



**Doctoral School of  
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## **THESIS COLLECTION**

**Viktória Nóra Katona**

**Crowdfunding of Technological Innovation Projects**

titled Doctoral Dissertation

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Docent

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**„Department of Strategy and Project Management”**

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## 1. RESEARCH BACKGROUND AND TOPIC RATIONALE

Crowdfunding – as a form of social financing innovation – emerged between 2005-2010, and since became a field of research of increasingly in-depth scrutiny along scientific lines of inquiry – on the basis of surveys performed among a growing number of enterprises and the statistics of the platforms. *The topic is relevant as it pertains to the fundraising decisions of enterprises today.*

Economic and entrepreneurial development policies attribute the most significant economical stimulus effect to the enterprises executing technology based innovation<sup>1</sup>. Therefore, answering the question, how crowdfunding can be best utilized among these enterprises comes of exceptional importance, with particular focus on reward-based crowdfunding, considered one of the forms of pre-financing technological innovations by the „buyers”.

According to its better known definition, crowdfunding is a fundraising model which enables private individuals or groups of persons to apply for financial support on online forums, for cultural, social, or non-profit initiatives (Mollick, 2013) *from a broad circle of small-sum contributors instead of a narrow, sophisticated group of financiers.* (Belleflamme et al., 2012; Riedl, 2013) (Cordova et al., 2015). This definition is still focusing on cultural-social type projects, but the model has been gaining ever greater popularity among product development ideas as well.

According to Mollick’s 2014 enterprise-approach definition, crowdfunding is the „compilation label of those efforts *over the course of which individuals or groups with an entrepreneurial perspective finance cultural, social and for-profit initiatives from a large number of supporters with the involvement of a relatively small sum per individual*, excluding traditional financial intermediaries, through online solutions.” (Mollick, 2014, pp. 2.).

In its educational materials compiled for enterprises, the European Commission defines reward-based crowdfunding as follows: – Individuals donate to a project or enterprises, *in consideration of which they expect that later on they receive some kind of non-monetary reward for their contribution, such as goods or services.*

Academic studies on the operation of crowdfunding initially have served the exploration of the drivers of crowdfunding opportunities (Alemany-Bulto, 2004, De Buysere et.al. 2005, Freund, 2010, Cumming et al.,2014, Agrawal et al., 2014). Subsequently, the refining of the

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<sup>1</sup> product, process, technology (OECD, 2005)

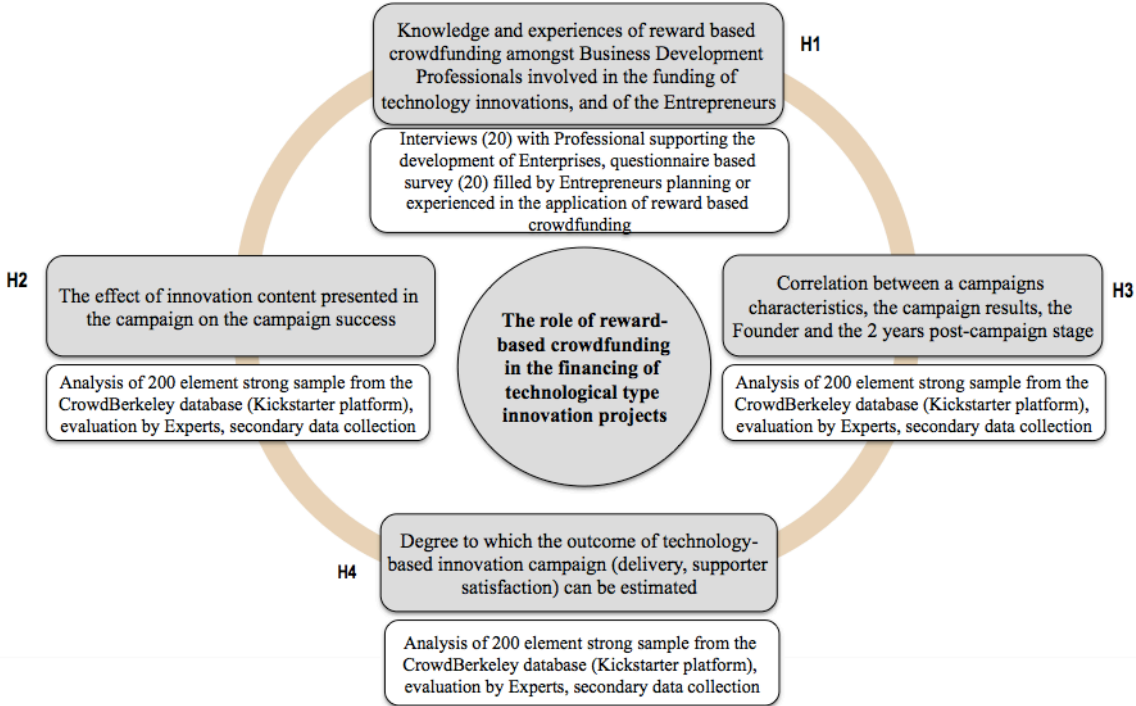
<sup>2</sup> 2 Portuguese, 1 Polish, 2 French, 1 German.

<sup>3</sup> At the beginning of the questionnaire it was clarified that the whole survey was focusing on the reward based 2

understanding of crowdfunding and its system of recommendations has garnered ever growing attention, as this alternative funding format is able to fill the gap in the funding of small enterprises working on a shift in their developmental profile or not possessing a strong enough financial background or developmental experience yet (Valanciene – Jegeleviciute, 2014, Cordova et al., 2015, Gleasure, 2015, Joenssen et. al., 2014). Knowhow continues to lack as to how exactly it is worth adapting reward-based crowdfunding to the life-cycle of a startup or developing enterprise (Cordova et. al, 2015) and the existence and combination of which factors can enable an enterprise to anticipate a suitable outcome. The study of innovation content and its correlation of technology-based projects have been published in the work of just a few authors (Chan-Parhankangas, 2017, Mukharjee et al. 2017), yielding significant room for the expansion of such knowledge.

As this alternative funding scheme provides an opportunity for the development of enterprises and the financing of new jobs while skipping or supplementing (Katona, 2018) traditional state and financial funding sources in the higher risk launch phase, its spread and success are in the interest of all stakeholders. The dissertation focuses on reward-based crowdfunding as it pertains to technology-based innovation projects.

**Figure 1. The structural model of the doctoral research.**



Edited by the Author.

## **2. DATABASES USED IN THE RESEARCH**

### **2.1. CrowdBerkeley database – Year 2016 Kickstarter projects**

Multiple databases have been downloaded from the CrowdBerkeley site of the University of California at Berkeley in the beginning of 2018. A Kickstarter database from 2016 was used for the purpose of the analysis, containing projects that have been launched after January 1 and concluded before the end of that year.

The data of more than thirty-seven thousand projects are located in the database, including 4,700 projects in the technology category. The issue raised by the research was aimed at the characteristics of the crowdfunding of technology-based innovation projects, thus we viewed these projects as the base population size.

A 200 element strong sample in the technology category was selected from this population, which contained 50 unsuccessful and 150 successful (including 39 extremely successful) projects. We subjected the sample to an in-depth expert inspection, over the course of which an average of 2.2 evaluators had examined a given project. This enabled the near objective quantification of the innovation content of each project, as well as the exploration of the relationships and correlations between the outcome of the campaign, the outcome of the project, and the post-campaign life of the enterprise two years thereafter. The 200 element strong sample enabled the application of complex methods of statistical analysis, including multi-variable regression and discriminant analysis.

On the basis of the academic literature, the analysis and quantification of innovation content and the size of the analyzed sample are unique.

### **2.2. Primer research - Entrepreneurial funding expert interviews**

As part of the research, between May and October of 2018, semi-structured in-depth interviews with 20 interested parties of the Hungarian and international enterprise funding ecosystem have been conducted. These had been conducted primarily with experts who participate in the development of enterprises implementing technology-based innovation. 13 Hungarian, 6 European<sup>2</sup> and one American expert shared their thoughts, know-how and

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<sup>2</sup> 2 Portuguese, 1 Polish, 2 French, 1 German.

experience on the role and applicability of reward-based crowdfunding. The interview questions focused on how well known crowdfunding is – by the experts themselves, and amongst the enterprises they work with –, if advantages and disadvantages are known, also, the adaptation of the funding format, and its competitor or completer role as compared to traditionally known entrepreneurial funding opportunities. Replies given by the experts have helped map precise cases of recommended uses of the application as well.

According to their institutional background, the responding experts represented the venture capital, incubator and accelerator houses, as well as the academic innovation ecosystems. On the average, the responders possessed professional experience of 12 years – 2 at a minimum, 45 maximum, generally 8-15 years - in the field of financing and developing enterprises. Of them, 12 individuals (60%) were directors, founders or owners of the represented institution, possessing practical investment or corporate evaluation experience.

Their responses, due to, in particular, their relatively large proportion as compared to the Hungarian ecosystem, gave a result that can be considered a relevant overview.

### **2.3. Primer research – Entrepreneur questionnaire survey**

General know-how and opinions associated with the utilization of reward-based crowdfunding have been explored through a questionnaire survey among those entrepreneurs – and private individuals possessing an entrepreneurial spirit – who had already launched technology-based projects or are thinking of doing so. Questionnaires were sent to more than 400 Hungarian and international enterprises, from which responses arrived between July 1 and September 1 of 2018. Having obtained a response rate of 5%, a total of 20 questionnaires have been processed.

60% of responders were Hungarian; the remainder were filled out by Finnish, Polish, Portuguese, German, Italian, Swedish and French entrepreneurs. A quarter of responders have already launched crowdfunding campaigns, of whom the campaigns of two persons were elements of the 200 element strong Kickstarter database examined over the course of the study.

The number of observations were relatively low, thus the entrepreneurial questionnaire results were primarily applied over the course of the evaluation of the hypothesis to provide refinement of the analytical results of the database.

In either case, the studied databases are not to be considered representative.

### 3. METHODS USED

*The methodology that was utilized over the course of laying the foundation of the study and the development of the hypotheses was research in the academic literature. A non-systematically compiled, large number of academic literature sources – more than 150 – had been processed. The academic foundation of crowdfunding is relatively recent (Alegre-Moleskis, 2016); similarly, it has only been a few years since structured data collection on crowdfunding has come into existence, thus a significant portion of sources have come into being just within the last 10 years. Academic literature providing guidance on management, innovation and technology management, project management, and financing go back to earlier periods (Schumpeter, 1911, Drucker, 1985, Pataki, 2005, Görög, 2003, Mészáros, 2002). Of primer research methodologies, surveys utilizing interviews and questionnaires had been applied.*

In the interest of learning of the knowledge, perspectives and experience on crowdfunding of the *stakeholders of entrepreneurial financing, semi-structured in-depth interviews had been conducted*. Responses given to structured questions have been subsequently clarified, typically by text analysis, to a small extent by content analysis (Babbie, 2008), which enabled the classification and analysis of the collected information. In the interest of ensuring the expertise in special fields and those asked, the selection of the prospective responders had taken place through recommendations, via snowball sampling (Babbie, 2008).

Over the course of the *Entrepreneur Questionnaire Survey*, an English language, on-line, unassisted questionnaire (Babbie, 2008) had been sent to the entrepreneur ecosystems and groups, with language that took into account the characteristics and knowledge of the target group. Adapting to the nature of the studied subject field, closed-ended, semi closed-ended, and open-ended questions had been posed. Naturally, the questionnaire began with „warmup” questions and demographic questions, and affected the position and funding opportunities of the enterprise and the prejudices, opinions, and experience of the entrepreneur pertaining to crowdfunding in a separate section. In case of certain questions on importance and strength of effects, a 4 point attitude scale „forcing” an unequivocal position was employed. The avoidance of errors in content, format and logic was ensured by edits on the basis of experience of 5 responders. Their responses had not been analyzed.

*The analyzed database was built upon the information stored in the CrowdBerkeley database, which has been expanded in three ways to comply with study requirements.*



(1) In the interest of adapting to the objective of the study, derived data from secondary data – that could be accessed in the original database – have been generated; derived variables included contribution amount per single supporter, the length of the campaign, % of funding, and the country of launch.

(2) New variables have been defined to record the results of the expert content analyses of the campaigns. Of the newly established variables, the indicator of innovation content is of exceptional importance – it has captured the appearance of 8 consumer utility dimensions (*Kim- Mauborgne, 2000*) with the aid of binary variables, and also took into account whether the enterprise has already submitted a patent application, and the non/for profit nature of the campaign.

(3) The examination of Kickstarter founder profiles required additional research and data gathering and the categorization of supporter comments. In the event of missing information in connection with the operation of the enterprise, its size, and the availability of its product, information filtered on the basis of searches on LinkedIn, Bloomberg and Google searches have enabled the completeness of the database. Research and analysis conducted under Sections (2) and (3) had expanded threefold the circle of analyzable variables associated with a given campaign.

*Multi-variable statistical methodologies have been employed over the course of the analysis of the 200 element strong project database.*

I performed the analysis of the relationships and correlations between individual variables and changing groups in accordance with research methodological recommendations (*Malhotra, 2002, Füstös, 2010, 1985, Kovács, 2014*).

In case of the examination of the relationships between the variables measured on ordinal scale, I employed *cross-tabulation analysis* – thus, for example, when examining the first hypothesis, over the course of the analysis of the correlation between the type of founder actor and the categorized result variables of the campaign. Over the course of the examination of the correlation between the quality indicators of the innovation content and of the campaign as measured on a ratio scale, and the result variables showing the success of the campaign and the descriptive parameters of the campaign, *multi-variable regression* and *discriminant analysis* had been employed, while over the course of the study of the relationship between individual indicators and a given result variable, *linear regression* had been used.

## 4. DISSERTATION RESULTS

The objective of the study was to fill in gaps in the applicable recommendations and know-how in entrepreneurial crowdfunding and contribute to the financial toolbox of technology-based innovation projects, as well as explore new correlations between the innovation content of crowdfunding campaigns and their respective outcomes. This objective has been achieved through four hypotheses. The theses were supported through the examination of multiple subpoints. In all cases, the academic literature research and conducted primer research, as well as the correlations detected over the course of the database analysis were jointly taken into consideration.

### 4.1. Reward-based crowdfunding is a recommended tool in the early stages of enterprises planning to introduce technological innovation

Based on a review of the academic literature, crowdfunding definitely appeared to be a corporate financing alternative of note; however, its system of recommendations was even less developed, particularly as it pertained to technology-based innovation projects. With the first hypothesis, the place and role of reward-based crowdfunding is getting clarified, expressed as follows:

**H1: Reward-based crowdfunding has a place among corporate funding sources during the initial stage of the life of enterprises that are built on technology-based innovation or are implementing the same.**

- a) Crowdfunding is a relevant supplement to traditionally available corporate financing formats.

In case of the questions regarding the role of crowdfunding in technology related innovation projects „To what extent can crowdfunding be considered a complementary source or a competitor of the traditional financing methods?“ all of the responders considered it to be a complementary source that can extend the number and volume of the financial resources being available for the enterprises. 85% of responders thinks that the (reward based<sup>3</sup>) crowdfunding has advantages compared to the traditional financing methods.

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<sup>3</sup> At the beginning of the questionnaire it was clarified that the whole survey was focusing on the reward based crowdfunding of technology related innovation projects so it was not explicitly mentioned at each question.

- b) Reward-based crowdfunding plays an outstanding role in the initial stage of the life-cycle of enterprises implementing technology-based innovation.

As far as the question of which life cycle stage of a technology based innovation planning enterprise does reward-based crowdfunding assume exceptional importance, 35% of experts named the pre-seed stage. 25% opined that its application could be recommended in the pre-seed and seed stage, 30% positioning it in the seed stage, while according to one responder, its application can be recommended in every stage of the life of the enterprise (even in the growth and maturity stage). 60% of responders had unequivocally named the early stage as the optimal period of application.

- c) Reward-based crowdfunding can be a competitor to traditional funding sources.

As far as the question of whether reward-based crowdfunding can be a competitor of traditional funding sources or if it can replace traditional sources over the long term, 60% of responding experts have given an unequivocal, categorical negative response. 30% of experts considered it conceivable, however, that it can entirely replace certain traditional funding sources in technological developments. At this time, the 3F-s, bank financing, venture capital, as well as angel investor capital had all been checked. 10% of responders – even though they had not given a categorically negative response – had not considered it a likely outcome.

This subpoint helped to clarify the relationship of crowdfunding and traditional methods, it confirmed its complementary nature while stating that it does not replace the traditional sources – according to the responders.

- d) Reward-based crowdfunding is capable of replacing other, traditional entrepreneurial funding sources that would be utilized by enterprises implementing technology-based innovation.

Even though the majority of experts have agreed that reward-based crowdfunding cannot be competitor to traditional funding sources, 95% of them named at least one traditional funding source that could be replaced by this fundraising method. Every third responder had voluntarily named at least two such funding sources.

According to 35%, in some cases, the application of reward-based crowdfunding can replace the inclusion of venture capital. 25% each marked bank financing, angel investor capital, and 3F sources. 10% each marked bootstrapping and funding sources provided by business incubators, which could be replaced by crowdfunding.

According to 30% of entrepreneur responders, crowdfunding could be capable of covering the entire funding requirements of a startup enterprise launching with a technology-based project. According to 60%, it is worth combining it with other funding sources, as the application of other sources could garner other advantages; 10% stated that it could be suitable for the funding of a project, but it cannot cover the cost of launching the enterprise. The opinion of the entrepreneurs – that it is capable of replacing other funding sources, while at the same time it is worth combining it with them – matches the opinion of entrepreneurial financing experts.

- e) The successful reward-based crowdfunding campaign of an enterprise planning to implement technology-based innovation positively influences the continued funding opportunities of the enterprise.

According to 95% of experts, prior to fundraising, the evaluation of the enterprises was positively impacted having launched a reward-based crowdfunding campaign in the past. For close to half of responders, the fact itself that the enterprise had had its idea weighed on some kind of for-profit platform could be adjudged positively even if that effort had not succeeded. According to a significant proportion of financiers, after a successful campaign, enterprises can obtain funding subject to unequivocally better terms from even the traditional players, thus they considered it decidedly a recommended course of action prior to, for instance, the inclusion of more significant venture capital funding.

- f) Reward-based crowdfunding can translate into a point of entry in the process of becoming an entrepreneur.

The aim of the subsection was to explore the potential significance of crowdfunding in advancing the cause of becoming an entrepreneur. Does it truly „democratize” this transformation and assist many on starting out on this path? Expert opinions split the most on this topic. Two of 20 responders did not offer an opinion, with the remainder of the responses split equally among affirmative and negative positions. According to 20% of experts the answer is yes, crowdfunding utilization can be a gateway to the process of becoming an entrepreneur. 10% claimed not at all, with 25% stating „more likely yes”, and 35% „more likely no”, thus by combining the categories, the ratio of affirmative to negative responses is 45-45%.

80% of entrepreneur responders agreed with the claim of that a successful campaign would motivate them to launch their enterprise. 50% agreed completely, 30% partially. 15% of

responders did not agree with the claim. In the case of this subsection, the responses of the responders were much more positive than expert statements.

Based on the empirical results of the research, it can be stated that reward-based crowdfunding is an important supplement in the financing of enterprises planning technology-based innovation, it can be a real alternative to known enterprise funding sources, advancing entrepreneurial development and expanding the circle of available funding sources.

#### **4.2. Innovation content present in the campaign has a positive impact on campaign success**

To date, just two authors have examined the correlations between the innovation content of reward-based platforms campaigns and the success of the campaign in the context of technology based projects. One of them had established the radical or incremental nature of innovation and presented its implementability<sup>4</sup>, as factors that influence campaign success (*Chan – Pahrankangas, 2017*), while *Mukherjee et al. (2017)* had employed a text analysis application to determine whether the appearance of terms pertaining to innovation or utility content result in changes insofar as the campaign outcome is concerned. In the case of this doctoral research, the objective measurement of innovation content was enabled by expert evaluation, which measured innovation content with the number of consumer utility dimensions appearing in the campaign on an interval scale of 0-8. This was supplemented with information regarding the existence of a patent or patent application.

**H2: Over the course of the crowdfunding campaigns of technology-based innovation projects launched on Kickstarter, the innovation content of the projects is a relevant factor from a campaign outcome perspective.**

Employing a regression model, I compared the role of the innovation indicator with other variables influencing a successful outcome that are mentioned in the academic literature. These variables included the length of the campaign (*Mollick, 2014*), the requested campaign sum (*Mollick, 2014, Belleflame et al., 2014, Agrawal, et al., 2014*), and the quality indicators of the campaign (which contains, among other, whether the campaign possesses a video (*Mollick, 2014, Petitjean, 2016*) or if it shares personal anecdotes). I performed a multi-

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<sup>4</sup> Independent, private individuals not familiar with the topic performed the content analysis through a paid platform, based on a list of questions compiled by the researchers.

variable regression to do so, where the dependent variable was successful campaign outcome (binary variable).

The model had an 82% success rate in estimating the success of a given campaign. The of innovation content indicator that captures the utility dimensions and the existence of patents proved to be significant as well on 5% significance level. Its per unit change improved the probability of the campaign being in the successful group by 70%, in the analysed sample.

- a) Innovation content positively influences the success of the campaign.

Based on the results of the cross-tabulation analysis, there was a significant, positive, weaker than average relationship detectable between innovation content and the success of the campaign, similarly in the following sections from b) to d).

- b) The higher the number of utility dimensions in which the emphasis of innovation of the product or service appears, the higher the level of funding that can be achieved over the course of the reward-based crowdfunding of technology-based innovation projects.
- c) The higher the number of utility dimensions in which the emphasis of innovation of the product or service appears, the higher the number of supporters of a given project;
- d) The higher the number of planned utility dimensions in which the emphasis of innovation of the product appears, the higher the amount of donations achieved.

As a methodological experiment, I also examined the effect of given utility dimensions through discriminant analysis<sup>5</sup> to measure the level of success of the campaign. In itself, knowledge of the 9 variables improved the probability of the correct classification of the outcome of the campaign by 20% (to 44%) in the „disinterested<sup>6</sup>”, „unsuccessful”, „successful”, „extremely successful” categories. When the campaign had to be classified into just the successful or unsuccessful binary variable interpreted outcomes, the binary regression model successfully assigned the campaign 80% of the time, exclusively on the basis of knowing the innovation content indicating variables.

Based on the analyses, a significant and detectable positive correlation exists on a statistical level as well between innovation content and the success – and its variables - of the campaign;

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<sup>5</sup> Taking into consideration that in case of certain variable types the models can underestimate the real degree of the correlation between variables due to the prerequisites not being fulfilled.

<sup>6</sup> Campaigns not supported by anybody.

I was able to accept the H2 hypothesis, including all of its subsections. This relationship is relatively weak, however; in the examined sample, the development of innovation content had not shaped the outcome of the campaign in a particularly robust manner, and in and of itself is either not capable of forecasting campaign outcome, or at most in a limited fashion. However, higher innovation content was specific for the extremely successful campaigns.

#### **4.3. The success of the crowdfunding campaign is a positive indicator as it pertains to the two-year survival of enterprises**

##### **H3: The success of reward-based crowdfunding is a positive indicator of the successful survival of enterprises implementing technology-based innovation (the enterprise continues to exist two years after the project)**

I used cross tabulation analysis to examine the relationship between the success of the campaign (category), the initiators (enterprises or entrepreneurs) activity after the project, the later availability of the product, as well as the relationships generated from these variables. Between the indicator of campaign success (and their categories) and the post-campaign<sup>7</sup> (whether the product is available for order and the activity of the founder two years after the campaign) of the project or enterprise on the basis of the Somers' D scale (a dependent variable as it pertains to the post-life of the project) is statistically significant, with a rather weak but positive relationship.

The results of the cross-tabulation analysis supported the following conclusions:

- a) There is a relationship between the success of the campaign and the 2 year survival (activity) of the enterprise.
- b) There is a relationship between the success of the project and the 2 year survival (activity) of the enterprise.
- c) There is a positive correlation between the success of the campaign and the post two year availability of the product.

Examining the two year post-campaign survival of the initiators, the proportion of enterprises in the 2-10 person category was 8% higher as compared to the average 70% survival rate (*McIntyre, 2018*), which suggests that the survival indicators of the enterprises develop more favourably – even if not largely so – among those players who had launched crowdfunding campaigns before. Among enterprises that employed more than 10 employees in the sample, the survival rate was 92%.

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<sup>7</sup> As it is possible that the project continues to exist but the enterprise transforms, and the reverse as well.

Taking into account that on the basis of their staff count they had not launched the campaign in the year of their founding, this proportion is exceptionally high.

Its exploration was interesting because there is a need of indicators that can reduce uncertainties about the survival of enterprises over the course of entrepreneurial development.

Based on the examined sample, we can state that the comprehensive success of a reward-based crowdfunding campaign – the number of supporters, the achieved donation amount, and the percentage extent of overfinancing – can contribute to an estimation of the latter survival of the enterprise.

#### **4.4. Awareness of the campaign's quality indicators reduces uncertainty regarding the outcome of the crowdfunding project**

One of the „childhood illnesses” of reward-based crowdfunding is that, in many cases, a successful campaign does not go hand-in-hand with successful delivery/performance to the supporters.

This can be interpreted as a kind of moral risk, an exhibition of the principal-agent problem between the campaign founders and supporters; in many cases, however, the campaign initiator simply cannot realistically estimate its time and cost requirements that arise over the course of preparation of manufacturing, manufacturing, and shipping.

In the interest of avoiding the risks of „non-delivery” and „product of inadequate quality”, the supporters strive to favour projects that do not appear to be radically innovative (*Chan – Pahrankangas, 2017*), and are receptive to the existence of certain factors – such as the accessibility of the video, the number of social proofs, and communications, all of which presumably reduce risk. I employed multiple methods to examine the relationship between quality indicators and the success of the crowdfunding project (delivery and supporter satisfaction). Examining the relationship between variable via cross-tabulation analysis, the relationship between the two variables was significant, but weak. This enabled the acceptance of the hypothesis, to wit:

**H4: The quality/trust indicators of the campaign forecast the success of the Kickstarter project (the implementation and quality of delivery).**

- a) There is a relationship between the quality/trust indicators of the campaign and the success of the project.
- b) There is a relationship between the quality/trust indicators and delivery.



- c) There is a relationship between the quality/trust indicators of the campaign and the satisfaction of the supporters.

There was a significant, positive correlation between trust indicators and the success of the campaign, having examined the relationship between the success of the campaign and the quality indicators through a binary regression model. In other words, all-in-all the sample shows that projects possessing better quality indicators conclude the campaign with better results.

Based on the results of the cross-tabulation analysis, the existence of these indicators are only mildly differentiated when it is time for the delivery of the promised product; the relationship between quality indicators, the two year survival of the enterprise, and the availability of the product was likewise weak.

## **5. SUMMARY CONCLUSIONS**

One of the most significant results of the study is that in comparison with earlier analyses, it provides guidelines prepared with academic rigour to the development of a substantially more accurate system of recommendations regarding the use of reward based crowdfunding.

The analyzed academic literature lacked such detailed evaluation of innovation content, and the perspective of entrepreneurial financing also has been given reign in this format.

The study of innovation content enabled me to seek out correlations between previously unanalyzed information pertaining to the success of the technological projects of the enterprises.

Over the course of answering the study's questions, the system of perspective and know-how of practicing entrepreneurs and institutional investors have assumed the foreground, which has made preconceptions, perceptions and experience associated with reward-based crowdfunding transparent, with particular focus on clarification of the objective and timing of the application.

On the basis of my research, I formulated the following summary conclusions in the field:

- a) Reward-based crowdfunding – in the appropriate case of application – is a good and recommended tool for enterprises initiating a technology-based project.**

As the result of a well-prepared, conscious decision, as compared to traditional funding sources and smart capital, a successful reward-based crowdfunding campaign can offer a larger consumer base, international renown, and a cheaper fundraising opportunity. Additional research studies are justified on the appropriate cases of application, but on the basis of this study we can define it as the following: an enterprise that is prepared for manufacturing and possesses sufficient capital and/or abilities, can develop the product or service garnering advantages that are comprehensible and tangible to the customer, and implement the campaign at a high quality, with quality content and intensive communications activity, is recommended to use this funding alternative.

- b) In case of early stage enterprises, initiating technology-based projects, reward-based crowdfunding can be a good supplement to traditional funding sources, providing advantages to the enterprise and subsequent financiers alike. It can significantly reduce risks associated with the development of the enterprise and innovative solutions, both for the enterprises and the financing institutions.**

Compared to other crowdfunding models, in case of the reward-based, the supplemental aspect is most obvious as compared to traditional enterprise financing tools.

One of its greatest advantages lies in easing the product concept validation, on a quick, effective way, covering a broad geographical area. During the pre-seed period, launching a campaign on a reward-based crowdfunding platform – over the course of the building of the prototype –, reduces the risk of loss in time and effort invested into unsuitable market potential, and can assist redesign efforts. A successful campaign improves the situation of capital investors and financiers by reducing the listed risks. It improves the bargaining position of enterprises over the course of fundraising and reduces the risk of principals arising on the side of the capital investors.

Pursuant to stakeholder interviews, Hungary also possesses the entrepreneurial circle for whom this opportunity would be explicitly useful, but fearing failure, or overestimating resource needs, they do not take advantage of the opportunity. Not familiar with the conditions of launching a campaign, other enterprises – as it is genuinely difficult to obtain

information in the field that is objective, structured, and aiding operations – initiate the campaign in an unprepared state.

In order to advance the cause of realizing the opportunities offered by the funding model, it would be worthwhile to consciously design a developmental path for enterprises– along with the cooperation of traditional financiers – in which campaign launch is part of the strategy of the enterprise’s product validation and growth-financing strategy. This enables the setting of additional research objectives in the future.

- c) Familiarity with innovation content and quality indicators can contribute to an estimation of the outcome of the campaign and enterprise. Knowing other campaign parameters can help provide more precise estimates as to the expected campaign outcome.**

The study of innovation content and the select consumer utility approach methodology proved to be a useful tool. On the one hand, it was so because it enabled structured and relatively objective quantification, while on the other hand, this approach to the interpretation of innovation content was not alien to experts and entrepreneurs either. Those research results that show that the relationship between innovation content and success was significant but not a robust factor in this sample, raises additional questions.

- d) With regard to the role of individual dimensions of innovation content – certain consumer utility dimensions – we can state on the basis of the study that from the perspective of buyers, the most obvious dimensions appeared in a significant proportion of the campaigns.**

The analysis of the sample confirmed the results of the two available studies in the area: The value increase of the indicators over a value of one innovation content is not differentiated. In other words, innovation detection has a saturation point, above which it has either no effect or might have a negative effect on success. This had also confirmed that reward-based crowdfunding platforms are stages of incremental innovation, aiding a further clarification of recommendations made to enterprises.

## 6. PRIMARY BIBLIOGRAPHY

1. Agrawal, A. – Catalini, C. – Goldfarb, A. (2014): Some simple economics of crowdfunding. *Innovation Policy and the Economy*, 14(1), 63-97. Retrieved from: <http://www.journals.uchicago.edu/doi/full/10.1086/674021>. DOI: 10.1086/674021.
2. Alegre, I. – Moleskis, M. (2016): Crowdfunding: A Review and Research Agenda. Working Paper – 1142 –e- October, 2016. IESE Business School, University of Navarra. Letöltve: <https://pdfs.semanticscholar.org/3a2e/f7c64aafd0a0fed358375ddbc5b039a735a3.pdf>
3. Alemany, L. – Bultó, I. (2004): Crowdfunding: Nueva forma de financiación para los emprendedores. *Harvard Deusto Business Review*, 237, 6-19. DOI: 10.5546/aap.2015.154.
4. Belleflamme, P. – Lambert, T. – Schwienbacher, A. (2014): Crowdfunding: Tapping the right crowd. *Journal of business venturing*. 29(5), 585-609. Retrieved from: <http://www.sciencedirect.com/science/article/pii/S0883902613000694>. DOI: 10.2139/ssrn.1578175.
5. Bethlendi, A. – Végh R. (2014): Közösségi finanszírozás-valós lehetőség-e a hazai kisvállalatok számára. *Hitelintézeti Szemle*, 13. Retrieved from: <http://www hitelintezetiszemle.hu/letoltes/5-bethlendi-vegh-2.pdf>.
6. Béza D. – Csákné Filep J. – Csapó, K. – Csubák, T. K. – Farkas Sz. – Szerb L. (2013): *Kisvállalkozások finanszírozása*. Perfekt Gazdasági Tanácsadó Oktató és Kiadó Zrt., Budapest.
7. Bozzon, A. – Brambilla, M. – Ceri, S. – Silvestri, M. – Vesce, G. (2013, March): Choosing the right crowd: expert finding in social networks. In *Proceedings of the 16th International Conference on Extending Database Technology* (pp. 637-648). ACM. DOI: 10.1145/2452376.2452451.
8. Burkett, E. (2011): A Crowdfunding Exemption-Online Investment Crowdfunding and US Securities Regulation. *Transactions: The Tennessee Journal Of Business Law.*, 13, 63. Retrieved from: <http://trace.tennessee.edu/cgi/viewcontent.cgi?article=1235&context=transactions>.
9. Brockhoff, K. K. – Rao, V. R. (1993): Toward a demand forecasting model for preannounced new technological products. *Journal of Engineering and Technology Management*. 10(3), 211-228. Retrieved from: <http://www.sciencedirect.com/science/article/pii/092347489390069U>. DOI: 10.1016/0923-4748(93)90069-U.
10. Chan, C. R., & Parhankangas, A. (2017): Crowdfunding innovative ideas: How incremental and radical innovativeness influence funding outcomes. *Entrepreneurship Theory and Practice*, 41(2), 237-263. Retrieved from: [https://www.researchgate.net/publication/313463260\\_Crowdfunding\\_Innovative\\_Ideas\\_How\\_Incremental\\_and\\_Radical\\_Innovativeness\\_Influence\\_Funding\\_Outcomes](https://www.researchgate.net/publication/313463260_Crowdfunding_Innovative_Ideas_How_Incremental_and_Radical_Innovativeness_Influence_Funding_Outcomes). DOI: 10.1111/etap.12268.
11. Cordova, A. – Dolci, J. – Gianfrate, G. (2015): The Determinants of Crowdfunding Success: Evidence from Technology Projects. *Procedia-Social and Behavioral Sciences*, 181, 115-124. link <http://www.sciencedirect.com/science/article/pii/S1877042815031651>. DOI: 10.1016/j.sbspro.2015.04.872.
12. Cumming, D. J. – Leboeuf, G. – Schwienbacher, A. (2014): Crowdfunding models: Keep-it-all vs. all-or-nothing. 2014 finance meeting EUROFIDAI-AFFI paper (Vol. 10). Paris, 2014 December. Retrieved from: <http://leeds-faculty.colorado.edu/Bhagat/CrowdfundingModels-KeppItAll-AllorNothing.pdf>. DOI: 10.2139/ssrn.2447567.

13. Crowdfund Capital Advisors (2014). How Does Crowdfunding Impact Job Creation, Company Revenue and Professional Investor Interest?
14. De Buysere, K. – Gajda, O. – Kleverlaan, R. – Marom, D. (2005): Best practices of public support for early-stage equity finance. Final report of the expert group, Directorate-General for Enterprise and Industry. A Framework for European Crowdfunding European Commission. Retrieved from: [http://evpa.eu.com/wpcontent/uploads/2010/11/European\\_Crowdfunding\\_Framework\\_Oct\\_2](http://evpa.eu.com/wpcontent/uploads/2010/11/European_Crowdfunding_Framework_Oct_2), 12. Last accessed: November 1. 2013)
15. Deffains-Crapsky, C. – Sudolska, A. (2014): Radical innovation and early stage financing gaps: equity-based crowdfunding challenges. *Journal of Positive Management*, 5(2), 3. Retrieved from: <http://apcz.pl/czasopisma/index.php/JPM/article/download/3875/3809>. DOI: <http://dx.doi.org/10.12775/JPM.2014.009>.
16. Európai Bizottság (2015): Útmutató a közösségi finanszírozáshoz. Európai Bizottság, 2015 Retrieved from: <http://ec.europa.eu/DocsRoom/documents/10229/attachments/1/translations/hu/renditions/native>. DOI: 10.2873/00664.
17. Freedman, D. M. – Nutting, M. R. (2015): A brief history of crowdfunding. Including Rewards, Donation, Debt, and Equity Platforms in the USA. Retrieved from: <http://www.freedman-chicago.com/ec4i/History-of-Crowdfunding.pdf>.
18. Freund, R. (2010): How to overcome the barriers between economy and sociology with open innovation, open evaluation and crowd funding. *International Journal of Industrial Engineering and Management*, 1(3), pp.105-109. link: [http://www.iim.ftn.uns.ac.rs/images/journal/volume1/ijiem\\_vol1\\_no3\\_4.pdf](http://www.iim.ftn.uns.ac.rs/images/journal/volume1/ijiem_vol1_no3_4.pdf). ISSN 2217-2661.
19. Gábossy, Á. (2016): Újabb irányzatok a közösségi finanszírozásban. *Pénzügyi Szemle* 2016/4. pp. 544-555. Retrieved from: [http://www.penzugyiszemle.hu/documents/gabossy-2016-4pdf\\_20170110160658\\_81.pdf](http://www.penzugyiszemle.hu/documents/gabossy-2016-4pdf_20170110160658_81.pdf)
20. Gleasure, R. (2015): Resistance to crowdfunding among entrepreneurs: An impression management perspective. *The Journal of Strategic Information Systems*, Volume 24, Issue 4, December 2015, Pages 219-233. Retrieved from: <http://www.sciencedirect.com/science/article/pii/S0963868715000487>. DOI: 10.1016/j.jsis.2015.09.001.
21. Hoffer, I. – Katona, V. (2012): Fogalmi kapaszkodók a kkv-k innovációs gyakorlatában. *Vezetéstudomány/Budapest Management Review*, 43(9), 46-58. Retrieved from: [http://unipub.lib.uni-corvinus.hu/955/1/vt\\_2012n9p46.pdf](http://unipub.lib.uni-corvinus.hu/955/1/vt_2012n9p46.pdf)
22. Hortoványi, L. (2012): A vezető szerepe az innovációban és az innováció értelmezése vezetők körében. In: *INNOVÁCIÓ VEZETŐI SZEMMEL*. szerk. Szabó, Zs.,R. Aula Kiadó Kft. ISBN 978-963-339-040-5. pp 55-89. Retrieved from: <http://mek.oszk.hu/11300/11388/11388.pdf>.
23. Joenssen, D. W. – Michaelis, A. – Müllerleile, T. (2014): A link to new product preannouncement: Success factors in crowdfunding. Retrieved from: <https://ssrn.com/abstract=2476841>. DOI: <http://dx.doi.org/10.2139/ssrn>.
24. Kuppuswamy, V. - Bayus B.L. (2015): A Review of Crowdfunding Research and Findings. *Handbook of New Product Development Research*. Letöltés: 2016.08.12. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2685739](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2685739) . DOI: 10.2139/ssrn.2685739.

25. Kuti, M. – Madarász, G. (2014): A közösségi finanszírozás. *Pénzügyi Szemle* 2014/3. pp. 374-385. Retrieved from: [https://www.asz.hu/storage/files/files/penzugyiszemle/2014/kutim\\_madaraszg\\_2014\\_3.pdf](https://www.asz.hu/storage/files/files/penzugyiszemle/2014/kutim_madaraszg_2014_3.pdf).
26. Kuti, M. Galambosné Tiszberger M., – Czigler E. (2018): Magyarországról indított közösségi finanszírozású kampányok. A Kickstarter-platform esete. *Közgazdasági Szemle*, LXV. évf., 2. sz. 206-225 old. DOI: <http://dx.doi.org/10.18414/Ksz.2018.2.206>.
27. Kovács, E. (2014): *Többváltozós adatelemzés*. Budapesti Corvinus Egyetem. Typotex.
28. Lin, M. – Viswanathan, S. (2015): Home bias in online investments: An empirical study of an online crowdfunding market. *Management Science*, 62(5), 1393-1414. DOI: <http://dx.doi.org/10.1287/mnsc.2015.2206>
29. Lovas, A. (2016): *Innováció-finanszírozás asszimétrikus információs helyzetben. Az állami beavatkozás hatása. (Financing of Innovation under Asymmetric Information. The Effect of Government Intervention)*. PhD thesis, Budapesti Corvinus Egyetem, Közgazdaságtani Doktori Iskola. Retrieved from: [http://phd.lib.uni-corvinus.hu/893/1/Lovas\\_Anita.pdf](http://phd.lib.uni-corvinus.hu/893/1/Lovas_Anita.pdf). DOI 10.14267/phd.2016006.
30. Lukkarinen, A., – Teich, J. E., – Wallenius, H., – Wallenius, J. (2016): Success drivers of online equity crowdfunding campaigns. *Decision Support Systems*, 87, 26-38. Retrieved from: <http://iranarze.ir/wp-content/uploads/2016/12/E3228.pdf>. DOI: <https://doi.org/10.1016/j.dss.2016.04.006>.
31. Makra, Zs., Bajmócy, Z., Imreh, Sz., Szerb, L. (2007): A magyarországi technológia-orientált vállalkozások főbb jellemzői. In: Makra Zsolt (szerk.): *A technológiaorientált kisvállalkozások jellegzetességei és fejlesztése Magyarországon*. Universitas Szeged Kiadó, Szeged.
32. Mollick, E. R. (2013): Swept away by the crowd? Crowdfunding, venture capital, and the selection of entrepreneurs. Retrieved from: [https://repository.upenn.edu/cgi/viewcontent.cgi?article=1219&context=mgmt\\_papers](https://repository.upenn.edu/cgi/viewcontent.cgi?article=1219&context=mgmt_papers). DOI: 10.2139/ssrn.2239204.
33. Mollick, E. (2014): The dynamics of crowdfunding: An exploratory study. *Journal of business venturing.*, 29(1), 1-16. Retrieved from: <http://www.sciencedirect.com/science/article/pii/S088390261300058X>. DOI: <https://doi.org/10.1016/j.jbusvent.2013.06.005>.
34. Mollick, E. R. – Kuppuswamy, V. (2014): After the campaign: Outcomes of crowdfunding. UNC Kenan-Flagler Research Paper No. 2376997. Retrieved from: SSRN: <https://ssrn.com/abstract=2376997>. DOI: <http://dx.doi.org/10.2139/ssrn.2376997>.
35. Mollick, E. R. (2016): Containing multitudes: The many impacts of Kickstarter funding. The Wharton School, University of Pennsylvania. Retrieved from: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2808000](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2808000). DOI: <http://dx.doi.org/10.2139/ssrn.2808000>.
36. Mukherjee, A. – Yang, C. L. –Xiao, P. – Chattopadhyay, A. (2017): Does the Crowd Support Innovation? Innovation Claims and Success on Kickstarter. HEC Paris Research Paper. Retrieved from: [http://sydney.edu.au/business/\\_data/assets/pdf\\_file/0005/328271/Does-the-Crowd-Support-Innovation\\_Ping-Xiao.pdf](http://sydney.edu.au/business/_data/assets/pdf_file/0005/328271/Does-the-Crowd-Support-Innovation_Ping-Xiao.pdf). DOI: <http://dx.doi.org/10.2139/ssrn>.
37. OECD (2002): *Small and Medium Enterprise Outlook. 2002 Edition* Retrieved from: <http://www.insme.org/files/126>. DOI: <https://doi.org/10.1787/1999138x>.

38. OECD (2005): Oslo Manual. 3rd Edition. OECD-European Commission. Letöltve (2018.02.28.): <http://www.oecd.org/science/inno/2367580.pdf>.
39. OECD (2017): OECD data show pick-up in entrepreneurial activity. <http://www.oecd.org/newsroom/oecd-data-show-pick-up-in-entrepreneurial-activity.htm>.
40. Ordanini, A. – Miceli, L. – Pizzetti, M. – Parasuraman, A. (2011): Crowd-funding: transforming customers into investors through innovative service platforms. *Journal of service management*, 22(4), 443-470. DOI: 10.1108/09564231111155079.
41. Petitjean, M. (2017): What explains the success of reward-based crowdfunding campaigns as they unfold? Evidence from the French crowdfunding platform KissKissBankBank. *Finance Research Letters*, in print. Retrieved from: [https://dial.uclouvain.be/pr/boreal/object/boreal%3A196938/datastream/PDF\\_01/viewDOI](https://dial.uclouvain.be/pr/boreal/object/boreal%3A196938/datastream/PDF_01/viewDOI): <https://doi.org/10.1016/j.fl.2017.11.005>.
42. Rao, H., Xu, A., Yang, X., & Fu, W. T. (2014): Emerging dynamics in crowdfunding campaigns. In *International Conference on Social Computing, Behavioral-Cultural Modeling, and Prediction* (pp. 333-340). Springer, Cham. Retrieved from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.644.3622&rep=rep1&type=pdf>. DOI: 10.1007/978-3-319-05579-4\_41.
43. Riedl, J. (2013): Crowdfunding Technology Innovation. *IEEE Computer*, 46(3), 100-103. <http://doi.ieeecomputersociety.org/10.1109/MC.2013.89>. DOI: 10.1109/MC.2013.89.
44. Rosenberg, N. (2004): Innovation and economic growth. *Innovation and Economic Growth*, 52. DOI: 1331677X.2017.1383176..
45. Schwienbacher, A. (2015): Entrepreneurial risk-taking in crowdfunding campaigns. Université Lille - SKEMA Business School, France. Retrieved from: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2506355](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2506355) DOI: <http://dx.doi.org/10.2139/ssrn.2506355>.
46. Valančienė, L., – Jegelevičiūtė, S. (2014): Crowdfunding for Creating Value: Stakeholder Approach. *Procedia-Social and Behavioral Sciences*, 156, 599-604. Retrieved from: <http://www.sciencedirect.com/science/article/pii/S1877042814060686>. DOI: <https://doi.org/10.1016/j.sbspro.2014.11.248>.
47. Vecsenyi J. (2003): *Vállalkozás. Az ötlettől az újrakezdésig*. Aula, Budapest.
48. Vecsenyi, J., – Petheő, A. (2017): *Vállalkozz okosan! Az ötlettől a piacra lépésig*. HVG könyvek. ISBN 978-963-304-502-2.

## **7. THE AUTHOR'S PUBLICATIONS RELATED TO THE SUBJECT**

### **Referred professional articles in Hungarian**

1. Hoffer, I. – Katona, V. (2012): Fogalmi kapaszkodók a kkv-k innovációs gyakorlatában. *Vezetéstudomány/Budapest Management Review*, 43(9), 46-58.
2. Kallóné Csaba, K. – Katona, V. : Betétbiztosítás és pénzügyi stabilitás. *Gazdaság és Pénzügy*. (in press)
3. Katona V. – Hoffer, I. (2019): Közösségi finanszírozású innovatív termékek vizsgálata a vásárlói élményciklus szempontjainak figyelembevételével. *Vezetéstudomány/Budapest Management Review*. (in process)

### **Referred professional articles in English**

1. Katona, V. (2018): Role and Positioning of Reward Based Crowdfunding in the Funding of Technological Innovation Projects – Viewpoint of Entrepreneurial Financing Experts. *Vezetéstudomány/Budapest Management Review*. (in press)