



Startup Revenue Model Failures

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ABSTRACT

Start-up is a fast-growing business and its revenue model, as conceptual framework for revenue, income and above average return on investment generation, can be considered to be the heart of the business model and the key to its success. The subject of the study are the specifics of startup monetization models in Slovakia. The main goal of the study is to define the types of revenue models used on Slovak startups market place and to answer the question whether there is a significant difference in startups' revenue failures due to the revenue model, pricing model and time of payment. The methods used in gathering data were regular one on one in person interviews with startup founders and the ANOVA and Tukey's honest significant difference methods. We considered the results to be statistically significant if they were on level $p < 0.05$. The results we found is a significant difference between focusing on a concrete revenue model compared to not having one and there was not a significant difference among models itself.

INTRODUCTION

Startup is an enterprise for fast growth. Everything else associated with the startup environment results from the need for rapid growth. Startup is therefore an enterprise designed to search for a repeatable and scalable business model, "unconventional thinking, creativity and originality". Paul Graham extends the definition by saying that startups are trying to do something that customers really want, and therefore offer better technology solutions than they now have and spend the least money on it. What revenue model represents the startup success? Regardless of any categorization, certainly the amount of money, and capital spent on the operation ultimately does not exceed the volume of money earned from them (positive cash flow). Otherwise, business efforts are condemned to insolvency. Similarly, an equation can be noted, which also applies to the acquisition of new customers who are transformed in an ideal model from non-paying users using free, trial and initial use of products and services. If the customer acquisition cost is lower than the cus-

tomers' lifetime value that new customers bring to the startup business, the startup will not survive in the near future for more than a few months.

The revenue model is then characterized as a conceptual framework for income generation, profit making, and generating higher than average return on investment. In other words, the revenue model provides answers to two basic questions: a) What is the value for the startup money, to whom and for how much? and b) What is the source of income at startup? We are focusing on the results of the state survey, structure and development of startup monetization in Slovakia in the period from October 2015 to June 2017.

It has never been so easy to set up a business and barriers to entry, or at least because of the arrival of cloud computing services such as Amazon EC2 and Rackspace, businesses spend just a few hundred dollars on server infrastructure, databases and their processing. Several years ago, entrepreneurs spent tens of thousands for the same services and thousands more for maintenance and operations. Businesses thrive when they make a profit. For any business, profit can be measured by total revenue and deduction of total costs. Since the total startup costs are much lower due to the aforementioned cloud services, it makes it easier for them to prove that their business is successful and trusted when they try to claim venture capital. And as far as costs are concerned, at least it is necessary to cover the expenses for employees, which is one of the reasons why the startup is slim and has fewer than 10 employees.

What is the best way to generate revenue? There are a lot of launches, like Instagram, a photo sharing service that has no revenue generation model from users. Is this business model sustainable? Successful investors discuss about five key determinants of startup investing: market, product, team, customers, and revenue (Civelek et al., 2016; Virglerova et al., 2017; Zwilling, 2016). Can startups work without a revenue model, if they compensate for a perfect product, a functioning team, focus on the right market and attract many users? 99% startups need a reliable and efficient way to make money, otherwise they will end up. But the remaining 1%, which has an excellent product and an excellent team, can resist the principle of microeconomics and succeed even without an explicit revenue generation model.

It is very probable that Instagram does not intend to monetize its services at all and instead uses its product as a springboard for much better, bigger things. Anyone in Silicon Valley can produce a product or provide services, but very few people can deliver as excellent service as Instagram. Beluga was a startup who specialized in mobile interviews. Later, he bought Facebook, his team was incorporated into the business and helped develop Facebook Messenger for mobile applications. GroupMe was another solution to social communication that was later purchased by Skype. Both launches have been bought for several million dollars.

Startup launched for multi-million-dollar redeeming is a legitimate strategy despite the risk that it is unclear whether anyone will be interested in buying in the future. However, if a startup creates a large user base, larger businesses will take this fact into account and buy a startup just to expand their users' advice. The chance of this model is high, but the inability to pay employees, servers, and operations over the five to ten year horizon until the startup matures on the market is the biggest barrier to a happy ending.

1. LITERATURE REVIEW

S. Armstrong et al. (2011) examined the behavior and determinants of market-to-revenue ratios in public and private capital markets. They analysed three groups of data. *"All publicly traded stocks listed at some time on the New York Stock Exchange/American Stock Exchange/National Association of Securities Dealers Automated Quotation System in the 1980–2004 period; sample of over 300 so-called 'internet companies' in the 1996–2004 period; and over 5500 privately held venture capital-backed companies in the 1992–2004 period."* They found that company size and the most recent revenue growth rate can explain the "significant

variation across companies in their market-to-revenue multiples, where smaller companies and companies with higher recent revenue growth rates had higher multiples. They also documented how the capital market appears to use a broad-based information set when setting market-to-revenue multiples for companies with negative revenue growth rates – transitory revenue growth components appeared to be identified (in a probabilistic sense) by the capital market. Contrary to much anecdotal comment, they presented evidence that the capital market behaved directionally along the lines predicted by capital market theory in the pricing of internet stocks in the 1996–2004 period.”

T. Kohler (2018) argued that innovative companies are building their business upon the participation of crowds. They write “these crowdsourcing business models are powerful because they are scalable. By encouraging external innovators to contribute to value creation, crowdsourcing innovation platforms have the capability to grow significantly in size and revenue without equally increasing its costs. However, quickly and sustainably scaling crowdsourcing platforms is a daunting challenge.” In his work, he analyzed over 20 leading crowdsourcing ventures to identify challenges and strategies of scaling. He then presents a framework on how to build a scalable crowdsourcing platform. M. Walske and D. Tyson (2015) deal with the issue of scaling social enterprises. They argue that “of late, much credit has been given to design innovation, design thinking, fast pivots, and the Business Model Canvas. But what if we are placing too much emphasis on design innovation and pivoting, and missing other key important factors that help social enterprises scale quickly? While innovation is important, and arguably a necessary baseline, the authors’ interviews with successful social entrepreneurs have pointed more to the importance of sourcing financial capital, building out their supply chain – both in production and distribution – and obtaining early media recognition. These three factors created a virtuous cycle, allowing these firms to increase their revenues, employees and impact each year substantially during their first four years after founding.”

M. Fochler (2016) investigates the relationship between research and innovation policy and new institutional spaces at the interface of academia and business. “High-tech startups founded by academic entrepreneurs have been central to these policy imaginaries. These companies offer researchers new possibilities beyond and between academia and larger industry. However, the field of science and technology studies has thus far shown only limited interest in understanding these companies as spaces of knowledge production.” Fochler studies “how researchers working in small and medium-sized biotechnology companies in Vienna, Austria, describe the cultural characteristics of knowledge production in this particular institutional space. It traces how they relate these characteristics to other institutional spaces they have experienced in their research biographies, such as in academia or larger corporations. It shows that the reasons why researchers decide to work in biotechnology companies and how they organize their work are deeply influenced by their perception of deficiencies in the conditions for epistemic work in contemporary academia and, to a lesser degree, in industry.”

J. Zinger et al. (2003) did a study of 145 new venture start-ups. They explored a model of growth momentum as measured by sales. They considered their primary interest to be the “relationships among pre-startup activities, intended and actual business expansion activities, and early stage performance. Results indicated that the sales level achieved in the second year had a positive correlation with both the breadth of pre-startup activities and the range of expansion activities. They further found that business performance had a negative correlation with the firm’s relative dependence on the technical skills of the owner-manager. Also, the study revealed a consistent gap between owner-managers’ expansion intentions and actual expansion.” J. Langemeyer (2005) studies the commercialization of startups. He argues that “While the National Research Council of Canada has generated many start-ups over its 88-year history, the creation of a formal entrepreneurship programme in the mid-1990s dramatically accelerated the pace at which they were created. Many factors come into play in the decision to select an appropriate commercialization vehicle. While the strength and scale of the business opportunity are key factors, as are the

people involved and the status of the intellectual property, many other internal and external factors must be taken into consideration.”

While previous research can be found that highlight the importance of business failure as a forerunner to transformational learning there is a deficit of studies exploring the conditions under which such learning can occur or of the content of the resulting knowledge. B. Mueller and A. Shepherd (2016) “explored several cognitive moderators of the relationship between failure experiences and a specific type of opportunity identification knowledge—the use of structural alignment processes. Results indicate that learning from failure is facilitated for entrepreneurs who possess a cognitive toolset that consists of opportunity prototypes and an intuitive cognitive style. Moreover, they found that prior professional knowledge negatively moderates this relationship.”

D. Smallbone et al. (2002) studies a high-growth start-up programme launched in 1999/2000 as a part of a shift in small and medium-sized enterprise policy in the United Kingdom. The policy had to shift the narrow focus on supporting established firms, to include start-ups and other types of small and medium-sized companies. D. Smallbone et al. (2002) further argue that “some of the policy issues surrounding the design, development, and implementation of the new programme, with the aid of results from in-depth research in the East Midlands region. After a brief description of the new enhanced support programme for high-growth start-ups, and the policy context in which it was introduced, Smallbone et al. review the support needs of this type of business and how the new programme might contribute to addressing these. In the final section Smallbone considered some of the wider policy issues raised by the programme in terms of the extent to which: first, effective regional models can be developed to encourage widespread participation by appropriate private sector organisations; second, access to appropriate finance, including seedcorn and venture capital, can be increased for high-growth-potential start-ups; third, universities are able to contribute to the generation of new business activity and become integrated into regional business support infrastructures; and fourth, the enhanced support programme is tuned to the needs of the target group and is effectively delivered.”

There is also the T. Clement's (2018) case study. In the case study, he applies the lean start-up methodology to the failed Excelsior-Henderson Motorcycle Manufacturing Company. He writes that “Company founder Dan Hanlon and his family pursued a dream to start a new American motorcycle company based largely on market leader Harley-Davidson's inability to meet customer demand. Excelsior-Henderson's founders followed a path of crafting and executing an elaborate business plan filled with goals and assumptions, with no customer discovery, validation, or iterative testing performed. The result was misjudging the complexities and financial demands of the motorcycle industry and an ultimate lack of customer response which led to a loss of US\$100 million in the capital and eventual bankruptcy. The case study is relevant to students of business administration and management and will learn to evaluate the challenges start-ups face through the lens of the lean start-up method, including customer discovery and the consideration of a minimum viable product (MVP).”

The view that new product innovations can be attributed to new ventures is held by E. Diakanastasi et al. (2018). Further, they argue that the reason for many new ventures quitting before they fulfill their potential is mainly because of the team quitting its effort. In their research, they study several factors that “affect the dynamics of an entrepreneurial team along the different stages of the new venture creation process. Given such direction, primary data from 12 entrepreneurial teams are undertaken within an incubator environment, which is an underresearched context. An in-depth study of these entrepreneurial teams suggests various determinants (variation in the intentions and expectations, improper leadership, ineffective communication, engagement, team structure) to have a serious effect on team dynamics and team cohesiveness. Following a grounded theory approach, specific research propositions are formulated, and theoretical insights are drawn. Moreover, the results of his research assist nascent entrepreneurs in assessing their potential, recognizing critical team dynamics, and basing their choice on moving to a sustainable

new venture creation.”

The relationship between internationalization and technology is studied by J. Banioniene and L. Dagiliene (2017). They investigate a recent phenomenon of technological catch up at domestic-foreign company's level. Their paper evaluates the relation between investment in technology, technological progress, and macroeconomic indicators. They then estimate opportunities of investing in technology to level the playfield at the macro level with advanced countries. *They apply “theoretical framework of neoclassical growth theory to explore the relationship between investment in technology, technological progress and macroeconomic indicators in different countries.”* In their paper they show that *“regardless income level, countries can increase economic growth rates and catch up higher income countries by making appropriate decisions of investment, changing the structure of investment in technologies by funding sources and spheres.”*

2. METHODOLOGICAL APPROACH

The main goal of the research is to clarify and deepen the understanding of income models, their structure, meaning and effectiveness, and based on the theoretical backgrounds, analyze models in selected startups, identify main trends, extremes, tendencies and typology. Partial goals are derived from the main goal and take it from a number of perspectives:

- Analyze the selected income models from a quantitative point of view and determine the frequency of occurrence of their properties.
- Determine whether there is a significant difference in startups' revenue due to the revenue model, pricing model and time of payment.
- Based on an analysis of scientific literature, quantitative and qualitative analysis, group the models in several respects and create a typology of income models. This goal is essential in two respects. First of all, it systematises the facts and makes them more transparent, thus providing insight into the existence and functioning of startups. At the same time, this oversight should help science and business practice to apply any of these forms of income to the startup practitioners.
- Identify the level of business model development and startup performance in the period 2015-2017, based on the performance of startups, which is expressed by the number of users, paying customers, structure and revenue levels. Identify the causes of product and service failure in the preparation, implementation, distribution, identify the causes of startup failures that originate from funding sources, partners, and the startup team.

To analyze the impact of revenue model, pricing model and time of payment on startup's revenues we used the ANOVA method. We considered the results to be statistically significant if they were on level $p < 0.05$. To investigate further the differences, we used the Tukey's honest significant difference (HSD) test, also at the significance level $p < 0.05$.

3. CONDUCTING RESEARCH AND RESULTS

3.1 Data analysis

During 2015, 2016 and 2017, 76 startups in Slovakia were analyzed in three stages, and their business models were questioned. The analysis included a review of their revenue streams, which were compared in two periods in 2015 and 2016. Financial data was drawn from Finstat's public sources.

The data on the research sample is processed by the descriptive statistics methods. By descriptive statistics, we have dealt with the answers to questions 2.8 Income flows of the canvas business model in quantitative or qualitative terms. Startup revenue streams are recorded in the structure of the subjective value that customers are willing to pay for. The level of the concrete idea of the amount of the product / service price has been recorded in the range: 1 - none, 2 - the first concept, 3 - a complete concept, 4 - implementation, 5 - complete or almost definitive. The degree of concrete idea of the quantity of products / services sold was recorded in the scale: 1 - none, 2 - first concept, 3 - integrated concept, 4 - implementation, 5 - complete or almost definitive. The measurable startup performance was recorded in the number of users on the scale: 1 - none, 2 - several, 3 - several tens, 4 - several hundred, 5 - several thousand and more. The number of paying users (customers) has been recorded on the scale: 1 - none, 2 - several, 3 - several dozen, 4 - several hundred, 5 - several thousand or more. Revenues were recorded on a 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 - of costs, 6 - bring profit from 25% to 50% of costs, 7 - bring profit more than 50% of costs.

The causes of non-revenue generation have been monitored by a 100% scale, which has been divided into product-related causes: the product is in the production phase, the product's failure, the manufacturing / manufacturing base of the product is in the preparation phase, the product failure, the product distribution is in the preparation phase, distribution of the product. If there were other circumstances behind the startup failure, 100% of the scale was divided into causes: funding failure, team failure, partner failures, and other causes.

3.2 Structural overview – industry, users, customers, revenue

The bulk of startups in the research sample according to SK NACE categorization is in the Information and Communication (24%). This industry is typical for Industry 4.0 and allows for the scalability that the startups are looking for. More than 1/5 startups are focused on administrative and support services that help streamline business processes to save costs and increase profitability. Industry is the third most represented sector (14.7%). These companies develop and produce products of the most demanding technological nature. The overview is shown in Table 1.

Table 1. Sectors according SK NACE

Sector	%
Information and telecommunication	24,0
Administration services	21,3
Industrial production	14,7
Art and entertainment	9,3
Wholesale and retail (including car spare parts)	5,3
Financial and insurance services	5,3
Health and social care	5,3
Waste water treatment and waste disposal services	4,0
Public services	2,7
Education	2,7
Building industry	2,7
Agriculture, forestry and fishing	1,3
Other services	1,3
Total	100,0

The products and services offered by the startup are mostly intended for the final customer (B2C, 53.3%). More than 1/3 of the startups sell their products to other businesses (B2B, 37.3%). Only 9.3% startups combine end customers and corporate clients. The essence of business startup

success is the high interest of customers in the real market. Therefore, especially at the outset, businesses prefer recruiting new customers to obtain sales revenue. Startups believe that if they get enough users, they will generate revenue streams later on. Nearly 1/5 of businesses have no customers, but the number of startups without customers is declining in the year-to-year comparison. In these cases, businesses are developing or frozen for business, and their users have been shut down for some time from their product or service. Most businesses have several tens to hundreds of users. Almost ¼ of the startup analyzes have several thousand users, with a year-on-year increase of more than 4.5% in the last survey period. The fastest growing number of users in the year-to-year comparison in the category by several hundreds. The overview is in Table 2.

Table 2. Number of users as followed by each of three research phases (in %)

<i>Number of users</i>	<i>phase 1 (%)</i>	<i>phase 2 (%)</i>	<i>phase 3 (%)</i>
None	17,9	12,0	13,3
Several	13,4	17,2	8,0
Several tens	28,4	29,3	26,7
Several hundreds	14,9	15,5	21,3
Several thousands and more	25,4	25,9	30,7
Total	100,0	100,0	100,0

The main business goal is to generate income. Startups that can generate money from users are able to cover their fixed and variable costs and thus generate profit for the owners. The rate of growth in the number of paid customers in the category of one thousand and more increases year-on-year and is about the same percentage of the growth of new users. The overview is in Table 3.

Table 3. Number of customers as followed by each of three research phases (in %)

<i>Number of customers</i>	<i>phase 1 (%)</i>	<i>phase 2 (%)</i>	<i>phase 3 (%)</i>
None	32,8	24,1	33,3
Several	13,4	17,2	9,3
Several tens	26,9	31,0	26,7
Several hundreds	14,9	15,5	13,3
Several thousands and more	11,9	12,1	17,3
Total	100,0	100,0	100,0

Table 4. Sales in 2015 a 2016 (in %)

<i>Revenue range</i>	<i>2016</i>	<i>2015</i>	<i>Growth factor</i>
0	37,3	44	0,8
1 - 1 000	8	8	1
1000 -10000	9,3	9,3	1
10 000 - 50 000	14,7	17,3	0,8
50 000 - 100 000	10,7	10,7	1
100 000 - 500 000	10,7	8	1,3
500 000 and more	9,3	2,7	3,4
Total	100	100	1

One of the most important indicators of business success is revenue generation. More than a third of the startup analyzes do not generate any sales, but it is positively perceived that their share is decreasing (Table 4). Compared with the previous year, the number of startups with reve-

nue and sales of more than half a million have risen. In startups that have not reached sales, we have analyzed the reasons for not making them. The most important reason is the finalization of distribution channels. The second problem is that the product is not yet ready and can not be placed on the market. Another important determinant is the failure of the team, which respondents cited as the most serious reason, except for the causes of product development. The overview is shown in Table 4.

3.3 Analysis of revenue streams

In a deeper study of revenue streams, we analyzed several ways of generating revenue. In terms of value creation, most startups generate revenue by selling the service (40.00%). Most often it is a one-time purchase of the customer. Startups try to create re-purchase themes in this model. The second most commonly used form of income generation is the sale of products produced by the enterprise itself (17.11%). The third largest share of the sample has startups that have not yet found a suitable income model (17.3%). They are at the stage of looking for a form of income, or they are not considering any income model. The principle is that what they do not look at, it can not be upgraded, scale and grow.

Table 5. Causes of non-revenue generation

<i>Causes – product</i>	<i>Average value (%)</i>
The distribution of the product is in the preparation phase	48,8
The product is in the preparation phase	38,6
Failure of the product distribution	29,6
The production base of the product is in the preparation phase	24,5
Product failure	10,6
Failure of the product realization	6,7
<i>Causes – other than product causes</i>	<i>Average value (%)</i>
Failure of the team	14,6
Failure of the partners	5,8
Failure of the financing	4,7

Some of the startup analysts have voluntarily decided not to target revenue streams and are focused on the development phase only on building a business model, product formation, and building a customer base. An example is Vectary, according to which monetization slows down the development and increase of the startup, and therefore the founders will do monetization only later. Similarly, the revenue model is represented by a commission when the startup mediates the sale of the service (16.0%) or the product (4.0%), thus obtaining a share in the transaction. The overview is in Table 6.

Another division is revenue models in terms of income generation. The standard revenue model, which is represented in almost half of the startups (49.3%), is based on a simple sale of a product or service in exchange for money. The freeware (freem) model (29.3%), which has multiple forms, is among the popular and popular startup models. For all, there is a common provision of basic service for free. Money is generated, for example, through the sale of premium services. The second form of a free model is to generate revenue from another entity, such as a service user. Minority used is a premium model. Unlike the free model in this case, everyone is paid a standard, larger, lower amount. They pay for each premium service. The overview is shown in Table 7.

Table 6. Revenue models based on value creation

Revenue models	%
Sale of the service	40,0
Sale of the product	22,7
No model	17,3
Mediation of the sale of the service	16,0
Mediation of the sale of the product	4,0
Total	100,0

Table 7. Revenue models based on income generation

Revenue model	%
Standard	49,3
Freeware	29,3
None	17,3
Premium	4,0
Total	100,0

The last measure is the timing of payment (Table 8). In contrast to a one-time sales of services (41.3%), the form of sale via subscription (29.3%) is creating and constantly growing. It is a re-sale of services that will ensure startups even smaller (compared to one-time sales) but stable revenue streams, allowing them to work more efficiently with funds and investments. In some cases, the startup gets paid only after the service has been executed and charged (12.0%).

Table 8. Revenue models based on the timing of payment

Revenue model	%
One time sales	41,3
Subscription	29,3
Payment after invoicing	12,0
None	17,3
Total	100,0

The main economic indicators of success include money generation, ie sales. In 2016, startups were the highest revenue in the information technology and administrative and support services sectors. The highest growth was recorded in sales in the administrative and support services sector (Table 9).

Table 9. Sales based on sector

Sector	Sales 2015 (€/%)			Sales 2016 (€/%)		
	0	1 - 50 000	50 000 and more	0	1 - 50 000	50 000 and more
Agriculture, forestry and fishing	0,0	1,3	0,0	0,0	0,0	1,3
Industrial production	5,3	6,7	2,7	3,9	8,0	2,6
Waste water treatment and waste disposal services	2,7	1,3	0,0	1,3	2,6	0,0
Building industry	1,3	1,3	0,0	1,3	1,3	0,0
Wholesale and retail (including car spare parts)	1,3	2,7	1,3	1,3	1,3	2,6

Information and telecommunication	8,0	6,7	9,3	9,3	6,6	9,3
Financial and insurance services	1,3	2,7	1,3	0,0	4,0	1,3
Administration services	8,0	8,0	5,3	6,5	2,6	12,0
Public services	1,3	0,0	1,3	1,3	0,0	1,3
Education	1,3	1,3	0,0	1,3	1,3	0,0
Health and social care	2,7	2,7	0,0	2,6	2,6	0,0
Art and entertainment	9,3	0,0	0,0	7,8	1,3	0,0
Other services	1,3	0,0	0,0	1,3	0,0	0,0

3.4 Profit analysis

The main goal of every entrepreneur is to make a profit. It's a reward for business owners. This is the main reason why investors are interested in putting their money into risky projects. In 2016, 16% of the startup analyzes achieved, which is 1.3% less than in 2015 (Table 10).

Table 10. Profit in 2015 and 2016

<i>Profit range</i>	<i>2016 (%)</i>	<i>2015 (%)</i>	<i>Growth factor</i>
Less than 250 000	4,0	1,3	3,1
250 000 -100 000	9,3	9,3	1,0
100 000 - 50 000	8,0	4,0	2,0
50 000 -10 000	10,7	10,7	1,0
10 000 - 1	10,7	16,0	0,7
0	41,3	41,3	1,0
1 - 10 000	10,7	8,0	1,3
10 000 - 50 000	4,0	8,0	0,5
50 000 - 100 000	1,3	1,3	1,0
Total	100,0	100,0	-

3.5 Value added analysis

In the next part of the research, we analyzed the generating of profit in terms of value creation. The most effective way is to sell the product. Startups that can produce a product are most likely to make a profit. This is how QuakeResQ launches a quest to launch an earthquake that causes \$ 106 billion worldwide in damage, causing more than 4 billion lives and killing 63,000 people. This unhappiness can only be avoided by early warning. QuakeResQ created a Qbox device that can capture the initial seismic waves that the human body does not feel. He then sends a signal to the connected mobile phones via the server and alerts when the earthquake will come, what will be strong and what to do. Founder Martin, in his analysis of competition, found that there are only a few companies in the world that produce seismic detectors and sell them for more than € 50,000. They are technologically demanding, they have to land at least 12 m deep into the earth and can detect the earthquake when it occurs. It was therefore decided that its competitive advantage would consist of simple production, size of the instrument (carton box), minimal energy consumption and low production costs. Martin wants to sell the device at 1% of the competition price for 59 € via his website www.quakersq.com.

The largest share of the start-ups is made up of those who sell or mediate the sale of the service (Table 11).

The most successful revenue-generating model is mainly startups that sell their own services. They are more effective than selling the product or selling sales (Table 12).

Table 11. Economic results according to value creation

Value creation (%)	2015			2016		
	Loss	0	profit	Loss	0	Profit
Sales of the product	2,7	12,0	8,0	4,0	12,0	6,7
Sales of the service	22,7	10,7	6,7	21,3	12	6,7
Mediation of the sale of the product	2,7	1,3	0,0	2,7	1,3	0,0
Mediaton of the sale of the service	12,0	2,7	1,3	10,7	2,7	2,7
No model	1,3	14,7	1,3	4,0	13,3	0,0

Table 12. Sales according to value creation

Value creation (%)	2015			2016		
	0	1 - 50,000	50,000 and more	0	1 -50 000	50,000 and more
Sales of the product	12,0	6,6	4,0	8,0	9,3	5,3
Sales of the service	10,6	16,0	5,3	9,3	13,3	17,3
Mediation of the sale of the product	1,3	1,3	1,3	1,3	0,0	2,6
Mediaton of the sale of the service	4,0	9,3	2,6	2,7	8,0	5,3
No model	16,0	1,3	0,0	16	1,3	0,0

The most profitable model with regard to revenue generation is startup, which is sold by default (Table 13). An example is Speekle. It is a game software that complements the role of a parent, logoped and entertainingly works with children. It also records the progress and potential problems of the child's pronunciation. One of the exercises is a language-enhancing game in which the child controls the screen on a screen, or a game in which the child dries the dragon by pronouncing shush. It is therefore an aid that is an integral part of therapy and to help children with speech disorders around the world. It employs innovative technology when children can play games by language or pronounce whistles and practice pronunciation exactly as they need. Startup sells these games one-time or in a subscription form.

Table 13. Economic results based on revenue generation

Revenue generation (%)	2015			2016		
	Loss	0	profit	loss	0	Profit
Standard	18,6	20,0	6,6	18,6	20,0	10,6
Freeware	18,6	6,6	1,3	17,3	6,6	5,3
None	2,6	0,0	1,3	2,6	1,3	0,0
Premium	1,3	14,6	9,0	4,0	13,3	0,0

As with profits, the form of the standard income model appears to be most advantageous (Table 14). In this way, revenue generates Amena's startup, which offers the rental of LED-based light boards that make up the mobile navigation system for cultural and social events. Quick info, short texts, symbols, or arrows can be displayed on the charts to guide visitors in real time. The boards are battery-powered, so the system is flexible. It is used for crowd management, that is, to direct a large number of people to different events. Amena uses a rental model and therefore leases the facility to the organizer of the event at a pre-arranged time.

Table 14. Sales based on revenue generation

Revenue generation (%)	2015			2016		
	0	1 -50,000	50,000 and more	0	1 -50,000	50,000 and more
Standard	20,0	18,7	10,7	14,6	18,6	16,9
Freeware	8,0	12,0	9,3	5,3	10,6	13,3
None	0,0	2,7	1,3	1,3	1,3	1,3
Premium	16,0	1,3	0,0	16	1,3	0

Choosing a payment method and its timing may also affect the profitability of the monetization model. Payment on sales is the most used form in startups that make a profit (Table 15). Such a form is used, for example, by Power Coffee. Startup sells coffee that, thanks to the slow roasting technology and the resulting, neither hot nor acidic, that is, full taste, reaches high sales. Coffee trade shows high profits, mainly due to high margins. Startup, in addition to coffee, sells coconut oil, MCT, high quality bio chocolate Fino de Aroma and delicious almond butter. By customer feedback, founder Dušan Plicht found that, thanks to improved food, it was really possible to change the eating habits of households. That is why he decided to implement the Powerlogy concept. The concept of improved food for active people has been created, which aims to gradually improve the eating habits of at least 100,000 thousand households in Slovakia and the Czech Republic.

Table 15. Economic results based on payment methods

Payment method (%)	2015			2016		
	Loss	0	profit	loss	0	profit
One time sales	17,3	5,3	6,6	20,0	6,6	2,6
Subscription	14,6	17,3	9,3	12,0	17,3	12,0
Payment after invoicing	8,0	2,6	0,0	5,3	4,0	1,3
None	1,3	16,0	1,3	5,3	13,3	0,0

Unlike earnings, the most common way to pay for a sale is the most common. There is only a slightly lower representation of subscription sales (Table 16). An example is Piano Media, a payment system that combines Internet portals and allows easy pricing of their content. It was created as a joint venture between Etarget and Next Big. In Slovakia, it was put into operation on May 2, 2011. The customer receives access to premium content and services on selected Slovak websites for a single payment. The system has offered 60 content services on 12 different sites since its inception. Customers can order Piano services via the www.pianomedia.sk portal, filling out a simple form. Once they have been paid, they receive the login information and can use the system. The flat fee is graded according to the length of the subscription (€ 1.39 / week, € 3.90 / month, € 39 / year). It is a transfer, a deposit on account, a payment card, a sms, a Paypal system, and a news item is a mail order to the customer where the customer pays for receipt of the shipment (s). Revenue from revenue is broken down as follows: 40% of the payment remains the payment medium, 30% is divided between the media the user visits (the key for the time is spent on the appropriate medium), and the remaining 30% remains Pianu for running the system. Money is divided between the media that the client actually reads. Decides on what they will support and then they will get more money to improve their content.

Table 16. Sales according to payment method

Payment methods (%)	2015			2016		
	0	1 -50,000	50,000 and more	0	1 -50,000	50,000 and more
Subscription	5,3	12,9	12,0	5,3	10,6	13,3
One time sales	16,0	17,3	8,0	12,0	16,0	13,3
Payment after invoicing	5,3	4,9	1,3	4,0	4,0	2,6
None	17,3	1,3	0,0	16,0	1,3	1,3

3.6 Discussion

In our research, we conducted the analyses of variance to determine whether there is a significant difference in startups' revenue due to the revenue model, pricing model and time of payment. We conducted a one-way between-subjects ANOVA to compare the effect of revenue model on revenues in product, service, mediating product, mediating service and no model scenarios. We found a significant effect of revenue model on revenues at the $p < 0.05$ level for the five conditions [$F(4, 70) = 4.94, p = 0.001$]. The highest revenue level was achieved for mediation of products, followed by the mediation of services, selling services, selling products and no defined model. Among the startup, the studied companies achieved higher revenues by mediating then by selling directly. Regarding mediation, it was better to mediate products, however, when selling it was better to sell services. It seems that it is harder to sell products so when mediating there is higher margin, meanwhile when selling directly, it is easier to sell services.

Next, we conducted a one-way between-subjects ANOVA to compare the effect of pricing model on revenues in standard, freemium, premium, and no model scenarios. We found a significant effect of pricing model on revenues at the $p < 0.05$ level for the four conditions [$F(3, 71) = 6.07, p = 0.001$]. Among startups, in our sample, the highest revenues were achieved by startups with freemium pricing model followed by premium, standard and no model. It seems that freemium model is well suited to burst revenue in startups.

Finally, we studied by a one-way between-subjects ANOVA the effect of time of payment on revenues in subscription, paying at check out, invoice and no model scenarios. We found a significant effect of time of payment on revenues at the $p < 0.05$ level for the four conditions [$F(3, 71) = 5.27, p = 0.002$]. Most revenues were realized through subscription method. Followed by payment by check out, invoice and no model.

After conducting the Tukey's HSD test in all three cases, we were able to identify a significant difference between using a model and not using one. There was not a significant difference among models itself. That is why we conclude that companies seem to be better off if they have a model chosen. We could not identify one model that is better than others. We think that because of the high variability in the real world there cannot be one size fits all approach and the right models have to be chosen contingently. Also, we think that companies need to focus on a particular model. Otherwise, they are not effectively using their resources.

A typical startup in the analyzed sample is a business and communications business whose target customer is a physical person (B2C). Despite serving a few dozen customers, they are in most non-paying clients. This business model does not receive any sales, especially because the distribution of the product or service is in the preparatory phase. From the research we defined the majority income model (Table 17), whose properties are most represented in our sample.

Table 17. Majority income model

<i>Income model</i>	<i>Specification</i>
Sales of the service	One time sale of the service to customer
Standard selling model	Sale in exchange for money
One time sales	Payment for goods / services

The majority revenue model has monetization set in a similar way to standard businesses that do not fall into the startup definition. Startupists therefore use ways that they know confidentially from other business models, are trusted and known to customers. In the next part of the research, we analyzed the forms and ways of monetization through which startups most often generate sales, taking into account the years 2015 and 2016 (Table 18).

Table 18. The most revenue-generating model

<i>Income model</i>	<i>Specification</i>
Sales of the service	One time sale of the service to customer
Standard selling model	Sale in exchange for money
One time sales	Payment for goods / services

Startup, which is the most common in sales, is in the field of information and technology, sells the service directly through the customer's exchange, which is immediately applicable to the purchase. On the other hand, start-ups that do not reach sales are doing business in the arts, entertainment and recreation sectors, but they also plan to sell the product in a standard form but have not yet found the right way to timely payment (Table 19).

Table 19. Model that is not earning revenue

<i>Income model</i>	<i>Specification</i>
Sales of the product	One time sale of the product to customer
Standard selling model	Sale in exchange for money
None	Have not found a suitable way yet

The main goal of doing business is to make a profit, so we also analyzed the forms and ways of monetization through which startups achieve the highest profit taking into account 2015 and 2016 (Table 20).

Table 20. Most profitable model

<i>Income model</i>	<i>Specification</i>
Sales of the product	One time sale of the product to customer
Standard selling model	Sale in exchange for money
Payment on sale	Payment for goods / services

Unlike generating revenue, the salesperson is typically a profitable startup. Other forms of monetization are identical. The products that make up the blue ocean are typical of the industry, so they can not compare the prices with similar products and startup can give the margin they want and need to satisfy the investor as well as to cover the cost of further research and development.

We have also analyzed income models that are the least scalable in our sample (Table 21).

Table 21. Income models that are the least scalable

<i>Income model</i>	<i>Specification</i>
Sales of the service	One time sale of the service to customer
Standard selling model	Sale in exchange for money
Subscription	Subscription to service / product usage

The difference between the most profitable and the most shaky startup of the sample lies in the sale of the product / service as well as in the timing of the payment. However, the analysis can not be said to be the loss caused by these two factors. In our opinion, the loss is mainly due to the amount of technology investment in the sale of services. Startup typically creates complicated and technologically demanding services that require long-term development, investment in IT staff whose wage costs are the highest, and the cost of multiple service testing. Another important factor in services is the fact that many companies offering services are only focused on recruiting in the first years. Just a large customer base is helping you later to sell a high-price startup or generate revenue from another group of customers.

It is natural for startups that they do not reach sales in the early stages of development, and their economic result is negative. Most founders are primarily focused on analyzing the problem with a potential customer and then creating value in the form of a product or service that will help solve the problem's problem. In creating an entrepreneurial model, more attention should be paid to revenue generating options. Income model research should further analyze the effectiveness of product and service monetization. Such research could serve both professionals and entrepreneurs to make better choices about choosing how to create revenue channels and monetize their business idea.

What is the value of the startup's offering to the business, and what resources and support will the startup need so the customers can actually obtain its offering? Many startups are not very good at communicating their customer value proposition in a way that helps the customer firm making such assessments. M. Wouters et al. (2018) recommends that startups construct two sequential value propositions: the Innovative Offering Value Proposition and the Leveraging Assistance Value Proposition. The Innovative Offering Value Proposition communicates how the startup's offering creates superior value for the customer. It answers the question: What is extraordinary about the startup's offering that will enable the customer to solve a significant problem it has or achieve a top priority it has? The Leveraging Assistance Value Proposition conveys what the customer firm will get in return for providing support and resources to the startup. It answers the question: What will make it worthwhile from the customer's perspective to support the startup to realize its innovative offering?

When it comes to agility, startups have an edge over large corporations. Large corporations sit on resources which startups can only dream of. The combination of entrepreneurial activity with corporate ability seems like a perfect match, but can be elusive to achieve. Large corporations from the tech industry have begun to tap into entrepreneurial innovation from startups. While corporate equity is the key mechanism behind more established models, newer approaches replace equity with shared technology to connect both worlds with fewer organizational costs and greater speed and agility. T. Weiblen and W. Chesbrough (2015) presents a typology of corporate mechanisms to engage with startups that balance speed and agility against control and strategic direction, to map the ways companies can bridge the gap between themselves and the startup world.

3.7 Limitations

Our study design also has some limitations that should be considered in the interpretation of our results. The sample selection was not random in the strictest sense because startups asked to cooperate were from a specific geographic area, they were usually from an accelerator, so they have already shown some success and they self-selected themselves by agreeing to cooperate with us. Despite this, we think our research is of great value to startups, investors, and academics as it provides much information about the startups and shows a real image of their processes.

CONCLUSION

Startup is an enterprise built on the principle of searching, constantly testing and improving a scalable business model. The startup specificity lies in the fact that it is not possible to predict the development in the distant future of the future, but it is necessary to constantly balance what can be done today on the milestones achieved and what can be done tomorrow on the basis of the generated resources. The life of any attractive, practical or modern startup without the ability to calculate initial costs, estimate the annual budget and update the occurrences on a monthly or monthly basis (burn rate) to the capital intensity will not save even a perfectly designed business model. The startup life is a movement between two worlds. One is dreamlike and full of digital imagery, customer needs, expectations, plans and qualitative milestones, and the other is real, quantified - in terms of sales and profits. If the startup fails to generate money, its existence is only temporary and the investment is lost.

In our research, we did not identify significant differences between different revenue models what suggests that there is not one better way how to create revenue streams. However, we found a significant difference between have a concrete revenue model and not having one. In future research, we would like to continue to collect data on success and failure of startups to create a representative sample and find whether there are patterns of success and failure depending on revenue models.

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