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# THE STRUCTURE OF THE START-UP BUSINESS MODEL, ACCOMPANYING CIRCUMSTANCES AND CONSEQUENCES

**Štefan Slávik, University of Economics in Bratislava**
**Richard Bednár, University of Economics in Bratislava**
**Ivana Mišúnová Hudáková, University of Economics in Bratislava**
**Katarína Moravčíková, University of Economics in Bratislava**

## ABSTRACT

*Start-ups are an attractive business phenomenon, which often and quickly fails. The biggest shortcomings and advantages of start-ups are hidden in their business model, although the influence of other factors cannot be neglected. The analysis of the literature confirms the key importance of the business model, but does not provide more detailed and in-depth knowledge of its structure. The goal of the research is a detailed penetration into the structure and quality of the start-up business model and the identification of its impact on the start-up's performance. A secondary goal of the research is to examine the influence of other features of the start-up on performance, e.g. originality of the business idea, development phase and type of market. The research sample contains 112 start-ups operating in Slovakia. The business model is recorded on the basis of canvas visualization. Each start-up was studied by a member of the research team, who personally recorded the founder's statements. The main result of the research is an extensive analytical picture of the start-up business model, which describes the diverse quality of its individual blocks, explains the causes of these differences, identifies blocks that affect star-up performance and draws attention to the internal paradoxes of the model. A side effect is the identification of other factors that affect the performance of the start-up. The practical use of research results lies in a realistic picture of the business model of a start-up, its strengths and weaknesses, contradictions and consequences for business performance, which are the result of field research of real and functioning start-ups. In addition, the research draws attention to other relevant factors influencing the performance of the start-up. The originality and value of the research lies in the direct collection of quantitative data, immediate knowledge of the business reality and the organization of the results into a comprehensive and at the same time detailed picture of the start-up business model.*

**Key words:** Start-Up, Business Model, Canvas, Business Performance

## INTRODUCTION

Start-up is a business experiment and a very small nascent company that provides space for self-realization, the opportunity to develop and implement unusual and risky ideas, for remarkable satisfying of existing needs and discovery of new needs. Start-ups have the potential for exceptional growth as well as unforeseen and repeated failures. They are a living laboratory for studying the nascence and maturation of a company. Rapid growth, experimentation with ideas that would be too bold for ordinary companies, high returns, and quick feedback attract not only business adepts but also researchers to uncover and explain the operation and treacherous places of this relatively new business phenomenon.

Start-ups are examined as an entrepreneurial category that plays a role in the economic and industry context (van Winden et al., 2020) and is considered an important factor in the growth of the national economy (Jain, 2016). These studies provide little or no knowledge of start-up internal structure. Another type of study deals with start-ups in more detail, but the

findings are limited to the industry, usually one specific industry in which the start-up operates (Marvin, 2020; Mechthild, 2020; Zhjang, 2019). Another type of study examines start-ups and their business models very specifically, but the research method is a case study and the sample size is very limited (Rydehel et al., 2016; Voinea et al., 2019). Thus, there is a research gap between the national and industry view of start-ups, and a detailed, if possible quantified view of the start-up and its business model, which would be sufficiently general and not subject to industry specifics.

The progress, success and survival of a start-up usually depends mainly on the quality of its business model and other factors (CB Insights, 2016). The model is considered to be the primary precondition for the existence of a start-up. Start-up as an incomplete and imperfect company must compile a business model to implement its business idea. Model contains all the components and conditions that are necessary for the operation of the company. An efficient business model will provide the customer with the value that the customer accepts and pays for it, on the other hand, the company will cover all its costs from sales and make a profit. The goal of the research is a thorough knowledge of the structure of the business model, to understand its central role and accompanying circumstances in business making with a start-up, and thus not only contribute to the theory of entrepreneurship, but also encourage or discourage applicants who want to enter a business.

## LITERARY RESEARCH: BUSINESS MODEL OF START-UP AND ITS CONTEXT

According to Thiel (2014), a start-up is a grouping of people who have come together to achieve an extraordinary goal through extraordinary intellectual effort and an unconventional corporate culture. Blank & Dorf (2012) describe start-up more formally. According to them, start-up is a temporary organization in search of a scalable, repeatable and profitable business model. They pay a lot of attention to scaling. Ries (2011) thinks that a start-up is a human institution designed to create a new product or service in conditions of extreme uncertainty. Newer concepts prefer a lean start-up (Dennehy et al., 2019; Gutbrod & Münch, 2018), which is based on a minimally viable product (Stayton & Mangematin, 2019), agile action with a fast feedback (Silva et al., 2020) and rapid learning (Leatherbee & Katila, 2020).

The establishment and development of start-ups is inevitably associated with leadership, because leaders have a decisive influence on the success or failure of a start-up. Leadership is evident in a start-up, especially in the early stages of its life cycle. It is usually a founder with leadership or visionary skills who identifies an opportunity to do business in external environment and then he starts a new business. Although start-ups are often set up by a team of people, many teams have one formal leader appointed (Ensley et al., 2006). At the beginning of the startup's business, the leader formulates a vision, sets initial goals, obtains the necessary resources (financial, non-financial and human), and influences interest groups. Baum et al., (1998) state that “the role of a leader as the founder of a start-up is to create a vision of a new company and to influence others (investors, employees, partners, suppliers and customers) to“ buy his dreams ”. According to Bryant (2004), "start-up leaders need to gain an extraordinary commitment and involvement from their employees so that a start-up can succeed in realizing an innovative and largely unexplored business intent while competing with an already established competitor."

At the very beginning of the business, start-ups are financed (Feld and Mendelson, pp. 5 - 14, 2013) with money from the founders, their immediate surroundings and angel investors, or a crowd platform (crowdfunding or bootstrapping). However, venture capital is key for start-ups that have moved from an idea to a product that has been proven. Kang (2018) studied the building and growth of a company depending on the origin of financial resources and found that start-ups prefer to finance their projects from IVC (institutional venture capital) and CVC (corporate venture capital) than from business angels, when they reach a sufficient level of technical progress. He also found that start-ups prefer to finance their projects from IVC and syndicated investors than from business angels and CVC, when they implement highly uncertain

technologies that provide a higher return. Venture capitalists consider a team of managers to be the main cause of the success or failure of the companies they have in their portfolios (Gompers et al., 2021).

The external environment is as complicated for a start-up as for any other company, but due to the modest internal resources, the start-up mainly observes and examines customers, product/market fit, competition and trends in its own and competing industries. Thorough and direct knowledge of the market and the customer, interviews with customers, gatherings pre-orders and pivots based on customer feedback correlate with the performance of the start-up (Welter et al., 2021). The relationship between start-up and competition is ambiguous. The novel idea is expected to enter the market almost without competition, but Burke & Hussels (2013) write that exposure to competition in the early stages of business can bring prospects for long-term survival and market retention. The choice of industry influences in the long term not only the composition of the competition, but also the perspective and profitability of the business. Entrepreneurial activity should therefore be directed to sectors (Felin et al., 2019) that develop and apply new scientific knowledge and where there is room for experimentation, which suits the concept of lean start-up in particular, and thus stimulate the emergence of radically new products and markets. Participation in networks and associations is not only useful for start-ups (Passaro et al., 2020), but often also necessary. It supports and accelerates product innovation, internationalization processes and entry into global markets, as confirmed by research from Stayton and Mangemetin (2016, 2019); Usman & Vanhaverbeke (2017).

The business idea is the primary impulse for the nascence of a start-up and the consequences of its content and novelty on the viability of the company are fundamental. Block et al., (2014) write that the conditions at the birth of a company tend to affect companies over very long periods. The best business ideas generate high profits and are burdened with low risk. However, the occurrence of such opportunities is rare. Burns (2014) proposes to evaluate them according to criteria that are derived from the aspirations and abilities of the entrepreneur and the commercial viability of the idea. Many start-ups mistakenly believe that their groundbreaking business idea will be equally groundbreaking to customers, and that innovation is so cutting-edge that it will sell itself (Kopera et al., 2018).

The development of a business idea is also the development of a start-up, its existential motive, driving force and essence. There are various schemes and processes, e.g. six phases from Burns (2014), four or five phases from Blank & Dorf (2012) and six phases from Marmer et al., (2012). Building and growing a company shows the process sequence described by Salamzadeh & Kirby (2017) in seven phases and Goldsby et al., (2017) in four phases. Start-up arises when an entrepreneur identifies an idea or opportunity, then gathers a series of activities, mobilizes resources, competences and uses its networks in the external environment to create value. The authors of the article have identified five phases in their field research.

Simultaneously with the development of the idea, an investment cycle takes place, which is an independent confirmation of the viability of the idea and the product. This confirmation is issued by the investor, because without external capital, the development of the start-up is either impossible or very lengthy. The field research of the authors of the article identified a cycle of financing with five phases, which is especially in line with the work of Freňáková (2011). In the first phases of the financing cycle (Gompers et al., 2021), the investor rather relies on his intuition and experience, tries to estimate the business potential of the idea, evaluates the enthusiasm and determination of the leading start-upper, the quality of his leadership and the quality of the start-up team.

The business model is usually visualized for clarity and ease of use. Afuah (2014) offers one of the less complex visualizations. The content of the model is the value offered to the customer, resources and activities, market segments, growth model and revenue model. The business model of Johnson, Christensen & Kagerman (2008) consists of four interconnected elements that create and provide value. Its main parts are the offer of value to the customer, it is considered the most important, the key resources, key processes and profit formula. Gassmann, et al., (2014) compiled a concept arranged in a triangle, which consists of four dimensions (three

vertices and the center of gravity), which are the customer, the value offer, the value chain, the profit mechanism. The most common visualization of the business model is the concept of canvas by Osterwalder & Pigneur, (2009). It contains nine blocks, which are described in the next part of the article.

The meaning and usefulness of the business model is confirmed by Blank & Dorf (2012), when they write "... the only goal of a start-up is to find a repeatable and scalable business model." A similar finding was made by Bortolini, et al., (2018), when they write that the primary goal of a start-up is to find a viable business model. The real value of a company lies in the business model. Although the discovery or creation of a profit opportunity is a top business performance, only a comprehensive perception of business through the business model will lead to its realization. The business model forces to perceive ideas and opportunities through the eyes of the customer and assess their implementation possibilities. Most of the failures of start-ups lie in the underestimation of the business model, its imperfections or even ignorance. Teece (2018) remarks that business models are rarely successful for the first time and must be fine-tuned and sometimes completely rebuilt before they become profitable engines. Start-ups are generally easier to restructure/transform than mature companies because they have less stabilized assets and simpler procedures for applying reengineering.

There is very little studies that specifically deal with start-up business models. Pfeifer, et al., (2017) examined the business models of micro-enterprises in the creative industries, but the sample contained only six enterprises, of which only one existed for less than five years, and therefore the case study method was used for the analysis. Fritsch & Wyrwich (2018) examined the role of start-ups on a large temporal and spatial scale, but not in terms of their business models. Weele et al., (2016) in a large study addressed the support that start-ups can get from the external environment, but they address only one question to the business model: What does the business model of an incubator look like? Malmström & Johansson, (2017) conducted a research of business models, which, however, was only qualitative and on a very small sample (six startups), its conclusions are anecdotal rather than complex. A slightly larger sample was examined by Korhonen, et al., (2017). They researched 29 start-ups that operated on digital platforms and connected manufacturers and users. The sample is on the border of the minimum statistical set and does not address the whole business model. It can be responsibly stated that identical research on start-ups has not yet been published. Existing research has much smaller samples, a considerably qualitative character and does not deal with the business model of start-ups comprehensively.

The analysis of the literature shows that the business model is considered an important condition for the existence of a start-up. Even a number of other assumptions and contexts can be incorporated or combined with a business model. Understanding the meaning of the model and its structure, harmonization of its elements, monetization of its results are strong determinants of start-up viability, although not the only one. The business model is the intersection and implementation basis of other factors too, e.g. inappropriate product, unsuccessful pivot, bad product timing, weak marketing, cash depletion, etc.

## OBJECTIVE AND RESEARCH SAMPLE

The goal of the research is to expand and deepen knowledge about the business model of a start-up, because it is one of the fundamental conditions for its existence and survival. The state of birth, extremely limited resources, an uncertain future and elementary entrepreneurship are circumstances that impose special characteristics on the business model. The goal of the research is therefore to examine in more depth the structure and quality of the start-up business model and the consequences of the business model on start-up performance. Achieved performance is a criterion of quality and functionality of the business model. The secondary goal of the research is also staffing, financial resources, industry incorporation of the start-up and its business idea, because they expand knowledge about the internal resources and external circumstances of the start-up and can also be a determinant of performance.

The goal of the research is based on the working hypothesis that a developed and high-quality business model is a basic and central prerequisite for the viability and success of a start-up. The hypothesis is tested by the relationship between the degree of development (quality) of the business model and the performance of the start-up.

The research sample originally contained 187 companies, it was reduced to 112 start-ups, because duplicate companies, companies with incomplete data and companies whose nature did not correspond to the characteristics of the start-up, were excluded. The researched start-ups were founded in 2014 and later, with the exception of five start-ups founded in 2012 - 2014. A start-up is considered to be a very small nascent company under the age of five (only exceptionally and reasonably more), which meets the following parameters:

- the assumption of rapid, scalable to exponential growth,
- uses the personal savings of the founder and his/her immediate surroundings, angel capital, venture capital and resources resulting from own business making to finance and maintain operation of the company,
- the business is based on (at least one condition must be met): new unique technology, or significantly better use of existing technology, or discovering and satisfying a whole new need, or inventing/creating and satisfying a completely new need, or meeting an existing need in a significantly better or cheaper way.

## RESEARCH METHODS

Each start-up was examined by one member of the research team, who personally recorded the evaluations and answers of the founder/owner to closed and open questions in the questionnaire and immediately explained any ambiguities. The questionnaire was divided into the following basic parts: personnel identification, establishment of start-up and initial investment, description of the business idea, description of the business model/canvas blocks, summary evaluation/positive and negative experiences, pivots. Another source of knowledge were interviews with team members, additional interviews as needed, publicly available information about the researched start-ups from their websites, other websites, e.g. finstat (https://www.finstat.sk/), startitup (https://www.startitup.sk/) and professional magazines, which also served for additional control and correction. Field research took place in the period from September to November 2019 in the Slovak Republic and start-ups are mainly based in the capital Bratislava and its surroundings.

Canvas visualization was used to display the start-up business model (Osterwalder & Pignieur, 2009), which divides the model into nine blocks: customer value proposition, customer segments, customer relationships, distribution channels, key activities, key resources, key partners, cost structure, revenue streams. This model is sufficiently concise, has greater but limited detail, and therefore was used in field research. Each block is described using open qualitative questions and closed quantitative questions. Answers are quantified, if possible, in real units. If this is not possible, they are expressed as shares in % or usually on a five-point scale. The minimum granted value (1) means e.g. lowest quality, simple solution, local level, high costs, current standard, mass market, etc. Maximum value awarded (5) means top/world quality, sophisticated solution, world class, low cost, complete novelty, customization, etc. The quality of business model blocks and some other business parameters is often measured on the basis of quality, e.g. the originality of a business idea may be limited locally or is exceptional in European or global scope, the same criterion is used e.g. to evaluate the quality of start-up resources. The quality criterion in the range from the local to the world level significantly objectifies the accuracy of the measurement.

Independent variables describe the degree of development and quality of business model blocks according to canvas visualization. Independent variables are also other characteristics of the start-up, e.g. novelty of the business idea and the degree of market development. The dependent variables express the business performance of the start-up through the number of users, the number of customers (paying users) and sales. The use of three metrics to measure the performance of a start-up corresponds to the nature of a nascent and imperfect company, which performance is not enough to describe with traditional indicators only, e.g. sales (Ries, 2011).

The analytical procedure consists of descriptive statistics, correlations and regression models. Descriptive statistics describe the blocks of the business model and other characteristics of the start-up through evaluation criteria and their shares in the research sample. Correlations are used to assess the integrity of the business model. Low or statistically insignificant values of correlation coefficients indicate weak connections between model blocks due to its inappropriate structure or ineffective coordination of its blocks. Regression models examine relationships based on a simple linear regression that measures the impact of business model blocks and other start-up features on selected performance indicators. The influence of independent variables is compared in order to confirm those independent variables that have a significant effect on the dependent variable under investigation. The regression model serves to confirm or refute the working hypothesis. If the business model is functional and is a basic prerequisite for viability, then the link between the degree of its development and the entrepreneurial performance of the start-up must be demonstrated. Achieving performance is a criterion for the maturity and quality of the business model.

## RESEARCH RESULTS

### A. Descriptive Results

#### Staffing, Financial Resources, Industry Incorporation

The average age of a start-up leading person usually the founder is 31.9 ± 7.3 years, the youngest founder is 19 years old, the oldest 55 years. The average age of team members is 30.3 ± 6.4 years, Research by Zapatta, et al., (2017) states that an entrepreneur with new technologies is under 35 years of age and has completed a university degree of at least first degree. The average number of team members is 9.3 ± 15.4. If three start-ups with more than 50 employees are excluded, the average number of employees will fall to 7.12. The average age of a start-up at the end of 2019 is 3.5 ± 1.8 years. More detailed information on the age and education of the founder and the team, including the age of the start-up are given in table 1. There is dominating a generation of founders aged 25 to 40 with a university degree in technical and economic branches and there are prevailing start-ups aged four.

The structure of financial resources is shown in table 2. It expresses the share of particular sources in the whole sample of examined start-ups e.g. 90.2% start-ups use own savings, but average start-up finances its needs with own savings in the extent of 58.1%. The main sources of funding are own savings and angel capital. Own resources come from the operation of the company, e.g. sales, profit. Other sources are various public project and subsidy schemes, state support programs and rarely even bank loans.

Start-ups make a business mainly in the information and communication industry, in industrial production, professional scientific and technical activities (table 3). With the exception of wholesale and retail, catering and agriculture, they operate in more sophisticated industries. The share of start-ups operating in typically sophisticated industries (C, J, K, M, P, R) is 83.1%.

**Table 1**
**DATA ON THE AGE OF THE FOUNDER, TEAM AND START-UP, ON THE EDUCATION OF THE FOUNDER AND TEAM**

| Age of founder (years) | Share (%) | Education of founder (degree) | Share (%) | Education of founder (branch) | Share (%) | Education of team (degree) | Share (%) | Age of start-ups (years) | Shar (%) |
|---|---|---|---|---|---|---|---|---|---|
| 19-25 | 10,9 | middle | 12,5 | technical | 34,8 | basic | 0,9 | 1 | 12,5 |
| 25-30 | 39,1 | Univ. 1. deg. | 8,0 | economic | 27,7 | middle | 14,3 | 2 | 22,3 |
| 30-40 | 33,6 | Univ. 2. deg. | 75,0 | hum. science | 6,3 | Univ. 1. deg. | 5,4 | 3 | 21,4 |
| 40 and more | 16,4 | Univ. 3. deg. | 4,5 | nat. science | 6,3 | Univ. 2. deg. | 77,7 | 4 | 16,1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| - | - | - | - | art | 3,6 | univ. 3. deg. | 1,0 | 5 | 9,8 |
| - | - | - | | juridical | 2,7 | - | - | 6 and more | 17,9 |
| - | - | - | - | other | 18,8 | - | - | - | - |

**Table 2**
**STRUCTURE OF FINANCIAL RESOURCES**

| Financial resources | Share (%) | Average start-up (%) | SD |
|---|---|---|---|
| Own savings | 90,2 | 58,1 | 38,3 |
| Angel investors | 40,2 | 15,0 | 26,8 |
| Venture capital | 19,6 | 7,5 | 18,3 |
| Own resources from start-up operation | 17,8 | 4,0 | 11,7 |
| Other resources | 30,4 | 11,1 | 23,0 |
| Not quoted | - | 4.3 | - |

**Table 3**
**INDUSTRIES CLASSIFIED ACCORDING TO SK NACE, IN WHICH THE EXAMINED START-UPS OPERATE**

| Industry | Share (%) |
|---|---|
| A - Agriculture, forestry and fishing | 1.8 |
| C - Industrial production | 21.4 |
| G - Wholesale and retail trade, Repair of motor vehicles | 8.9 |
| I - Accommodation and food services | 2.7 |
| J - Information and communication | 38.4 |
| K - Financial and insurance activities | 0.9 |
| M - Professional scientific and technical activities | 17.9 |
| N - Administrative and support services | 0.9 |
| P - Education | 3.6 |
| R - Arts, entertainment and recreation | 0.9 |
| S - Other activities | 2.7 |

## Business Idea

The average novelty of a business idea is 3.4. This means that it is between the Central European and European level. The degree of novelty is recorded in more detail in table 4. The representation of national and world novelty is significant. Arguments to justify novelty are subjective, based on personal experience, and reliable objective evidence based on market and industry analyzes is lacking.

The average stage of developing a business idea is 4.1. This means that the product is finished, tested and starts to bring the first revenue. A more detailed representation of start-ups in the development phases is in table 4. The representation of start-ups in the phase of growing income and then in the phase of first income is significant. However, revenue growth is only gradual and there is no rapid and dynamic growth, not to mention exponential growth.

The average phase of the funding cycle is 2.75. This means that the start-up is beginning to prepare for phase 3, in which development capital is provided, provided mainly by venture capital funds. A more detailed representation of start-ups in the financing phases is in table 4. The representation of start-ups in the phase of starting capital and initial development capital is significant. Nevertheless, even in these phases, start-ups are financed mainly from savings of founder and partly angel capital. They are usually unable to meet the conditions for obtaining venture capital.

**Table 4**
**NOVELTY OF BUSINESS IDEA, DEVELOPMENT OF BUSINESS IDEA AND FINANCING**

| Novelty rate | Share (%) | Phase of development – business idea | Share (%) | Phase of development - financing | Share (%) |
|---|---|---|---|---|---|
| 1 | 6.3 | 1 | 4.5 | 1 | 8.0 |
| 2 | 32.1 | 2 | 6.3 | 2 | 27.7 |

| | | | | | |
|---|---|---|---|---|---|
| 3 | 14.3 | 3 | 12.6 | 3 | 48.2 |
| 4 | 11.6 | 4 | 28.8 | 4 | 13.4 |
| 5 | 35.7 | 5 | 47.7 | 5 | 2.7 |
| Total | 100.0 | - | 100.0 | - | 100.0 |

Novelty of the business idea: 1 - local, 2 - national, 3 - Central European, 4 - European, 5 - worldwide
Business idea development: 1 - idea/concept/research, 2 - product development, 3 - product prototype/testing, 4 - first income, 5 - growing income
Start-up financing cycle: 1 – pre-seed capital, 2 - starting capital, 3 - capital for initial development and further growth (series A/B, 1st, 2nd round), 4 - development capital (3rd round, mezzanine capital), 5 - IPO (initial public offering)

## Business Model

The customer value proposition serves to satisfy the need. The bearer of the offered value is a product that is differentiated to a certain extent, its quality reaches a certain comparable level, is developed and functional to a certain level, its compliance with the market needs is verified and it is confronted with a competitive offer. The satisfied need or problem being solved on average exists almost midway between the long-term and short-term time horizons (1,6). The degree of product differentiation is between a large and larger difference compared to common practice (3.7). The quality of the product perceived in the international context is between the Central European and European level (3.6). The parameters of the offered value are recorded in more detail in table 5.

**Table 5**
**PARAMETERS OF CUSTOMER VALUE PROPOSITION**

| Period of existence /novelty of need | Share (%) | Differentiation of product | Share (%) | Quality of product | Share (%) |
|---|---|---|---|---|---|
| 1 – long term | 61.6 | 1 - common standard | 1.8 | 1 - local | 3.6 |
| 2 – short term | 24.1 | 2 - slight difference | 17.0 | 2 - national | 25.9 |
| 3 – just found | 9.8 | 3 - greater difference | 24.1 | 3 – Central Europ. | 17.9 |
| 4 – just created | 4.5 | 4 - a big difference | 28.6 | 4 - European | 11.6 |
| - | - | 5 – complete novel | 28.6 | 5 - worldwide | 41.1 |
| Total | 100.0 | Total | 100.0 | Total | 100.0 |

The product is on average developed at 83.2% and coincides with the needs of the market on average at 74.7%. The existence of competition that satisfies the same or a similar need (0%: non-existent, 100%: complete compliance, complete threat) occurs on average at 42.6%. More detailed data on product development, compliance and competitive threat are recorded in table 6.

**Table 6**
**DEVELOPMENT OF PRODUCT AND ITS MARKET POSITION**

| Scale (%) | Development of product Shares (%) | Product-market fit Shares (%) | Existence of competition Shares (%) |
|---|---|---|---|
| 0 | 0 | 1.8 | 9.8 |
| 1-10 | 0.9 | 0.9 | 10.7 |
| 11-20 | 0.9 | 3.5 | 9.0 |
| 21-30 | 0.9 | 2.7 | 13.4 |
| 31-40 | 0 | 0.9 | 5.4 |
| 41-50 | 7.2 | 7.3 | 17.9 |
| 51-60 | 7.1 | 3.6 | 11.4 |
| 61-70 | 7.1 | 11.8 | 7.1 |
| 71-80 | 17.0 | 24.5 | 6.3 |
| 81-90 | 21.4 | 22.7 | 5.4 |
| 91-100 | 37.5 | 19.1 | 3.6 |
| Total | 100.0 | 100.0 | 100.0 |

Customer segments are described through rate of their identification, demandingness/quality/level, details of market segmentation, market location and speed of entry into foreign markets. Start-ups were able to identify their customers at 69.7%. Their demandingness and quality are between the Central European (SE) and European level (3.37). The target customer market is located between several and one segment (2.5). Average customers are on the threshold of the Central European market (3.0). The examined start-ups will reach foreign markets within an average of one year (2.83) from the beginning of sales on the domestic market. More detailed data on customer segments are in table 7.

**Table 7**
**CUSTOMER SEGMENTS**

| Demandingness of customers | Share (%) | Market segmentation | Share (%) | Type of market | Share (%) | Entry time | Share (%) |
|---|---|---|---|---|---|---|---|
| 1 - local | 8.1 | 1 - no | 15.2 | 1 - local | 9.9 | 1 | 24.1 |
| 2 - national | 29.7 | 2 - several segments | 48.2 | 2 - national | 36.9 | 2 | 14.3 |
| 3 - SE | 14.4 | 3 - one segment | 12.5 | 3 - SE | 18.9 | 3 | 11.6 |
| 4 - European | 12.6 | 4 - partial customization | 18.8 | 4 - European | 9.9 | 4 | 20.5 |
| 5 - worldwide | 35.1 | 5 - total customization | 5.4 | 5 - worldwide | 24.3 | 5 | 29.5 |
| Total | 100.0 | Total | 100.0 | Total | 100.0 | Total | 100.0 |

SE – Central European

Time of entry into a foreign market: 1 - immediately after the product is launched on the domestic market, 2 - within half a year from the start of product sales, 3 - within a year from the start of product sales, 4 - within two years from the start of product sales, 5 - after two years from the start of product sales

Relationships with customers are characterized by methods of attracting, retaining and increasing the number of customers, as well as the quality of these relationships and the degree of their development. Start-ups use several types of customer relationships, and therefore the sum of their shares is greater than 100%. Partial contact dominates when the self-service relationship (the customer is without direct contact) is supported e.g. through online services. The average quality of customer relations is slightly above the Central European level (3.18) and they have so far developed to 67.3%. More detailed data on customer relations are in table 8.

**Table 8**
**CUSTOMER RELATIONSHIPS**

| Customer relationships | Share (%) | Quality of customer relationships | Share (%) |
|---|---|---|---|
| 1 - self-service | 14.3 | 1 - local | 8.9 |
| 2 - partial contact | 65.2 | 2 - national | 30.4 |
| 3 - personal assistance | 33.0 | 3 - SE | 21.4 |
| 4 - extra personal assistance | 16.1 | 4 - European | 12.5 |
| 5 - co-creation | 22.3 | 5 - worldwide | 26.8 |
| Total | - | Total | 100.0 |

Distribution channels are dominantly direct own virtual channel (web), which is supplemented by own sellers, the sales channel of the average start-up also corresponds to this. It is a combination of website sales capabilities and support from own dealers (1,8). The quality of the main distribution channel is slightly above the Central European level (3.11) and the main distribution channel is developed, stabilized at 69.1%. An important strategic goal of start-ups is to enter the foreign market. Distribution to foreign markets takes place mainly in the form of direct exports (2.14). More detailed data on distribution channels are given in tab. 9.8.

**Table 9**
**DISTRIBUTION CHANNELS**

| Main distribution channel | Share (%) | Quality of main distribution channel | Share (%) | Form of entry into foreign markets | Share (%) |
|---|---|---|---|---|---|
| 1 | 61.6 | 1 - local | 10.7 | 1 - indirect export | 16.4 |
| 2 | 17.9 | 2 - national | 35.7 | 2 - direct export | 64.5 |
| 3 | 8.0 | 3 - SE | 15.2 | 3 - franchising network | 8.2 |
| 4 | 8.0 | 4 - European | 8.9 | 4 – sale of license | 10.9 |
| 5 | 4.5 | 5 - worldwide | 29.5 | 5 – sale of start-up | - |
| Total | 100.0 | Total | 100.0 | Total | 100.0 |

Main distribution channel: 1 - direct own (virtual channel - web), 2 - direct own (material channel - own sellers), 3 - indirect own (own stores), 4 - indirect partner (wholesale, retail), 5 - indirect partner (part of other products and services)

Key resources are described according to the parameters that characterize their usefulness, rarity, imitability, quality and degree of development. Table 10 shows that the key resources of the highest level are technology (high quality), intellectual capacity (resistance to imitation), knowledge and experience (rarity, resistance to imitation), diligence and perseverance of human resources (usefulness, rarity). The key resources of the lowest level are finance (quality, level of development), technology (rarity) and external know-how (imitability). The differences between the highest and lowest rating within one parameter are not very large, about one point, about 20%, but they represent a not-negligible distance. The differences between the average values of the particular parameters are obvious, e.g. the distance between the usefulness of resources and their quality.

**Table 10**
**KEY RESOURCES**

| Key resources | Usefulness/value | Rarity | Imitability | Quality | Degree of development (%) |
|---|---|---|---|---|---|
| finance | 4.13 | 3.11 | 3.01 | *2.43* | *58.52* |
| technologies | 4.32 | *2.73* | 3.21 | 3.49 | 72.59 |
| know how internal:<br>- intellectual capacity | 4.14 | 3.15 | 3.49 | 2.50 | 74.39 |
| - knowledge | 4.15 | 3.20 | 3.48 | 2.96 | 75.41 |
| - experiences | 3.86 | 3.22 | 3.50 | 2.86 | 69.57 |
| know how external | 3.15 | 2.97 | *2.89* | 2.86 | 60.55 |
| int. HR: diligence | 4.33 | 3.12 | 3.21 | 2.59 | 77.12 |
| int. HR: perseverance | 4.31 | 3.21 | 3.25 | 2.62 | 77.34 |
| (venues) | 2.92 | 2.43 | 2.21 | 1.85 | 62.00 |
| Average | 3,92 | 3,01 | 3,14 | 2.68/2,79* | 69,72 |

Usefulness/value: *1* (completely unsatisfactory, min. useful) - 5 (completely satisfactory, max. useful)
Rarity: *1* (fully available, min. rare) - 5 (completely unavailable, max. rare)
Imitability: *1* (fully imitable) - 5 (completely non-imitable)
Quality: *1* - local, 2 - national, 3 - Central European, 4 - European, 5 – worldwide
Degree of development: *0* - 100 %, *without venues

Key activities. The average start-up performs 3.7 processes, but from table 11 it can be seen that half of start-ups perform only one process and 17.1% perform all processes. The focus of the process chain lies at the end (46.8% of start-ups), hence in sales, distribution and after-sales services. The quality of processes is on the edge of the Central European level (3.0) and the average degree of process development is 70.1%.

| Table 11<br>KEY ACTIVITIES | | | | | |
|---|---|---|---|---|---|
| **Number of processes** | **Share (%)** | **Focus of processes*** | **Share (%)** | **Quality of processes** | **Share (%)** |
| 1 | 51.4 | 1 | 9.0 | 1 | 15.2 |
| 2 | 6.3 | 2 | 9.9 | 2 | 31.3 |
| 3 | 4.5 | 3 | 46.8 | 3 | 15.2 |
| 4 | 2.7 | 4 | 16.2 | 4 | 18.8 |
| 5 | 3.6 | 5 | 17.1 | 5 | 19.6 |
| 6 | 1.8 | 6 | 0.9 | - | - |
| 7 | 5.4 | - | - | - | - |
| 8 | 7.2 | - | - | - | - |
| 9 | 17.1 | - | | - | |
| Total | 100.0 | Total | 100.0 | Total | 100.0 |

Processes: 1 - identification of the need/problem, 2 - development of a business idea, 3 - MVP, 4 - market entry, 5 - verification, 6 - production or operational implementation of the idea, 7 - sales and promotion, 8 - distribution, 9 - after-sales services
* Focus of processes: 1 - idea, MVP/beginning, 2 - middle, 3 - end, 4 - almost whole process, 5 - whole process
Quality: 1 - local, 2 - national, 3 - Central European, 4 - European, 5 - worldwide

Key partners. The average start-up has 2.4 partners. Deliveries from partners are mainly missing resources (69.4%). The quality of average start-up partners is at the Central European level (3.02). The degree of development of relations with partners is at the level of 66.6%. More detailed data on the partners are given in table 12. More than half of all suppliers are investors and providers of technological know-how, materials and components. The composition of key partners is as follows:

- supplier of financial resources (investor) - 23.5%
- supplier of intangible resources (technological know-how) - 14.6%
- supplier of material resources (material, components) - 17.7%
- supplier of internal processes (implementation, production or operational technology) - 8.5%
- supplier of the finished product (implementer, manufacturer, operator) - 6.9%
- supplier of external processes (trader, seller, distributor) - 11.5%
- supplier of external promotion and PR (advertising agency) - 8.8%
- supplier of business know-how (consultant, business contacts) - 8.5%

| Table 12<br>KEY PARTNERS | | | | | |
|---|---|---|---|---|---|
| **Number of partners** | **Share (%)** | **Deliveries from partners*** | **Share (%)** | **Quality of partners** | **Share (%)** |
| 0 | 5.4 | 0 | 8.1 | 1 | 15.2 |
| 1 | 22.3 | 1 | 69.4 | 2 | 25.0 |
| 2 | 31.3 | 2 | 11.3 | 3 | 24.1 |
| 3 | 20.5 | 3 | 11.3 | 4 | 14.3 |
| 4 | 13.4 | - | - | 5 | 21.4 |
| 5 | 1.8 | - | - | - | - |
| 6 | 3.6 | - | - | - | - |
| 7 | 1.8 | - | | - | |
| Total | 100 | - | 100 | Total | 100.0 |

*Deliveries and activities from partners: 1 – resources, 2 - implementation processes, 3 - sales

The cost structure is measured relatively namely in three ways. Costs in relation to the achieved prices are approaching from high to average (2.81), costs in comparison with the relevant competitors are approximately at the same level (3.03) and the relationship between fixed and variable costs is balanced (2.99). The stated relations are valid for the average start-up of the examined sample. The cost structure is still stable at 60.3%. More detailed data on the cost structure are given in table 13.

| Table 13<br>COST STRUCTURE | | | | | |
|---|---|---|---|---|---|
| **Costs due to the achieved prices** | **Share (%)** | **Costs compared to relevant competitors** | **Share (%)** | **Fixed versus variable cost** | **Share (%)** |
| 1 - very high | 3.6 | 1 - much higher | 8.9 | 1 | 6.3 |
| 2 - high | 26.8 | 2 - slightly higher | 17.9 | 2 | 27.7 |
| 3 - average | 58.0 | 3 - about the same | 46.4 | 3 | 31.3 |
| 4 - low | 8.0 | 4 - slightly lower | 15.2 | 4 | 30.4 |
| 5 - very low | 3.6 | 5 - much lower | 11.6 | 5 | 4.5 |
| Total | 100.0 | Total | 100.0 | Total | 100.0 |

Fixed versus variable costs: 1- very high fixed costs, 2 - fixed costs predominate, 3 - balanced fix and variable costs, 4 - variable costs predominate, 5 - very high variable costs

The source of revenue streams is payments for better or greater satisfaction of the original need, it is paid for better or greater benefits (56.3%); payments for satisfying a completely new need, it is paid for a new benefit (24.1%); payments for the same, but more accessible, prompt or faster satisfaction of the original need, it is paid for convenience (16.1%); payments for the same but cheaper satisfaction of the original need, it is paid for cost savings (3.6%).

Satisfying the needs for which customers pay brings practical benefits to the customer (57.1%), comfort (15.2%), entertainment (8.9%), health (8.0%), experience (7.1%), enjoyment (2.7%) and safety (0.9%).

Revenues come from sales of products (51.8%), sales of services (20.0%), mediation of sales of services (10.6%) and mediation of sales of products (7.1%). The remainder is income from the sale of licenses, leases and other material benefits. Customers pay immediately on sale (57.1%), in the form of a subscription (40.2%), after billing/consumption (17.8%) and in another way (5.4%). The price of the product is determined as the sum of costs and margins (63.4%), based on market research (28.5%), intuitively, by assumption (15.0%) and according to average market prices (13.4%). 21.4% of start-ups use more than one pricing method. The pricing policy prefers the introductory price (40.2%), then the premium price (33.1%), the tied/cross price (18.8%), the discount price (8.0%) and the cream price (7.2%).

The average start-up from the research sample has several hundred users (4.24), several dozen customers, hence paying users (3.72) and its revenues cover costs up to 60% (3.58). The conversion of users to customers (3.72/4.24) is 87.8%. More detailed data on revenue flows are in table 14.

A look at the average start-up from the research sample (table 15) says that start-ups place the greatest emphasis on the quality and development of the customer value proposition and the development of customers. The key sources are the lowest quality. The lower quality of key resources is repeated in the group of ten most efficient start-ups, which are ranked according to the amount of sales in table 16. The best start-ups are clearly different from the average start-up, but not all blocks of their model are of better quality than the average start-up blocks, the same is valid for the degree of development of the business model blocks, but to a much lesser extent. Ui42digital, Zelená pošta (Green Mail) and Powerlogy have a lower quality business model.

| Table 14<br>REVENUE STREAMS | | | | |
|---|---|---|---|---|
| **Number of users and customers** | **Users (%)** | **Customers (%)** | **Sales (%)** | **Scale of sales (covering costs or bringing profit)** |
| 1 - no | 6.3 | 9.8 | 16.1 | no |
| 2 - several | 7.1 | 11.6 | 15.2 | 0 - 25% of costs |
| 3 - a few dozens | 12.5 | 22.3 | 15.2 | 25 -75% of costs |
| 4 - several hundred | 26.8 | 26.8 | 15.2 | 75 - 100% of costs |
| 5 - several thousand | 26.8 | 17.0 | 21.4 | profit up to 25% of costs |
| 6 - several ten thousand | 12.5 | 8.0 | 10.7 | profit 25% - 50% of costs |
| 7 - more than a hundred | 7.1 | 4.5 | 6.3 | profit more than 50% of costs |

| | | | | |
|---|---|---|---|---|
| thousand | | | | |
| Total | 100.0 | 100.0 | 100.0 | - |

**Table 15**
**QUALITY AND DEGREE OF DEVELOPMENT OF THE BUSINESS MODEL OF AN AVERAGE START-UP**

| Blocks of business model | Quality | Degree of development (%) |
|---|---|---|
| Customer value proposition | 3,6 | 83,2 |
| Customer segments | 3,37 | 69,7 |
| Customer relationships | 3,18 | 67,3 |
| Distribution channels | 3,11 | 69,1 |
| Key resources | 2,68 | 69,7 |
| Key activities | 3,0 | 70,1 |
| Key partners | 3,02 | 66,6 |
| Cost structure | 3,03 | 60,3 |
| Average | 3,12 | 69,5 |
| Revenue streams | - | 1. several hundred users<br>2. several dozen customers<br>3. revenues cover costs up to 60% |

Cost structure: costs compared to relevant competitors
Key resources without venues: 2.79

**Table 16**
**QUALITY AND DEGREE OF DEVELOPMENT OF THE BUSINESS MODEL OF START-UPS WITH THE HIGHEST REVENUES**

| Blocks of business model | Exponea | | Dedoles | | sli.do | | eyerim | | ui 42 digit | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Q | D | Q | D | Q | D | Q | D | Q | D |
| Customer value proposition | 5 | 85 | 4 | 100 | 5 | 90 | 4 | 100 | 5 | 60 |
| Customer segments | 5 | 80 | 4 | 50 | 5 | 90 | 4 | 55 | 2 | 100 |
| Customer relationships | 5 | 90 | 3 | 90 | 5 | 80 | 4 | 75 | 2 | 100 |
| Distribution channels | 5 | 90 | 3 | 90 | 5 | 99 | 5 | 80 | 2 | 75 |
| Key resources | 3,8 | 74 | 2,6 | 69 | 3,7 | 69 | 3,4 | 69 | 1,8 | 69 |
| Key activities | 4 | 80 | 3 | 70 | 5 | 90 | 2 | 50 | 3 | 80 |
| Key partners | 2 | 85 | 3 | 90 | 5 | 70 | 4 | 60 | 3 | 60 |
| Cost structure | 2 | 50 | 4 | 80 | 5 | 50 | 3 | 65 | 3 | 50 |
| Average | 4,0 | 79,3 | 3,3 | 79,9 | 4,8 | 79,9 | 3,7 | 69,3 | 2,7 | 74,3 |
| Revenue streams/sales | - | 3 | - | 5 | - | 5 | - | 4 | - | 5 |
| Sales (mil. euros)* | - | 8,28 | - | 5,44 | - | 5,18 | - | 4,65 | - | 1,95 |
| Blocks of business model | Zelená pošta | | Decent Group | | SuperScale | | Powerlogy | | Vectary | |
| | Q | D | Q | D | Q | D | Q | D | Q | D |
| Customer value proposition | 4 | 99 | 5 | 80 | 5 | 50 | 3 | 90 | 5 | 100 |
| Customer segments | 3 | 80 | 2 | 80 | 5 | 100 | 2 | 60 | 5 | 90 |
| Customer relationships | 3 | 80 | 2 | 80 | 5 | 100 | 2 | 90 | 5 | 70 |
| Distribution channels | 3 | 80 | 2 | 75 | 5 | 100 | 2 | 60 | 5 | 100 |
| Key resources | 2,9 | 80 | 3,4 | 83 | 4,8 | 88 | 2,8 | 73 | 3,2 | 89 |
| Key activities | 2 | 80 | 5 | 85 | 5 | 70 | 4 | 60 | 5 | 90 |
| Key partners | 1 | 85 | 5 | 70 | 5 | 100 | 3 | 80 | 4 | 100 |
| Cost structure | 3 | 95 | 4 | 60 | 1 | 100 | 2 | 70 | 5 | 100 |
| Average | 2,7 | 84,9 | 3,6 | 76,6 | 4,5 | 88,5 | 2,6 | 72,9 | 4,7 | 92,4 |
| Revenue streams/sales | - | 5 | - | 3 | - | 5 | - | 4 | - | 5 |
| Sales (mil. euros)* | - | 1,64 | - | 1,16 | - | 1,07 | - | 1,02 | - | 0,98 |

Q – quality (1 – 5), D – degree of development (%), *Finstat 2018
D – degree of development: relative scale of revenues: 1 – no, 2 – covering costs from 0 to 25%, 3 – covering costs from 25% to 75%, 4 – covering costs from 75% do 100 %, 5 – bringing profit to 25% from costs, 6 – bringing profit from 25% to 50% from costs, 7 – bringing profit more than 50% from costs.

### Correlations and Regressions

Correlations were examined in several configurations:

1. The correlations between the qualitatively expressed blocks of the business model (Appendix 1) contained 43.6% of statistically significant relationships. The strongest relationships in the range of values of the correlation coefficient 0.4 - 0.76 were between customers - product, customers - customer relations, customers - distribution channel, customer relations - distribution channel, number of users - number of customers. Only the number of users, the number of customers and costs (costs in relation to the price) correlated with sales with a coefficient in the range of 0.25 - 0.27.
2. The correlations between the blocks of the business model, which were expressed by the degree of development (Appendix 2), contained 52.7% of statistically significant relationships. The strongest relationships in the range of values of the correlation coefficient 0.16 - 0.44 were among customers - customer relations, customer relations - distribution channel, customer relations - processes, processes - distribution channel, processes - partners. Only the number of users, the number of customers and the main distribution channel correlated with sales in the range of 0.16 - 0.26.
3. Statistically significant correlations between selected start-up parameters (Appendix 3) with a coefficient in the range of 0.21 - 0.84 were the age of the team - the age of the founder, the novelty of the business idea - product difference, market type, sales - novelty of the business idea, market type, number of users, number of customers.
4. Correlations between start-up performance indicators are an indirect expression of the efficiency of users' conversion to customers and sales (table 17).

**Table 17**
**CORRELATIONS OF START-UP PERFORMANCE INDICATOR**

| Performance | Number of users | Number of customers | Sales in euros |
|---|---|---|---|
| Number of users (absolutely) | 1.00000 | | |
| Number of customers (absolutely) | 0.84195* | 1.00000 | |
| Sales in euros (absolutely) | 0.35305* | 0.35011* | 1.00000 |

* significance < 0.0001

The regressions examined the linear dependencies between the blocks of the business model, some selected parameters of the start-up and the performance indicators of the start-up (Appendix 4). The main results of statistically significant configurations are the following:

1. Relationship between the quality of business model blocks and start-up performance:
   a) The positive impact of the growth of the quality of the partners and the reduction of costs (in relation to the achieved prices) on the number of users,
   b) The positive impact of the growth of quality of the customers, customer relations, main distribution channel and resources on sales.
2. The relationship between the novelty of a business idea and the performance of a start-up:
   a) The positive impact of the novelty of the business idea on the number of users,
   b) The positive impact of the novelty of the business idea on sales.
3. Relationship between the phases of development (business idea) of the start-up and the performance of the start-up:
   a) The positive impact of development of the start-up on the number of customers,
   b) The positive impact of development of the start-up on sales.
4. Relationship between the phases of financing and start-up performance:
   a) The positive impact of start-up financing on the number of customers,
   b) The positive impact of start-up financing on sales.
5. Relationship between the type of market and the performance of the startup:
   a) The positive impact of the type of market on the number of users,
   b) The positive impact of the type of market on sales.

## DISCUSSION

### Descriptive Statistics

### An Older and More Educated Founder and Team, but there is a Lack of International Business Thinking.

The founders and teams are aging. Teams are getting bigger. Start-up entrepreneurship requires a university degree, because the vast majority of business ideas, their development and implementation need a combination of general knowledge and special expertise, which can only be achieved through higher education. Education brings not only professional growth but also personal and social maturation. Entrepreneurship itself provides an ambitious personality with space for self-realization, independence and free decision-making, which are unattainable in the position of an employee. However, the acquired education and later practice lack, as the analysis of resources shows, authentic international confrontation, experience and expertise, which would raise human resources to a higher quality level.

**The Structure of Financial Resources Indicates the Quality of the Business Idea**

Start-ups are financed mainly through more readily available financial resources, in particular own savings, public support schemes and angel investors. Venture capital conditions are usually very demanding for start-ups and the own resources that flow from the operation of the company are still very limited. To accelerate growth, they need powerful external resources, which in turn are conditioned by the promise of expressive to exponential growth. The fear of losing control of one's own company also discourages founders from entering venture capital. The structure of financial resources with a small share of venture capital thus reflects the quality (lower) of the business idea and the desire (higher) for business and ownership independence.

**Business Making in Industries - Creation is More Attractive than Sales**

Start-ups choose two spheres of industries for business making. The first sphere is demanding on the special knowledge about the product, technology and especially on information technology. Entrepreneurial effort is focused on creating an original, unusual, unique product or service. It is expected that a great product will find its way to the market on its own. This assumption ends in failure, and therefore entrepreneurs learn to trade by trial and error. The second sphere deals with trade and, to a small extent, accommodation and catering services. The business effort is focused on choosing a product that has been developed and usually produced by someone else, and building distribution. Innovation in trade business is often devalued by a competitive imitation. There is only one typical e-shop in the top ten of the most powerful start-ups. Creating a product attracts nascent entrepreneurs much more than selling it.

**Subjective Novelty of the Business Idea and the Discrepancy between the Business and Financial Cycle**

Novelty is the primary and fundamental feature of a start-up's business idea. The start-up should come with a novelty that is rejected for various reasons, questioned or too revolutionary for mature companies with conservative management. About a third of start-ups offer national novelty and a third of start-ups offer world novelty. It can be assumed that the novelty, which is limited by national borders, does not make sense for a start-up business making in the medium term, as it will be a barrier to expressive/exponential growth, which is only possible on the international market. Declared novelty is based on subjective experience, because unbiased analyzes are costly, while personal impression is overestimated. After confrontation with the real market, novelty will most likely be weakened. Parochial ambitions should not occur in a start-up business making.

The development of a business idea and its financing are in clear disagreement. Investors, especially venture capitalists, show disinterest or caution, but in reality do not consider products and services to be of sufficient quality and viability. On the other hand, apparently, entrepreneurs-start-uppers are surprised by the demands of the market and the complicated implementation, distribution and sale of the product, and therefore they are not

convincing for investors. The desire of local start-uppers for permanent/sustainable independence is a serious barrier to obtaining external, especially venture capital.

**The Business Model is Full of Paradoxes**

The customer value proposition mostly satisfies a need that has existed for a long time, completely new needs are in a considerable minority, and therefore limit the novelty of the product. Although the differentiation of the product is relatively considerable, the less innovative need again limits its sustainability. The average quality of the product is reduced by a relatively high share of national quality. Both differentiation and product quality are negatively affected by the relatively high occurrence of competition that offers similar or equal value. Doubts about the usefulness of the customer value proposition are raised by the measured (not very high) fit of the product and the market, which usually decreases after launching into the market. The greatest weakness of the customer value proposition is the small novelty of the satisfied need and the existence of not negligible competition, which is not a good outset for a start-up.

Customer segments oscillate between less demanding domestic and highly demanding global customers, between the domestic and global markets. Start-ups serve too many segments and it takes a little long to enter a foreign market. Start-ups are, in principle, a high-risk company, but their actions are reminiscent of a safe game!

Customer relationships for the most part include some closer contact with the customer, it is a necessity, but the quality of relationships is marked by parochialism.

Distribution channels are mostly under the control of the start-up and with only a small participation of intermediaries. There is a significant effort to have the trade under control, but the distribution and sales skills and experience of start-uppers are small. Controlling distribution is beyond the power of start-ups.

The key resources are very useful in summary, but they are less scarce and less resistant to imitation, and their quality is only between the national and Central European levels. The quality of all other sources lags significantly behind the higher quality of technology. Quality resources are probably expensive, which is why start-ups lack them. They use resources that are affordable.

Key activities. The researched start-ups have a small number of processes, which is natural and normal for a micro-enterprise, but this natural feature is not balanced by a larger number/share of partners. Only 8.5% of all partners participate in internal processes. Start-ups, which are mostly scale-ups, focus on the final processes, thus neglecting the initial processes, which will have to be addressed again, because the novelty of the product is not their strong point very.

Key partners deliver what start-ups lack. It is mainly resources and from resources it is mainly money. The quality of partners is higher than the quality of resources. The average start-up does not look for partners too much or only in the necessary case/state of extreme emergency, when money, know-how, components and material are missing.

Cost structure. The costs in relation to the achieved prices are quite high and are not offset by a reasonable share of low and very low costs. The costs are higher due to the low production and sales and the low bargaining power of the nascent company. The cost structure compared to the relevant competitors is better, but even so, higher costs cannot be passed on to higher prices and reduced their share in the price. Cost ratios are also affected by the ratio of variable (less) and fixed (more) costs. Fixed costs can only be reduced by increasing production and sales.

Revenue streams. Only a quarter of the payments come from satisfying a completely new need, more than half of the payments are for the provision of practical benefits, resp. satisfying a common need. Pricing is dominated by the sum of costs and margins, and the pricing policy prefers a introductory price (initially the price is low and/or free of charge, later it rises to a normal level). Revenue streams are weakened by the high proportion of payments for existing,

current needs that are not a source of exceptionality for which higher prices can be demanded. On the other hand, pricing based on costs and margin is rational for the company economy, but may not be attractive to the customer at all. Introductory (lower) prices are attractive to the customer, but their later correction upwards can bring lower sales or without correction they are a permanent source of low or no profits.

On average, the start-up business making is non-profit and limited to hundreds of users and dozens of customers. These results were achieved by the average start-up during its existence of 3.5 ± 1.8 years. The first ten start-ups, sorted by amount of sales, earned from 0.98 to 8.28 million euros in 2019, of which four were at a loss, the average return on sales of profitable start-ups was 4.94%. Revenues and performance are not exceptional yet. Foreign investors were attracted only by start-ups with current and perspective revenue growth. At the end of 2020, Exponea was sold to the American software company Bloomreach. Cisco, a global technology company, bought Slido again in the same period. The reason for the inexpressive business performance is probably the small involvement in the European and world market.

Average model and models of the most powerful startups. The quality of key resources is the weak point of the average start-up and the most powerful start-ups too. Start-ups work with the resources they have at their disposal, namely the intellectual capacity, experience and work performance of the founder and his team, which are on the threshold of the Central European level. Probably the absence of top, world-class resources of this kind are the second cause of inexpressive business performance. Three companies with a less quality business model (ui42, Decent, Powerlogy) were also among the most powerful start-ups, but their models are in line with the national environment in which these companies operate. This means that an effective business model does not have to be primarily exceptional and perhaps unnecessarily high quality (costly), but rather appropriately adapted to the industry and business environment.

## Correlation and Regression Statistics

### Correlations

## Relatively Consistent but Inefficient Business Model

The business model of the examined start-ups is relatively consistent, approximately half of the internal relations are statistically significant, but the performance of the start-up measured by sales has a statistically significant relationship only with the block costs (costs in relation to the price) resp. main distribution channel. The internal consistency of about half of the relationships between the blocks is not significantly reflected in the start-up's revenues. The correlations between the blocks of the business model measured by the degree of development are more numerous than the correlations of the business model measured by quality, but the links to sales are weaker.

## The Novelty of the Business Idea and Demanding Foreign Markets are a Source of Possible Business Success

Among other features of a start-up that are not formally incorporated into the business model, the novelty of the business idea stands out, which is closely related to the difference of product and type of market (market location: local - global), and sales are significantly correlated with novelty of idea and type of market. The novelty of the idea and operating in demanding foreign markets are probably an important factor in sales growth.

## A Strong Link between Users and Customers Converts to a Weak Link between Customers and Sales

The conversion of users into customers and customers into sales is an expression of the real business efficiency of a start-up. Indirectly expressed efficiency as a correlation coefficient shows a very good link between users and customers, but their relationship with sales is significantly weaker. Apparently a significant proportion of users change into customers, but customers do not show significant purchasing activity.

### Regressions

#### The Growth of Sales is Influenced Only by those Blocks of the Business Model Which are of a Marketing and Trade Nature

The relatively consistent business model of start-ups is transformed into little relevant regressions. Quite a number of blocks of the model are in line, which, however, is not reflected in the result in the form of sales. Statistically significant are those blocks of the business model that directly affect sales, hence the quality of customers, the quality of customer relations, the quality of the main distribution channel. It seems as if revenues depend only on the quality and sophistication of sale. Resources are added to this group of blocks, which probably form the implementation basis of sale and marketing activities.

#### The Novelty of a Business Idea Attracts Users and Increases Revenues

The novelty of a business idea is one of the key features of a start-up, it is even the cause of its nascence. Novelty is supported by the customer value proposition block, which did not get among the blocks with a statistically significant effect. This indicates the potential unsustainability of the positive impact of novelty on revenues if it is not transformed into excellent customer value proposition.

#### The Development of a Business Idea and its Investment Support has a Positive Effect on the Growth of the Number of Customers and Revenues

This piece of knowledge confirms the natural assumption about the consequences of the development of a business idea and its financing. At the same time, it raises the question of what is the appropriate pace of idea development and the size of investments, so that the progress of the start-up is not slowed down or, on the contrary, too accelerated resp. overheated.

#### Market Development has a Positive Effect on the Growth of the Number of Customers and Revenues

Start-up will achieve significant growth only after crossing domestic borders and entering the international market. The size of the home market in a small country is not enough for greater business success. The ambition to gain a foothold in international business should be a natural part of the vision of almost every start-up.

## CONCLUSION

The vast majority of start-ups lack contact with foreign markets, they show little ambition to gain a foothold in international business. Most founders lack international business thinking and international experience. Many business ideas are only seemingly novel because they lack unbiased and credible confirmation or verification of novelty, especially on an international scale, not to mention a global dimension. The lack of novelty is also indirectly confirmed by the small share of venture capital in the financing of start-ups. However, the small share of venture capital is also due to the founders' fear of losing control of their company.

The business model of the average start-up is relatively consistent, but full of paradoxes that weaken consistency and resulting performance, e.g. the satisfied need is not very novel, and

therefore the average start-up has been under competitive pressure since its inception; too many market segments and hesitation between the domestic and world markets; a small company that wants to control the distribution channel; quality technological resources, but lower quality other resources; a small number of processes, but also a small number of partners; high costs and lower prices; most of the revenue comes from payments for the provision of normal usefulness/value and the satisfaction of a common need, which are not exceptional and therefore higher prices cannot be set; even the profitability of the top ten most efficient start-ups does not reach an excellent level; a consistent model is not transformed into more remarkable sales and profits.

Most start-ups prefer product creation to exclusive trading. Such a business making brings more added value and sophistication, greater resilience to imitation, less intense competition, but it is more complicated, more professionally demanding, requires in-depth knowledge of the product structure, its parameters and the technologies on which it is based.

The research also provided knowledge about the factors that positively affect the performance of the examined start-ups: novel business idea, doing business in demanding foreign markets, developing a business idea with the intentions of a foreign market since its inception; the higher the novelty of the business idea, the less or no competition; heavier investments, but linked to the novelty of the idea and the satisfied needs; increase of customer conversion to revenues due to better value for money; extending the impact of as many blocks of the business model on revenues as possible; more cooperation with partners who replace missing resources, know-how and business experience.

However, the implementation of new knowledge is conditioned by the strategic decisions of the founders about the future of their companies: closure *vs*. openness; parochialism *vs.* worldliness; independence and stability *vs.* venture capital/investment and growth; certainty and hesitant growth *vs.* uncertainty and dynamic growth; exceptionality and originality, competitive freedom *vs.* slight and moderate improvement, intense competition.

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