BUSINESS MODEL AND TEAM AS PRECONDITIONS OF A START-UP VIABILITY[*]

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Abstract. Start-ups are an attractive topic for research because they are a relatively new and very dynamic business form. They carry out original business ideas, provide a space for self-realization of independent personalities, bring extra earnings, but most of them fail. The aim of the research was to examine whether the business model and start-up team like two basic assumptions are really some reasons of the viability and later potential start-up success. The result of the research is a knowledge on the structure and functionality of the start-up business model and start-up team. The viability of the start-up had been measured in shape of its business performance. An intensity and structure of the relationships between performance of start-up and its business model and team should confirm its capability to survive and thrive. These relationships are modelled on the base of regression analysis. The research has largely confirmed the existence of desired relationships to a certain extent, but the effect of the studied preconditions is internally considerably differentiated.

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1. Introduction

Start-ups are a relatively new and highly dynamic business form, providing space for both individual and team self-realisation, providing space to realize unconventional business ideas, space for quick even exponential growth and scaling. Start-ups create new working places; they bear the business risk unacceptable for established companies, they spread an innovative business culture, they are a source of potentially high incomes, as well as unexpected disappointments and failures. American information agency CB Insights (2016) assembled rank of most common causes of failed start-ups, which are a business making without demand, exhaustion of money for the operation, non-collaborative team, smarter competition, wrong determination of cost and price and at last dysfunctional business model. Most of the failures have a common denominator in inefficient and very little functioning business model. A considerable share of failures can be attributed to internal relations in a start-up, formal and informal division of labour, leadership and team management.

Research of start-up weaknesses (KPMG 2014, p. 34) states that these include financial planning, expansion into new markets, resource acquisition (fundraising), critical thinking, the perception of risk, presentation skills, the creation of business models, business intuition, brand building and leadership skills. Investors in another study claim (KPMG 2016, p. 23), that important investment criteria apart from the quality of managerial team are product and its sale potential. Return on investment is at the end of the list. Founders of start-ups receive a clear signal that they must build a big business firstly which will be later accompanied by financial returns.

Research reports of European Start-up Monitor (Kollmann et al., 2015, 2016) provides formal data on leaders, teams and business models of start-ups, but they do not deal with their internal structure based on soft data or explicitly investigate their impact on start-up performance. They consider them important, but without further findings and conclusions. In the 2016 report (Kollmann et al., p. 3), the finding of a profitable and repeatable business model, scaling, sales growth and the acquisition of new customers are considered to be the greatest challenges. Similarly, the Booming Berlin (2016, p. 9) report on the Berlin start-up scene assumes that a functioning business model of a start-up is a prerequisite for the origin of a growing company within five year period.

The business model and, in particular, the start-up team and its leader are important investment criteria for angel investors and venture capitalists. According to Sipola (2015, p. 72), investment readiness increases the hope that the start-up will become an enduring enterprise. Miloud et al. (2012) state that the criteria of venture capitalists who evaluate a start-up are e. g. product differentiation, R&D intensity, solo founder/founder team, entrepreneur/top management team, team completeness and so on. Söderblom and Samuelsson (2014, p. 41) wrote in an empirical study that the investment criterion of a start-up is a founding team and other criteria are founder debt, founder equity and funding strategy that affect the potential of the business model.

Research reports and empirical studies highlight the importance of the business model and the team for the progress and improvement of a start-up, but they do not go on in this topic. Pfeifer et al. (2017) write that, despite the importance of the business model for entrepreneurial performance, the diversity of business models in the creative industries is little known, but their research has only been carried out on the basis of several case studies. The chaotic leadership of the start-up team is again highlighted by Gulatia and DeSantola (2016). Large studies describe the formalities of the start-ups and more profound research is only episodic.

Some studies (Ensley, Pearce, 2001; Kita, Šimberová, 2018) have confirmed the links between leadership and business performance of start-ups. Peterson et al. (2009), on the base of the survey of 49 start-ups and 56 established companies, found that vertical leadership had a stronger impact on start-up performance than on the performance of mature companies. Hmieleski, Cole, and Baron (2012) conducted the study on the sample of 179

start-ups in the USA with an average age of 48 months, which showed that team leadership is a significant positive predictor of the creative atmosphere and hence the high start-up performance. However, there is no study that would examine both the influence of vertical and team leadership on start-up performance. The need for such research is implied by Zäch and Baldegger (2017) who, after confirming the positive influence of the vertical leadership on start-up performance on a 124 start-ups sample, propose researching an impact of team leadership.

Analysis of the business model and team and exploration of their connection with the performance of a start-up should contribute to deepening and expanding the knowledge of this currently very attractive business phenomenon. Based on a literature study, it can be assumed that the key conditions for a viable and successful start-up are an effective business model and team. The business model is an instrument and means for the entrepreneurial realization of the idea. The start-up team, in turn, designs and operates the model with its vision, enthusiasm, and working effort.

The goal of the research is to deepen the knowledge about the structure of the start-up business model, the traits of its leader and the team and to verify their impact on the start-up viability. The first partial goal is to explore the business model and its structure, the start-up leader and the start-up team whose role changes in the business idea cycle. The second partial goal is to examine the impact of the business model, start-up leader and start-up team on business performance of start-up. The working hypothesis is that a developed business model and a visionary, creative and hardworking team are key and central prerequisites for start-up success. The hypothesis should be confirmed by the existence and tightness of the relationship between the development degree (quality) of the business model, leadership, teamwork, and performance of start-up.

2. Start-up and business model

Start-up is a small starting company with the unverified business idea. N. Thanedar (2012) distinguishes start-ups from small companies. Small companies aim to create profits and growth potential. Thiel (2014, pp. 10 - 11), one of the PayPal founders, does not perceive start-up as a precisely defined business entity. For him, start-up is above all a community of people, who connected with a purpose to achieve exceptional goal via extraordinary intellectual effort and unconventional business culture. According to Thiel and his partial characteristics of a start-up, it is possible to assume that start-up is a modern cultural-business phenomenon, which is less formal than any common company, however not without rules. Coordinating and welding link of a start-up could be an unbound individual self-realisation.

Acclaimed business matadors Blank and Dorf (2012, p. XVII) describe start-up in a more formal way than Thiel. They state that "Start-up is a temporary organisation to seek scalable, repeatable and profitable business model." Entrepreneurs establish a company with a vision to change the world, believing their company will earn millions if not billions of dollars. Scaling demands an investment of external venture capital in tens of millions to satisfy quick expansion.

Creators of visualisation canvas Osterwalder, Pigneurs a Bernarda (2014, p. XVIII) are not explicitly devoting to definition of start-up in their latest work, but their characteristic of start-up entrepreneur describes inner relationships in this business entity: "Start-up entrepreneur acts within other limitations than chief of new business project within an existing company. He must bring proof that ideas are functional even with a restricted budget, he must attract an interest of investors (if an idea is being developed), he must risk spending money before finding the right value for customers and business model. Resulting from stated, start-up is constantly under pressure to affirm its existence, it works under considerably limited and dramatic conditions and is still expected to produce a result, which is acceptance of product on the market and attractive revenue for the investor.

Ries (2011, p. 27), who entered the business world with the concept of lean start-up states: "Start-up is a human institution meant to create a new product or service in conditions of extreme uncertainty." He chooses the term of the institution because start-up hires creative people, coordinates their activities and defines company culture which brings results. The contribution of Ries towards defining start-up lies especially in adding an unpredictable context which distinguishes start-up from any common company. It could be deducted indirectly that start-up is a creator of future, a creator of new needs and it creates business opportunities more than it finds them.

A key attribute of start-p is an ability to grow. Graham (2013) explains that start-up is a company designed for quick expansion. Emphasis is put on unlimited geographical growth, which distinguishes it from a small business. A restaurant in a small town is not a start-up, neither is a franchise.

Mentioned insights and observations and could be summarised as follows. Start-up works in an environment of uncertainty and vagueness, but simultaneously it tries to find actual and applicable solutions, it grows dynamically and without limits, employs people giving up certainties of usual employment for possibility of exciting personal growth and achieving concrete goals, it can but it does not have to work on the base of technology and ceases to be a start-up after crossing certain borders (incomes, profit, number of employees, acquisition, and others). Start-up differs from the small and medium-sized enterprise (ww.podnikajte.sk) with globally unique and innovative product with the potential of dynamic and global growth with an expectation to have an income of tens of millions euros.

The business model includes and displays all relevant sources, processes, and conditions which connect hypothesis (reason and consequence): If an enterprise offers a customer an acceptable value, so it earns an adequate profit. Burns (2014, p. 13) at first uses the term a frame of new business creation which is to provide with the entire procedure to find, develop and improve a business idea. Later he uses the term of the business model; he describes (2014, p. 87), that it is in the centre of the frame of new business creation. Business Model Institute (BMI) prepared a scheme with parts in the shape of a circle. Muehlhausen states (2013, p. 61) that this visualisation of business model starts with an assumption that all important business models have an excellent offer, an ability to monetize offer and ability to sustain it. Gassmann et al. (2014, p. 7) assembled a simple visualisation which is arranged as a triangle. The purpose of this scheme is to get a clear perception of customer segments, customer value proposition, value chain and generation of profit and offers a starting point for upcoming innovations. Most widespread visualisation of business model is a concept of *canvas* created by authors Osterwalder and Pigneur (2009, pp. 15 – 44). Their nine blocks model is widely cited. It will be described in research methodology.

Purpose and usefulness of the business model are confirmed by Blank and Dorf (2012, pp. 8 – 18) when they write „ ... the only aim of a start-up is to find repeated and scalable business model". While existing companies realise business model, start-ups seek it. In accordance with Blank (2013), this difference is a core of the lean method. Instead of months of planning and market researches, entrepreneurs recognize that they have only a small number of unverified hypothesis, presumptions rather. Instead of a complicated business plan, they summarize their hypotheses into the concept of *canvas business model*.

The business model in studies of causes of start-up failure is indicated as an important reason. Statements of experienced entrepreneurs and start-uppers confirm this knowledge. Successful start-up entrepreneur Truban writes (m.facebook.com/michal.truban) that an idea has a very small value and it is never unique. In the discussion, he adds that the real value of a company lies in the business model. The business idea in the early phases of start-up development covers and obscure many conditions essential for business making while the considerable share of them is just formed by the business model.

Theorists and practitioners intuitively have a feeling that a functional business model is a key condition for the existence and success of a start-up, but they do not provide strict evidence. They do not deal with a structure of business model and functionality of its elements in conditions of sharply developing micro-enterprise such as start-up. It is not known what happens inside of business model, how it gradually forms, what are consequences on business performance, even though this knowledge could contribute to the viability of start-up.

3. Leadership in a start-up team

The foundation and development of start-up is inevitably connected with leadership (Zäch, Baldegger, 2017). Leadership is an inseparable part of the action of a founder and represents a basic factor for the successful development of a business (Cogliser, Brigham, 2004). Start-up without a leader who creates and communicates vision, inspires and coaches employees, acts on a market aimlessly (Zäch, Baldegger, 2017). Start-up teams need to determine the initial goals and to set a working system (Wiliamson, 2000). According to Bryant (2004), the start-up team must be lead because there are no standard operating procedures or organizational structures in start-ups. Similarly Ensley, Hmieleski and Pearce (2006) state that start-up teams in comparison of teams of large, established corporations have not well-defined goals, structures, and working processes. Despite this, there exist very few empirical studies explaining leadership in start-ups. Most authors are matched that in start-ups there exist vertical leadership based on notions and decisions of a single person (leader) and team leadership, which involves into decision making the team members too.

3.1 Vertical leadership in start-up

Vertical leadership is based on the nominated leader. The person on a higher level of the hierarchy is formally entitled to influence actions of people on lower levels (Ensley, Hmieleski, Pearce, 2006). This type of leadership allows to clearly distinguish the role of a leader from the role of followers (Pearce, 2004). This concept dominates the literature of leadership. Studies show that, although start-ups are often established by a team of people, one member often emerges as a chief (Ensley, Carland, Carland, 2000). According to Klotzet et al. (2014) studies usually focus on the role of the founder (leader) in the development of the new company. Baum, Locke, and Kirkpatrick (1998) found out that inspiration and vision of the founder are the driving force of any start-up. Similarly, according to Timmons and Spinelli (2008), it is fundamental to the success of a start-up that founder is a strong leader. Vertical leadership is very effective in conducting dramatic changes (Dunphy, Stace, 1993). Many studies (Gupta et al., 2004, Ireland et al., 2003) have confirmed that vertical leadership is essential for leading start-ups toward high growth. Similarly, many empirical studies reported a positive relationship between vertical leadership behaviour and different performance indicators of start-ups (Gooty et al., 2009, Gumusluoglu, Ilsev, 2007, Wang, Tsui and Xin, 2011).

Vertical leadership is visible in start-up especially in the early phases of the life cycle. It is usually an individual with leading or visionary abilities who identifies business opportunities and establishes a new company. Baum, Locke, and Kirkpatrick (1998) state that the role of a leader as the founder of a start-up is to create a vision of new enterprise and influence others (investors, employees, partners, and customers) "to buy his dreams." According to Bryant (2004) leaders in starting companies must exceptionally captivate their employees so that start-up can succeed in the realisation of innovative and considerably unexplored business intent and simultaneously compete with established competitive companies. Zäch and Baldegger (2017) claim that start-ups often have a very flat organisational structure with a low number of hierarchy levels and have mostly just one management level which is occupied by founder and leader in one person. Similarly, Vendetti (2010) introduces, that start-ups have a very simple organisational structure with authority centralised at the top of the hierarchy. According to Timmons and Spinelli (2008) in successful starting companies, democracy and groundless equality in the division of decision-making authority do not work and thus it is more suitable to clearly determine a leader, who possesses top authorities and responsibilities.

In a start-up, almost all strategic and tactical decisions are made by the founder and are mostly based on his intuition (Vendetti, 2010). The behaviour of leaders (founders) has, therefore, bigger, more direct impact on the performance of a start-up in comparison with bigger and running companies. This is confirmed by Kets DeVries and Miller (1986), who writes that individual attributes and behaviour of leaders influence the development and long-term sustainability of start-up. Equally, according to Hambrick and Mason (1984), start-ups are often perceived as a reflection of its top management. Timmons and Spinelli (2008) even claim, that in start-ups with big potential for growth, leaders are more important than technology.

Demonstration of tenacity and perseverance, reliability and honesty (Timmons, Spinelli, 2008) are the most important traits of a start-up entrepreneur appreciated by the investor. Butler (2017) states that business leaders are successful in an environment of uncertainty, motivated by risk, characterized by an extraordinary ability to convince and penetrating curiosity towards the external environment. Similarly, Bussgang (2017), as the most important leadership traits in the start-up states the ability to deal with uncertainty and shifting the boundaries of traditional business.

3.2 Team leadership in start-up

During the last several decades, researchers began to accept that leadership within organizations is not exclusively based on individuals (mostly CEOs) and top-down hierarchical leadership (Ensley, Hmieleski, Pearce, 2006). According to Timmons and Spinelli (2008), a success of a start-up is influenced not only by the strong leadership of founder, but it is also important to build a team whose members have skills, talents, and ability to work as a team that complements each other. Klotzet et al. (2014) state that most of the new enterprises are established and led by teams, not individuals. Pearce (2004) defines team leadership as current, lasting and mutual influencing of people and processes within a team, which is typical for its serial emergence of official and nonofficial leaders. Kiefer and Senge (1999) introduce that conversations in high-performing groups are not dominated by individuals designated as leaders, but rather by team members who possess the most relevant knowledge about a topic at the moment. In the practical application of team leadership, every member of a team is entitled to influence the action of other team members, and thus it cannot be clearly distinguished who is a leader and who is a follower (Pearce, 2004). Gronn (2002) describes this approach as *distributed* leadership, Pearce, Conger, and Locke (2008) talk about *shared* leadership, Kocolowski (2010) introduces the term *collective* leadership. In literature, the most commonly appearing term is team leadership.

Timmons and Spinelli (2008) state that start-ups with high growth potential are mostly built and led by a team, while unsuccessful start-ups with high potential growth are established by individuals mostly. Manz and Sims (1993) warn that teams with high performance do not have the structure of formal leadership. According to Kocolowski (2010), decision making authority and responsibility in conditions of team leadership are equally distributed to all team members. Team responsibility is thus based on the cooperation of the collective. Pearce and Sims (2002) found out that the application of team leadership allows companies to achieve better results in comparison with vertical leadership.

With the growth of a start-up, it is impossible for one leader to execute all functions and to carry all responsibility. Many good ideas will not turn into successful products because the founder is not capable and willing to share an idea, delegate authorities and create a team. Studies identify the inability of the founder to create a quality team and work within the team as one of the most common causes of start-up failure (CB Insights, 2016).

Real leadership encompasses both aspects of vertical and team leadership. Both types of leadership are considered an important condition of successful start-ups and also start-ups are considered an ideal context for their studies. Leader and team are considered an important condition for start-up existence, but it is not known dynamics of their development in small and quickly changing start-up and their impact on its performance, which would be

confirmed by quantitative evidence. Equally, the joint effect of model and team on business performance is not known, which could deepen knowledge on their synergic impacts.

4. Research sample and methods

Research sample and data collection. The survey was carried out in the first half of 2016, and the sample consists of 76 start-ups operating in the territory of Bratislava, where the largest start-up community in Slovakia is concentrated. Estimates of some governmental materials (Koncepcia, 2016) state that there are about 600 start-ups in Slovakia. The www.startitup.sk portal (STARTITUP, 2017) shows 301 start-ups. However, these figures are not based on official statistics, which do not record start-ups as a special category. According to the authors' estimates, about half of all the start-ups in Slovakia is concentrated in Bratislava and its surroundings. However, roughly one-third of all the start-ups do not make any obvious preparatory or business activity. Thus the research sample contains a significant number of start-ups operating in the over-developed EU region.

The sample of 76 start-ups was prepared in consultation with investors and representatives of co-working centres, incubators, and accelerators. The selection criterion was an investment by an angel investor or a minimal validation of the start-up on the market that would guarantee a minimum degree of start-up development and a higher probability of its existence during the research period. Each start-up was examined by one member of the research team who personally recorded evaluations and answers of the founder/owner to the closed and open questions in the questionnaire and immediately explained any ambiguities. Other sources of knowledge were interviews with team members, additional interviews as needed, publicly available information about studied start-ups from their websites, other websites, e. g. finstat, startitup, and professional journals, which also served for additional checks and corrections. The start-up staff also took part in the evaluation of the team leader and team. The research sample is narrowed due to data incompleteness in some cases to 72 start-ups (Table 1). For the purposes of statistical analysis (regression models), the sample was narrowed to 51 start-ups that meet the stringent features of start-up business making which are innovation, scalability, and rapid growth on international markets usually. This sample had a number of 50 to 45 start-ups (Table 4, Table 9, Table 10), because due to the combination of independent variables (business model, leadership, team) some start-ups had to be omitted for data incompleteness or did not meet regression analysis conditions.

Start-ups from the narrowed sample do business according to SK NACE (2016) in industries of Information and Communication (29.9 %), Administrative and Support Services (26.6 %), Industrial Production (17.7 %), Arts, Entertainment and Recreation (12.2 %), Wholesale and retail trade (6.8 %), Financial and insurance activities (6.8 %). Start-ups usually know their competitors, but their current effort is devoted to the increasing number of users and converting them to customers. Competition is still too weak or remote, the start-up is often below its distinguishing level, and therefore the business model is not yet influenced by competitive forces.

The leading person (founder and owner) of the start-up is 28 years old on average and has a 2nd degree university education. Before establishing the start-up and starting an independent business making, the founder was an employee in the period of 7.5 years. The average number of team members in the surveyed period was 6.25, and the average start-up existence was 29 months. The founders had financial resources ranging from 50,000 to 200,000 euros, which should cover approximately a year's start-up operation. The highest cost item was wages (44.5%).

Variables. For the description and analysis of business models, there was chosen *canvas* methodology by Osterwalder and Pigneur (2009, pp. 15-44). Among the available models (Slávik, 2011), the canvas is the most comprehensive. It captures the economic side of business making through revenue flows and costs; it records where costs are consumed and revenues generated. It describes a value the enterprise creates for the customer. The chosen method of visualization allows effectively explore a particular business and formulate a particular

business model. The main blocks of the model are Customer value propositions, Customer segments, Customer relations, Distribution channels, Key partners, Key activities, Key resources, Cost structure and Revenue streams. The concept of vertical and horizontal leadership was chosen to describe and analyse leadership and teamwork. Selected questionnaire statements made by Cox (1994) were used. The double format of this questionnaire designated to measure the vertical versus team leadership was successfully used in the survey of Ensley, Hmieleski, and Pearce (2006).

The independent variables describing the degree of development of blocks of the business model based on the *canvas* method are listed in Table 4 (thirteen variables). The block of Customer Value Propositions is described by two variables, and the block of Customer Segments is described by three variables. Independent variables also include two determinants of business performance Notion about a negotiated price and Notion about a volume sold which, in the author's opinion, extends consideration of factors affecting performance and can contribute to its more accurate determination. The bipolar interval scale (Gavora, 2012, pp. 62, 63) was used to measure the variables. This scale evaluates the different degree of one trait of the studied subject. Rating 1 on the 5-point scale means "no functionality" and rating 5 means "full functionality." *The degree of development of a business model block* is measured on a scale of: 1 - no, 2 - basic concept, 3 - complete concept, 4 – attempts with implementation, 5 - complete or almost complete functionality. The content validity of the scale is ensured using the canvas research tool and discreetly formulated stages of development.

Independent variables describing the degree of development (quality) of leadership are listed in Tables 9, and 10 (four variables), and the degree of development (quality) of the team are shown in Tables 9 and 10 (six variables). The bipolar interval scale (Gavora, 2012, p. 63) was again used to measure the variables. Rating 1 on a 5-point scale means "minimal quality" and rating 5 means "excellent quality." *The quality of the leader and teamwork* is measured on a scale of: 1 - minimum, 2 - low, 3 - sufficient (however it could be better), 4 - satisfying (but there are still some reserves), 5 - brilliant.

Dependent variables measuring business performance of start-up are listed in Tables 4, 9 and 10 (three variables). Performance of start-up is measured by the number of users, the number of paying users (customers) and the revenues. The unipolar interval scale (Gavora, 2012, p. 63) was used to measure the variables. Rating 1 on the 5-point scale means "no performance" and rating 5 means "max performance." *The number of users and the number of paying users (customers)* are measured on the scale of: 1 - none, 2 - several, 3 - several tens, 4 - several hundreds, 5 - several thousand or more. *Revenues* are measured on the scale of: 1 - none, 2 - cover current costs from 0 to 25 %, 3 - cover current costs from 25 to 75 %, 4 - cover current costs from 75 to 100 %, 5 - also bring profit. Reliability of the scales of variables is confirmed by the Cronbach's alpha (min. 0.6 and above), which is recorded in Tables 4, 9 and 10.

The analytical procedure consists of descriptive statistics and regression models. Descriptive statistics describes the business model, leadership, and teamwork through the average values of their traits, frequencies, and shares of the whole. It provides a comprehensive and more detailed picture of the basic features of the research sample: distribution of start-ups depending on the business idea development, identification of the degree of development of the business model depending on the development of the business idea, performance of a start-up depending on the development of the business idea, the quality of the leadership structure (vertical leadership) and teamwork (horizontal leadership) depending on the development of the business idea. Developmental phases of a start-up (its business model) are recorded on *the scale of business idea development (business cycle)*: 1 - idea/concept/research, 2 - product development, 3 - product prototype/testing, 4 - minimum viable product/first revenues, 5 - verified product/growing revenues.

Regression models investigate causal links based on multiple linear regression that measure the impact of the business model, leaders, and team on selected start-up performance indicators. The influence of the independent

variables is compared to identify independent variables that have a significant effect on the dependent variable being studied. Model is gradually modified so that it can have such a structure which can explain researched variable in the best way. For this reason, there were removed variables with lowest and statistically nonsignificant impact, and concurrently condition for the growth of determinant coefficient must have been met. Expressing ability of the model in case of one explanatory variable was assessed by means of the determinant coefficient and in case of several variables by means of the modified coefficient of determination. For statistically significant there is considered level $p < 0.05$.

5. Results of research

5.1 Structure of business model of a start-up in a cycle of business idea development and impact of the business model on start-up performance

Research documented variables of the business model in the development cycle of a business idea. Imperfection, defectiveness or malfunction of business model is considered to be the main reason for start-up failure. Research should show how start-up, displayed by means of visualisation of blocks of business model, develops and changes. Business model with gradual phases of development of business idea increases degree of its development, however from Table 1 it is clear that even in first phase it is relatively developed (it is close to compact concept), and progress to final phase does not represent even 1,5 value point (slightly above attempts for realisation), or progress between phases one and five is only 33,3 %, if 4,24 is 100 %, even in phase 2 there is a slight decrease in the degree of model development and increase between phases 4 and 5 is minimal. According to number of start-ups, there are however for research crucial phases 3, 4 and 5. In the first two phases, there is only 15.3 % of the research sample.

Table 1. Average degree of business model development in particular phases of business idea development

Phase of business idea development	1	2	3	4	5
Degree of business model development	2.83	2.58	3.32	4.16	4.24
Number of start-ups (together 72)	3	8	**20**	**23**	**18**
Share of start-us (%)	4.16	11.11	27.77	32.85	25.0

Source: authors

Development tendencies of business model blocks (Table 2) are a decrease in assessment in 2nd phase apart from relations with customers, then mainly growing tendencies in next phases, however in the final 5th phase there are recorded small decreases (it is obviously a symptom of uncertainty, that development is coming to its end and feedback from reality revises assessment) or only small increases in comparison with previous phase.

Based on date from the Table 2 it is clear that the most elaborated is value for the customer, revenue streams belong to less developed. The discrepancy is obvious; it does not get on well to monetize the customer value proposition. This could have several reasons. Offered value is attractive. However customer does not want to pay because there is no suitable model of incomes/payments created for him, or value is attractive, but for another type of customer, or it is delivered to the customer in an incorrect way, e. g. too early or too late, on the incorrect place, distribution channel does not work, there is lack/plenty of customers and price is too low (value does not earn) or too high (value discourages). Unmissable knowledge from table data is that start-ups try to proceed autonomously and they consider the building of partner relationships less important.

Table 2. Structure of business model in the business idea cycle

Degree of development of business model blocks	Phase of business idea development				
	1	2	3	4	5
Customer value proposition	3.00	**3.00**	**3.78**	**4.57**	**4.61**
Customer segments	**3.55**	2.96	3.55	4.38	4.15
Distribution channels	3.00	**2.13**	3.15	3.96	4.17
Customer relationships	**1.67**	2.75	3.40	4.30	4.39
Key activities	3.00	2.63	3.40	4.09	4.33
Key resources	3.00	2.75	3.45	4.35	4.33
Key partners	3.33	2.5	3.40	**3.65**	**3.72**
Revenue streams	2.20	**1.85**	**2.31**	**3.52**	**4.11**
Cost structure	2.67	2.63	3.45	**4.61**	4.39

Source: authors

Total picture about metamorphoses of the business model and its impact on performance is recorded in Table 3. Performance indicators in the business idea cycle from phase 1 to phase 3 (prototype of product/testing) show decrease. Not even in the final phase of its development, in phase five, start-ups do not make a profit (*4 – cover present expenses from 75 to 100 %).*

Table 3. Business performance of start-up in business idea cycle

Performance indicators of start-up	Phase of business idea development				
	1	2	3	4	5
Number of users	2.00	1.75	2.80	3.52	3.94
Number of paying users/customers	1.67	1.25	1.65	3.09	3.78
Revenues	2.33	1.63	1.25	2.87	3.78

Source: authors

In the beginning, regression analysis examines the relationship between all blocks of the business model and its performance, expressed in terms of *number of users, number of customers and revenues* (Table 4). After the gradual modification of the regression model, there are identified blocks which have a statistically important impact on performance indicators. Identified blocks together and significantly affect performance, although the performance of specific start-ups can be affected by other significant blocks. The number of users is influenced the most significantly by *distribution channels,* and *geographical radius*, followed by *knowledge of needs*, *partners*, *notion about sold volume*, and closely below the significance level is placed *cost structure*. These variables together explain 45 % variability of number of users. The number of users depends significantly on the degree of development of the distribution channels and the extent of the territorial activity of a start-up. An important influence is also the knowledge of the needs thus a cognition of a problem of a potential customer and its solution. The partners and the notion about a sold volume have a negative impact on number of users. These factors seem to cause limitations and weaken creativity. Start-up is still looking for customers and a market place, and so overly binding goals/notions and other interests of a partner can limit it in potential growth. A higher level of development and knowledge of the cost structure is also a feature of start-up, which can contribute to more efficient use of resources to acquire users.

Presence on the market in the sense of right geographical location is important for a start-up which develops an application with use in the world of fashion because Slovak market is small even unsuitable for this type of product. Very soon after its emergence, it moved from Slovakia to Italian Milan so it would be close to relevant

customers, which are fashion houses and brands with leading fashion trends and where this developed product might be needed. Another start-up that produces stylish furniture and toys for children went towards purchasers on international markets. Original products were sold only on the local market, they were too big and could not be folded with the aim of simpler transfer, but customers could pick them up in person. New products were already designed to be folded for transport size and easily delivered abroad. Fast transition to international markets is crucial for start-ups developing mobile applications. They must obtain a large amount of users and thus the local market is very small for them.

Table 4. Impact of business model blocks on the performance of start-up which is expressed by number of users, number of paying users/customers and revenues

Blocks of business model	Users		Paying users/customers		Revenues	
Customer value proposition a) Knowledge of needs	0.39 (0.25)	0.42* (0.18)	0.06 (0.28)		-0.01 (0.28)	
Customer value proposition b) Degree of product development	-0.13 (0.34)		0.14 (0.38)		0.21 (0.38)	
Customer segments a) Identification of customers	0.44 (0.32)		-0.47 (0.35)	-0.51$^+$ (0.26)	-0.48 (0.36)	
Customer segments b) Market presence	0.04 (0.26)		0.44 (0.29)	0.58** (0.21)	0.41 (0.29)	0.58** (0.16)
Customer segments c) geographical radius	0.30* (0.13)	0.30** (0.11)	0.08 (0.15)		-0.05 (0.15)	
Distribution channels	0.68** (0.21)	0.66** (0.17)	0.10 (0.23)		-0.05 (0.24)	
Customer relationships	0.09 (0.26)		-0.09 (0.29)		0.05 (0.30)	
Key resources	-0.14 (0.27)		-0.03 (0.30)		-0.01 (0.31)	
Key activities	-0.39 (0.33)		-0.27 (0.37)		0.13 (0.38)	
Partners	-0.33* (0.16)	-0.30* (0.14)	-0.19 (0.17)		-0.16 (0.18)	
Notion about a negotiated price	0.11 (0.27)		0.39 (0.29)	0.41* (0.17)	0.11 (0.30)	
Notion about a sold volume	-0.42* (0.18)	-0.38* (0.16)	0.17 (0.20)		0.13 (0.21)	
Cost structure	0.29 (0.19)	0.28$^+$ (0.16)	0.16 (0.21)		0.25 (0.21)	
R^2	0.57	0,52	0.41	0.31	0.33	0.22
R^2 adjusted	0.41	0,45	0.19	0.27	0.08	0.21
F	3.54	7,52	1.84	7.15	1.33	13.96
Cronbach's alpha	0.90	0,72	0.90	0.77	0.90	N/A
N	48	48	48	50	48	50
*Level of significance $^+0,1$ *0,05 **0,01 Standard error in parenthesis*						

Source: authors

The number of paying users/customers is most influenced by the *market presence* and *notion about a negotiated price*, closely below the significance level there is impacting *identification of customers*. These variables together explain 27 % variability of the number of customers. Start-up, which wants to convert users to customers, has to increase its market presence (product validation, product awareness, promotion, etc.) and penetrate the market with its product. This is also helped by setting the right price, which will increase the number of customers and provide feedback for further progress. Targeting a particular group of customers has a negative consequence for

the number of customers. When converting users to customers, customers are down, and due to their sensitivity to product price, the customer's nature may change significantly, or new customers whose start-up does not address its product may emerge.

A start-up that develops internet applications spotted an opportunity based on a need it felt as insufficiently satisfied and verified its purpose with customers. He assembled a set of metrics, which watched the impact of improvement of the application on user satisfaction. Start-up which created presentation software states that until it gains paying customers, it cannot identify the needs of customers perfectly. Not users, but their payments confirm knowledge of needs or solved problems. In average start-ups know needs of customers very well because they carry out trials with verification of their fulfilment. The most often declared value for the customer is novelty, design, comfort or decreased costs.

Revenues are exclusively influenced by *market presence*, which explains 21 % of their variability. Sufficiently developed awareness about the product, brand, and enterprise, quick and easy product availability that accompanies rapid market penetration will be reflected in first and repeated purchases and rising revenues. Feedback impact on product upgrading and customer attachment is also enhanced.

To persuade customers to buy and pay for products is the biggest issue, task and weakness of studied start-ups. Challenge of research is to find the answer to question "How to realize revenues and earn?" on the base of the practice of successful start-ups. Actual knowledge/examples of failures of entering markets and insufficient monetization are these:
* after finalisation of product development and first attempts to enter a market it has been proven that product fits customer, but customer is sceptic, not very solvent, to negotiate with customer there is needed trustworthy representative, possibly product should be categorised such as a health aid and institutions (health insurance company, association of disabled people) should be involved into dissemination, customer must be addressed, visited in person, product must be tried out and accustomed to it in their home environment where user feel comfortable, has good space orientation. Sale will not get off the ground without development of selling technique adapted for disabled customer, market of disabled customers is small in particular countries (tens of thousands of people), there is a need to focus on countries which have hundred of millions and more citizens,
* start-up does not have to acquire customers yet, investors want start-up to collect users in order for customers to get used to using application which provides them with unusual and comfort satisfying their needs, scale-ability of users is its priority, monetization is still not on a programme of a day, the goal is to create mass of users, premature monetization slows development and growth of start-up,
* start-up silently works on sophisticated application, which is liked by domestic customers, but they predicted to buy in a year or two, a change was brought by participation on important international fair, launch of product has brought international response and immediate interest of customers and investors,
* start-up does not have to know how and experience how to penetrate international market, even though international acceptation of product is crucial for its growth, viability, and success. The product is developed, tried out, has its first customers, but it is not enough. Random meeting of an investor with similar international company brings desired an international partner with great knowledge of the market with products for HRM and own concept of seeking suitable candidates for work place, joining of modified Slovak product and foreign distribution is a strong impulse for further growth.

All monitored start-ups stand in front of a task to scale rapidly. Small domestic market prevents them from scaling; lack of experience regarding entering foreign market, mostly these are markets of several countries; unfamiliarity with penetration into existing distribution channels, mostly it is unfamiliarity of how to build own distributional channel; distribution of e-apps is less demanding than distribution of hardware, first entering of market is usually entering international market, cyberspace has unclear national borders. Skilled and experienced foreign partner/entrepreneur helps to overcome lack of knowledge about the foreign market and entrance into the

foreign market. He brings know-how and contacts, or he is an executive trade representative placed directly abroad. Uncomfortable experience is competitors whose start-up spots only after entering the market.

5.2 Structure of start-up leadership in business idea development cycle and impact of leadership on start-up performance

Vertical leadership is obvious especially in the early phases of development of business idea (Table 5). In the early stages of the business idea, the driving force of start-up is the enthusiasm of founder, inspiration, and motivation of other co-workers. This effect of a leader in other phases of start-up decreases. Research confirmed the decreasing importance of vertical leadership in relation to start-up development with the exception of the final phase, where the importance of vertical leadership increases again. Even in the final phase, the level of leadership is higher than in the early stages of development of the business idea. Vertical leadership is expressed by four variables (Table 6). Start-up establishers expressed themselves as outstanding visionaries, but they devote less effort to the development of competencies of their co-workers in the form of education, coaching or mentoring.

Table 5. Vertical leadership and business idea development

	Phase of business idea development				
	1.	2.	3.	4.	5.
Vertical leadership	-	4.05	3.87	3.49	4.38
Number of start-ups (together 76)	0	8	27	22	19
Share of start-ups (%)	0	10.53	35.53	28.94	25.00

Source: authors

Table 6. Variables of vertical leadership and phases of business idea development

Variables of vertical leadership	Phase of business idea development				
	1.	2.	3.	4.	5.
Creation of vision	-	4.60	3.78	4.00	4.62
Inspiration of fellow workers	-	4.20	3.67	3.93	4.46
Encouragement of fellow workers	-	4.20	3.39	3.87	4.46
Competency development of fellow workers	-	3.20	3.11	3.67	4.00

Source: authors

On the contrary to vertical leadership importance of team leadership with the development of start-up grows (Table 7). If the start-up progresses, it is extremely difficult for a leader to manage all tasks and carry all responsibilities, and hence it increases the importance of team leadership. Quality of team leadership is described by seven criteria (Table 8). Research showed that quality of relationships in start-up team is given especially by coherence, mutual support, and trust of team members. These aspects of team work were assessed as highest amongst criteria of team leadership. Formal and informal division of labour and roles, on the contrary, got the lowest assessment.

Table 7. Team leadership and business idea development

	Phase of business idea development				
	1.	2.	3.	4.	5.
Team leadership	-	3.86	4.11	4.29	4.57
Number of start-ups (together 76)	0	8	27	22	19
Share of start-ups (%)	0	10.53	35.53	28.94	25.00

Source: authors

Table 8. Variables of team leadership and phases of business idea development

Variables of team leadership	Phase of business idea development				
	1.	2.	3.	4.	5.
Cohesion	-	3.33	3.92	4.19	5.00
Mutual support	-	3.33	3.88	4.38	5.00
Division of roles	-	3.50	3.58	4.00	3.50
Division of labour	-	3.33	3.69	4.06	3.00
Cooperation	-	3.00	3.96	4.00	4.50
Creativity	-	3.50	4.00	3.88	4.50
Individual initiative	-	3.17	3.96	4.25	4.50

Source: authors

Vertical and team leadership makes sense when it positively influences the business performance of a start-up (Table 9). Among the investigated parameters of both vertical and team leadership, the leader and his *competence development of fellow workers* and *individual initiative* of team members positively influence the number of users. Together, they explain 12 % variability of the number of users. *Mutual support* and confidence of team members in unpleasant, unpredictable and crisis situations has a positive impact and *division of labour (formal)* has a negative impact on the start-up performance expressed by the number of paying users. Both variables together explain 18 % variability of the number of customers. The size of revenues is not sensitive to any leadership or teamwork parameter.

Uncomfortable, unpredictable and crises situations represent especially lack of money in early stages of start-up, payment of symbolic wages to members of the team because it is being invested into next development of business, extraordinary work effort, frequent departures and exchanges of the team. An example is a start-up which develops software, web solutions and provides consultations in IT. Overtimes in early stages of business cannot be counted by team members. Sometimes they worked 12 hours a day and also during weekends. The behaviour of people during crises situations is, however, the best predictor of their future behaviour and performance.

Mutual support of team members in unpredictable and crises situations have appeared in a start-up which provides services of electronic mail. All five members of the start-up team were having fun at work party playing bowling when around midnight the leader received a phone call announcing that the main server stopped working and hence the application was completely dysfunctional. The whole team returned back to work, and all worked till early morning hours to fix the defect. Start-up leader stated that he did not have to persuade or force anyone, everybody realised the seriousness of the situation and proved their responsible approach to work and that they support each other.

Table 9. Impact of leadership and team on the performance of start-up

	Variable	Users		Paying users/customers		Revenues	
Leader	Creation of vision	-0.64 (0.38)	-0.51 (0.34)	-0.05 (0.35)		-0.22 (0.36)	
	Inspiration of fellow workers	0.21 (0,33)		0.39 (0.31)		-0.05 (0.31)	
	Encouragement of fellow workers	0.02 (0.36)		-0.08 (0.33)		0.23 (0.34)	
	Competence development of fellow workers	0.36 (0.31)	0.47[+] (0.27)	-0.13 (0.29)		0.00 (0.29)	
T	Mutual support	0.47		0.76[+]	0.85**	0.59	

		(0.43)		(0.40)	(0.27)	(0.41)	
	Division of roles (informal)	-0.12 (0.24)		0.04 (0.22)		0.19 (0.22)	
	Division of labour (formal)	-0.06 (0.26)		-0.63* (0.24)	-0.55** (0.20)	-0.30 (0.24)	
	Cooperation	-0.45 (0.39)		0.14 (0.36)		0.43 (0.37)	
	Creativity	-0.33 (0.31)	-0.42 (0.29)	-0.01 (0.29)		0.11 (0.30)	
	Individual initiative	0.48 (0.37)	0.52[+] (0.28)	0.07 (0.34)		-0.52 (0.35)	
	R^2	0.25	0.20	0.26	0.21	0.16	
	R^2 adjusted	0.05	0.12	0.06	0.18	-0.06	
	F	1.22	2.62	1.28	6.05	0.73	
	Cronbach's alpha	0.79	0.62	0.79	0.61	0.79	
	N	47	47	47	47	47	
	*Level of significance [+]0.1, *0.05, **0.01 Standard error in parenthesis*						

Source: authors

The formal division of labour (duties) and roles within a start-up team achieved not only the lowest average point assessment among parameters of team leadership (tab. 8), but it was also proven that formal division of labour has a negative impact on start-up performance, especially on the number of paying customers (tab. 9). Start-up teams consist mainly of very universal individuals. Start-up founders do not seek their co-workers in ordinary workplaces, but they choose freelancers (independent professionals without permanent employment) with previous experience in dealing with start-up projects. Universal people are an advantage for a start-up because they can cover a number of jobs for the same salary. Moreover, in the first months of their functioning, the composition of start-up teams is changing frequently, therefore start-ups need universal people who can take over responsibilities and tasks for a member who left.

5.3 Joint impact of business model and team on start-up performance

Results of analysis of the joint impact of business model, leader and team on performance indicators of start-ups are displayed in Table 10. The number of users is statistically significantly impacted by *distribution channels*, *relationship with customers*, *key partners* and *formal division of labour*. They explain together 36 % variability of number of users. Number of paying customers is statistically significantly impacted by *market presence*, *mutual support in the team and formal division of labour*. They explain together 32 % variability of number of users. Revenues are statistically significantly impacted by the *market presence*, *informal division of roles and formal division of labour*. Together, they explain 22 % variability of revenues.

Table 10. Impact of business model and team on performance of start-up

	Variable	Users		Paying users/customers		Revenues	
Model	Customer value proposition a) Knowledge of needs	-0.09 (0.49)		-0.38 (0.54)	-0.31 (0.27)	-0.80 (0.51)	-0.35 (0.28)
	Customer value proposition b) Degree of product development	-0.08 (0.49)		0.00 (0.53)		0.60 (0.51)	
	Customer segments a) Identification of customers	0.84 (0.58)		-0.04 (0.64)		-0.45 (0.61)	
	Customer segments b) Market presence	-0.02 (0.33)		0.43 (0.36)	0.38[+] (0.21)	0.53 (0.35)	0.54* (0.20)

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	Customer segments c) geographical radius	0.31 (0.19)		0.01 (0.21)		-0.20 (0.20)	
	Distribution channels	0.87* (0.33)	0.89** (0.21)	0.11 (0.36)		-0.18 (0.35)	
	Customer relationships	0.62 (0.48)	0.46* (0.22)	0.53 (0.53)	0.44 (0.27)	0.83 (0.50)	0.43 (0.28)
	Key resources	-0.20 (0.38)		-0.02 (0.42)		-0.16 (0.40)	
	Key activities	-0.24 (0.47)		-0.38 (0.52)		0.11 (0.49)	
	Partners	-0.50* (0.23)	-0.40* (0.17)	-0.21 (0.26)		-0.24 (0.24)	
	Notion about a negotiated price	-0.23 (0.43)		0.13 (0.47)		0.40 (0.45)	
	Notion about a sold volume	-0.42 (0.29)	-0.43* (0.19)	0.20 (0.31)		-0.18 (0.30)	
	Cost structure	0.12 (0.25)		0.08 (0.28)		0.20 (0.26)	
Leader	Creation of vision	-0.57 (0.52)		-0.02 (0.57)		-0.19 (0.54)	
	Inspiration of fellow workers	0.55 (0.45)		0.45 (0.50)	0.30 (0.23)	-0.04 (0.47)	
	Encouragement of fellow workers	-0.33 (0.45)		-0.43 (0.50)		0.10 (0.47)	
	Competency development of fellow workers	-0.14 (0.36)		-0.03 (0.39)		-0.14 (0.37)	
Team	Mutual support	0.27 (0.57)		0.60 (0.63)	0.64* (0.28)	1.13+ (0.60)	
	Division of roles (informal)	0.03 (0.28)		0.16 (0.31)		0.51 (0.30)	0.35+ (0.19)
	Division of labour (formal)	-0.41 (0.38)	-0.20 (0.18)	-0.74+ (0.42)	-0.76** (0.21)	-0.55 (0.40)	-0.37+ (0.21)
	Cooperation	-0.38 (0.41)		0.02 (0.45)		-0.13 (0.43)	
	Creativity	0.20 (0.36)		0.15 (0.39)		0.38 (0.37)	
	Individual initiative	0.11 (0.38)		-0.12 (0.42)		-0.95* (0.40)	
	R^2	0.64	0.43	0.50	0.40	0.52	0.30
	R^2 adjusted	0.27	0.36	-0.01	0.32	0.02	0.22
	F	1.73	6.01	0.98	4.65	1.05	3.58
	Cronbach's alpha	0.89	0.74	0.89	0.73	0.89	0.69
	N	45	45	45	47	45	47

Level of significance +0.1, *0.05, **0.01
Standard error in parenthesis

Source: authors

The result of the analysis is finding, that performance of start-ups is jointly influenced by hard (model) and soft factors (leaders and team). Among factors of business model, there are mainly visible relationships with customers impacting all performance indicators (however customers and revenues without appropriate significance) and market presence influencing number of paying users and revenues. Amongst the team factors, it is a formal division of labour. However, the formal division of labour has a significantly negative impact on performance, and thus it is possible to conclude that for a start-up there is not a suitable formal division of labour.

Formalisation may bring more transparency into start-up but at the same time decreases its performance. Leadership itself (vertical) has only a very small impact on performance, the inspirational impact of a leader on a number of users (however without appropriate significance again) is attracting attention only.

To simply judge the degree of model impact, leader and team on start-up performance there might be applied a relative indicator, which will have a number of relevant regressions in numerator and number of all measured regressions in the denominator. Model/leader/team has an impact on number of users 0,17/0,0/0,0, model/leader/team has an impact on number of paying users 0,04/0,0/0,09, model/leader/team has an impact on revenues 0,04/0,0/0,09. It is clear that the model has a higher impact on number of users than team, team more influences number of customers and revenues than model and impact of a leader is almost neglect-able.

Based on regression analyses it was confirmed the impact of model and team on start-up performance on statistical level of importance $p<0.05$. Components (factors) of model and team impacted on various performance indicators, while their joint impact was identified only on the level of importance $p<0.1$. It is possible to conclude that different combination of soft and hard factors impact on different performance indicators of an enterprise.

6. Discussion

Description of the business model.
Out of all blocks of business model, the most developed is value for the customer, followed by similarly developed blocks of customer segment, relationship with customers, processes, and resources, the structure of expenses, less developed blocks are distribution channels and partners, the least developed is a block of revenues. It could be concluded that start-ups know what does a customer need, they know a customer, in case they can reach him they can serve him. Then, resources and processes are little less developed, but start-ups face a problem of getting to the customer and earning money, while not paying adequate attention to creating a partner relationship. The business model is being gradually homogenised.

Inadequate development of business model blocks leads to risk of the next progress of start-up. A. Maurya (2012, p. 25) states that business model blocks should be developed concurrently and together, especially blocks connected with product and customers. Excessive orientation on product or value and forgetting customer can get a start-up into a situation where it has its product finished, but customers will not be interested in it. Unbalanced development of business model blocks can be explained via imperfection of start-up as very small, inexperienced and hence imperfect enterprise, which learns by the method of trials and fails, acts opportunistically, its resources are incomplete when it usually has only one valuable resource, which is represented by the business idea. This is not a mistake, it is a natural state, which strongly implicates high level of failure.

Impact of the business model on start-up performance.
Impact of the model on performance was confirmed by regression analysis, however statistically important impact had several of model blocks only. In regards to start-ups being in development, identified blocks do not have to be definitive. Performance expressed by number of users, customers and revenues can be impacted by the presence on a market, distribution channels, knowledge of needs and key processes. While descriptive analysis reveals the level of development of model blocks, so regression analysis measures its impact on performance. Not all developed blocks have a simultaneously relevant impact on performance. The evident discrepancy is between the level of distribution (low) and its impact on enterprise performance (relevant). Somewhere here, there is a weak place of studied business models or simply said their inherent characteristic. Progress in business idea development and collecting capital necessary for operation significantly impact on start-up performance too. Impact of business model blocks on start-up performance is considerably inconsistent and again can be explained by imperfections of start-up and especially its opportunistic action. Start-uppers only deal with topics and problems when they come into existence, and they do not have work capacity or enough experience to build and

manage a start-up as a mature enterprise. On the other hand, identified pertinences, e. g. impact of presence on the market on number of users and paying customers could be those factors, which have to be monitored systematically in the long term in achieving of business performance.

Description of vertical and team leadership.
Vertical leadership in start-ups is evident mainly in the early stages of business idea development. Start-up founders have proven themselves as expressive visionaries, but less effort is devoted to the development of competences of their co-workers. Contrary to vertical leadership meaning of team leadership with the progress of start-up grows. Amongst researched parameters of vertical and team leadership positively impact on business performance of start-up especially mutual support and trust of team members in uncomfortable, unpredictable and crises situations. The formal division of labour (responsibilities) and informal division of labour in start-up team achieved not only lowest point in assessment out of all parameters of team leadership but concurrently proved that formal division of labour has a negative impact on start-up performance, mainly on number of paying users. Strict determination of responsibilities and duties brings more negatives than positives, weakens creativity and innovativeness. Founders and leading people in start-ups are more leaders than managers. They can inspire and ignite enthusiasm in their surroundings, but with the progress of start-up, enthusiasm starts to disappear, and it is not substituted by quality managerial work. Founders do not devote sufficient time to professional development of their co-workers, formal division of work is counterproductive, and the importance of team leadership grows, which can work without a leader. At the end of the start-up development role of vertical leadership grows, because it is approaching the "final countdown," but it still cannot divert deceleration of business model development. Start-up as an imperfect enterprise probably prefers more informal management.

Impact of vertical and team leadership on start-up performance.
Leadership has only had a minimal statistically significant impact on star-up performance. Interviews and case studies, however, show the leader's ability to encourage other team members in case of problems, complications, and failure. Start-ups usually transfer from failure to failure, try to learn a lesson from every loss and investigate why the repeatable business model with high growth does not work. Stamina, dauntless passion, and the ability of a leader to go on even after failure and to learn from it, get even bigger meaning in start-ups than in standard companies. Most of the start-up teams must get over unsuccessful projects, which can enrich them more than successful ones. Typical start-up comes across difficult challenges, e.g. unknowingness of industry, lack of finances, sudden and fast leaving of team members and others. People in the team are profiling in the long term; sometimes they have doubts and they loose trust, hence the ability of a leader to encourage team members in darkness and on the brink of desperation is a fatal necessity. Even though literature devotes to leader encouragement only small attention, this activity gains greater importance in a start-up than a traditional company.

The parallel impact of business model and team on the start-up performance.
Concurrent impact of business model and start-up team influences start-up performance, while there was identified the relatively isolated impact of various parameters of model and team on different performance indicators. In the beginning when start-up forms its business concept and hence customer feedback is important, it is the role of distribution channels and relationship with customers to obtain this feedback so that offered value, revenue streams and other blocks of business model could accommodate to customer needs. At the same time, in this phase the start-up is interested in maintaining certain autonomy in relation to partners, in order to maintain the possibility of unexpected change or pivot in the early phase. The higher expectations and requirements on performance the more team work gets to the front. Start-up development in higher phases of business idea realisation requires more complex and formal division of work, but the condition of maintaining creative and flexible environment are of more informal and freer structures, which appeal as motivational too.

In early phases of development, start-ups attempt to obtain as many customers as possible, but according to Ries (201, pp. 20, 21) they are still seeking concept, and the key factor is feedback from users. Research results show that it is advantageous to concentrate on distribution channels and building relationship with customers, while other monitored factors of business model do not have an unambiguous impact. Partners and notion about quantity have a negative impact, which might be caused by excessive expectation and limitation from partners and in case of notion about quantity by an aversion to the revision of business model. Partners cooperating to get returned service may prefer short-term benefit before a remoted goal or return to a phase of concept seeking. Start-up which has a notion about sold volume does not have to be inclined to an experiment with the model and hence can give up the alternative business model when it acts regarding the psychological concept of aversion to loss, according to which it appreciates more current and real result than future and predicted the result.

Unless start-up strives only for quantity, but it strives to achieve a higher level of its viability, its performance is mostly influenced by team factors. The subject of improvement in business making is not an idea anymore, but the improvement of the business model. Mutual cohesion in the team is a symptom to overcome obstacles and difficult times, which can lead to team breaking up. Elaboration of a business plan can contribute to the solution of conflicts and achievement of higher performance (Dollinger, 2008, pp. 159, 160). In rapid development of the business, formal division of labour is reflected negatively in performance indicators. The formal division of roles may restrict creativity and flexibility. The formal division of labour negatively impacts friendly atmosphere and enthusiasm, which are a stronger motive for higher performance than the daydream of future incomes.

In an indicator of revenues, there is hidden another level of start-up development and its ability to function independently. While the level of market penetration is intuitively understandable, the negative impact of formal division of labour and the positive impact of the informal division of labour might be observed again. A possible explanation is similar to one with number of paying users. The formal division of labour may restrict the creativity of team members, because they are confronted with their duties and have less working freedom, lowered flexibility, because the job is not performed by anyone, but by the selected employee, possibly to limit friendly atmosphere, which less motivates team members. Concurrent/combined activity of business model, leader and team impacts on start-up performance in other structure and number of relevant effects than when effects of model, leader, and team are researched independently (Table 11). In the concurrent activity of factors, there are appearing the effects that are not relevant independently, or the effects are losing that are relevant separately. In particular, the business model loses its own and combined effect in the course of conversion from users, through customers to revenues. In addition, the impact of business model blocks and individual leadership and team traits is not stable during the conversion. Some impacts disappear, others arise. In an interplay of factors, the impact of the model is diminished, and team impact is activated. If this knowledge is transposed into practical management, this means that the start-up performance can be increased by a deliberate improvement and coordination of business model, leadership, and teamwork, or at least to concentrate on more quality control of important factors.

Table 11. Relevant impacts of business model, leadership, and team on the performance of start-up

Relevant impacts	Performance indicator (Number of significant impacts)		
	Number of users	Number of paying users/customers	Revenues
Business model	$5 + 1^+$	$2 + 1^+$	1
Leader	1^+	0	0
Team	1^+	2	0
Model - leader - team	4 - 0 - 0	1^+ - 0 - 2	1 - 0 - 2^+

1^+: Level of significance is $^+0.1$, otherwise: *0.05 or **0.01

Source: authors

Conclusions

Start-ups are distinctively captivated and concentrated on value for the customer, relatively significantly perceive a customer and have processes that bring results. Less effective/functional are relations with customers, the structure of expenses and resources. Significantly weaker are distribution channels, and key partners show minimal impact/importance. Start-ups cooperate with partners very rarely, which is a significant finding, because as a very small enterprise they have limited resources, they dispose with limited volume, diversity, and quality of their own valuable resources. Key partners are an essential accessory to limited tangible and intangible resources. Even though start-ups know the value for customer and customer themselves, but they do not know how to get to him due to less functional distribution channels, and they cannot tie him due to less functional customer relationships. Value for customer and customer himself are the entrance to prosperity, but the key for it is distribution channels and relationship with customers.

Impact and effect of business model and team on start-up viability which is measured by its performance were confirmed but a number of relevant factors is not too high, and performance indicators are not influenced by completely identical factors. In the total impact of the model, team and leadership there enter to the fore the only relationship with customers, presence on a market as positive factors, formal division of work as negative impact and role of leadership disappears. Despite this, it might be concluded that for the success of start-ups, which are absorbed in themselves and their ideas, it is inevitable to cultivate intensive knowledge of the customer, not to postpone entrance on a market until the product is completely finalised and maintain informal relationships within a start-up. Leadership in structure as it was examined, means no advantage for start-ups, which might be considered as surprising finding.

Young founders cannot overcome lack of entrepreneurial practice they obtained over the short existence of studied start-ups. The external world is out of their power; they cannot orient in it, they cannot efficiently control and manage it for now. Start-ups do know value offered to the customer, but the truthful criterion is sold product and incoming payment. They lack to look at their own product with eyes of the customer. Customer must consider product useful, must want it and must be willing to pay for it. Start-ups are young and therefore imperfect enterprises. Imperfection is their natural characteristic. They should concentrate on what they excel in, and imperfections solve as complementary because they lack time for organic growth. A start-up must prove its viability in a couple of years before investors loose their patience and start-up its enthusiasm, stamina, and drive. Start-up obtains its energy and power from the single business idea, which purpose and ability to turn into practice will be demonstrated, must be shown in relatively short time and hence in start-up, everything is fastened.

Research performed identified impact of several factors on start-up performance. A Smaller portion of factors was relevant. Impact of a higher volume of factors was not definitely identified, and their impact on several performance indicators throughout the whole sample was not cohesive. Results of existing research might be further deepen and their causality verified, ideally with the help of experiments.

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