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SELECTED PROCESSES IN SMES, TARGETING TO SOUTH BOHEMIA REGION AND TRADE SECTOR

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Abstract

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Process management plays an important role in making up the competitiveness of small and medium-sized enterprises. This issue is researched in the long term at the Economic University of South Bohemia. The paper presents a comparison of trends in the average level of functioning of core processes (selling, human resources, marketing and finance) in the South Bohemian Region MSP for 3 years in the sector of trade. The first data was obtained under the grant GAJU 068/2010/S in 2010, and the second group of data was obtained from the grant GAJU 039/2013/S and GAJU 079/2013/S in 2013. From all the chosen processes within the research sample, significant changes can be shown only in the processes of human resources management and production where improvement of functioning of the processes was achieved. In the research project were used secondary data (financial statements of SMEs, who took part in the research and primary data which were obtained primarily through quantitative methods questionnaire supplemented by qualitative method of in-depth interviews.

Keywords: SMEs, processes, South Bohemia region

INTRODUCTION

SMEs are indispensable in all economies, can be described as a driving force of business, growth, innovation, competitiveness, and are also very important employers. In the Czech Republic, 1,066,787 legal and natural persons that are placed in the category of small and medium-sized enterprises performed some business activity to 31th December 2012. The total number of active small and medium-sized enterprises participated in 2012 is 99.84%. The share of employees in small and medium-sized enterprises amounted to 60.85% in relation to the employees of the Czech economy.

According to (Burlton, 2001) the small and medium-sized businesses will create and offer new and quality jobs. According to Dedouchová (2001) management of small and medium-sized enterprise, has many specifics. In small companies due to the small number of employees and managers many functions are accumulated within the competence of only a few workers predominates, informal leadership is more common, oral communication is preferred than written, etc.

The management of enterprises of different size and specialization is today under the press of advantages, challenges and problems connected with the function of worldwide markets (Charvát, 2006). Strategic management is that set of managerial decisions and actions that determines the long-run performance of a corporation (Doležalová, 2015). Strategy can be viewed as building defences against the competitive forces or as finding a position in an industry where the forces are weaker. Process management is a relatively new direction. It is an alternative to legacy systems, such as system of functional arrangement in which an enterprise is divided into operations, divisions, departments, departments and each department has its agenda and their responsibility (Smith, 2003). The disadvantage of this model is the centrifugal tendencies of the

individual departments that compete with each other, and there is among them a number of information barriers (Mallya, 2012). This quality suffers activities that are important for its prosperity (Ivancevich, 1989). On the other hand, process management is based on the principle that each product or service is created by a series of specific actions – the process (Keřkovský, 2006). Importance and timeliness of management processes (process management) for the development of enterprises can be illustrated by the following statements. Business processes are according to (Doležalová, 2015) "The production lines of the New Economy." They can be considered as assets of an enterprise, together with people, equipment or information.

The following quotation from Porter (2008) supports the above mentioned "Businesses have the ability to manage their business processes; they will be able to serve their customers better and faster. They will be able to offer higher quality at lower cost with greater economies of scale, thereby increasing their profitability. They will be able to respond to new market opportunities more readily due to binding or termination of business relationships on both supply and demand. Despite the complexity and the complexity of real-world business processes, process management will never be the choice: it is the critical need." (Savov, 2008). To support the importance of process management for enterprise development it is also important to quote Kotler (2012) a recognized expert on Business Process Management: "Any company that will ignore processes or fail to improve them is risking their future".

MATERIALS AND METHODS

This article is provided as one of the outputs of the research project "Process management and the possibility of its implementation in small and medium-sized enterprises" of Grant Agency of the University of South Bohemia GAJU 068/2010/S and GAJU 039/2013/S. In the research project were used secondary data (financial statements of SMEs, who took part in the research and primary data which were obtained primarily through quantitative methods questionnaire supplemented by qualitative method of in-depth interviews. The questionnaire data were collected from several regions. This article deals with functions of selected processes, data in this area were obtained from senior managers and from business owners who rated functioning of processes in their enterprise at percentages level.

For the classification of small and medium-sized enterprises, a new definition of the European Union (European Commission: A new definition of SMEs 2006) in accordance with the Law No. 47/2002 Coll. as amended was used. In the South Bohemian region, 68,826 economic entities from the selected category were registered in 2012. Enterprises with up to 9 employees (micro-enterprises) represent 18% of the total number. Small enterprises represent less than 4% of all the small and medium-sized enterprises in the region. There are 78% of medium-sized enterprises within the region (Statistical Bulletin- South Bohemian Region, 2012).

The first group of data was gathered in 2010 where the examined sample presented 189 SMEs in the South Bohemian Region. Gathering data was carried out with the help of the questionnaire survey and in-depth interviews in chosen companies. By the same method, even the other group of data was gained. The effort was to address the same companies as in the first case. After having addressed all the companies which took part in the first round of gathering it was found out that some of the companies do not exist anymore, and some of them have changed the owner who is not willing to cooperate. For this reason, our final collection contains just 124 companies from both monitored periods. The data were tested with the help of two-selection Wilcoxon test and its asymptotic variance. The results of the test exemplify the differences and the movements of the curves within the individual monitored periods.

In calculating the null hypothesis H0 was proposed: the level of functioning of the main processes has not changed during three years and the alternative hypothesis: the standard of functioning of the main processes increased during this period. Data acquisition was carried out in three years of the grants within the GAJU ((068/2010/S; 039/2013/S; 079/2013/S). Data were collected from the four most commonly occurring major processes in societies in the South Bohemia Region. These processes are, marketing, production, human resources, and finance. Data was tested using two-selection Wilcoxon test (Freund, 2010; Friedrich, 2010) and its asymptotic variants. This is a nonparametric two-sample test, which is most commonly used when the assumption of data normality is not met. A slight violation of normality for samples greater than 30 has no significant impact on test results. Let X1, …, Xn and Y1, …, Ym is two independent random samples from two continuous distributions. The distribution function can only differ by sliding. x0.50 and y0.50 are the first and the second median distribution. The hypothesis that the distribution functions of both distributions are identical is tested. In other words, that the medians are equal. Compared to the alternative of the second median y0,50 of new data is greater than the first (Budíková, 2010; Freund, 2010, Friedrich, 2010). In the first phase, all (n + m) values of X1, …, Xn and Y1, …, Ym are arranged in ascending order of size. Since the whole process test is done electronically using the Statistika statistics software ver. 10, this step is not recorded, since it is only a short operation. Furthermore, the totals of X1, …, Xn values are detected and identified as T1. The sum of Y1, …, Ym values in order of old firms is identified as T2. The next step is to calculate the test statistics for U1 and U2; while it is still true that U1 + U2 = mn (Friedrich, 2010).

$$U\_1 = mn\ n(n+1)/2 - T\_1,$$

$$U\_2 = mn\ m(m+1)/2 - T\_2$$

(Friedrich, 2010).

If it is true that statistics min {U_(1,) U_2} ≥ tableted critical value for a selected range of both selections and the chosen significance level, the null hypothesis about the identity of the compared groups is denied at the significance level of α = 0.05. Since both samples in all tested cases, the n, m are greater than 30, it is proceeded to the asymptotic variant of the Wilcoxon test (Mann-Whitney test), which is used for n and m larger than thirty. U´1 = min {U_(1,) U_2 } applies (Budíková, 2010; Wonnacot, 1995).

$$U\_0\ (U\_1\hat{}\acute{} - mn/2)/\sqrt{(mn(m+n+1)/12)}$$

(Friedrich 2010)

Critical field values for right alternative W = < k2, n> non-negative values k1 and k2 are exactly given in the literature. We reject H0 at the significance level α if U0 ∈ W (Freund, 2010; Friedrich, 2010).

The test results demonstrate the differences in displacement curves within individual reporting period for the companies investigated.

RESULTS AND DISCUSSION

With the help of two-selection Wilcoxon test (Mann-Whitney U test) in the chosen level of importance α = 0.05, where X = data of 2013 and Y = data of 2010, the following hypotheses were tested:

H0 = x0.50 – y0.50 = 0, HA= x0.50 > y0.50.

As seen in Tab. I, it was not possible to deny zero hypothesis in processes of marketing and finance, because p-value has the following value: p-value > α

I: *Mann-Whitney U test focused on the main processes*

Process	U	Z	p-value
Marketing	25395.5	–1.5685	0.1167
Production	14936.5	8.5676	0.0000
Finance	27571	–0.1128	0.9102
Human Resources	24342	–2.2736	0.0230

(0.1167 > 0.05 marketing), or (0.9102 > 0.05 finance). These results are also supported by Fig. 1 where the both medians are identical, and the interval of data layout is very similar.

For above mentioned processes, it cannot be said whether the level of their functioning in the monitored period changed or did not change. Nevertheless, Fig. 1 shows that the process of finance works in the monitored sample on the same level at present (2013) and also 3 years ago, even the medians of both the monitored periods are identical 80%. In the process of marketing the median is also identical in both monitored periods, it means 70%. Data in this process are slightly different; nevertheless, there are no radical changes. In processes production and human resources management final p-value is close to zero and is lower than chosen α, that is why we deny zero hypothesis at the 0.05 level of importance.

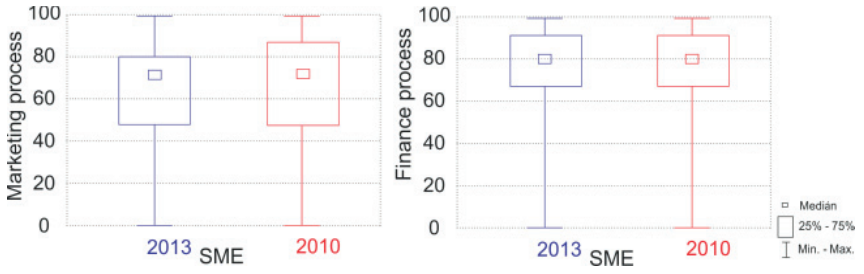
Production process

0.0000 < 0.05 p-value < α.

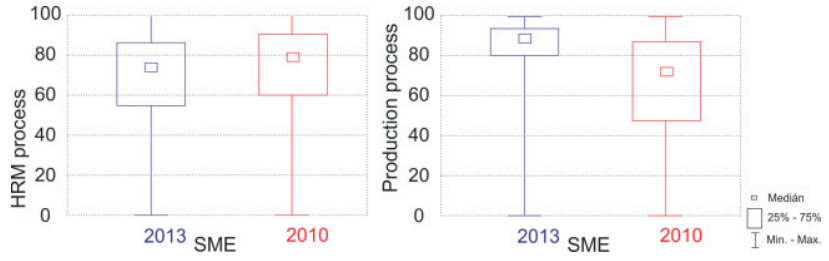
Human resources management process

0.0230 < 0.05 p-value < α.

At the same time in the process of production, half of the p-value is still smaller than the chosen α and that is why we can deny Ho in favour of HA that says that at present this process is working better than three years ago, as shown in Fig. 2. The level of functioning of the process changed quite significantly, in 2010 the median was 73% and in 2013 it is already 90%. Even the data in both the chosen periods are different; in 2010 from 25 to 75% respondents evaluated functioning of the process within 47–87% and in 2013 from 25 to 75 respondents evaluate functioning of the process within 80–92%. The range of evaluation narrowed and additionally moved to higher values in 2013. In the process of human resources management it was possible to deny Ho, but because of the existence of negative Z, HA cannot be proved as Z and p-value show that this process in the chosen sample worked better three years ago (median 80%) than now (median 75%), as Fig. 2 shows. Minimal and maximal values are always identical because there are always the companies than evaluate functioning of the processes up to 100% (faultlessly functioning process) or 0% (non-functional).



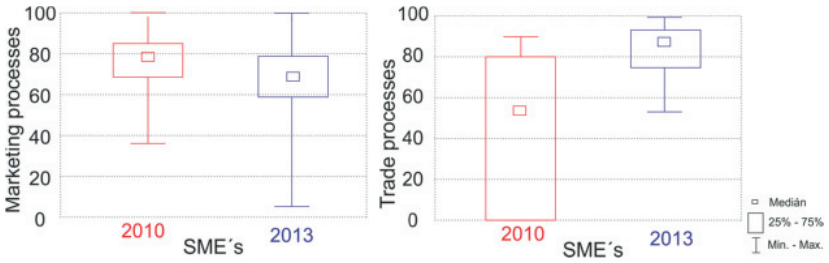
1: *Median and interval of data layout in processes of marketing and finance*



2: *Median and interval of data layout in processes of production and human resources management*

II: *Mann-Whitney's U test focused on monitoring processes for companies implementing its profits in trade industry*

Variable	2010	2013	U	Z	p-value
Marketing	1173.500	2147.500	436.5000	2.408982	0.015998
Trade	541.5000	2779.500	265.5000	4.20001	0.000027
Human Res.	1068.500	2252.500	541.5000	–1.309230	0.190458
Finance	1027.000	2294.000	583.0000	0.874565	0.381811



3: *The level of functioning of the processes in the years 2010 and 2013 in trade industry*

Within enterprises in the trade sector, it was possible to reject H0 in favour of HA for the sales process as there is a p-value close to zero and is, therefore smaller than the chosen α p-value of 0.02 < α, as illustrated in Tab. II. This means that the level of functioning of the sales process increased between the years of the research. The most common level of functioning of the production process in the trade sector is significantly higher in 2013 (87%) than in 2010 (55%), as illustrated in Fig. 3. This means that enterprises engaged in trade increased the level of ability to sell the product in the reporting period. The results of this process and industry are also interesting that there has been a major bottleneck in the range of the data obtained between years. In 2010, the level of functioning of the process was evaluated from 0 to 90% (none of the enterprises considered the level of functioning as 100%). In 2013, this process was assessed in the range of 55–100%.

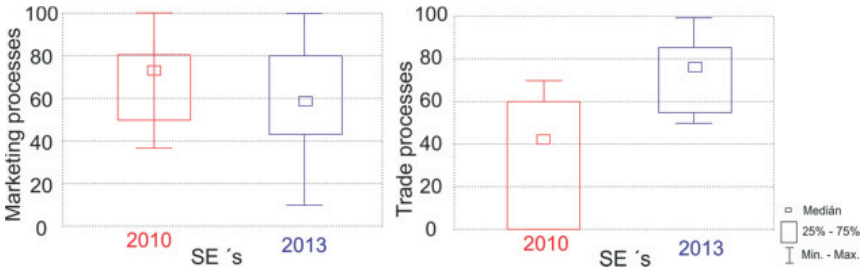
The most common level of functioning process of marketing is for businesses in 2010 which is higher (79%) than in 2013 (70%). The minimum and the maximum can also be evaluated as better in 2010. In this case, the observed results can be reproduced as a result of the pressure of the external environment leading companies attenuation processes which are superficially connected with their primary activity (in this case it is hence trade sale). In terms of theory (complete citation), this approach is short-sighted and does not provide a stable income and existence on the market in the future.

For processes human resources and finance trade, failed to reject the hypothesis H0, where the p-value is greater than if the chosen α or confirm HA.

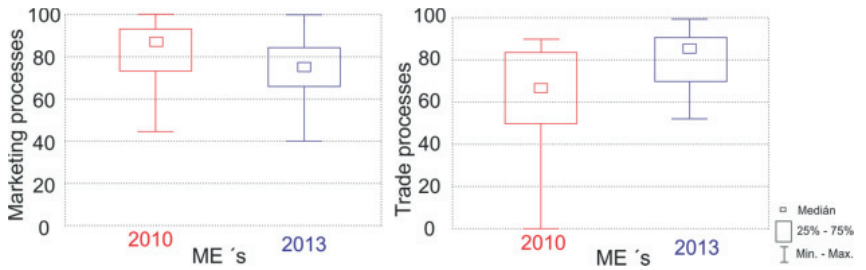
As can be seen, an enterprise tries to optimize the most important process during the period of economic uncertainty. The sale process is the most important, so enterprise do not seek to optimize others processes such as marketing, HRM, due to lack of finance, financial, human and experiential resources, and these processes are already at their possible maximum if we take into account the possibilities for SMEs.

When we divide our sample of enterprises according to size, we can see that the group of small enterprises has little bit worse results than the all samples. The most common level of functioning process of marketing is for small businesses in 2010 which is higher (75%) than in 2013 (60%). The minimum can also be evaluated as better in 2010, the maximum is the same. Process of trade is much better in 2013, where the median is 79%, minimum 50% and maximum 100%.

The results for the medium size enterprises are on the other hand better, the most common level of functioning process of marketing is for small businesses in 2010 which is higher (85%) than in



4: *The level of functioning of the processes in the years 2010 and 2013 in trade industry in the small size enterprises*



5: *The level of functioning of the processes in the years 2010 and 2013 in trade industry in the medium size enterprises*

2013 (78%). The minimum and the maximum can also be evaluated as better in 2010. Process of trade is better in 2013, where the median is 85%, minimum 50% and maximum 100%.

CONCLUSION

From all the chosen processes within the research sample, significant changes can be shown only in the processes of human resources management and production where improvement of functioning of the processes was achieved. Slight deterioration can be seen in the process of human resources where the average functioning of the process in 2010 was 80% and in 2013 74%. Nevertheless, all the monitored processes in the companies represented in the research sample are on a rather high level. The average functioning of the processes in 2013 is: Finance 80%, Production 81%, Human Resources Management 77%, and Marketing 72%. The reason why in other two processes no change can be observed might be their stable and long term setting. At the same time, it can be expected that the process of finance is stabilized after the first few years of business while the process of production always keeps developing. On the contrary the process of management is directly dependent on free financial resources of the company and its strategy, for that reason no change can be expected since in 2013 companies felt economic crisis, it can be assumed that the process will increase in the following 3 years. The changes in the production can be caused by suffering from economic crisis where all companies needed to reduce production expenses and that is why production processes were inspected and optimized. The result of the process of human resources management is unusual, its functioning worsened from 80% in 2010 to 75% in 2013. This development can again be caused by the impact of the crisis when companies reduced or abolished perquisites, did not hire new employees, laid off, lowered salaries, etc. These unpopular measures could result in lowering of evaluation of processes, yet it is necessary to remind that despite the fact that within the process unpopular measures are being implemented it does not influence functioning of the process itself. Nevertheless, the evaluation of the processes proceeded from the subjective perception of the company managers that is why it can be expected that the influence of the present situation in the company can be important, unlike objective long term functioning of the processes.

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