

UNLOCKING THE SECRETS OF CROWDFUNDING SUCCESS: A COMPREHENSIVE ANALYSIS OF KEY DETERMINANTS

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Abstract

Research background: Nowadays, crowdfunding is becoming more and more popular. It is one of the alternative funding options that, when used effectively, may guarantee that firms obtain a competitive advantage.

Purpose of the article: The goal of this work is to find the determinants that condition the success of crowdfunding campaigns and then to evaluate the influence of individual determinants.

Methods: Our database contained 224,180 projects from 2009 to 2021 exclusively from the Kickstarter platform. The data was used to search for determinants, based on which graphs and tables were created. The projects in our database were divided into 4 basic groups: successfully funded projects, unsuccessfully funded projects, projects whose campaign is currently ongoing and projects whose funding has been cancelled. In order to evaluate the dependence between the selected factors and the success of the projects we have excluded from our database all projects whose campaign is currently ongoing, as well as projects that have been cancelled. For verification we used Chi-square tests and two-sample t-test of independent samples and descriptive indicators.

Findings & Value added: The determinants were: the project category, the target amount and the country from which the campaign was launched. The influence of the discovered determinants was not strong, though it was statistically significant. The goal of the thesis was fulfilled, and the reader will be familiar with the influence of factors on the success of crowdfunding campaigns. This study's limitations include its focus on only one platform, Kickstarter, which also implies that the majority of the projects are based in the United States. Another drawback is that we are unsure of the precise ways in which different elements will influence the likelihood of success.

Keywords: crowdfunding; fundraising; campaign; business

JEL Classification: D26; L26

1. Introduction

Every company has to finance its expenses somehow. It can finance expenses either from its own sources or from external sources. One of the possibilities when using foreign resources is an alternative form of financing – crowdfunding, which is different from traditional start up financing (Liu et al., 2023). Crowdfunding includes elements of microfinancing and crowdsourcing, but it represents its own form of fundraising (Mollick, 2014). It is an option that is very interesting, as evidenced by the fact that the amount of funds collected through crowdfunding is constantly increasing since the financial crisis in 2007 (Saric, 2022). Crowdfunding is equally accessible to all people, income or credibility is not assessed, as is the case, for example, in the case of a bank loan. However, this does not mean that everyone will succeed with crowdfunding. It is an alternative method of fundraising, which is primarily intended for small and medium-sized entrepreneurs.

It is widely known what affects the success of bank loan financing. However, there is not so clear data on what affects the success of financing through crowdfunding, yet Agrawal et al. (2015) argues that despite geographically extensive opportunities, backers support disproportionately more local creators, suggesting that country could be one determinant of the success of crowdfunding campaigns. It is not such a simple question, and it certainly depends on the skill of the creator (which is hard to quantify) of the project. The impact of selected factors is also analysed in this article, which can help creative entrepreneurs obtain financing that would not be available to them through credit or leasing. The goal of this work is to find factors that influence the success of such projects and thus increase the chances of companies to obtain financing through crowdfunding.

The article is divided into the following parts: the literature review contains an overview of current literature on the topic of crowdfunding and the determinants of project success, the methodology and data part describes the data used in this work and its sources, the results part describes the discovered dependencies between variables and their statistical significance, and at the end of the article is a conclusion of the entire work, which also includes a suggestion for future research and points out the weak points of this study.

2. Literature Review

Crowdfunding is one source of funding that entrepreneurs are increasingly exposed to beyond venture capital and angel funding. Di Pietro (2019) described the development and current state of crowdfunding. After presenting the most popular types of crowdfunding, he continues his work by presenting and comparing the development of this phenomenon in four macro-regions: Europe, the USA and Asia and the Pacific. In addition, the work offers an overview of the current state of the literature on crowdfunding, highlighting the incentives and disincentives of creators and funders for starting or participating in crowdfunding projects, the characteristics of a successful campaign and contextual factors that explain the development of this phenomenon in individual countries. The article is concluded with suggestions for future work in this area.

Maehle (2020) investigated the peculiarities of sustainable crowdfunding from the perspective of the project. The study followed a qualitative approach by conducting in-depth interviews with representatives of sustainable projects that have successful crowdfunding campaigns behind them. The selected projects represent various industries and crowdfunding models. Sustainable entrepreneurs have both financial and non-financial motivations for crowdfunding. A distinctive feature is the importance of community involvement, as the community spirit of crowdfunding lends itself well to sustainable projects. Choosing a

crowdfunding platform is more difficult for sustainable entrepreneurs because they have to consider the sustainability of the platform. According to the study, sustainable entrepreneurs also need to put more effort into their communication activities with potential supporters to compensate for the intangibility of sustainability claims. In addition, they need to focus more on building relationships with backers due to the community spirit of their projects and issues of legitimacy. This paper contributes to the limited literature on sustainable crowdfunding and sustainable business finance and can serve as a foundation for further research in this area. Current knowledge also has a high practical value.

The factors determining the success of crowdfunding projects is one of the central issues for crowdfunding researchers. Liu et al. (2023) looked at the success factors of crowdfunding campaigns. They used 53 qualified studies in their work. From these 53 studies, they carefully extracted and categorized 26 potential factors. These factors were then statistically analysed to decide which ones can significantly influence crowdfunding success. The results showed that the success of crowdfunding depends on a set of significant factors, which include the human capital of the fundraiser, the location of the project, the size of the team, the experience of the investor, the quality of the project and the interactivity on the crowdfunding platform. Crowdfunding success determinants were also analysed by various authors: Aleksina et al. (2019), Martinez-Chafer et al. (2023), Elexa et al. (2019), Wasiuzzaman and Suhili (2023), Munim et al. (2020), Alsagr et al. (2023), Emanuel-Correia et al. (2022) looked for determinants of success in developing countries, such as Malaysia, Bangladesh. The results of the analysis show that the minimum funding goal, the minimum required investment, the pre-money valuation and the length of the presentation video are very significant in influencing the success of the campaign in developing countries. Bukhari et al. (2020) compared the determinants of success of crowdfunding campaigns in developing and developed countries. According to the authors, the credibility of the creators and the support of the backers are decisive factors for the success of crowdfunding. The results of an additional test on location (developing and developed countries) suggest that creator credibility is more important than supporter support, especially in developing countries.

Saric (2022) also investigated the determinants of the success of crowdfunding campaigns, specifically in Croatia. His research was conducted on 78 Croatian crowdfunding campaigns. The campaigns were launched on the two most famous and available crowdfunding platforms: Kickstarter and Indiegogo between 2014 and 2019. The collected data were processed using the statistical program IBM SPSS Statistics and the Mann-Whitney U test application. The results show that there is a statistically significant difference between successful and unsuccessful campaigns in terms of the project goal, the duration of the campaign and the number of supporters of the campaign, while there is no statistically significant difference with regard to the amount of the average investment per sponsor. Here it is necessary to point out the fact that only projects created in Croatia were investigated, which means that the research does not take into account and does not analyse the influence of national and cultural specificities.

Pinkow and Emmerich (2021), on the other hand, analysed German crowdfunding projects. A dataset of 338 crowdfunding projects from the largest German crowdfunding platform StartNext between 2015 and 2016 was analysed by performing regression analyses controlling for different sizes of funding targets. They used dependent variables success, degree of success and number of project backers and checked whether the effect of independent variables such as comments, updates and social media depends on different funding targets. The study suggests that the impact of the investigated success factors actually strongly depends on the target funding levels of crowdfunding projects. By grouping projects into groups with different

funding goals, they found that the impact of individual success factors varies and that funding goal plays a moderating role in project success factors. The great contribution of this study is the fact that many crowdfunding studies focus on the most popular American platforms such as Kickstarter or Indiegogo, but in this study the authors focused on projects on the largest German crowdfunding platform StartNext.

3. Methodology

The data for this work was obtained from the Kickstarter database (WebRobots, 2021) and we used this database as the basis for all calculations in this chapter. We verified the impact of three factors, namely: the project category, the country from which the crowdfunding campaign was launched and the project's target amount. These factors were chosen based on various scientific works discussing the success of crowdfunding campaigns and the availability of data.

In his work, Koch and Cheng (2016) demonstrated the significant impact of the target amount on the output of a crowdfunding campaign. Robertson and Wooster (2015), on the other hand, points to the significant influence of the project category, especially in the number of supporters and the percentage of funded projects. Also based on these works, these factors were selected for analysis.

Our database contained 224,180 projects from 2009 to 2021 exclusively from the Kickstarter platform. We used this platform for all of our analysis because we managed to get the best data for projects on this platform. The projects in our database were divided into 4 basic groups: successfully funded projects, unsuccessfully funded projects, projects whose campaign is currently ongoing and projects whose funding has been cancelled.

In order to verify the influence of individual factors on the success of projects, we need to clearly know whether the project was ultimately successfully financed or not. For this reason, we have excluded from our database all projects whose campaign is currently ongoing, as well as projects that were cancelled. Here the question can be raised whether we should have included the cancelled projects among the unsuccessfully financed ones. However, since we do not know the circumstances under which the projects were cancelled, such a step would probably distort the result - project financing could have been cancelled prematurely for reasons other than just failure. We have 208,507 projects left in the database, we excluded 15,671, which represents about 7% of the total number of projects.

The analysed factors were: the target amount of the project, the country in which the project was created and the category of the project. The target amount of the project represents a quantitative variable whose impact on the success of the project, which is a qualitative variable, was evaluated using a two-sample T-test of independent samples. Our database includes projects from the Kickstarter database, which works on the principle of all or nothing funding, which means that if we do not collect the target amount of funds, the project is automatically marked as failed. Therefore, our logical assumption is that collecting a larger amount of funds is more difficult than collecting a smaller amount, because the hypothesis that we will verify in this work is that the differences in the success of the projects are statistically significant in terms of their target amount. We assume that there are more successful projects with lower target amounts and more unsuccessful ones with higher target amounts. Target amounts in our database ranged from \$1 to \$100,000,000. The category of the project and the country in which the project was created represent qualitative variables whose influence on the success of the project was evaluated using the Chi-square test. The following categories are available on the Kickstarter platform: Art, comics, crafts, dance, design, fashion, film and video, food, games, journalism, music, photography, publishing, technology, theater. Our data shows that there are

noticeable differences between the categories in terms of the number of projects created, in the dance category only 2,739 projects were created during the monitored period, while in the Film and video category there were 27,097. These differences may partly reflect people's interests and not only creators but also supporters. We therefore assume that there could be statistically significant differences in the individual categories in terms of success, which other authors have already pointed out. Similar to the category, our set is also unbalanced in terms of the country of the project creator. Our database includes projects from many countries, the countries with the highest number of projects include: USA, Great Britain, Canada, Australia and France. As already mentioned, it has been proven in the past that supporters prefer local projects, therefore we expect that this factor could also have a statistically significant impact in terms of project success.

4. Results

The following section presents the results of the analyses. As mentioned above, we evaluated the impact of three variables on the success of crowdfunding campaigns. The results of the analyzes of these impacts are presented in the following sections.

4.1. The impact of the targeted amount on the success of campaigns

A two-sample t-test of independent sets was used to evaluate the impact of the target amount on the success of the campaigns. This test evaluates the impact based on comparison between variance-weighted means and the size of the entire statistical set. Therefore, it is reasonable to first look at the average values of the target sums of successful and unsuccessful projects. Successful projects had an average target amount of \$9,160.45, while the average target amount of unsuccessful projects was \$81,067.49. These changes are rather noticeable, indicating that the target amount will most likely be a major factor in success.

The Levene's test revealed that the variances are not equal, because the sig. the value of this test was <0.001, which means that we accept the alternative hypothesis. The following table (Table 1) shows the t-test analysis findings for equality of means.

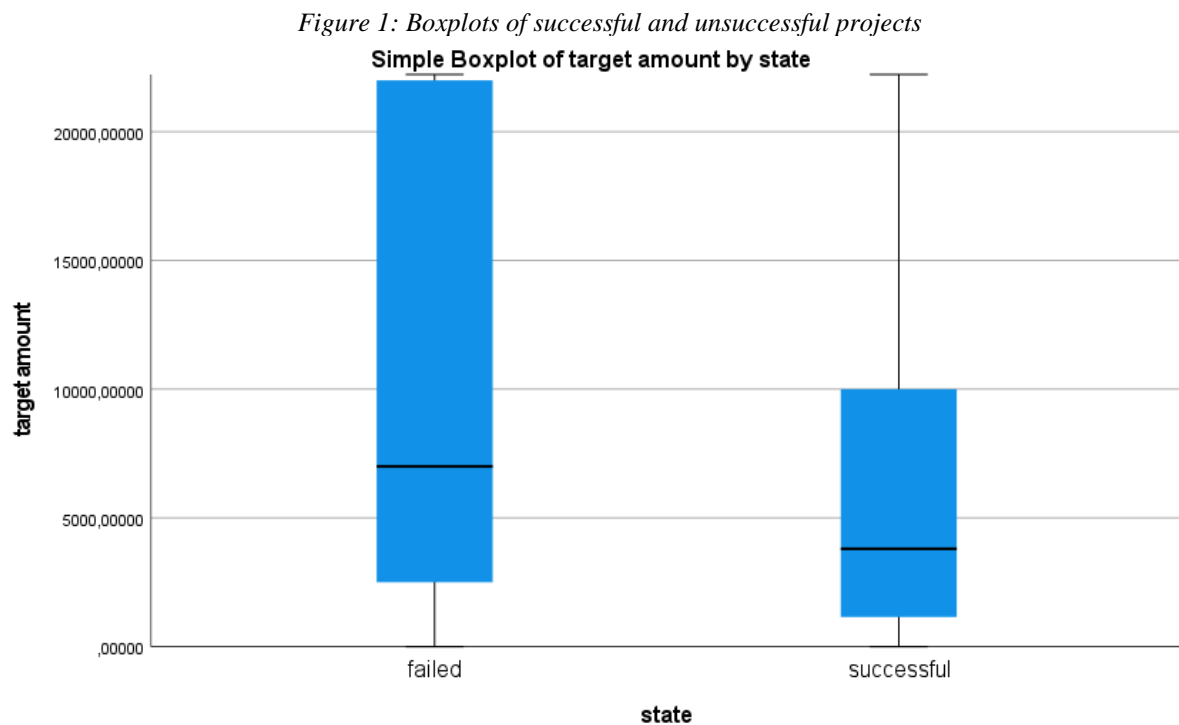
Table 1: The two-sample t-test of independent samples

		Significance				Mean Difference
		t	df	One-Sided p	Two-Sided p	
Targeted amount	Equal variances assumed	-13.39	142,004	<0.001	<0.001	-71,907.04
	Equal variances not assumed	-10.10	51,486.47	<0.001	<0.001	-71,907.04

Source: own elaboration

The two-sample t-test of independent samples clearly confirmed the statistically significant dependence between the project's target amount and its success. For a better representation of this dependence, we can look at the following graph, which shows boxplots of successful and unsuccessful projects in terms of their target amounts.

In the Figure 1, we can see that the median value is also lower in the case of successful campaigns, which means that the lower average of the target amount in the case of successful campaigns was not caused by extreme values. We can also see that a larger part of successful projects has lower target amounts than in the case of unsuccessful projects, which confirms the previous results.



Source: own elaboration

4.2. The impact of the creator's country on the success of campaigns

The Pearson Chi-Square test was used to evaluate the influence of the country of the project creator on the success of the projects. It was characteristic of most countries that they recorded more failed projects than successful ones. The exceptions were only two countries, namely Austria and Italy, in which there were more successful projects than unsuccessful ones, which indicates the possible influence of the country. The results of Pearson's Chi-Square test are in the following table (Table 2).

Table 2: Chi-Square test of creator's country impact

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2,043.299 ^a	24	<0.001
Likelihood Ratio	2,034.425	24	<0.001
N of Valid Cases	208,507		

a. 0 cells have expected count less than 5. The minimum expected count is 10.69.

Source: own elaboration

Pearson's Chi-Square test revealed a statistically significant dependence between the country of the project creator and the success of the projects, which means that the dependence is not random. Cramer's V coefficient was used to verify the strength of dependence, which is in the following table (Table 3).

Table 3: Symmetric Measures of creator's country impact

		Value	Approximate Significance
Nominal by Nominal	Phi	0.099	<0.001
	Cramer's V	0.099	<0.001
N of Valid Cases		208,507	

Source: own elaboration

The value of Cramer's V coefficient is 0.099, which indicates weak dependence. So we can say that the dependence is statistically significant and not random, but it is weak. It is therefore not a key determinant from the point of view of project success, but it should not be neglected.

4.3. The impact of the project category on the success of campaigns

The impact of the project category on the success of the projects was also evaluated using the Pearson Chi-Square test. Again, as in the case of countries, there are more failed projects than successful ones in most categories. Out of a total of 16 categories, only 4 had more successful projects than unsuccessful ones. It is also necessary to point out significant differences in the total number of projects for individual categories. The most numerous project category was Film and Video, with a total of almost 28,000 projects, while the least numerous category was dance, with about 2,700 projects. These facts already speak of the significant and extensive influence of the project category, and not only on success. The results of Pearson's Chi-square test are in the following table (Table 4).

Table 4: Chi-Square test project category impact

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20,340.237 ^a	15	<0.001
Likelihood Ratio	22,313.975	15	<0.001
N of Valid Cases	208,507		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1,009.38.

Source: own elaboration

The assumption was confirmed, the effect of the project category is statistically significant and not random. We verified the strength of this dependence using Cramer's V coefficient. The results are in the following table (Table 5).

Table 5: Symmetric Measures of project category impact

		Value	Approximate Significance
Nominal by Nominal	Phi	0.312	<0.001
	Cramer's V	0.312	<0.001
N of Valid Cases		208,507	

Source: own elaboration

Cramer's V coefficient has values of 0.312, which still represents a weak dependence, but it is stronger than in the case of the country of the project creator. In both cases, however, there were statistically significant dependencies, so we can claim that the project category is also among the determinants of the success of crowdfunding campaigns.

5. Discussion

In this paper, we managed to find three determinants of the success of crowdfunding campaigns. Among them, the amount of the target amount probably has the strongest influence, as the average amount of the target amount of a successfully funded project is \$9,160.45, while the average amount of an unsuccessfully funded project is up to \$81,067.49. The median values are also significantly different, and these results are confirmed by the statistically significant result of the two-sample t-test.

Similar results were obtained by Liu et al. (2020), who investigated the effects of attention and reliability on the performance of online medical crowdfunding projects and how the target amount changes these effects. Based on objective data of 1,177 crowdfunding projects from February 2016 to January 2018 in a large medical crowdfunding platform in China, the authors

found that project donor attention, as measured by the number of comments, and trustworthiness positively affect the performance of medical crowdfunding projects. However, the target amount weakens the positive effects of the number of forwards and comments in online medical crowdfunding projects. Therefore, project sponsors should set reasonable target amounts for raising funds and at the same time show attention and reliability to donors. Although this research focused on a medical crowdfunding platform that was in China, they also came up with the results that higher target amounts are likely to be more challenging to succeed, and there are significantly fewer successful projects with high target amounts than smaller ones. Stofa and Zoricak (2016) also looked for factors influencing the success of crowdfunding campaigns. The objective in their paper was to analyse the following project factors: the timing of the crowdfunding campaign, the goal of the funding campaign, and the relative size of the categories. In our work, we also compared the impact of the project category, not necessarily in terms of their size, but in terms of success. The study analysed approximately 100,000 completed projects from the Kickstarter crowdfunding site for the years 2009 - 2014. It is therefore a study for an older period than ours, but on the same platform - Kickstarter, which mainly includes projects from the USA. The authors' findings show a correlation between the success of the project and the timing of the campaign at the beginning and in the middle of the year. The target has an impact on the success of the project, in general, the lower the target amount, the more likely the project is to succeed. This result confirms ours. A study with a similar focus was carried out by the authors Wachira and Wachira (2022). In the study, they looked at what affects the amount of money raised, which can lead to the success or failure of equity-based crowdfunding using Crowdcube. The amount of money collected is related to the success of the campaigns, because by default it is necessary to collect the necessary target amount of money for success in a crowdfunding campaign. The study used Pearson correlations and multiple regression analysis. The regression model was considered appropriate because it was statistically significant. The paper's findings revealed that the number of investors, target amount, and pre-money valuation strongly and positively influence the success of equity-based crowdfunding campaigns.

Another statistically significant determinant of the success of crowdfunding campaigns is the country of the project creator. Although the dependence was weak, it was not random, confirming Agrawal's et al. (2015) claim that people support more local creators. Ljumovic et al. (2021) provided insight into the role of reward-based crowdfunding in farm financing, focusing on its likelihood of success. The study used a sample of 1,566 projects from the Kickstarter platform between 2014 and 2020. Thus, the analysed period partially coincides with ours, but the range of analysed projects is considerably lower compared to our study. However, the authors of the study added the degree of urbanization and the relative importance of agriculture in the country's economy to the basic elements for assessing the importance of crowdfunding. The authors ran a logistic regression model to examine the factors that motivate investment decisions. They found a statistically significant negative correlation between the campaign's own goal and the success of the project, as well as a small positive effect of the number of supporters and a positive effect of the importance of agriculture in the country's economy on the success of crowdfunding. Although this study did not investigate exactly what we did in our article, the results are very similar and partially coincide. In their paper, Martinez-Gomez et al. (2020) conduct an empirical analysis of the characteristics of successful offerings in two countries (UK and Spain) to assess the distribution of overfunding in equity crowdfunding. Among other things, they find significant cross-country differences that persist in the distribution of excess funding. Interestingly, however, the differences between countries in the level of overfunding in the technology sector are disappearing. Cicchiello et al. (2023)

came in a recent study with the results that it is possible to notice that being a company from a country consuming a large amount of renewable energy is positively associated with a higher crowdfunding performance. Conversely, if a company is located in a country that has large shares/ratios of electricity generation from renewable sources, it usually performs modestly compared to its international competitors. Lower transaction values are also attributed to companies based in countries that rely on the use of biomass. The results thus indicate differences in the success of campaigns from the point of view of different countries. Jin (2019) figured out that Chinese campaigns have low and uneven success rates, require legally the participation of charitable organisations and focus on financial distress and family values in appealing for donations. In addition, the ethical analysis suggests that medical crowdfunding in China shares several ethical concerns raised in developed countries such as the veracity of claims and privacy violation. The results indicate possible differences in terms of countries that reach beyond differences in terms of success. A paper by Buttice and Useche (2022) examined the role of internal social capital in the composition of the crowd of supporters attracted to US-born versus immigrant entrepreneurs. Immigrant entrepreneurs who have been active on a crowdfunding platform by supporting the campaigns of others before launching their own attract more backers and have a higher probability of success compared to native-born entrepreneurs. This study points to a possible difference in success between the country from which the campaign was launched and the country from which the creator comes. In our work, the country from which the campaign was launched was found to be a determinant of success.

The last determinant found and confirmed by this work is the project category. The dependence was somewhat stronger than in the case of the country of the project creator, but still weak. Even so, it was statistically significant. Chan et al. (2018) assessed the relative importance of the influence of project, product category, entrepreneur, and location on the success of reward-based crowdfunding. Applying variance decomposition analysis to a sample of 98,336 crowdfunding projects launched between May 2009 and May 2014 on the Kickstarter platform, they found that agency factors, namely project and entrepreneur effects, explained the highest relative variance (more than 80% of the total variance) across three successful crowdfunding outcomes – the amount of the pledge, the number of supporters and the success of the financing. Structural factors, namely the effect of product category and location, have lower but still significant effects. The category was thus a factor that we also identified in our work, and we also found a lower but statistically significant effect. Ko and Ko (2021) found that reward characteristics (category, target, and product feature) had a significant effect on the level of funding ratio. The analyses were carried out on the Korean Wadiz platform for 2019. The results partially coincide with ours. The results of Lee and Chiravuri (2019) show that serial creators who have experienced successful initial crowdfunding are more likely to explore a new industry or product category in the crowdfunding market and set a higher target capital for a subsequent campaign when they change project category. The study points to possible influences in the choice of category and target amount, which can also affect the success of campaigns. According to Agnihotri et al. (2021), investors value information about the past success of a celebrity's project more than information congruent with the product's image, so if the celebrity has a previous successful investment in a non-conforming product category, investors' intentions to invest in the project are still higher than in a project in the same category. category with previous failure. The study points to the fact that previous success may be a stronger predictor of success than project category. Wolfe et al. (2021) found that activity on Twitter can increase the chances of crowdfunding success. The chance of success increases with the increase in unpredictability and the number of posts per project category on Twitter.

6. Conclusions

In this article, we analysed the determinants of the success of crowdfunding campaigns. We found weak, but statistically significant differences in the success of campaigns in terms of their target amount, project category and the country of the project creator. We can therefore consider these factors as determinants. Based on these results, it is possible to recommend lower target amounts for projects, since successful projects have demonstrably lower target amounts than unsuccessful projects. Furthermore, we have shown statistically significant differences in success from the point of view of the creator's country, therefore the Kickstarter platform is optimal for creators from the USA, and for European creators we recommend European platforms, for example German platform StartNext, because, as mentioned in this and other articles, backers prefer local projects. In addition, there are statistically significant differences in the project category, where we recommend focusing on attractive categories that achieve the highest success rate. The limits of this research include the limitation to one platform - Kickstarter, which also means that most of the projects are from the USA, therefore, the results in this work may not apply to all platforms in the world, or for project creators worldwide. Another limitation is that we do not know exactly how individual factors will affect the probability of success. In the future, it would therefore be appropriate to create a model using logistic regression, which could be expanded to include other factors and with which it would be possible to accurately quantify the influence of factors on the chances of success.

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