enforced if not met voluntarily.

That follows from varying the regularization of those proceedings. Customs Act provides that customs enforcement proceedings are proceedings of the customs office where the customs debt shall be recovered, fines and other payments (§ 61 par . 2, first sentence of the Customs Act ). Considering the definition of the subject and customs clearance, we can conclude that the relationship of customs clearance and customs enforcement proceedings can be defined as a relationship between two relatively independent types of legal process, whose subject matter is different, have different rules for them and are typical of different stages and institutes. It should also be pointed out that the customs enforcement proceedings are fully subject to the provisions of the Tax Code (§ 61 par. 2, second sentence, of the Customs Act) not only provisions contained in Title IV, entitled Tax enforcement proceedings, as well as any other provisions of the Tax Procedure, the application of which is necessary for the proper interpretation and application of the provisions of Title IV. (§ 430 paragraph . 2 of Law no. 238/2001 Coll. Customs Act) .

# 2. CONCLUSION

Within conclusion we can say that in terms of procedural rules is rules of customs enforcement proceedings and tax execution procedure identical. Listed at the same time can be considered an indirect legislative parallels between the customs procedure and tax procedure conditions of placing goods under the customs procedure or another customs approved treatment or use, is shaping the relationship between clearance and customs enforcement proceedings in practice rather exceptional.

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- 3. Law č. 652/2004 Z.z. (the state administration in the field of customs and on amendments to certain acts).
- 4. Law č. 273/1994 Z. z. on health insurance, health insurance funding, the establishment of the General Health Insurance Company and establishing departmental, sectoral, enterprise and public health insurance, as amended, § 88 of Act no. 372/1990 Coll. on Offences, as amended.
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