Work Project presented as a part of the requirements for the Award of a Master Degree in Management from the NOVA – School of Business and Economics.

STARTUP FAILURES:

THE RESEARCH ON THE MAJOR FACTORS CAUSING THE STARTUP FAILURES

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31.08.18

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ABSTRACT

The research is focused on finding out what are the major reasons for startup failures. To accomplish that, the survey on the founders of startups that failed was conducted. The results were split into the general presentation and divided by the characteristics of companies such as a stage of development, number of founders, industry, type of financing, and business model. The critical factors of startup failures turned out to be Poor sales and marketing, Business model not viable, Not the right team, Other market problems (not enough traction, too niche market), Lack of financing. The results differ in the startups with different characteristics.

Keywords: startup, reasons, failure, business

I. INTRODUCTION

This work aims to explore the area of startup failures. However, what in reality a “startup” is? Nowadays, it is a common word that, in many business articles, describes any business, regardless of its nature and purpose. Many publishers are writing about newly established companies and call them “startups”, while in reality, they are traditional kind of business without the unique features that would allow to name them like that. Therefore, what does make a business a “startup”? There are plenty of definitions of this buzzword, some are vastly comprehensive and demanding in its requirements, some are very simple and clear. To be able to explore this area and to accomplish the goal of the paper, firstly, it is necessary to make clear definitions of what the “startup” is. Thus, for the purposes of the research, I am going to follow one of the shortest and easiest definition formulated by Paul Graham. He claims that a startup is “a company designed to grow fast” (Graham, 2012).

Nevertheless, not only the definition needs to be defined in the very beginning. Another word written in the title of the paper that might be unintelligible is a “failure”. Does a company that has been quickly bought by a competitor can be treated as a defeat? Naturally, from the perspective of founders, it can. However, in the research, a “failure” is going to be understood as an abandon of the business project without substantial financial benefits as a result.

Having that in mind, all doubts regarding the topic of this research should be clear. In the research, I will explore the nature of startup failures to find out what caused them primarily.

II. LITERATURE REVIEW

This chapter includes the summary of the literature regarding the area of the research. It is divided into two major topics: Startup Failure rate and Reasons for startup failure. Then, research questions are put.

II.1. Startup Failure rate

The startups, from its nature of quick scalability, have the high level of collapse risk. The failure rate of startups is measured by different methods and in different markets. According to U.S. Bureau of Labor Statistics (2016), nearly 20% of the newly established businesses in U.S. collapse in the first year and about 50% in the first five years. However, these statistics do not take into account the distinction between a startup and other business, which are not so focused on the fast growth. Due to this fact, we can assume that also their failure rate is lower because they do not risk so much and are more stable. Therefore, in the U.S. the level of failure of startups in 5-year perspective is much higher than 50%. This rate is confirmed by another research conducted by Cambridge Associates that tracked 27,259 venture-backed startups between 1990 and 2010. They defined failure as providing a 1X return or less to investors (Griffith, 2017). The level of failure has not risen above 60% since 2001. In early 2000, while it was a dot-com boom. The failure rate topics are proposed by Shikhar Ghosh, who claims that "if failure means liquidating all assets, with investors losing most or all the money they put into the company, then the failure rate for start-ups is 30 to 40 per cent. If failure refers to failing to see the projected return on investment, then the failure rate is 70 to 80 per cent." Overall, the failure rates of startups vary from 30 to 80 per cent depends on the definitions of "startup", "failure" and the time perspective.

The paper is going to focus on the Polish market only. Therefore, the failure rates are different than in the U.S. market. According to the Central Statistics Office of Poland, around 25% of the companies collapse in the first year of activity, nearly 60% collapse in the first three years of activity and almost 70% collapse in the first five years of activity (Siudaj, 2015). These numbers do not distinguish if the company can be treated as a startup or not. That is why probably the failure rate for startups is even higher. The report of Startup Poland seems to confirm that; it says that the average length of life of a startup is two to three years, longer exist only 15% of the Polish startups (Skala & Kruczkowska, 2016).

II.2. Reasons for startup failure

Regardless, the exact failure rate in Poland, in the US or other countries, the significant number of startup collapses, is the real issue. However, what are the main reasons for that?

As the main reason for failures of startups and the new products implemented on the market by the existing companies, Steven Blank (2013) considers the traditional, existing Product Development Model - the product introduction methodology that does not work. In simple words, the methodology is focused on the developing of the product and offering it to the market while very often companies "try to force their new products into markets where no one is waiting to buy". By following this approach, it is an enormous risk of lack of market fit. Blank emphasises that lack of focus on customers and their need "in the new product introduction process – before the product is ever launched or shipped" is the primary error of new entrepreneurs that make them fail.

In his article about the reasons for often startup failures, Nicolas Cole (2018) proposes the thesis that the collapses are caused mostly by the egos of their founders. He mentions that, because of their approach to life and business, the problems in their companies emerge, which later grow and cause the failure. The emphasized mistakes in the article are the will to expand the business horizontally, instead of growing vertically, lack of bad scenarios assumptions that may occur, not learning and accepting the help of advisors, seeing raising money as a solution to any problems, emotional immaturity and most of all the stuck on their original ideas and refusing to "pivot" - evolving idea, changing the target group, etc.

In the paper "Why Early-Stage Software Startups Fail: A Behavioral Framework" authors deeply analysed the causes of collapses of two software startups (Giardino, Wang & Abrahamsson, 2014). They found out the discrepancy between the strategy of the companies and the actual executions of them. While in the strategy they prioritised the verification of the product/market fit, later they ignored the learning process and the insights from the potential customers and focused on the development of the product to launch it on the market as quickly as possible. This paper shows the failure in the right understanding of the problem and providing the suitable solution, which confirms the Blank's (focusing on product, not the problem) and Cole's (lack of learning process) thoughts (Blank, 2013; Cole, 2018).

In the article about the startup problems, Paul Graham (2007) gives two primary reasons for the startups collapses. It is run out of money or founders give up. Running out of the cash or giving up is almost never a quick thing- it is a process caused by the other determinants (Griffith, 2014). It is confirmed by Steve Hogan who calls "running out of cash" as "a symptom of another issue (…) Startups tend to run out of cash when a CEO has overlooked all other indicators of failure" (Griffith, 2013). According to him, the most common reason for the collapse is that companies are often founded by one person, which do not have any full-time co-founder. As a second determinant, he considers the lack of product demand; the third factor is a ran-out of time, which is caused by spending way too much of their time on building a product or underestimation of the time needed for that.

There are a few articles, which list several reasons for startup failures with the short explanations for each of them. All of them mention market problems (no market need, wrong market timing, too niche market, failing to deliver real value and solve customer pain), poor team management (ineffective leadership), running out of cash (not controlling expenses, failing with cash flow management). David Stock (2016) also proposes the business model failure (unrealistic assumptions of costs, time for product building and customer acquisition activities). In the second article, written by Peter Cohan (2017), the factors such as reluctance to get feedback on prototypes (lack of learning process from early-customers), no passion for the market (founders focused only on making money), lack of needed skills, inability to raise capital are also listed. Cohan focuses mostly on the general problems, whereas Robert Adams (2017) goes into more details. In the list that he proposes, except mentioned above, there are also factors like: poor sales and marketing (identified as failure to connect with the target audience), failure to optimize conversions, failure to create an effective sales funnel, lack of authenticity and transparency, inability to compete against market leaders, failure to build an employee “tribe” and failure to create the proper business systems.

Finally, the most comprehensive paper regarding the topic was conducted by CB Insights researchers (2018). They collected 101 startup failures post-mortems (letters writing to announce a collapse with a short explanation) which they analysed and determined the factors of every failure. They summed up the number of presence of each factor (usually there were multiple reasons). The most popular determinants turned out to be no market need, ran out of cash, and not the right team.

On the contrary, Fractl (the marketing agency) (2016) presented the findings from a very similar study, based on post-mortems written by the founders and press coverages about the collapses, which are undoubtedly different. The methodology of gathering and summing up the data was almost the same in both pieces of research. What is more, the one conducted by Fractl was prepared by using the same data as CB Insights and some others (193 startups in total). According to Fractl, the most critical factors are not a viable business model, running out of cash and not enough traction (not enough customers or too small market).

II.3. Research questions

The research is going to be focused on reasons for startup failure due to the high frequency and repetition of the collapses that probably could be avoided. Moreover, the literature on this topic is mostly outdated or written by journalists, who might adequately distinguish the factors. However, the methodology of their research is not entirely reliable.

What is more, their results and conclusions are slightly different, and it is impossible to unequivocal state if and which of the studies are the right one. Thus, the additional research seems to be essential to be able to state what in reality the factors that influence most robust the startup failures are.

Moreover, none of the authors from the analysed resources has taken into account the features of the companies such as a stage of development nor the way of financing, along with others. Hence, this is the next area worth to explore. Research questions based on these paragraphs are presented below.

1. *What are the most important reasons for startup failures in general?*
2. *How the reasons differ for the businesses in different stages of development?*
3. *How the reasons differ for the businesses founded by sole entrepreneurs versus a team of founders?*
4. *How the reasons differ for the businesses operating in different models (B2C, B2C, and others)?*
5. *How the reasons differ for the businesses financed by different sources?*
6. *Are there any correlations between the groups by which the startups are classified?*

III. METHODOLOGY

In this chapter, the description of the survey used in the research will be presented. Next, fundamental statistical assumptions of the data analysis are going to be briefly introduced.

III.1. Survey description: the method used for gathering the data

To gather the data, the survey was conducted (*Appendix 1*). It is structured based on types of business that startups operated in, a stage of a startup just before the abandon, a way of financing the operations, the industry, and a number of co-founders. What is more, each of the respondents answered the questions regarding the reasons for the failure. Based on the literature, I distinguished 16 different reasons that were possible to choose by respondents. For these questions the Likert scale was used, where 1 - stands for *strongly disagree*, 5 - *strongly agree*. Also, the answer *not relevant* was possible to choose.

The data were collected with the survey prepared as an online questionnaire. Starting from March 2018, 73 responses were obtained during three months of collection. The questionnaire contained one filtered question in order to differentiate those respondents who belong to the target group. 61 respondents confirmed that they were founders or co-founders of a startup that failed. Some of the startups that respondents were describing were small businesses projects in the early stage of development. However, there were few companies with a group of employees and remarkable revenues. Respondents were founders of the projects such us: Flicolo – platform for sharing photos with friends; OstatniaWola – the tool letting save the last will of people and share it with friends and family in case of passing away; Megafoni – innovative marketing agency focused on Facebook activities; Synergian – comparison platform with freelancers' offers and many others. Therefore, it can be concluded that they were from many different industries and were focused on different customer needs.

III.2. Statistical assumptions

For all statistical tests in the research, the significance level (α) is set on the .05 level. MS Excel and SPSS tools were used to pre-process the collected data. All of the hypotheses were verified with the use of different statistical methods available in SPSS.

IV. RESULTS

This chapter is divided into six sections presenting the results of the analysis, data transformation, statistical tests and necessary conclusions. In the first section, the general evaluation of the data is presented. For the analysis, a table was created (*Appendix 2*) with the averages calculated singly for each question and each group within variables.

IV.1. Research question exploration: What are the most important reasons for startup failures in general?

To determine what are the most important reasons for the failure, the data from several questions is needed. First of all, I exclude two variables from the analysis. Because of their nature, they are not relevant for a substantial part of observations: *Disharmony between' team and investors* and *Lack of co-founder.* At the beginning, it is valuable to take a look at the frequency of the positive answers to the questions measured by the Likert scale. In *Table 1*. positive answers ("agree" and "strongly agree") are counted and presented. Only one reason - *Poor sales and marketing* were chosen by more than a half of the respondents. Six others were chosen by more than one-third of the sample.

Table 1. (Counted positive answers about the reasons for variables with more than 20)

Reason	Number of positive answers
Poor sales and marketing	33
Business model not viable	29
Not the right team	29
Lack of financing	28
Losing focus	28
Other market problems (not enough traction, too niche market)	26
Running out of cash	24

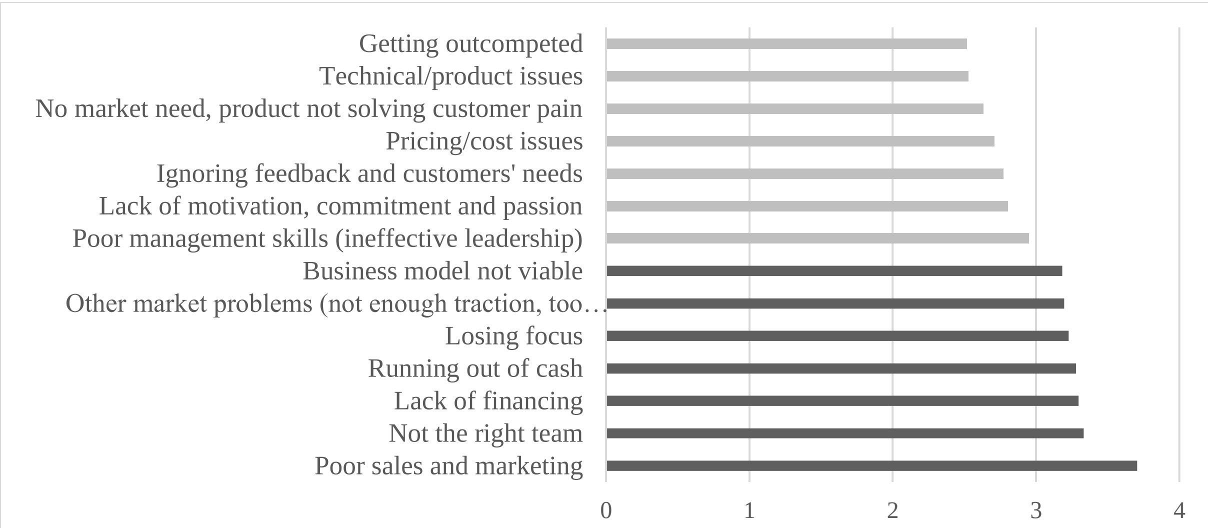
Nevertheless, the frequency of the answers is not the only factor by which we can consider a reason important. Another key aspect is its strength. First of all, it was checked by running the ANOVA to test if there are any outliers of averages from all answers for each variable. The results are presented in *Table 2.*

Table 2. (Results of ANOVA)

Level	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	111.448	15	7.430	3.984	0.000
Within Groups	1609.448	863	1.865		
Total	1720.896	878			

The significance value (0.000) shows that there is at least one group with a statistically different average from others. To find out which one, the post-hoc Bonferroni Test was conducted. From the results distinguished in *Figure* 1 with all averages, we can infer that only one reason has statistically higher average than others: *Poor sales and marketing*. Overall, reasons with the average higher than 3 can be treated as relevant (stronger than neutral and negative ones). Seven reasons meet this condition.

Figure 1. (Strengths of the reasons)



In the survey, there was another question about the factors that caused the collapse of the business. The respondents were asked to choose factors from the previously mentioned list of reasons, which from their perspective had the most significant influence on the collapse. The answers were counted and presented in *Table 3*. The most frequent reasons are *Business model* *not viable, Not the right team,* and *Other market problems (not enough traction, too niche market).*

Table 3. (The most important factor of collapse - counted answers for variables with more than 2)

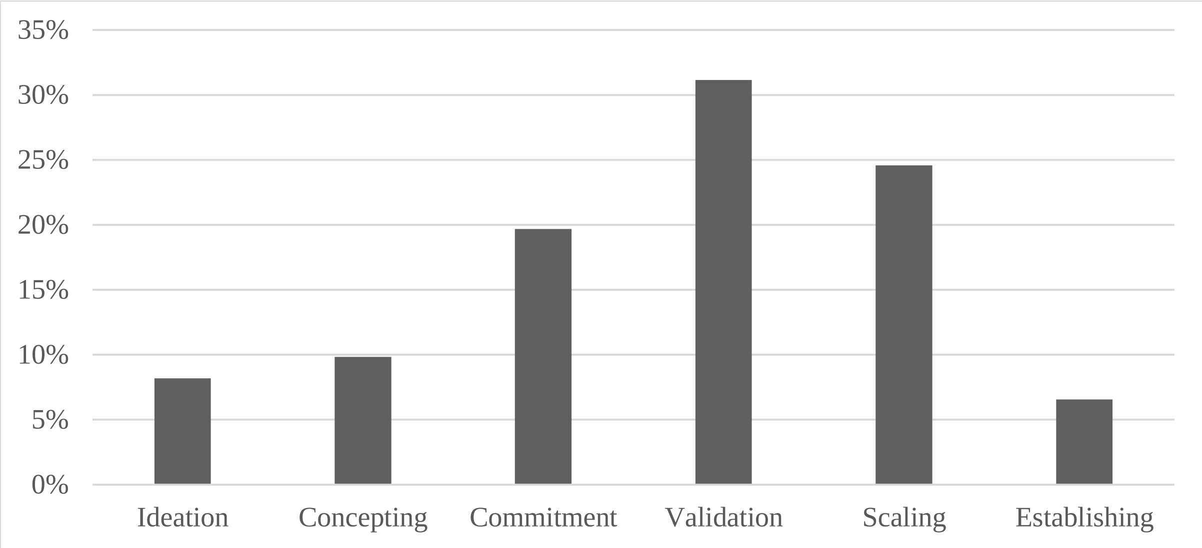
Reason	**Number of answers**
Business model not viable	10
Not the right team	9
Other market problems (not enough traction, too niche market)	8
Poor management skills (ineffective leadership)	5
Lack of motivation, commitment, and passion	4
No market need, product not solving customer pain	4

Based on the results indicated above the major factors of startup failure overall are *Poor sales and marketing, Business model not viable, Not the right team, Other market problems (not enough traction, too niche market), Lack of financing.* In general, the results are surprisingly different than in the researches cited in the literature review. It may be caused mostly by the specifics of the Polish market.

IV.2. Research question exploration: How the reasons differ for the businesses in different stages of development?

The variable *Stage* shows the level of development of a startup. The respondents could choose one of the six stages that in the best way describe their business just before the abandon. The answers are presented in *Figure 2*.

Figure 2. (Variable: Stages of development, distribution of observations)



Due to the distribution of answers and small sample size, I decided to transform the variable to be able to find out how the reasons are different in all groups. Thus, three first steps of development were merged into a group named "Formation," then the fourth was left as a "Validation", and the last three were merged into a group named "Growth". Thanks to that, I obtained the transform ordinal variable with 3 groups containing respectively: 23, 19 and 19 observations. Therefore, they are big and equal enough to analyse them.

Results

Firstly, to check if there are statistically significant differences between groups, the ANOVA with Bonferroni Post-Hoc comparison was conducted. It turned out that at least one group average is statistically different from another. The results of the Post-Hoc analysis are in *Table 4*. It shows which of the averages are statistically different from the others. As it can be observed from significance level, the formation and validation group have not statistically different averages, while all the other averages are statistically different from each other.

Table 4. (ANOVA - Bonferroni Post-Hoc, factor: Stages)

(I) Stage	(J) Stage	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Formation	Validation	.089	.120	1.000	-.20	.38
	Growth	.390*	.118	.003	.11	.67
Validation	Formation	-.089	.120	1.000	-.38	.20
	Growth	.301*	.123	.043	.01	.60
Growth	Formation	-.390*	.118	.003	-.67	-.11
	Validation	-.301*	.123	.043	-.60	-.01

Secondly, I will determine which reasons are most crucial for each stage. In order to do that, I choose five factors for each group with the highest averages *(Appendix 2)*. For the companies within the Formation stage, the 5 major failure determinants are *Poor sales and marketing, Not the right team, Business model not viable, Losing focus, Lack of financing.* For the companies within the Validation stage, the 5 major failure determinants are: *Poor sales and marketing, Other market problems (not enough traction, too niche market), Poor management skills (ineffective leadership), Losing focus, Running out of cash.* For the companies within the Growth stage, the 5 major failure determinants are *Poor sales and marketing, Running out of cash, Lack of financing, Not the right team, Losing focus.*

The third step is to check possible differences in the importance of each reason between stages. In order to achieve it, the ANOVA was conducted. The only statistical differences between stages were noticed in the reason *Pricing/cost issues (Table 5).*

Table 5. (ANOVA results for Pricing/cost issues, factor: Stages)

Level	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19.766	2	9.883	6.122	0.004
Within Groups	83.943	52	1.614		
Total	103.709	54			

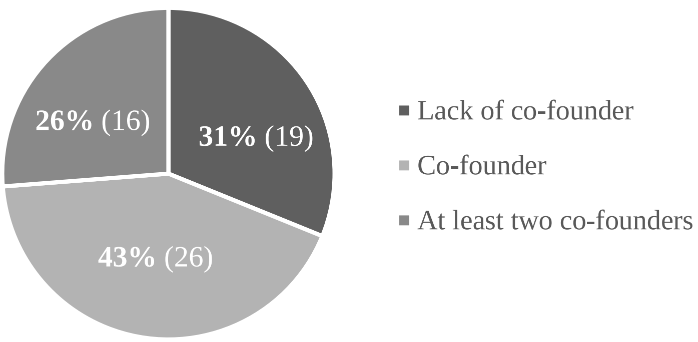
Averages in groups are respectively equal to 3.05; 2.78; 1.65. This factor has averages higher than 3 in the first stages. Thus, it is a relatively important determinant of failures. However, in the Validation stage, its importance is much smaller, while in the Growth stage it cannot be treated as a failure reason at all.

The first conclusions that come after describing the results are that there are some reasons for failures, like poor sales and marketing, that will cause the collapse of the project very quickly if they are not resolved fast. With the development of the company, the new problems emerge. All in all, there is always some risk of failures, which are different for each stage and entrepreneurs should focus on them gradually.

IV.3. Research question exploration: How the reasons differ for the businesses founded by sole entrepreneurs versus a team of founders?

The variable *Co-founders* represents the number of co-founders within a company. The respondents could indicate that they were a sole founder, had one co-founder or had two or more co-founders. The answers are presented in *Figure 3*. The variable does not require any transformation.

Figure 3. (*Variable: Co-founders, distribution of observations*)



Firstly, to check if there are statistically significant differences between groups, the ANOVA with Bonferroni Post-Hoc comparison was conducted. It turned out that at least one group average is statistically different from another. The results of the Post-Hoc analysis are in *Table 6.*

Table 6. (ANOVA - Bonferroni Post-Hoc, factor: Co-founder)

(I) Co_founders	(J) Co_founders	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Sole founder	Co-founder	.184	.115	.328	-.09	.46
	At least 2 co-founders	-.397*	.129	.007	-.71	-.09
Co-founder	Sole founder	-.184	.115	.328	-.46	.09
	At least 2 co-founders	-.581*	.120	.000	-.87	-.29
At least 2 co-founders	Sole founder	.397*	.129	.007	.09	.71
	Co-founder	.581*	.120	.000	.29	.87

Secondly, I will determine which reasons are most crucial for each stage. In order to do that, I choose the 5 factors for each group with the highest averages *(Appendix 2)*. For the companies with a sole founder, the 5 major failure determinants are *Poor sales and marketing, Not the right team, Losing focus, Lack of financing, Business model not viable.* For the companies with 1 co-founder, the 5 major failure determinants are *Poor sales and marketing, Running out of cash, Not the right team, Lack of financing, Poor management skills (ineffective leadership),* For the companies with 2 co-founders, the 5 major failure determinants are *Other market problems (not enough traction, too niche market), Not the right team, Lack of financing, Poor sales and marketing, Running out of cash,*

The third step is to check possible differences in the importance of each reason between stages. In order to achieve it, the ANOVA was conducted, *Table 7.* The statistical differences between groups with not an equal number of co-founders were noticed in the reasons *Other market problems (not enough traction, too niche market), Getting outcompeted, Poor management skills (ineffective leadership).*

Table 7. (ANOVA results for significant variables, while factor Co-founders)

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Getting outcompeted	Between Groups	12.782	2	6.391	3.751	.030
	Within Groups	93.701	55	1.704		
	Total	106.483	57			
Other market problems (not enough traction, too niche market)	Between Groups	16.722	2	8.361	5.146	.009
	Within Groups	86.117	53	1.625		
	Total	102.839	55			
Poor management skills (ineffective leadership)	Between Groups	9.672	2	4.836	3.180	.049
	Within Groups	85.175	56	1.521		
	Total	94.847	58			

Averages in groups for *Getting outcompeted* are equal respectively 2.06; 2.36; 3.25. For *Other market problems* 2.89; 2.88; 4.14 *Poor management skills* 2.39; 3.04; 4.14. The pattern for all of these variables is similar – two first groups do not perceive these reasons as important, while the companies with 2+ co-founders, on the contrary, claim that they had a big influence on their collapses.

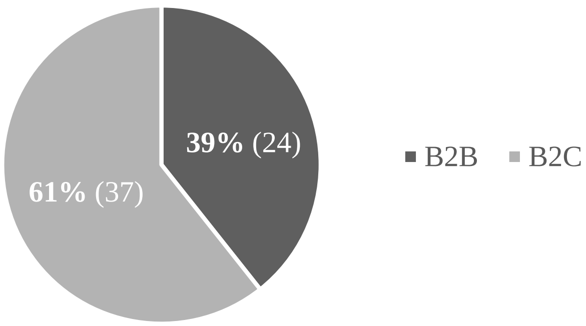
The variable *Lack of co-founder* was excluded from the analysis earlier because it can be relevant only for those companies that were started by sole entrepreneurs. Therefore, I am going to present the statistics for this variable for businesses from Sole founder group. 8 out of 19 respondents reckon a lack of co-founder as an important reason for their failure. The average is equal 3,05, so those who found this factor relevant, strongly think that it was important in their collapse. On the other hand, the level of strength of this factor slightly exceeds the neutral level. Thus, even for sole founders, it was not a major determinant of failure.

The insight, which is clear and obvious after the first presentation of the results in this group, is that the sole entrepreneurs have much more problems with losing the focus than the startups formed as a team from the very beginning. This is a conclusion which should not surprise anyone. Working as a team helps with focusing on a job to be done, due to the additional pressure from co-founders. It may be crucial, especially for entrepreneurs with low self-discipline.

IV.4. Research question exploration: How the reasons differ for the businesses operating in different models (B2C, B2C and others)?

The variable *B2Y* specifies the type of business. I transformed it into a binary variable, by merging two B2B2C observations with a B2B group. Therefore, one group represents the B2C businesses only and the other one B2B companies. The distribution is presented in *Figure 4.*

Figure 4. (Transformed variable: Co-founders, distribution of observations)



Results

Firstly, to check if there are statistically significant differences between groups, the ANOVA was conducted. It turned out that at least one group average is statistically different from another, the results of ANOVA analysis are in *Table 8.*

Table 8. (ANOVA, factor: B2Y)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.446	1	9.446	5.036	.025
Within Groups	1455.542	776	1.876		
Total	1464.988	777			

Secondly, I will determine which reasons are most crucial for both business types. In order to do that, I choose the 5 factors for each group with the highest averages *(Appendix 2)*. For B2B companies, the 5 major failure determinants are *Poor sales and marketing, Running out of cash, Not the right team, Lack of financing, Losing focus.* For B2C companies, the 5 major failure determinants are *Poor sales and marketing, Business model not viable, Other market problems (not enough traction, too niche market), Losing focus, Not the right team.*

The third step is to check possible differences in the importance of each reason between groups. In order to achieve it, the ANOVA was conducted. The only statistical differences between stages were noticed in the reason *Running out of cash, (Table 9).*

Table 9. (ANOVA results for Running out of cash, factor: B2Y)

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Running out of cash	Between Groups	7.954	1	7.954	4.433	.041
	Within Groups	86.126	48	1.794		
	Total	94.080	49			

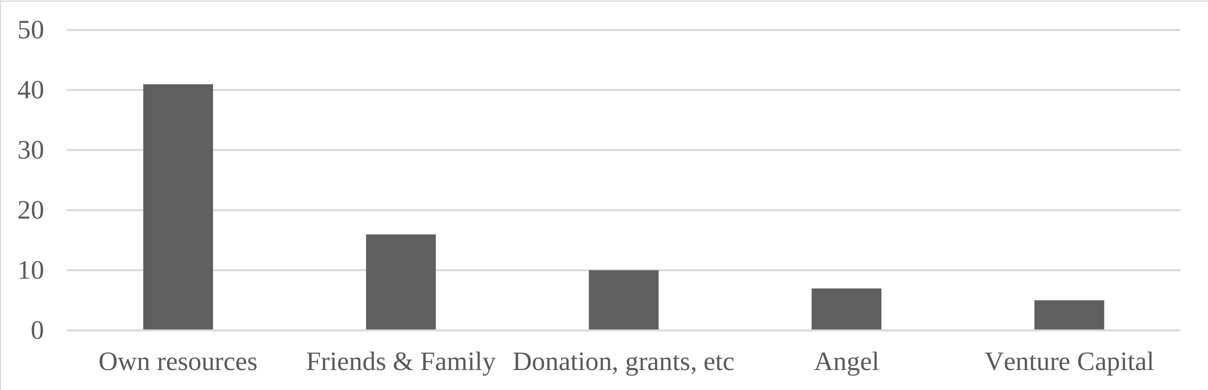
Averages in groups are equal 2.97 for B2C and 3.79 for B2B. It is obligatory to mention that for B2B companies the problem with running out of money is a potent factor of collapse, while for B2C it is on the neutral level.

The conclusion which comes to the mind is that running out of cash, or in other words, managing the cash-flow is a much bigger issue for B2B companies. It might be due the long payment time and frequent overdue in this type of business.

IV.5. Research question exploration: How the reasons differ for the businesses financed by different sources?

Financing - the variable describing the way in which the startup was financed. Respondents could choose the multiple answers here. More than a half of businesses were financed by the founders itself. *Figure 5* shows the distribution of answers.

Figure 5. (Variable: Financing, distribution of observations)



Due to limited observations indicating to the external sources of financing, such as Angel investor, donation, grants, etc., Friends & family, VC, all of them were merged into one group. Then I distinguished 3 possible ways of startup financing: own resources only, external resources only, external and own resources. Thanks to that I obtained the transformed ordinal variable with 3 groups containing respectively: 17, 19 and 25 observations.

Results

Firstly, to check if there are statistically significant differences between groups, the ANOVA with Bonferroni Post-Hoc comparison was conducted. It turned out that at least one group average is statistically different from another, the results of the Post-Hoc analysis are in *Table 10.*

Table 10. (ANOVA - Bonferroni Post-Hoc, factor: Financing)

Financing	Financing	Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
External only	Own and external	-.020	.128	1.000	-.33	.29
	Own only	.279	.117	.052	.00	.56
Own and external	External only	.020	.128	1.000	-.29	.33
	Own only	.299*	.120	.039	.01	.59
Own only	External only	-.279	.117	.052	-.56	.00
	Own and external	-.299*	.120	.039	-.59	-.01

Secondly, I will determine which reasons are most crucial for each group. In order to do that, I choose the 5 factors for each group with the highest averages *(Appendix 2)*.

For the companies financed by external resources, only the 5 major failure determinants are *Losing focus, Poor sales and marketing, Not the right team, Lack of financing, Other market problems (not enough traction, too niche market).* For the companies financed by both own and external resources, only the 5 major failure determinants are *Poor sales and marketing, Not the right team, Lack of financing, Running out of cash, Poor management skills (ineffective leadership).* For the companies financed by own resources, only the 5 major failure determinants are *Poor sales and marketing, Business model not viable, Running out of cash, Other market problems (not enough traction, too niche market), Lack of financing.*

The third step is to check possible differences in the importance of each reason between groups. In order to achieve it, the ANOVA was conducted. The only statistical differences between stages were noticed in the reason Losing focus *(Table 11).*

Table 11. (ANOVA results for Losing focus, factor: Financing)

		Sum of Squares	df	Mean Square	F	Sig.
Losing focus	Between Groups	16.873	2	8.437	5.613	.006
	Within Groups	81.162	54	1.503		
	Total	98.035	56			

Averages in groups are equal 3.94 for External only; 3.25 for Own and external and 2.65 for Own only. This factor has the genuinely high strength for the first group, moderate for the second one and small for the last one.

The variable *Disharmony on team/investors* earlier was excluded from the analysis, because it can be relevant only for those companies that have investors. Therefore, I am going to present the statistics for this variable for businesses financed by external resources.

Surprisingly, only 12 out of 36 respondents reckon a *Disharmony on team/investors* as an important reason for their failure. The averages, slightly smaller than 3 regardless of the group (External only and Own and external), are confirming the small importance of this factor. For another group, the most interesting conclusion seems to be the one regarding losing focus. Companies without own resources invested in a project were much more vulnerable to the risk of losing a focus. It seems logical that entrepreneurs who did not invest their own money are easier to distract or to abandon the project to do something else.

IV.6. Research question exploration: Are there any correlations between the groups by which the startups are classified?

There is a possibility that the different groups are correlated with each other. To check that the Pearson Correlation Test was conducted on the four variables characterising the startups. The results are presented in *Table 12*.

Table 12. (Correlations)

		B2Y	**Stage**	**Type of financing**	**Co-founders**
B2Y	Pearson Correlation	1	.226	-.253	.141
	Sig. (2-tailed)		.080	.049	.278
	N	61	61	61	61
Stage	Pearson Correlation	.226	1	-.132	-.031
	Sig. (2-tailed)	.080		.312	.810
	N	61	61	61	61
Type of financing	Pearson Correlation	-.253	-.132	1	-.070
	Sig. (2-tailed)	.049	.312		.594
	N	61	61	61	61
Co-founders	Pearson Correlation	.141	-.031	-.070	1
	Sig. (2-tailed)	.278	.810	.594	
	N	61	61	61	61

Only two of all variables are correlated with each other. It is B2Y and Type of financing. They are negatively correlated. Thus, the results can be interpreted that for B2B companies it is more frequent that they are financed by external sources or by own and external simultaneously.

V. DISCUSSION

First of all, I am going to go through the reasons that turned out to be the major factors of startup failures, overall. They are distinctly different from the one proposed by two types of research mentioned in the Literature review: Fractl (2016) and CB Insights (2018). *Poor sales and marketing* were much more significant issues for Polish entrepreneurs than for Americans. It might be caused because the Polish market is not as absorptive as the more developed American one, so the entrepreneurs should remember about focusing on sales from the beginning. This is also connected to another key determinant, *Other market problems (not enough traction, too niche market)*, which without *Business model not viable, Lack of financing, Not the right team* are the reasons that were expected as the most important ones, and the predictions were confirmed. Surprisingly, *Run of out cash* did not turn out to be significant.

The results show that from the beginning of a business project, sales and marketing are critical factors that entrepreneurs should focus on and they do not change with the development of a company. The same is true for a wrongly chosen team and losing focus - these elements need to be avoided on each stage. As it was stated above, the not a viable business model is one of the significant factors of startup failures in general, but its importance is decreasing respectively with the development of a company. It may happen because without the proper business model the company is not able to get through the initial phases. On the other hand, the determinants connected with money (*Running out of cash*, *Lack of financing)* are more important during a growth stage. Without the sufficient financing and proper cash flow management, a company, is not able to grow fast enough, and the risk of collapse grows instead of revenue. However, the relation of price and cost is not an issue in the later stages; it might show that only at the beginning the businesses struggle with setting a price and without it, they are not able to go to the next phases of development.

Regardless of the number of founders, all the groups of the businesses claim that they had problems with the right team. Interesting insight might be that only the sole founder startups distinguished Losing focus as one of the major factors. It may mean that the group of founders, thanks to collaboration and distribution responsibility, is staying focused on the job. On the other hand, founders who had 2 or more co-founders were stronger facing problems that were not very significant for other businesses, such as not enough traction, too niche market and poor management skills. It could happen that this kind of companies was mostly founded by a group of people or friends who had some idea which was focused on too narrow market and furthermore, their management skills were not strong enough to lead a team.

The differences in reasons for B2B and B2C companies turned out to be relatively small. However, there are elements that are worth mentioning. B2C companies usually did not have problems with running out of cash, while for B2B it was one of the major failure determinants. It may be caused by the frequent long time of payment when operating in B2B; fortunately for B2C companies, the cash flows are more comfortable to maintain on the satisfactory level.

When it comes to financing, it turned out that most of the differences are between the groups with and without external resources. However, these differences are on the moderate level. The difference in the averages of the factor describing a loss of focus seems to be the most meaningful. When the company did not have external resources, it was not an issue at all. On the contrary, for companies with external financing only, it was the most influential reason for failure. I assume that entrepreneurs who put their own money into the project did not have a problem to keep focus. Those who have some external sources were a bit distracted, and those without any own financial input were very susceptible to distractions. It shows that acceleration programs, grants and donation, which do not require any financial commitment from the founder, are on the one hand giving a great opportunity to founder, but on the other hand, they create genuinely strong factor often causing collapses of projects.

VI. LIMITATIONS AND DIRECTION FOR FUTURE RESEARCH

First of all, the major limitation of the conducted research is the small sample size. Only 61 responses were collected and analysed. Due to the variety of companies' characteristics, it was not possible to do a more comprehensible analysis. With the bigger sample, the higher the statistical significance values of tests could be obtained. Furthermore, a more complex analysis might be conducted. It could be tested how the reasons differ not only for a single parameter but also for a mix of them. For instance, it could be determined that B2B companies without a co-founder have entirely different major failure factors than those with co-founders and B2C companies without co-founders. As it could be observed from the correlation analysis, there are significant correlations between the factors. Therefore, interesting and meaningful insights might be obtained from such an approach. Furthermore, the researchers might focus on broader geographical regions. Collecting data from different countries could implicate interesting conclusions and comparisons between various national markets.

Furthermore, the analysis was conducted on Polish startups only. Undoubtedly, there are some characteristics occurring exclusively on this market. Thus, the results cannot be adequately treated as a standard, but they can be used as a benchmark for similar research in other countries. Most of the sources that I used in the literature review were describing the American market and the reasons that are most common there. Therefore, conducting the same survey on US companies and comparing the results might lead to interesting conclusions.

In the survey, there was a question about the industry to which the startups were belonging. However, I proposed 34 possible industries which the respondents could choose. The proposed categories did not describe precisely enough the industries and were very hard to classify into meaningful groups, what was done. Nevertheless, the differences in the results between the groups were minor and due to a lack of statistical significance they were not included in the analysis. Without a doubt, this is the area worth exploring in the next researches. For the gathering data, a Likert scale was used for the most of the questions. However, it is subject to distortion for several reasons. Several biases are present while using these type of questions. The first one, central tendency bias, results in the avoidance of using extreme response categories. There were many answers in the middle of the scale, so probably the bias was presented in the research, despite three ways of avoiding that - using shorten Likert scale (1-5), keeping the questions in the same form, and formulating questions as transparent as possible.

Another problem is social desirability bias, defined as the tendency to answer questions to portray themselves or their companies in a more favourable light. Thus, it could decrease the level of strengths of several questions, especially regarding the most personal ones (for example, the questions about the poor management skills).

On the other hand, a Likert scale is also vulnerable to acquiescence response bias. It means that respondents generally tend to avoid saying “no”. Thus, these two biases could theoretically reduce their opposite influence to zero. However, there is not any tool to test that. Therefore, to gather more reliable data, it could be collected by using different methods that are not a subject of mentioned biases.

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APPENDICES

Appendix 1. (Survey - the reasons of startup failures)

Description:

The “startup” for the purposes of the research is defined by using Paul Graham definition “a company designed to scale very quickly.”

The “failure” for the purposes of the research is defined as abandonment of the business project without earning money as a result.

Questions:

1. Are you a founder/co-founder of a startup that failed? (If you had more than one of such projects, answer for the one that you prefer or do the survey more than once)

- Yes
- No

2. What type of business it was?

- B2B
- B2C
- Others

3. On what stage your startup was just before the abandon?

- Ideation
- Concepting
- Commitment
- Validation
- Scaling
- Establishing

4. Who financed your startup? (choose all true answers)

- Angel investor
- Donation, grants, etc.
- Friends & family
- Founder
- VC
- Other

5. Did you have a co-founder?

- No
- Yes, 1 co-founder
- Yes, 2+ co-founders

6. In which industry your startup operated?

- Advertising
- Aerospace & Defence
- Agricultural Commodities
- Architecture
- Automobiles
- Beauty
- Chemicals
- Construction
- Cyber Security
- Ecommerce
- Education
- Energy
- Fashion
- Financial Services
- Fintech
- Food & Beverage
- Games industry
- Health
- Industrial Goods
- Insurance
- Law
- Management Consulting
- Media
- Personal & Household Goods
- Pharmaceuticals
- Property
- Restaurants
- Retail

- Sales & Marketing
- Support Services
- Technology
- Travel & Leisure
- Waste Management & Recycling
- Others

7. To what extent do you agree that following factors had influence on the fail of your startup?

– Strongly disagree

– Disagree

– Neutral/Neither agree nor disagree

– Agree

– Strongly agree

– Not relevant

- Business model not viable
- Disharmony between team and investors
- Getting outcompeted
- Ignoring needs and feedback from customers
- Lack of co-founder
- Lack of financing
- Lack of motivation, commitment and passion
- Losing focus
- No market need, product not solving customer pain
- Not the right team
- Other market problems (not enough traction, too niche market)
- Poor management skills (ineffective leadership)
- Poor sales and marketing
- Pricing/cost issues
- Running out of cash
- Technical/product issues

8. Which factor was the one, most important reason of the failure?

- Business model not viable
- Disharmony between team and investors

- Getting outcompeted
- Ignoring needs and feedback from customers
- Lack of co-founder
- Lack of financing
- Lack of motivation, commitment and passion
- Losing focus
- No market need, product not solving customer pain
- Not the right team
- Other market problems (not enough traction, too niche market)
- Poor management skills (ineffective leadership)
- Poor sales and marketing
- Pricing/cost issues
- Running out of cash
- Technical/product issues

Appendix 2. (All averages)

		Business model not viable	Getting outcompeted	Ignoring feedback and customers' needs	Lack of financing	Lack of motivation, commitment and passion	Losing focus	No market need, product not solving customer pain	Not the right team	Other market problems (not enough traction, too niche market)	Poor management skills (ineffective leadership)	Poor sales and marketing	Pricing/cost issues	Running out of cash	Technical/product issues	Averages
		3,18	**2,52**	**2,77**	**3,30**	**2,80**	**3,23**	**2,63**	**3,33**	**3,20**	**2,95**	**3,71**	**2,71**	**3,28**	**2,53**	**3,01**
B2Y	B2C	3,28	2,34	2,83	3,03	2,80	3,09	2,81	3,06	3,09	2,78	3,53	2,77	2,97	2,53	**2,92**
	B2B	3,04	2,78	2,68	3,68	2,81	3,43	2,38	3,77	3,38	3,22	3,95	2,61	3,79	2,52	**3,15**
Stages	Formation	3,52	2,73	3,00	3,41	2,90	3,36	2,64	3,62	3,26	2,82	3,72	3,24	3,12	3,05	**3,17**
	Validation	3,11	2,44	2,89	3,00	3,00	3,25	3,05	3,12	3,50	3,28	3,73	2,69	3,18	2,78	**3,07**
	Growth	2,84	2,33	2,39	3,47	2,50	3,05	2,21	3,21	2,84	2,79	3,67	2,22	3,56	1,65	**2,77**
Type of financing	External only	3,11	2,59	3,06	3,41	2,71	3,94	2,68	3,61	3,24	2,78	3,78	2,69	3,14	2,76	**3,11**
	wn and externa	3,06	2,56	3,00	3,53	3,00	3,25	2,81	3,59	3,13	3,29	3,80	2,86	3,47	2,43	**3,13**
	Own only	3,32	2,44	2,42	3,05	2,75	2,65	2,48	2,91	3,22	2,83	3,56	2,61	3,24	2,42	**2,85**
Co-founders	Sole founder	3,21	2,06	2,83	3,25	3,00	3,38	2,83	3,24	2,89	2,39	4,19	3,11	3,07	2,38	**2,99**
	1 co-founder	3,00	2,36	2,56	3,04	2,52	3,00	2,54	3,08	2,88	3,04	3,41	2,20	3,27	2,25	**2,80**
	2+ co-founders	3,47	3,25	3,07	3,73	3,07	3,44	2,56	3,81	4,14	3,44	3,62	3,00	3,50	3,13	**3,37**