Successful Crowdfunding: The Effects of Founder and Project Factors

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ABSTRACT
Crowdfunding has been regarded as a novel way of collecting money for innovators to launch products and services by opening their ideas in online. This funding approach is differentiated from a traditional fundraising alternative in terms of project evaluation and risk management. In this paper, we question the reason why some crowdfunding projects are more successful in the context of a pre-ordering model, also known as a reward-based crowdfunding. Data analysis results based on 704 Kickstarter projects showed that founder’s prior experiences would influence successful fundraising. User comments and update efforts have positive effects on the increase of success rate. In addition, we examined that the amount of funding goal had negative association with fundraising success.

CCS Concepts
• Information systems → Information systems applications → Collaborative and computing systems and tools
• World wide web → Web applications → Crowdsourcing

Keywords
Crowdfunding; successful fundraising; crowdsourcing

1. INTRODUCTION
One of the biggest problems of innovative projects is lack of financial supports. This is true for scientific research projects, and is also applicable for entrepreneurs who do not have credible reputation. Traditional and even novice way to overcome this issue is to borrow money from friends who know the project. Of course, there are open chances to get financial supports from banks and venture capitalists; however, proving potential values about innovation is difficult for inexperienced founders. Moreover, the idea is not usually validated in a test market, which means backup data are lack of reality (Berger and Udell, 1998).

Thanks to collaborative technologies in the information system domain, the desperate entrepreneur can have a new financial supporting alternative, named by Crowdfunding. Crowdfunding refers to a new way of collecting money from people in online without personal contact (Fernandes, 2013). The process is simple. An entrepreneur, known as a project founder in crowdfunding, posts his or her business project on the Internet. Potential investors (also known as backers) around the globe search or browse projects to find out which one is interesting. A crowdfunding platform helps entrepreneurs establish a semi-structured webpage for advertising their idea, and it also provides an opportunity for getting innovative products/services in advance of marketization. The key idea behind crowdfunding is that collective wisdom works well for evaluating a project. In crowdfunding, entrepreneurs do not have to worry about losing the control of a company while obtaining extra funds (Valanciene and Jegeleviciute, 2013). In addition to raising fund, crowdfunding has served as an indication whether or not there is a market for a newly creative product (Mollick, 2014; Valanciene and Jegeleviciute, 2013).

Although crowdfunding appears to be a winning strategy for entrepreneurs, successfully reaching a funding goal is challengeable. It should be noted that face-to-face communication with project founders is replaced by computer-mediated communication, which indicates that there are less social cues and more ambiguity for judging quality of suggested project (Okdie et al., 2011). Indeed, we should be aware that information sources and investment experiences are limited in crowdfunding. There is no guarantee that investors are specialists in funding innovative idea. Returns of investment are settled down mainly by a founder. Moreover, there are less physical evidences on credibility to the business. Compared to buying an innovative product from a matured company in online market, receiving goods or service rights is not deterministic. Therefore, filtering out successful projects in advance should be regarded as a key task for improving fundraising quality.

In this study, we question why some of crowdfunding projects are more successful than others. This research question is more
described by the following sentence: which factors influence the possibility of success? We collected a real world crowdfunding data in order to answer the question based on 704 cases from Kickstarter. The following section starts with a background study. The next section explains our hypotheses. The following part includes data descriptions and analysis results. This paper concludes with theoretical and practical implications. Future research agenda will be added.

2. BACKGROUND

2.1 Crowdfunding

From 2011, approximately 1.5 billion dollars were collected through around 500 crowdfunding platforms worldwide. Crowdfunding becomes a primary channel for introducing innovative products/services (Giudici et al., 2013). Schwienbacher and Larralde (2010) describes crowdfunding as an open call, essentially through the Internet, for the provision of financial resources either in form of donation or in exchange for some form of reward and/or voting rights in order to support initiatives for specific purpose.

Stakeholders in crowdfunding are categorized into two types: founders and investors (also known as backers). Based on a crowdfunding project, those different sides meet together. Their cooperation aims to make the project real so that innovative activities keep going (Gerber et al., 2012).

According to Belleflamme et al. (2014), initial capital requirement influences a decision on crowdfunding. The decision made by entrepreneur on which model of crowdfunding to pursue for their venture is dependent on initial capital requirement. In the case when the initial capital requirement is relatively small, entrepreneurs prefer a pre-ordering model. If the initial capital requirement is higher, founders may prefer a profit-sharing mechanism. Profit-sharing is a kind of traditional funding strategies. Investors can make bigger money when a project is successfully done. Since the share counts on the total amount of sale in market places, the startup investors in crowdfunding should have full responsibility on failure. To the contrary, a pre-ordering model is unique in terms of responsibility and return. In this model, a founder sets a target funding goal. If investors do not comply to put money over the goal, the project is not funded. In other words, this type follows an all-or-nothing scheme. Before the project sells products/services in a real market place, a crowdfunding platform provides an initial test market by placing reward plans. For example, a founder can differentiate rewards for different types of investors. If an investor decides to pay only 5 dollars, a product will be delivered. For an investor who pays 10 dollars, two products with a special gift will be given. This rewarding process is complete before a founder goes into a mass market.

Mollick (2014) reveals that personal networks of project founder are significantly correlated with the success of crowdfunding. Fernandes (2013) insists using video clips is crucial for crowdfunding success. Ward and Ramachandran (2010) show a crowdfunding project can be influenced by a similar prior project. A prior study on risks in crowdfunding reveals mechanisms for reducing uncertainty influences success possibility (Ahlers et al., 2015). Based on semi-structure interviews, Gerber et al. (2012) found that extrinsic motivation would play an important role for crowdfunding success. Those prior studies provide insightful ideas on crowdfunding success especially on a pre-ordering model, also known as a “reward-based” model; however, they are lack of a synthesized and simple structure to test effects of a founder dimension and a project dimension on success rate.

2.2 Theory Base

To develop a theoretical model considering both founder and project dimensions in order to predict the success rate of crowdfunding, we adopted the model of online review credibility (Racherla and Friske, 2012), and the model of online trust (Corritore et al., 2003).

Racherla and Friske (2012)’s model explains what makes online reviews helpful for users. Based on persuasive communication and source-related influential factor literatures, the model indicates that review usefulness is influenced mainly by two dimensions: messenger dimension and message dimension. The relationships are moderated by different types of users’ decision contexts.

The model of online trust explains external factors in an online website influences trust levels. Specifically, Corritore et al. (2003) studies online transactions to understand effects of website design factors and prior experiences on using similar artifacts. The model indicates that both individual factors in a perception level and environmental factors in a design level should be considered to understand how trust influences transaction performance in online markets.

The abovementioned models commonly indicate that design elements influence the success of crowdfunding. Moreover, those should be rooted in both individual perception levels and project characteristic levels. Project related information provides information proxies for trust, credibility and functionalities (Qiu et al., 2012). According to Metzger et al. (2010), cognitive heuristics are useful in assessing information for successful transactions in a computer-mediated environment. In this study, we use design elements to predict a success ratio instead of using self-reported survey items.

3. HYPOTHESIS

A usual e-commerce website has information sources for credibility. Company identity information plays an important role that gives a clear image about business mission and customer value. Corporate Identity (CI) provides a unified image to customers and investors in a stock market. In the context of crowdfunding, an external link for providing personal information of founder has been adopted to achieve similar effects. Identity information can be associated with credibility in online. Fogg et al. (2001) reveals that identity disclosure (by showing name and photo) strongly affects how consumer perceives trust.

H1. Identification information of founder increases the possibility of success in crowdfunding.

Hsu (2007) finds in his study that entrepreneurs who have prior founding experiences, especially those with financially successful ones, are both more likely to acquire funding and have higher valuations from venture capitalists. Similar finding is also supported by MacMillan et al. (1986) in whose study indicates that one of the most important criteria used by venture capitalists
to determine funding decision is entrepreneur’s experience. Accordingly, the following hypothesis is derived.

**H2. The level of prior experiences of collecting fund increases the possibility of success in crowdfunding.**

Shoppers are likely to listen to the others who are independent with a company to get trustful information (Utz et al., 2012). In the context of online crowdfunding, we expect that word-of-mouth plays an important role to rule out biased decisions. It should be noted that investors usually raise various questions since a crowdfunding project is likely to be uncertain. A prior study on the effects of user-generated reviews shows positive association with sales and productive discussions (Chen et al., 2004). Thus, we hypothesize:

**H3. The number of comments increases the possibility of success in crowdfunding.**

It should be noted that a crowdfunding project requires progress tracking. Projects displayed in a crowdfunding website, such as Indiegogo, Kickstarter and GoFundMe to name a few, are work-in-progress in terms of lack of financial support, technical incompleteness and marketization. Project Update can be useful in distributing information about progress. The increase of interactivity makes investors positively involved in project development (Dwyer, 2007). In turn, we can assume that the extent of efforts to interact with investors influence positively a crowdfunding project. Thus, we hypothesize:

**H4. The number of project updates is positively associated with the possibility of success in crowdfunding.**

Trustworthiness of a website is highly correlated with the extent of elaborating information (Shelat and Egger, 2002). Elaborating a description refers to an act of adding details about key information sources for influencing an investment decision. In a crowdfunding website, video clips, blueprints and interviews are likely to be added to present more information. According to Mudambi and Schuff (2010), depth of review descriptions in an online store results in positive outcomes.

**H5. The extent of elaborating descriptions influences positively the probability of success in crowdfunding.**

Investors cannot get a product or enjoy a service before a crowdfunding project is complete. Simply, they should wait until the project campaign reaches a finish line. Although long duration of funding seems to be a safe choice for a founder, the possibility of lagging product/service delivery can give a negative image to investors. The traditional research stream about consumer motivation reveals that time is a key for promotion success under uncertainty (Belleflamme et al., 2014; Spears, 2001). Thus, we hypothesize:

**H6. Campaign period negatively impacts the probability of success in crowdfunding.**

Funding goal is suggested to be set at the minimum requirement level of the startup requirement of a project (Cebulski, 2013). High funding goal indicates high initial capital requirement for project, which eventually gives signal of higher risk. This might convey distrust on founder’s ability to complete the project. Thus, we hypothesize:

**H7. Increase of a funding goal influences negatively on the probability of success in crowdfunding.**

**4. METHODOLOGY**

Data were collected from Kickstarter. At the moment of 2016, over 9 million investors put money into more than 260,000 projects. The total amount of fundraising exceeds $2 billion. This crowdfunding platform has been grown up rapidly so that numbers should be read as proxies of its impact with caution. There are fifteen types of project categories such as art, comics, crafts, dance, design, fashion, film & video, food, games, journalism, music, photography, publishing, technology, and theater on this platform. Kickstarter adopts a reward-based crowdfunding style, which means that an investor get a reward defined in a funding contract in public. In addition, the reward follows the all-or-nothing scheme. If a project fails to reach a funding goal, investors lose the chance of getting a reward. Of course, a founder cannot collect money from the failed project.

**4.1 Data**

To avoid possible issues relating to live projects, we limited the data set to 755 samples within 60 days which were completed in January 2015. It should be noted that any failed projects can have additional chances of redeploying slightly different products and services in Kickstarter; therefore, one year lagged data can provide chances for filtering out biased samples. Totally, 51 projects were discarded after inspection in this sense.

Descriptive statistics show that 79.4% projects are located in the United States. Other regions include Australia, Canada, Denmark, Great Britain, Ireland and New Zealand to name a few. As shown in Figure 1, about 12 million USD were invested. Design and technology were top-tier project categories with 37,150 USD and 45,361 USD in each on average (see also, Table 1).
4.2 Measurements

In this study, we adopted multiple regression analysis in order to validate hypotheses. Success Ratio, the dependent variable, is defined as the extent of received fund over a funding goal. To explain the variance of the dependent variable, seven dependent variables were adopted as shown in Table 2 were defined. Since the distribution of Success Ratio was skewed, we adopted log transformation to adjust scales for better interpretation to results.

For identity disclosure, we used Facebook data. We create a dummy variable which receives value one if there is a link to a Facebook account; otherwise, zero. According to Fogg et al. (2001), a person reveals his identity by using real name and photo. For our study, we used the existence of personal photos as the proxy of validating identity disclosure measurement. It should be noted that a Facebook account for crowdfunding could be artificial. We assumed that an account would belong to a real person if actual and personal photos were uploaded at least three times onto a Facebook profile page.

A study suggests there is correlation between geographic location and decision to pledge the project (Agrawal et al., 2013). In order to control the effect of regional proximity, we created a dummy variable of Country. If a crowdfunding project was in the United States, we put 1; otherwise 0.

5. RESULT

As shown in Table 3, all the variables could be discriminated so that we could use adopted variables and developed ones to test individual hypotheses.

Table 1. Descriptive statistics

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>S. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campaign period</td>
<td>33.34</td>
<td>11.59</td>
</tr>
<tr>
<td>Amount invested</td>
<td>17,442.04</td>
<td>36,615.96</td>
</tr>
<tr>
<td>Investors</td>
<td>175.49</td>
<td>278.92</td>
</tr>
</tbody>
</table>

Table 2. Measurements

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measurement</th>
<th>Description or Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success Ratio</td>
<td>Amount funded over funding goal</td>
<td>The degree to which the amount of money received is greater than a funding goal.</td>
</tr>
<tr>
<td>Identity Disclosure</td>
<td>A dummy, takes 1 if there is a link to a real Facebook account; otherwise 0.</td>
<td>Whether a person chooses to reveal his or her real identity by providing a link to a personal Facebook page.</td>
</tr>
<tr>
<td>Experience</td>
<td>Number of past projects</td>
<td>Hsu, 2007</td>
</tr>
<tr>
<td>Comment</td>
<td>Number of comments</td>
<td>Chen et al., 2004</td>
</tr>
<tr>
<td>Update</td>
<td>Number of updates</td>
<td>The degree to which a founder puts effort in blogging the progress.</td>
</tr>
<tr>
<td>Description Elaborateness</td>
<td>Word counts</td>
<td>Racherla and Friske, 2012</td>
</tr>
<tr>
<td>Funding Goal</td>
<td>The amount of funding</td>
<td>Mollick, 2014</td>
</tr>
<tr>
<td>Campaign Period</td>
<td>Days for a crowdfunding project</td>
<td>Mollick, 2014</td>
</tr>
<tr>
<td>Country</td>
<td>A dummy, takes 1 if a project is in the US; otherwise 0.</td>
<td>This variable indicates how much a project is affected by regional characters (a control variable).</td>
</tr>
</tbody>
</table>

Table 3. Discriminant validity

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVar1</td>
<td>.977 - .057 .052 .096 -.046 .084 .025 .009 .146</td>
</tr>
<tr>
<td>IVar1</td>
<td>.023 -.012 -.023 -.011 .005 .034 .998 .041 -.016</td>
</tr>
<tr>
<td>IVar2</td>
<td>.093 -.038 .018 .988 -.072 .000 -.011 .035 .081</td>
</tr>
<tr>
<td>IVar3</td>
<td>.173 .263 .132 .100 .034 .135 -.020 -.009 .924</td>
</tr>
<tr>
<td>IVar4</td>
<td>.087 .090 .161 .000 .097 .966 .038 -.011 .120</td>
</tr>
<tr>
<td>IVar5</td>
<td>.053 .111 .909 .019 .076 .160 -.025 -.016 .116</td>
</tr>
</tbody>
</table>

Correlation analysis results confirmed that Success Ratio would be associated with dependent variables. Identity Disclosure was exceptional (Pearson $\rho = 0.046$, p-value $= 0.223$). We found that the number of comments would be correlated with other dependent variables. In addition, Update seemed to be a potential cause of multicollinearity. Variance Inflation Factor (VIF) values were relatively small (Identity Disclosure $= 1.019$, Experience $= 1.097$, Comments $= 1.508$, Update $= 1.236$, Description $= 1.046$).
Elaboration = 1.225, Period = 1.120 and Goal = 1.439); therefore, we concluded that the multicollinearity issue would not distort results. In addition, we ran the Durbin-Watson test to understand autocorrelation effects. The range of Durbin-Watson exists normally from 0 to 4. If the value is close to 2, we accept it as no-autocorrelation. The calculation result from our sample residuals showed that autocorrelation would not be issue (DW = 2.003). Fitness of regression model can be measured by an index for coefficient determination. In our study, we used adjusted $R^2$ to understand how much the linear model was fitted into data. The result was 20.3%.

### Table 4. Correlation

<table>
<thead>
<tr>
<th>Item</th>
<th>Pearson Correlation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVar1</td>
<td></td>
<td>0.46</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVar1</td>
<td></td>
<td></td>
<td>0.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVar2</td>
<td></td>
<td></td>
<td></td>
<td>0.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVar3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVar4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVar5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVar6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVar7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.09</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.05</td>
</tr>
</tbody>
</table>

* Bold font refers to the Pearson correlation value is significant at $\alpha = 0.05$.

The regression model shows that H1 is not supported. Founder Identity does not have significant effect on Success Rate ($p$-value = 0.168). The first plausible explanation is that Facebook photos are not adequate materials for identification, which does not give significant clues for trustworthiness. The second explanation is that a crowdfunding project has different characteristics that have been reported in blog studies about the effect of Word-of-Mouth on product sales (e.g., Jansen et al., 2009; Lee and Youn, 2009). Social networking capabilities may not be correlated with the success of crowdfunding since it does not deliver relevant information on products or services (Giudici et al., 2013).

Hypothesis 2 is supported ($p$-value = 0.006). Experiences on prior crowdfunding projects influence the next project. The historical records of crowdfunding as a founder may give a positive signal to potential investors about capability and competency. According to Hu et al. (2005), reputation information increases trust with reducing risks in a computer-mediated environment. Our result is in line with the findings from the effects of prior experiences on performance in the context of online shopping (e.g., Gefen et al., 2003).

The number of comments is positively associated with Success Ratio, which shows that H3 is supported ($p$-value < 0.000). User participation has been studied as a key success factor in information system research (Lin and Shao, 2000). The amount of review comments can increase positive responses in terms of sales (Ye et al., 2009). In the context of crowdfunding, the amount of user-generated comment is a primary indicator to a possible successful project.

The number of update is positively related with Success Rate ($p$-value < 0.000). H4 is supported. According to Mollick (2014), frequent update is considered as a positive indicator for quality. Quick feedback to customer issues is required to recover service failures (Zeithaml et al., 2010). Moreover, constant update gives a good image on company’s innovation efforts (Xu et al., 2014). Those can be good signals for project success; thus increasing success rate.

H5 is not supported. The word count does not convey significant meanings to explain the variance of Success Rate. The result implies that variance of success and failure is not found in quantity of explanation. We suspect that small quantity of description can deliver key information sources for persuading investors more successfully. However, this assertion was not tested in this study. Further studies are needed to verify the effect of various information cues that affect success.

H6 is supported. One plausible explanation is that time duration affects project attractiveness. If a reward is expected several months or even a year later, an investor may perceive a crowdfunding project is uncertain. In addition, long duration reflects the fact that a project is not mature enough for market delivery. It gives a negative signal to investors about quality and veracity. In line with H6, Funding Goal is negative associated with Success Rate ($p$-value < 0.000), which shows that H7 is supported. This result is in line with Mollick (2014). Increasing goal is negatively correlated with success. Reward-based crowdfunding projects usually have differentiated reward scheme. For larger investors, a project founder promises bigger rewards. If a person contributes only small money to the project, a reward is small. The final goal is a sum of investment from different schemes. It should be noted that even a big goal can have multiple reward schemes that need to be supported by limited investors. Since a return from participating in a crowdfunding project is uncertain, small reward with small risk is naturally preferable. If the pool of investors is limited, a large funding goal is probably unrealistic; thus accelerating failure.

6. CONCLUDING REMARK

Although crowdfunding provides a new approach for entrepreneurs in funding innovative projects, how to make a project being successful is not yet clear. The findings of this study may contribute to knowledge accumulation in the research stream of crowdfunding by offering clear insight on using design elements. Our findings as also provide strategic insights to the platform developers of crowdfunding. According to the analysis result, prior successful stories in a founder dimension should be highlighted to increase success rate. In addition, a searching tool for discovering promising crowdfunding projects needs to consider the amount of comments and updates. There should be
clear guidelines for helping founders limit campaign period wisely as shown in the analysis result.

Crowdfunding has become a competitive alternative in seeking financial support. Although this study provides significant insights for academic researchers and IS developers, we leave unmet research needs for further work. We think the following limitations should be answered for utilizing crowdfunding as an important and useful financing tool for innovators. First, the findings are rooted in one data source, Kickstarter. This probably reduces the possibility of generalizability. Future study should consider other crowdfunding sites equally including Indiegogo, Crowdfunder, and Rockethub to name a few. Secondly, this study only considers a pre-order type (i.e., reward-based crowdfunding). It should be noted that other crowdfunding approaches are emerging. Since our model is specialized in one of possible crowdfunding alternatives, the explanation power of our model is limited. Third, by combining review credibility model and on-line trust model we developed our research model consisting of two different dimensions. However, there are open chances to consider hierarchical levels for both founder and project characteristics. For example, comments by user can be separately investigated in terms of gender, maturity of investing crowdfunding projects, expertise and tastes. Interaction effects between our key constructs and those variables should be interesting.

7. REFERENCES


