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## Guidelines for Successful Crowdfunding

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### Abstract

Crowdfunding is defined as the process of taking a project or business, in need of investment, and asking a large group of people to supply this investment. This phenomena has exponentially increased in popularity over the last few years and, as a consequence, is now presented as a viable method of funding for designers. Regardless of its new-found popularity, however, statistics show that the vast majority of crowdfunding campaigns dramatically fail with 81% of failed campaigns reaching less than 20% of their funding goal. This poses two questions; how can designers ensure crowdfunding success and can engineers design their products to prepare for crowdfunding? In order to answer the second question, the authors have decided to answer the first with an in-depth study of crowdfunding campaigns that is presented in this paper. Previous attempts to decipher the key to crowdfunding success has left many opportunities for further research. For example, this paper seeks to use both qualitative as well as quantitative methods, it seeks to determine crowdfunding success from both the perspective of the project creator and the funder, and it seeks to consider smaller crowdfunding platforms based in both the UK and abroad. Finally, this paper is unique among other academic explorations of crowdfunding since it translates academic research into a user-friendly guidance tool for practical application. The paper closes by discussing the implications of crowdfunding on the design process and how designing for crowdfunding fits into an overall development of a design framework for the 21<sup>st</sup> century.

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### 1. Introduction

The main aim of this paper is to serve as an introduction to research that seeks to discover how crowdfunding can alter the design process. In order to crowdfund successfully the project creator must present both a product suitable for crowdfunding as well as create a campaign that is suitable for that product [1]. Both the design process and the construction of a successful campaign must be studied to reach overall solutions. The authors decided that a valuable introduction to this research would be to begin with an in-depth study, presented in this paper, on the ways to successfully crowdfund. Previous literature on this subject, as will be described in more detail, left areas for further study. For example, academics have yet translated their work into a practical guidance tool that could be

applied by entrepreneurs. The authors felt a tool of this kind would be valuable to the entrepreneurial community as well as to the continuation of their research. The remainder of this section introduces the concept of crowdfunding and why it is worthy of attention.

#### 1.1. Defining Crowdfunding

As a new and emerging model in business investment [2] the definition of crowdfunding is still open for discussion. As new forms of crowdfunding develop, such as equity crowdfunding, a definition must encompass all forms whilst still conveying the core principles. It has been unanimously agreed in literature, that the origin of crowdfunding is the “broader concept of crowdsourcing” [3], which can be defined

as “the act of taking a job, traditionally performed by a designated agent [...] and outsourcing it to a [...] large group of people” [4] [1]. This concept is developed to define crowdfunding by essentially replacing “job” with “loan” or “money” [5]. This definition is often manipulated however to give bias to more well-known forms of crowdfunding. For example, Kickstarter has raised the profile of this phenomenon significantly [2] and, as a consequence, crowdfunding is often described as being an online process where donations are exchanged for gifts or product prototypes. In reality, crowdfunding exists in many forms and therefore a definition must be stripped down to describe only the fundamentals of the phenomenon. Crowdfunding is therefore defined as the process of taking a project or business, in need of investment, and asking a large group of people, which is usually the public, to supply this investment.

### 1.2. The Four Models & Their Platforms

Modern crowdfunding can be represented by four distinct models. These are reward-based, investment in exchange for gifts or products, equity-based, investment for a percentage stake, lending-based, peer-to-peer lending and donation-based, charitable giving [6]. Reward-based crowdfunding is represented on well-known platforms such as Kickstarter and Indiegogo. The emerging model of equity-based crowdfunding is found on platforms such as Seedrs [7] and Crowdcube [8]. Donation-based crowdfunding, essentially known as charitable giving, can be found on many websites such as Just Giving [9] and a more prominent lending-based crowdfunding platform is The Funding Circle [10].

### 1.3. The Importance & Relevance of Crowdfunding

The growth of crowdfunding is shown in Figure 1 which shows how the number of crowdfunding platforms has dramatically increased in recent years.

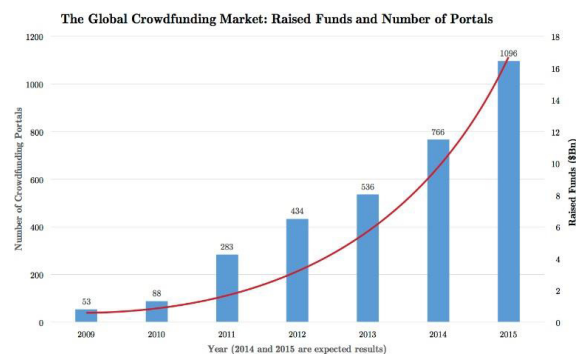


Fig. 1. The growth of crowdfunding

In the UK specifically, alternative funding increased 91% from 2011 to 2012 [11]. Furthermore, according to The Department of Business Innovation & Skills, the amount invested in crowdfunding rose from £1.6m in the whole of 2011 to £23.9m in only the first half of 2014 [12]. Crowdfunding is a global phenomenon.

The popularity of crowdfunding presents one argument for its further consideration in academia. Another important consideration is the new advantages it offers designers as an alternative investment form. While crowdfunding carries risks, it also can result in great benefits for the campaigner. By exposing a product to the public, entrepreneurs are able to receive an extensive and varied set of feedback. Furthermore, campaigners can enjoy tremendous positive exposure to potential customers and future investors. Finally, crowdfunding favors those with innovative ideas as opposed to wealth. A campaign can be launched with minimal cost, no proof of sales and, in three of the models, no release of equity. It is an exciting option available to entrepreneurs.

## 2. Literature Review

Across the majority of the academic work on crowdfunding success guidelines, the only research method used is quantitative. Song et al. [19], for example, base their research on a “database of 127 consumer electronics” projects. Finally, “The Determinants of Crowdfunding Success” by Cordova et al. [20] draws conclusions from “1127 technology projects”. These academics seek to find new conclusions by varying their data set, as opposed to considering alternative research methods. Furthermore, previous literature has only considered large and well-known platforms, most often based in the United States. Mollick [2] for example, draws his conclusions based only on a dataset from Kickstarter, and Song et. al. used only Kickstarter and Indiegogo [19] and Cordova et. al. used “four distinct crowdfunding platforms” but a UK site was not considered [20]. This paper therefore recognizes the potential to draw new conclusions using qualitative methods and by considering the well-known UK platform, Crowdfunder UK.

Another way this paper is distinguished from others is its serious consideration of the perspective of the investor. While Son and van Boesc [21] stated that “85% of the funders are interested in the story behind crowdfunding” this conclusion was drawn by looking at successful campaigns as opposed to approaching potential investors. This paper therefore capitalizes on this new perspective.

Academic literature is yet to provide the community with directly applicable research. Song et al. [19] have been the first to list significant considerations for successful crowdfunding. These were the “voice of the customer, functional feasibility, tangible and intangible benefits, vulnerability risk evaluation, and the growth strategy” of the business. While this offers entrepreneurs some important advice, there has yet to be a piece of literature that offers a step by step guide to producing a successful campaign. This paper therefore aims to achieve this. To summarize, this paper contributes to crowdfunding in academia by bringing four new aspects of research. This paper will use qualitative methods to find new conclusions, consider smaller and UK-based platforms, will consider the perspective of the investor and act as a practical guidance tool.

## 3. Research Method

Several research methods were conducted to reach the guidelines presented, however, one method dominated in its

contribution to the final tool. Hour long interviews with participants of varying experience with crowdfunding presented many interesting conclusions. Each interview lasted an hour allowing detailed responses to be recorded. The interview included the following sections:

1. Crowdfunding Experience: The subjects' experience of crowdfunding including any investments were discussed
2. Browsing Exercise: The subjects were shown the Kickstarter homepage and asked to view several projects of their choice
3. Individual Campaign Study: The subject was asked to view a campaign by first watching the video, then viewing the description before studying all other features and making a decision on whether to invest
4. General Comments: The participant was finally asked for any general comments or opinions on crowdfunding

The participants were chosen to reflect a varying experience with crowdfunding. They were chosen from a large group of participants who conducted an online survey prior to these interviews. The participants were all students at The University of Bath and between the ages of 22 and 25.

#### 4. Discussing & Analyzing Responses

This section summarizes the interview responses and discusses their implications

##### 4.1. Interview Responses: Choosing the Right Platform

Kickstarter is generally considered to be the most well-known and best trusted crowdfunding platform. The interview responses supported this statement. Mr. Lee, the most experienced investor, had invested only in Kickstarter and those that had invested had all used Kickstarter apart from on one occasion. The majority of the participants stated that they had not heard of any others but Mr. Lee and Mr. Pattie stated that they chose to invest in Kickstarter alone due to its "superior reputation" in the industry. Those that were aware of the other platforms considered i.e. Indiegogo and Crowdfunder UK were asked to give their impression of the platforms. Indiegogo was stated to be "slightly more risky to use due to the fact that project creators do not need to reach their goal". Crowdfunder UK was only known by one participant who stated that, as far as he was aware, it was for "community-based projects only". Crowdfunder UK has a diverse portfolio of projects on its platform but this impression, based on previous research, is echoed among the general public.

##### 4.2. Interview Responses: Setting the Funding Goal

The "Campaign Search" section of the interview provided significant evidence towards keeping the funding goal as low as possible. Every participant was drawn to click on campaigns that had a high percentage funded. Mr. Cattermole, who always focused Kickstarter browsing on the "Newest" section stated "I will only click on a project if it has received a significant percentage of its funding goal very early on". Furthermore,

every candidate was only ever drawn to a campaign with a high percentage funded. Miss Southwick during this exercise stated "This one looks interesting but it's been 10 days and it has only a small amount of its goal. I'm assuming it isn't very good". In previous literature this is named the "green bar effect" which represents the bias towards the Kickstarter graphical representation of funding progress. This supports the suggestion that a higher percentage is more attractive regardless of the actual amount.

##### 4.3. Interview Responses: Comprising the Reward Options

Every participant was asked to give their detailed opinion on the "BiosIncube" Kickstarter campaign [22]. BiosIncube had 14 reward options ranging from stickers and t-shirts to a premium version of the product. Many commented that they liked having a range of different options but most of the participants dismissed the lower reward options such as the "Bio Seed necklace" and "Bios T-Shirt". To echo the opinion of many of the participants Mr. Smith emphasized that he "would only invest by buying the product". This suggests that founders should be creative with their reward options but ensure their product is a focus. Furthermore, when it came to making a decision on investment, the majority stated they would not invest because it was too expensive. The guidelines state that the creator should "split required profit across reward options", however, profit could perhaps be unevenly split so that the price of the product option could be reduced.

##### 4.4. Interview Responses: Comprising the Reward Options

After watching the BiosIncube video, Mr. Pattie stated "I want to know what they're going to do with my money" and Mr. Barnshaw stated "the fact they don't give a plan, worries me". This suggests that while not all features can be tailored to the individual, there is some information that is important to include. Mr. Barnshaw had never invested in a campaign and his reasoning was mostly associated with risk. Furthermore, Mr. Pattie stated he felt there was a "stigma" attached to crowdfunding "as an option for companies unable to receive venture capital". This suggests that project creators could reach a new set of more risk-averse individuals by being more transparent with the use of funds and giving detailed plans of action. With regards to the structure of the BiosIncube video, Miss Southwick stated "the video is unnecessarily long, especially since the majority of the important information is at the beginning". This comment, along with the general habit of participants to stop the video early, suggests creators should capture the audience's attention quickly and keep the video succinct.

##### 4.5. Overall Conclusions

The responses suggested that project creators should set the lowest possible funding goal for their project. This is because

the participants were drawn to campaigns with a higher percentage funded as oppose to a higher amount funded. Furthermore, this research concluded that project creators should reduce the profit margin on popular reward options to encourage more backers. Tangible reward options were shown to be preferable but “gimmicky” products such as t-shirts and stickers were of low interest to the participants. Videos should be kept short and the product description should be used to address important information such as development timelines, business plans and the use of funds. This information should capture the reader's attention through the use of high quality media content. Overall, project creators need to construct their campaign to convey credibility and create product demand.

## 5. Presenting the Guidelines

This section presents the crowdfunding success tool that was constructed based predominantly on the results discussed above.

### 5.1. Guidelines 1: Choosing a Platform

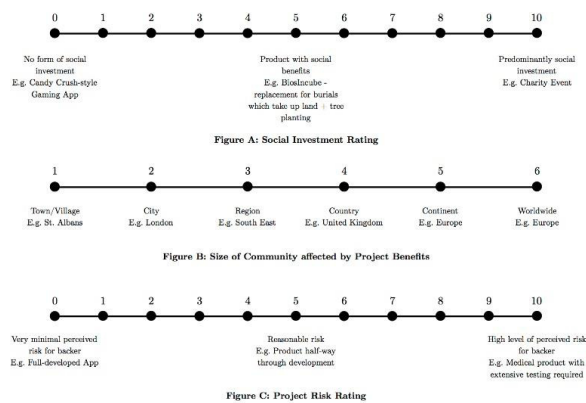
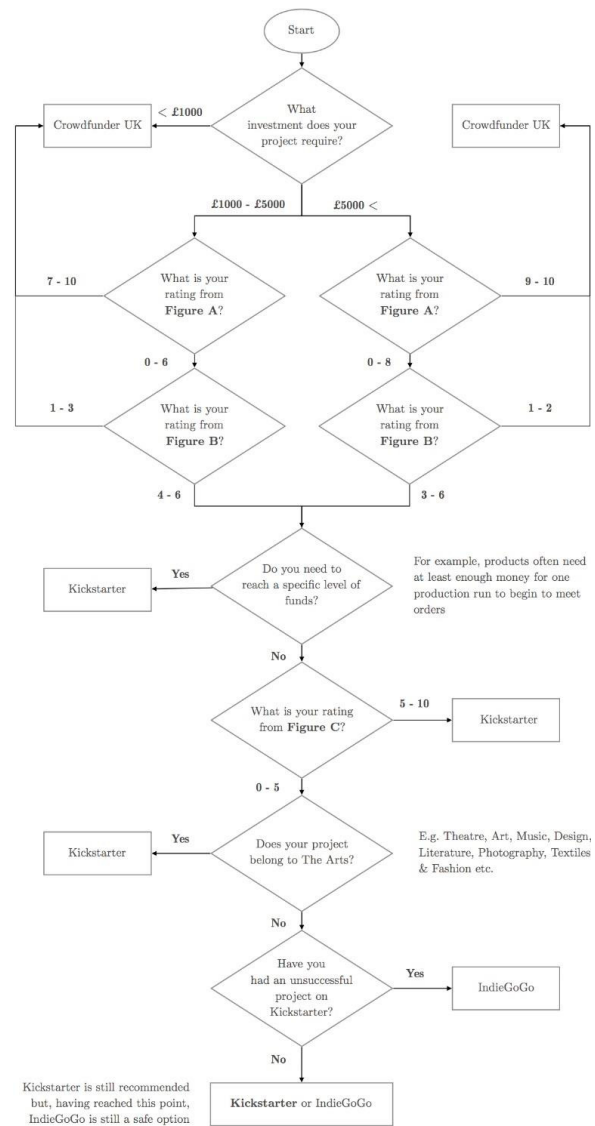


Fig. 2. The growth of crowdfunding

Figure 2 was put together based on the comments from the participants, the authors own studies of the platforms and the comments of previous literature. Crowdfunder UK was found to favour smaller projects with community-backing and a consideration of social investment. Indiegogo and Kickstarter were very different, however, since they operate on a much larger scale. A review of the two found that Kickstarter favoured projects of the Arts; a preference consequential of their beginnings as an Arts project funding platform. Furthermore, as was evoked by the interview participants, Kickstarter was a more trusted and recognized platform. Figure 2 allows entrepreneurs to use their scores from the rankings to select a platform.



### 5.2. Guideline 2: Setting an Appropriate Funding Goal

Setting an appropriate funding goal mediates the risk of crowdfunding. There are two categories of poor outcomes of crowdfunding:

1. The funding goal is not reached, damaging company reputation
2. The campaign results in unachievable expectations for the company, resulting in delays which damages company reputation

Setting a low funding goal is a solution to both of these potential problems. Setting a low funding goal means:

- Success is more likely and if this amount is too little, the company can run another campaign using the momentum of previous success

- A company can ensure the expectations of the campaign are within their capability

To produce an appropriate funding goal, follow this process:

*Step 1: How much investment does your business require?*

*Step 2: What percentage of this must be gained through crowdfunding?*

A lower funding goal means the percentage funded increases more per pledge. This increases the chance of success by attracting more potential backers. Finally, a higher chance of success means the other advantages of crowdfunding such as marketing, validation of product and product feedback can be more effectively exploited.

*Step 3: What are the costs associated with your campaign?*

*Step 4: What profit must you gain from this crowdfunding campaign?*

The guideline is biased towards setting a conservative funding goal. While this is an area that academics have failed to reach agreement, the interview participants made the advantage of a lower funding goal clear. All participants were drawn to campaigns with a higher percentage funded, regardless of the actual sum. This guideline therefore encourages entrepreneurs to reduce their funding goal as much as possible whereby increasing their percentage funded per pound.

### 5.3 Guideline 3: Reward Options

Step 1: State the amount of profit required

Step 2: List all free resources available to use as reward options such as social media “shout-outs”, old prototypes and merchandise.

Step 3: Comprise a full selection of reward options including the following considerations:

- What does your target audience value about your product?
- How can this value be created in reward options?
- “Gimmicky” Reward Options such as T-Shirts and Keychains are less popular with backers

Step 4: Price the options by splitting expected profit across the reward options

Backers are most likely to fund your project in exchange for the main outcome i.e. the product. The main barrier to investment is the price therefore reduce the profit margin on the most popular reward option to increase the number of backers.

Step 5: Refine your list to at least 8 reward options, aiming to not exceed 12 reward options and ensuring expected profit is achievable.

The participants were unanimous in agreeing that the main reason to invest would be to buy the product. Furthermore, participants stated that they found the number of reward options should be “limited to avoid confusion”. This conclusion, along with the conclusions drawn from previous academics dictated the numbers stated above.

### 5.4 Guideline 4: The Video

#### *The Content*

These questions guide the construction of the video content and highlight the key information that potential backers require.

- What does our target audience value about our product?
- What are the risks and barriers to investment from the perspective of our target audience?
- What is our main motivation and inspiration for pursuing this campaign?
- How are we spending the money?
- What is our plan after the campaign?

#### *The Presenter*

The way the video content is presented can significantly alter campaign success. When selecting a Video Presenter consider the following criteria:

- Are they able to relate to the target audience?
- Are they able to portray passion for the project?
- Do they convey an expertise for the project?

#### *The Structure*

The key information should be front-loaded. Motivation and inspiration for the project should be outlined throughout but emphasized at the end.

Comments from participants such as “I want to know what they are doing with the money” and “the fact that they do not give a plan worries me” prompted the structure of this guidelines. Furthermore, it recommends front-loading the video with information since most participants lost interest in campaign videos within 30 seconds.

## 6. Future Research

This section recognizes the limitations in the research above and also goes on to describe the next stage of research regarding crowdfunding in design.

### 6.1 Validating & Improving Success Guidelines

There are two key limitations of the research presented in this paper. The first is the lack of and the limited range of participants in the interview process. This is firstly because the amount of crowdfunding experience of the participant was prioritized as a variable over age or profession. While the authors feel the opinions given are valid in representing general views, in further research, participants of different age ranges will be approached.

The other key limitation was the lack of validation presented in these guidelines. This is again a planned feature of future research. The reason that validation has been minimal at this stage is due to the recommendations highlighted by the research itself. The authors found that the average successful campaign should have a preparation period of at least 3 months. This research was conducted over a 2 month period, making a true validation impossible. A validation is underway, however, with The University of Bath’s Formula Student racing team.



## 6.2 Crowdfunding in Design

An aim of this paper was to act as an introduction to considering crowdfunding in product development. Some ways crowdfunding may disrupt the design process has emerged as a consequence. For example, crowdfunding campaigns can be composed using only a product prototype. This then puts unusual strains on the project creator when required to meet the manufacturing expectations of the investors. Furthermore, crowdfunding allows designers to receive large amounts of feedback on their design and how this can be addressed to improve the product should be considered. Finally, a successful or failed crowdfunding campaign can alter a product's route to market. How the paths to commercialization are changed could also be recognized in the early stages of the product's development.

## 7. Conclusion

This paper represented the beginning of an exploration into crowdfunding within product development. Its core aim, however, was to address some key gaps in crowdfunding literature and present a guidance tool for success. Using previous literature as a foundation and responses from interviews with potential investors, the authors were able to construct a guidance tool that answered four fundamental questions. These were:

- What crowdfunding platform should I use?
- What should my funding goal be?
- What should my reward options be?
- How should I construct my video?

The guidelines are the first in academia to be directly applicable for entrepreneurs. They are also the first to address the perspective of the funder and the first to introduce a small UK-based crowdfunding platform. Despite this, the authors recognize the need for further research and validation, both of which are planned for the future. The paper closes by recognizing this paper's role in further research on crowdfunding's impact on product development.

## 8. References

- [1] J. H. Panchal, "Using Crowds in Engineering & Design: Towards a Holistic Framework," Purdue University, The United States of America, 2015.
- [2] E. Mollick, "The Dynamics of Crowdfunding: An Exploratory Study," *Journal of Business Venturing*, no. 29, pp. 1 - 16, 2014.
- [3] P. Belleflamme, T. Lambert and A. Schwienbacher, "Crowdfunding: Tapping the Right Crowd," *Journal of Business Venturing*, no. 29, pp. 585 - 609, 2011.
- [4] B. Unterberg, "Kapitel & Crowdsourcing in Social Media," *Theorien, Methoden, Modelle*, no. 1, pp. 121 - 135, 2010.
- [5] A. Brem and A. Tomczak, "A Conceptualized Investment Model of Crowdfunding," pp. 335 - 359, 2013.
- [6] J. A. Bock, D. Frydrych, T. Kinger and B. Koeck, "Exploring Entrepreneurial Legitimacy in Reward-Based Crowdfunding," *Venture Capital*, no. 16, pp. 247 - 269, 2014.
- [7] Seedrs, "[Online] Accessible from: [www.seedrs.com](http://www.seedrs.com)," [Accessed: 21st January 2017].
- [8] Crowdcube, "[Online] Accessible from: [www.crowdcube.co.uk](http://www.crowdcube.co.uk)," [Accessed: 21st January 2017].
- [9] Just Giving, "[Online] Accessible from: [www.justgiving.co.uk](http://www.justgiving.co.uk)," [Accessed: 21st January 2017].
- [10] The Funding Circle, "[Online] Accessible from: [www.fundingcircle.co.uk](http://www.fundingcircle.co.uk)," [Accessed: 21st January 2017].
- [11] iCrowd News Wire, "Crowdfunding Growth: The United Kingdom Leads," [Online] Accessible via: [07/crowdfunding-growth-the-united-kingdom-leads](http://07/crowdfunding-growth-the-united-kingdom-leads) [Accessed 27th October 2016], 2015.
- [12] The Department of Innovation & Skills, "Equity Crowdfunding in The UK," [Online] Accessible via: [www.british-business-bank.co.uk/wp-content/uploads/2015/03/230315-Equity-crowdfunding-report-final.pdf](http://www.british-business-bank.co.uk/wp-content/uploads/2015/03/230315-Equity-crowdfunding-report-final.pdf) [Accessed 23rd October 2016], 2015.
- [13] IndieGoGo, "[Online] Available from: [www.indiegogo.com](http://www.indiegogo.com) [Accessed: 22nd January 2017]".
- [14] Kickstarter, "[Online] Available from: [www.kickstarter.com](http://www.kickstarter.com) [Accessed: 22nd January 2017]".
- [15] N. Scholz, "The Relevance of Crowdfunding: The Impact of the Innovation Process of Small Entrepreneurial Firms," Springer Gabler, Manchester, United Kingdom, 2015.
- [16] A. R. Stemler, "The JOBS Act and Crowdfunding: Harnessing the Power - and the Money - of the Masses," *Business Horizons*, no. 569, pp. 271 - 275, 2013.
- [17] P. Getty, D. Gupta and R. Kaplan, "Regulation A+: How the JOBS Act Creates Opportunities for Entrepreneurs and Investors," Apress, 2015.
- [18] F. Vargas, J. Dasari and M. Vargas, "Understanding Crowdfunding: The SEC's New Crowdfunding Rules and The Universe of Public Fundraising," *Business Law Today*, 2015.
- [19] C. Song, J. Luo, K. Holtta-Otto, W. Seering and K. Otto, "Risk and Innovation Balance in Crowdfunding New Products," in *International Conference on Engineering Design (ICED)*, 2015.
- [20] A. Cordova and J. G. Dolcib, "The Determinants of Crowdfunding Success: Evidence from Technology Projects," in *The 3rd International Conference on Leadership, Technology and Innovation Management*, 115 - 124, 2015.
- [21] Y. Son and R. van Boesc, "Success Factors for Crowdfunding Founders and Funders," in *Proceedings of the 5th International Conference on Collaborative Innovation Networks (COINS)*, 2015.
- [22] BiosIncube, "Crowdfunding Campaign on Kickstarter [Online] Accessible via: <https://www.kickstarter.com/projects/biosurn/bios-incube-the-worlds-first-incubator-for-the-aft> [Accessed: 22nd January 2017]".