Project Management And Its Impact On Growth Rate Of Small and Medium-sized Enterprises

Jaroslav Vrchota, Petr Řehoř, Monika Maříková, Ladislav Rolínek

Abstract: *The aim of the managers in SMEs is to have a competitive enterprise on the market, to develop and achieve some positive results. Project management can play a significant role in facilitating this contribution; however, SMEs require less structured forms of project management than those used by larger, traditional organizations. Project management is the set of managerial activities needed to lead a project to a successful end. The paper deals with finding whether the project management of SMEs influences the growth rate of an enterprise. Data were gathered as questionnaires and interviews from 183 enterprises operating in the Czech Republic. The research was made in the period of 2014-15. Authors in the paper failed to confirm that the organizations with project management have better growth rate.*

Key words: Project · Growth rate · SME · Management

JEL Classification: L20 · M10

1 Introduction

Small and medium enterprises (SMEs) are increasingly seen as playing an important role in the economies of many countries (Olawele and Garwe, 2010). SMEs enhance competition and entrepreneurship and hence have external benefits on economy-wide efficiency, innovation, and aggregate productivity growth (Beck, 2007). One of the best ways to address unemployment is to leverage the employment creation potential of small businesses and to promote small business development (FinMark Trust, 2006).

Sectors of SMES are variable and dynamic (Pošvář and Erbes, 2002). All sectors of the SMEs are characterized by certain developments and trends, which gradually or even very intermittently causes the industry changes. Life cycle industry is heavily dependent on the development of demand, which is then reflected in the growth rate of the industry (Sedláčková and Buchta, 2006). The macroeconomic environment influences the SMEs by an expected growth rate of the economy, the state fiscal policy, monetary offering, expected interest rates, inflation, etc. (Synek, et al., 2011). An entrepreneur or a top manager must be almost equally interested in both prosperity and continuity of the development and performance improvement company (growth rate) and on the prevention, monitoring and risk management, including crisis management (Veber and Srpová, 2012). If an enterprise grows, it means that the market is interested in the production or services, its management is successful in their work and the enterprise is profitable (Furková, 2014). The phenomenal aspect of the growth rate of an enterprise is mainly revenue growth (turnover). Business growth is therefore connected to expanding its activities, but it also raises more risk arising precisely from the growth. Consideration of the correct growth rate of an enterprise is one of the strategic decisions of managers (Synek, et al., 2011).

There are many different definitions of business growth and ways of measuring this growth. Business growth is typically defined and measured, using absolute or relative changes in sales, assets, employment, productivity, profits and profit margins. In addition, sales growth is also easier to measure compared with some other indices and is much more likely to be recorded. Sales are a good indicator of size and growth. Sales may also be considered a precise indicator of how a firm is competing relative to their market (Barringer, et al., 2005).

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The first stream, and conceivably the largest, examines growth as an outcome. For the most part, this stream of literature uses growth as the dependent variable and essentially has as its primary goal to explain varying growth rates and/or increments of growth (McKelvie and Wiklund, 2010).

High growth tends to be associated with a firm's entrepreneurial behavior (Brown, et al., 2001). Thus, growth tends to be considered a logical consequence of innovative, proactive and risk-taking behaviour on the part of the firm, as these are the dimensions which define an entrepreneurial orientation (EO). The relationship between the EO of the firm and its performance has been thoroughly investigated, from both a conceptual (Lumpkin and Dess, 1996) and an empirical point of view (Wiklund and Shepherd, 2005). As for the dynamism of the environment, the most usual argument is that the influence of EO on performance becomes more intense when the firm acts in a dynamic environment. Lumpkin and Dess (2001) show that in this type of environment, firms that behave more proactively and aggressively will achieve better performance.

Gilbert et al. (2006) find that the most commonly used predictor measures are the personal characteristics of the entrepreneur, the resources available to the firm, the strategy of the firm, the geographic location of the firm, and its industry context. In a well-cited study that essentially summarizes into one paper many of the major previous findings spread out in the literature, (Baum, et al., 2001) use multiple levels (i.e., individual, firm, and industry) to try to explain growth differences in the review of the literature of the growth specifically of small firms. Despite hundreds of studies into explaining firm-level growth differences, the main finding in this stream of literature is that researchers have been unable to isolate variables that have a consistent effect on growth across studies (Shepherd and Wiklund, 2009).

Managerial competencies are very important to the survival and growth of SMEs. Managerial competencies are sets of knowledge, skills, behaviors and attitudes that contribute to personal effectiveness (Hellriegel, et al., 2008). The ability to manage projects is one of management competencies. Projects involve unique, one-time initiatives, such as launching new products, and investing in the company´s infrastructure. Projects drive business innovation and change (Shenhar and Dvir, 2007).

More and more companies recognize the benefits of using PM tools, techniques, methodologies and processes in a shifting, complex and unpredictable environment for change management effectiveness purposes (Clarke, 1999). Furthermore, it is a PM reality that using PM tools and techniques can significantly help the project to succeed although it does not guarantee its success (Mingus, 2002).

2 Methods

The aim of this paper is to compare the effect of project management at the growth rate of SMEs in Czech Republic. As part of the calculation was laid null hypothesis that the project and non-project businesses achieve similar growth rates and the alternative hypothesis that project managed enterprises achieve different growth rates. Data acquisition was carried out under the projects of Gaju 79/2013/S and Gaju 053/2016/S through questionnaires and interviews in 183 companies from the Czech Republic between 2014 and 2015. Growth rates were determined by managers from of selected companies in their responses. (Rolínek, 2016)

A partial objective is to evaluate the relation between the importance of project and a growth of rate within the sectors of the national economy as classified by OECD (2014) at:

- A1 Industry: High and Medium High Technology
- A2 Industry: Medium Low and Low Technology
- B1 Knowledge-intensive market services
- B2 Less knowledge-intensive market services
- C Agriculture, construction and utilities

Data were tested using two-sample Wilcoxon test and his asymptotic variant. This test is a non-parametrical two-sample test, which is most frequently used, when the condition of data normality is not met. Let $X1, ..., Xn$ and $Y1, ..., Ym$ be two independent random samples from two continuous distributions, whose distribution functions can only differ in displacement. $x0,50$, $y0,50$ states for the median of the first and second distribution. The hypothesis that the distribution functions of the two distributions are the same is always tested, in other words, the medians are tested for equality. The result of test is compared to the alternative hypothesis (the first of medians $x0,50$ of companies which have strategies, is greater than the latter) (Freund, Wilson, et al. 2010; Friedrich and Majovská, 2010, Budíková and Králová, 2010).

In the first stage, all $(n + m)$ values $X1, ..., Xn$ and $Y1, ..., Ym$ are arranged in ascending order by size. The entire process takes place electronically using test statistics software and this step is not described in the article, because it is

a lapidary operation. Furthermore, the totals of orders X1, ..., Xn are identified and stated as T1. The sum of the values in the order of companies which do not have strategy Y1, ..., Ym will be stated as T2. The next step was to calculate the test statistics for U1 and U2, while applies that U1 + U2 = mn (Friedrich and Majovská, 2010).

If statistics min {U_(1,) U_2 } ≥ tabulated critical value, for the selected ranges of both selections and chosen level of significance, then than we may reject the null hypothesis of the identity of the compared groups on the significance level α = 0.05 and α = 0.1. Since for both samples in all test cases applies that n, m are greater than 30 the asymptotic variant of the Wilcoxon test (Mann-Whitney test) is undertaken, which is used for n and m higher than thirty (Budíková and Králová, 2010, Wonnacot, 1995).

Critical codomain for right-side alternative id W= <K2,n>. Non-negative values k1 and k2 are strictly defined in critical literature. H0 is rejected on the level of significance α, if U0∈W (Freund and Wilson, et al., 2010, Friedrich and Majovská, 2010).

3 Research results

Using a two-tailed Wilcoxon test (Mann-Whitney U test) at the chosen significance level α = 0.05, where X = project management and Y = nonproject management hypotheses H0 = $x_{0,50}$ - $y_{0,50}$ HA = 0 and = $x_{0,50}$> $y_{0,50}$ are tested for the entire sample of 183 businesses and individual sector enterprises divided according to the OECD. For greater clarity, the final data of the software Statistics are summarized in the following Table 1, and each category accompanied by a graphic representation of results and a brief commentary.

Table 1 Mann-Whitneyův U test: The relation of strategic and non-strategic businesses and the growth rate

	NO	YES	U	Z	p-value
SME - CZ	12757.50	4078.500	2647.500	2.452056	0.014205
A1	72.00000	48.00000	12.00000	1.793776	0.072850
A2	335.0000	130.0000	82.00000	-0.257938	0.796455
B1	646.0000	344.0000	191.0000	0.915929	0.359705
B2	1397.000	433.0000	313.0000	0.409718	0.682013
C	554.5000	40.50000	25.50000	2.261130	0.023752

Source: Own processing

As the above table 1 shows, we managed to disprove the null hypothesis of conformity of the two samples and we proved the alternative hypothesis. P-value is less than the established α = 0.05. Thanks to the positive value of Z, it is apparent that a higher growth rate is reached by enterprises with project management. The figure 1 below reveals the diversity of both samples mostly for the maximum values.

Figure 1 Box plot of project and non-project managed enterprises with their growth rate on the vertical axis (SME – CZ left, A1 right)
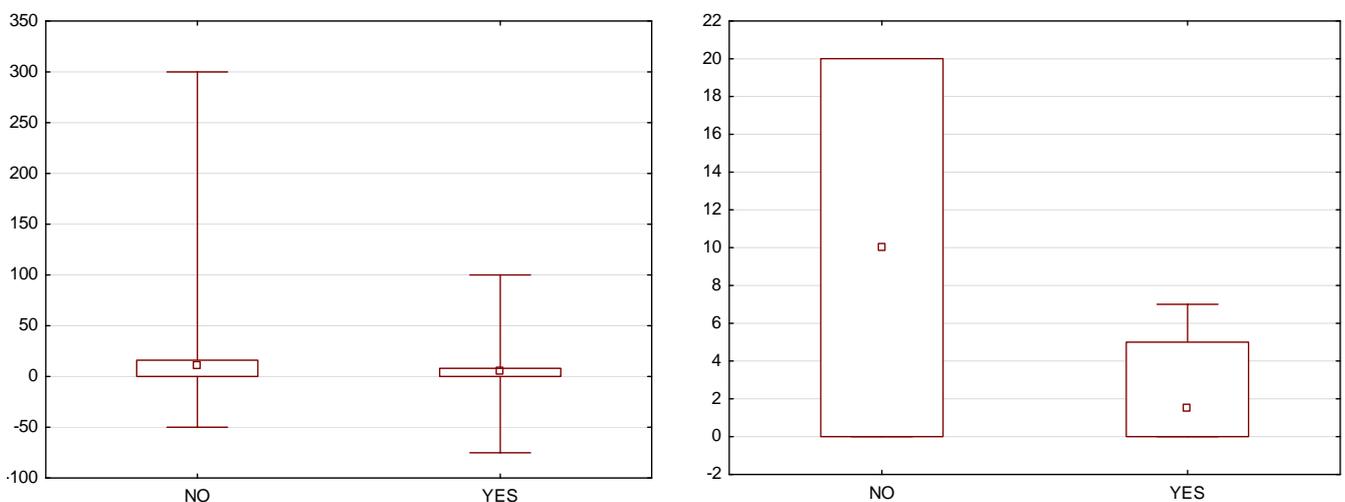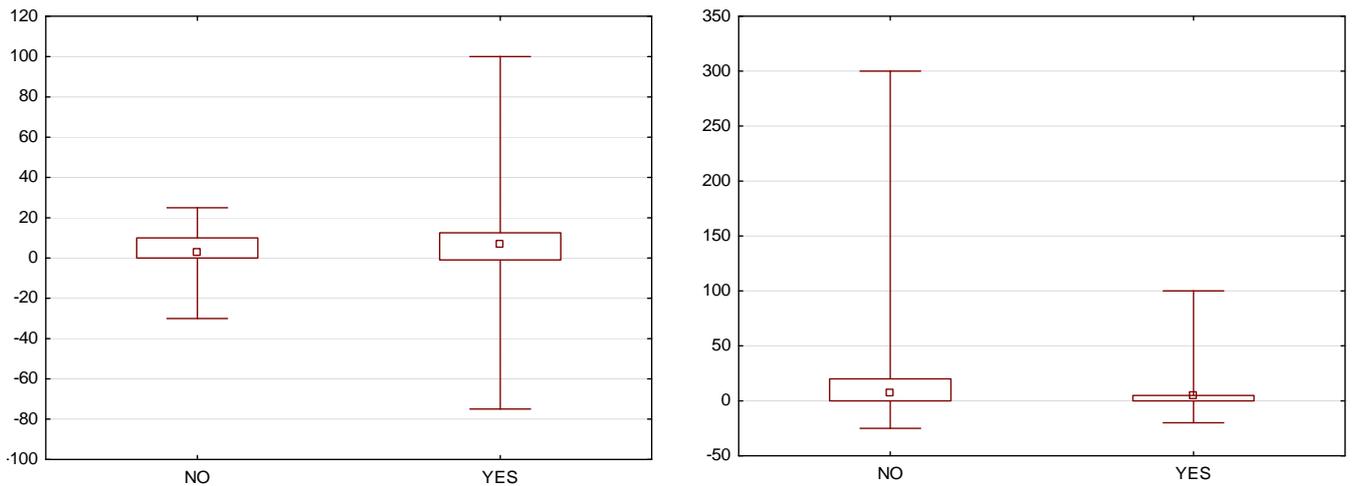

Source: Own processing

Enterprises in the category of A1 failed to reject the null hypothesis, where the p-value was 0.072 at the significance level of 95%. However, the graphical representation (figure 1) clearly suggests that enterprises without project management reached a greater median value compared to enterprises with project management by less than 7%. Greater values were also revealed in the upper-quartile which is at 20%. Both groups have the same lower quartiles and minimum values that are at 0%.

Neither A2, nor B1 and B2 (figure 2 and 3) showed a difference between enterprises with and without project management. In all three cases, the value p-value was higher than the alpha level of 0.05. The box-plots revealed that, although in all cases the groups differ primarily in their maximum and minimum values, and also at the level of the upper and lower quartiles, the visual impression is not statistically confirmed since medians of enterprises with and without project management are always at almost identical level.

Figure 2 Box plot of project and non-project managed enterprises with their growth rate on the vertical axis (A2 left, B1 right)

Source: Own processing

Figure 3 Box plot of project and non-project managed enterprises with their growth rate on the vertical axis (B2 left, C right)
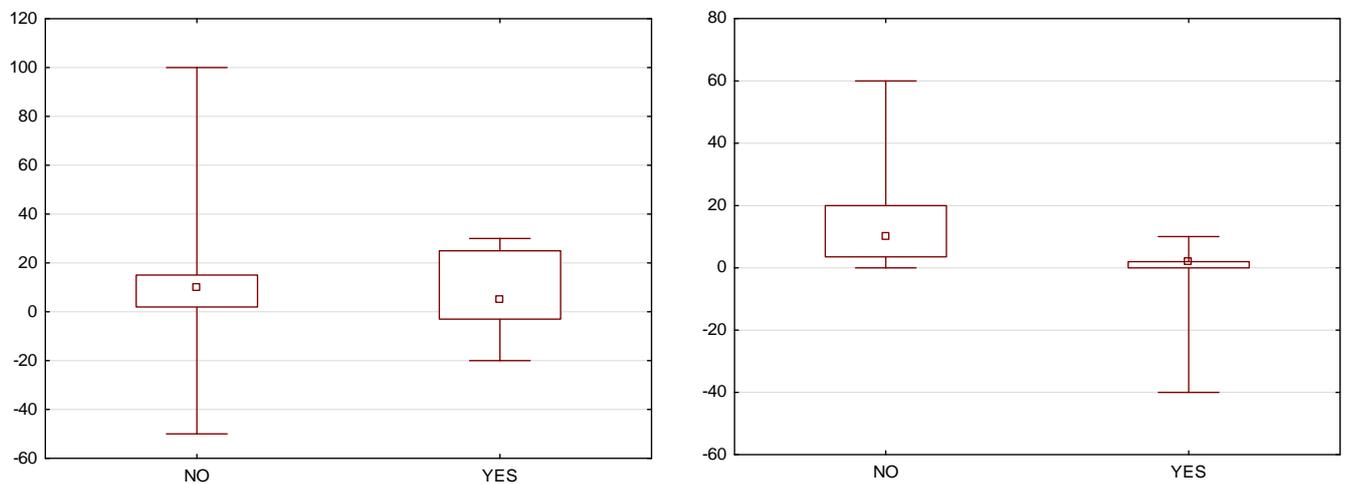
Source: Own processing

In C category with enterprises in construction and agriculture, we managed to reject the null hypothesis in favour of an alternative, the p-value = 0.0238 and is less than the alpha = 0.05. As the resulting value of Z is positive, we can say that enterprises without the project management have higher growth rates than their colleagues with project management. As the figure 3 shows, non-project enterprises have higher maximum growth rates and 17% higher upper-quartile. In contrast, enterprises with project management have a minimum value of 40%. Values of both medians ranged from 0-10%.

4 Conclusions

According to survey results, project management is implemented in only 1/5 from a total of 183 organizations in Czech Republic. Such a low figure is surely related to high administration and the overall complexity that is necessary to prepare and implement projects. Most projects are created due to the potential acquisition of funds from the EU. Not in all cases, SMEs would receive the funds. Managers therefore rather pay attention to developing plans and raising funds from their own resources. By our confirmed hypothesis, these simpler and less time-consuming and risk activity brings higher rate of growth. Although growth is connected to expanding the activities, and therefore is seen as favourable season, at the same time it is worth noting that many businesses cannot cope with the situation in the period of growth. This may lead to their demise. To ensure that this scenario does not become actual fact, an enterprise should prevent such situation by product innovation and adequate quality (as stated by Veber and Srpová, 2012). In the Czech Republic, almost 4/5 of SMEs have not designed and implemented any projects so far. The managers do not realize or they do not know what the benefit is in a project-management organization. Potential advantages of project management can be defined in the following listing: every activity is connected to accountability, clear identification of the time and cost framework, flexible resource allocation and monitoring during its implementation.

The literature existing on entrepreneurship implicitly assumes that entrepreneurial orientation (EO) and growth orientation are positively related with each other. However, few studies, whether theoretical or empirical, analyse such relation in an explicit manner. Instead, most previous works have focused on the EO-performance relation, even though growth and profitability do not always correlate positively (Moreno and Casillas, 2008). The authors discussed the effect of the project and the growth rate. However, the results were sur-prising for them. They expected that SME manager with project management would reach higher growth rate. The results showed just the contrary. Higher growth rates are related to SMEs without project management. Within hypothesis testing, we failed to prove that the enterprises in the sample with project management achieve greater growth rates. During a detailed analysis of the sector with, we confirmed the project's impact on the growth rate within the technologically demanding industry (A1) and agriculture and construction (C) - in both cases there is a negative effects, the growth rate is lower. It may be due to the fact that organizations that have projects are implemented over a longer period of time. The resulting effects on business growth may be delayed for several years. A number of projects is related to the development of human capital. And it certainly takes time to improve the skills of employees, which is reflected in their higher productivity and thus consequently the overall growth rate.

Although enterprises with project management do not achieve a higher growth rate, the authors agree that the only way organizations can change, implement a strategy, innovate, or gain competitive advantage is through projects. With high demand for growth and innovation, the share of operations in most organizations is declining and the share of projects is on the rise. No business enterprise can survive if it is focused only on improving its operations. The next untapped candidate for significant improvements in a company´s pursuit of competitiveness is the project activity of the organization. Projects are the engines that drive innovations from idea to commercialization. But projects are also the drivers that make organizations better, stronger, and more efficient (Shenhar and Dvir, 2007).

Business growth of rate may best be conceived of as a collective term for several rather different empirical phenomena, with different underlying causal mechanisms, requiring separate theoretical explanations (Davidsson and Wiklund, 2000). Established firms must learn to act entrepreneurially is no longer a novelty, and the reasons they could benefit from doing so are generally well known (Ireland, et al., 2003; Zahra, et al., 1999).

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