

Assessing Stability in the Relationship Between Parties in Crowdfunding and Crowdsourcing Projects During the COVID-19 Crisis

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ABSTRACT

This research is devoted to the study of ways to solve problems that arise in extreme conditions in the implementation of crowdfunding or crowdsourcing projects. The COVID-19 pandemic is considered as a vivid example of such problems. The article considers the elimination of distrust and concerns of the participants of crowdsourcing projects and the formation of sustainable trust against the background of uncertainty and stress among donors. Various factors affect the sustainability of donor decisions to varying degrees; the unifying trend that increases donor involvement is the reducing of monotony. Further improvement of donor relations and sustainable project performance focuses on the use of a specialized donor classification system. The necessity of creating a portrait of a typical donor was revealed, the use of which will allow eliminating conflicts as a result of differences in culture. Achieving sustainability of projects requires identifying funding thresholds, methods for receiving payments in excess of this threshold, consistent communication with donors during the campaign, regular disbursements of funds, and stable publication of donation reports. To implement these actions, an analysis of activity in social networks and other social interactions is required.

KEYWORDS

COVID-19, Crowdfunding Platform, Crowdsourcing, Meta-Analysis, Sustainable Relationships

INTRODUCTION

it has not yet withdrawn from the category of charity tools completely. Many charity campaigns continue to obtain funding through crowdfunding (Eldridge, Nisar & Torchia, 2021). To date, the majority crowdfunding studies have focused mainly on those factors contributing to a successful campaign and thoroughly examined the experience of the corresponding actors (Xie et al., 2019). The results of discussions in various fields suggest the potential for crowdfunding platforms to develop efficiency (Gerber & Hui, 2013), as capital from the crowd can increase the funds of both business companies and social movements. The recent COVID-19 outbreak showed a high demand for innovations that can be used in the fight against health hazards, specifically the pandemics. The crowdfunding platforms can provide these projects with financial support they may need within a

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fairly short timeframe. In crowdfunding, donors motivated by getting something in return jointly finance startup projects and make contributions to achieve a funding goal. However, when there is an emergency, such as COVID-19, donors are interested not in financial gain, but in finding quick and reliable solutions.

During the COVID-19 pandemic, it becomes necessary to address a number of challenges related to providing an effective and reliable communication platform in order to increase trust and resilience during crises and emergencies (Huang et al., 2020). The surge in demand for services and applications through social media has opened up a number of new opportunities for exploring and using crowdfunding platforms during this challenging time. In addition, there is a significant shift in both individual and collective social behavior due to the intensive proliferation and development of social networks and the emergence of many services and applications through their platforms. Due to the continued impact of the spread of COVID-19 and the introduction of a number of restrictions that have a particular impact on the daily life and behavior of every person in the world, the digital transformation process will only gain momentum and continue to grow and develop in the future (Kim, 2020). The provision of new large-scale platforms through social media provides new opportunities and ways for the exchange and integration of information about the dynamics of diseases, the creation of new knowledge to combat the spread of disease, etc. (La et al., 2020). COVID-19 introduces new perspectives on social responsibility in a crisis. The development of crowdfunding and crowdsourcing platforms for communication, cooperation, and unification of a large audience is a very urgent issue since new views on the level of social responsibility emerge during the crisis (Abdulhamid et al., 2020).

Practice shows that failure of many crowdfunding campaigns is due to setting of inadequate tasks or a complex return mechanism (Belleflamme et al., 2013). Recent studies have shown that crowd's motives for participating in various forms of crowdsourcing initiatives may vary (Leboeuf & Schwenbacher, 2018). Studies of popular European crowdfunding platforms show that crowdfunding not only feeds technology startups but also serves a new source of finance for the existing companies and firms (Eldridge et al., 2019). Furthermore, crowdfunding platforms are of interest to scientists and researchers who seek to implement their research projects focusing on COVID-19-related topics. These projects attract donors with different kinds of motivation and decision criteria (Simons et al., 2019). Thus, investigating motivation itself and motivation for donation is crucial for the promotion and development of crowdfunding platforms.

Studies on the impact of investing options on funding decisions during the pandemic are nowhere to be found. The options in point may relate to bonus/reward criteria established by project initiators, and donors can choose any of those options themselves. For example, bigger commitments bring more profit or assets (Kuo, Lin & Hou, 2020). Therefore, the number of options may be a significant factor influencing donor decision-making. Studying the impact of various motivations on fundraising provides an opportunity to improve project design and thus increase the likelihood of reaching success in the campaign. At this point, motivation research is a promising and relevant direction in the field of crowdfunding technologies.

This study aimed to look at the matter from another angle, a little more on donors and a bit less on project initiators, specifically on their relationship with the acceptors of their donations. The study reviewed sources exploring the interaction between the crowdfunding project initiators and donors, with the aim to find a pattern in donor behavior for relationship building and to understand the flow of donors in donor acquisition and retention. This interaction is the key contribution to a successful campaign (Maehle, 2020). The study attempted to identify factors that would make the donor more attached to the project and continually make donations while retaining interest in the project even after the pandemic has come to an end so that others could handle the consequences of the pandemic and situations similar to it. The purpose of this work was to establish factors influencing donors' intention to invest in a crowdfunding project during the COVID-19 pandemic. For this, quantitative and qualitative reviews of already existing crowdfunding projects were carried out. The quantitative review is performed through meta-analysis, which focused on the overall effectiveness of the project

and its ability to meet donor expectations. A systematic literature review was conducted to identify drivers of success and failure for crowdfunding and crowdsourcing projects. It is hypothesized that likely differences in views regarding the role of communication, commitment, and trust in initiator-donor relationship can affect the quality and sustainability of this relationship and the campaign success rates.

Literature Review

Globalization and informatization processes that take place while social groups blend together and acquire resistance to conventional incentives bring into the world a need for tracking social trends and identifying patterns on which new social relations are built (Crane et al., 2016). This is especially the case when there is a financial crisis, such as one caused by the COVID-19 outbreak, and many projects have lost their financial support and were suspended or closed. The threat of a new outbreak and the following financial collapse require project initiators to create medium- and long-term plans of socio-economic development to restore after the crisis (Nicola et al., 2020).

The crowdsensing technology allows individuals having sensor-equipped mobile devices (e.g., smartphones, tablets, smart watches, etc.) to collectively share data, with the purpose of measuring, mapping, analyzing, estimating or inferring (predicting) any processes of common interest (Christin et al., 2011; Ganti et al., 2011). Such systems gather relative information via direct reports and by passive methods, which refer to the automatic sending of information about the needs of people on the Internet. For example, marketers and advertisers can easily know one's current interests from one's search engine queries and then inconspicuously offer a product or service of interest through advertising. This approach significantly increases the effectiveness of advertising but sometimes it may have a negative effect on a consumer, as an aggressive/intrusive scenario results in distrust and avoidance by the target audience.

Problems with crowdsourcing and crowdfunding occur due to privacy threats. Risks associated with data processing refer to privacy of sensed data (PSD), privacy of computing inputs (PCI), and privacy of computing results (PCR). The sensed information may include confidential or sensitive data such as geolocation details obtained from GPS devices. Even specific environmental data may reveal one's position. This information, if disclosed, may cause breakdown in trust and therefore, must be treated as confidential. Privacy threats from tasks embrace task privacy of end users (TPEU) and the task privacy of participants (TPP). Participants in crowdsourcing are condemned to disclose certain information to reach the set goal. Thus, a collision of information processing technologies and social demands takes place, posing a threat to sustainability of projects with share financing.

Yang and Lunga (2014) explored a number of critical security and privacy issues that impede the application of the mobile crowdsourcing network (MCN). When participating in crowdsourcing, mobile users consume their own resources (e.g., battery, mobile data, and memory) and may suffer potential security and privacy threats, which, in turn, impact the quality of relationship between actors. The output results of crowdsourced computing tasks may be sensitive or private. End users do not want the service provider to know the content of the results or obtain some sensitive information (Veresha, 2018; Moradi & Badrinarayanan, 2021).

When crowdsourcing tasks to a dynamic group of people, protecting private information is more challenging than only outsourcing tasks to a single server, as the size of the group cannot be predetermined (Bi et al., 2017). Mobile users may accept crowdsourced tasks based on their interests, locations, or device conditions (residual battery, available sensors, etc.). The network topology may change over time due to human mobility and dynamic user join/leave, which may also increase the difficulty of exploring security and privacy solutions.

In their work, Yang et al. (2015) also examined the service provider. In their definition, the service provider is a "crowdsourcing platform that provides crowdsourcing services to both end users and public crowds" and end users, in turn, are "customers who purchase or rent crowdsourcing services at certain costs". Hence, they send service requests to the service provider and receive results from it.

Ismagilova et al. (2020) examined factors that should be in place in order to mitigate the information security concerns of citizens participating in the crowdsourcing smart city project. According to them, information security of the system (confidentiality, integrity and availability) was a concern to citizens participating in the project. Smart cities are designed to improve the quality of life of citizens and provide them with sustainable services (Zhang et al., 2019). To reach these goals, developers have to collect and process large amounts of data, with the aim of anticipating the upcoming events or isolating areas that give rise to concerns (Das, 2019). However, when collecting information from citizens in unprecedented amounts, individuals/entities responsible for collection may cause privacy and information security concerns which, in turn, can impede the introduction of smart city services (Zhang et al., 2019; Laufs et al., 2020). Privacy concerns are especially prevalent when data is collected through crowdsensing. Once citizens are aware that their private information will be collected, they are not willing to participate in the crowdsensing campaigns (Baltac, 2019). A suggestion was put forward to overcome privacy concerns so that citizens can control what information is sent. However, after the information is sent, the citizen has no control over what happens to it. In other words, there is a mismatch between social demand and technological implementation, which undermines the strategic sustainability of projects. Therefore, information security controls must be in place to ensure that information, which is reported to the crowdsourcing system, remains confidential, integral and is available to the correct stakeholders (Chu et al., 2019).

Zhu and Zhou (2016) examined the problems of crowdfunding, the blockchain technology in particular, through the example of China. The major directions that were tackled include the benefits of the blockchain solution; use cases (e.g., registration of stocks and shares of a firm financed by crowdfunding; transaction and transfer of crowdfunding equities; peer to peer transactions between investors and entrepreneurs); and potential of the technology (i.e. facilitates the circulation of crowdfunding equities; enables crowdfunders to be involved in corporate governance through a specially developed voting system).

Among pressing issues, authors distinguish:

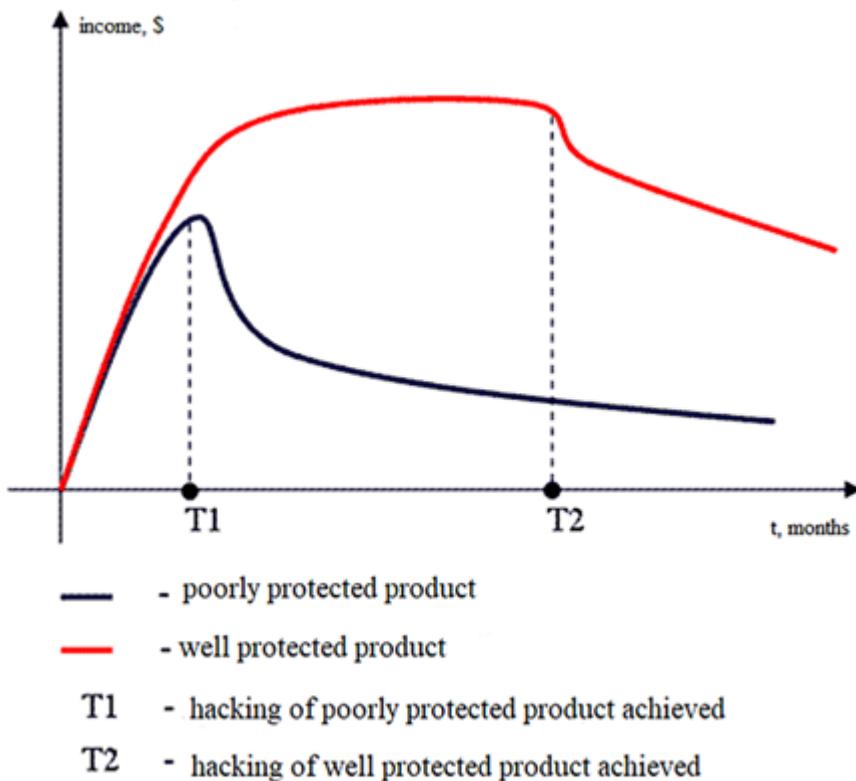
- 1) difficulty in shareholder registration, which creates difficulty for equity transaction and transfer. The lack of liquidity here is associated with high risk, which discourages investors from investing (Ma, Song & Zhang, 2020);
- 2) management of funds raised from crowdfunding (this is associated with security of money and compliance with regulations). Unlike peer to peer lending, where money deposits do not form a capital pool, the procedure of crowdfunding involves many investors, fundraisers, and crowdfunding platforms, where it is easy to form a capital pool. Therefore, the crowdfunding platform is at risk of making improper use of the deposit capital. From a legal perspective, the existence of a capital pool may not comply with regulations (Yang & Lunga, 2014).
- 3) the lack of an effective way for investors to participate in corporate governance. Hence, it is easy for insiders to control a company at the cost of the interests of investors (Yuan, 2014).
- 4) regulation of equity crowdfunding (this involved the standard of qualified investors, quota of investment, regulation of crowdfunding platforms, regulation of illegal fund-raising, detection of fraudulent fund raising, and opposition to money laundering). To resolve these, regulators need comprehensive and detailed information about the equity crowdfunding market, as well as a good understanding of the overall crowdfunding market (Zhu & Zhou, 2016).

In their study on security, privacy and trust in mobile crowdsourcing (MCS), Feng et al. (2017) addressed problems that are specific to this field. The key problem that was emphasized is linked to the advantages of openness and mobility, which according to authors, make a device attractive to scammers, snoopers, and other attackers. Another problem is that all data collected via MCS may contain sensitive information about mobile users. This gives chances for attackers to infer user private

information from the collected data. For example, some MCS apps collect GPS fixes or cellular network IDs, from which a user's location and his/her physical activities can be inferred (Wang et al., 2013, 2016). Along with that, data trust is also a concern. The openness of MCS offers almost all mobile users an opportunity to participate in MCS activities. As a result, the MCS workers may be unreliable and vary in terms of ability, honesty, dependability, loyalty, and so on. Accordingly, the data generated by different workers also vary in terms of trustworthiness. Blockchain technology is becoming increasingly widespread as a guarantee of trust (Ma et al., 2020). If the above-mentioned security, privacy and trust issues cannot be well solved, they may severely hinder the adoption of MCS applications.

From the above-listed studies, it follows that general and major problems in crowdsourcing, crowdsensing and crowdfunding embrace data privacy. These problems hinder the work productivity and cause significant drop in the earnings (Figure 1) as well as discourage many people from taking part in crowdfunding or any other online campaign.

Figure 1. Graph showing cost comparison of products with and without advanced protection



Due to the COVID-19 pandemic, most countries imposed restrictions on movement and working hours, causing businesses to lose money. In these conditions, industries that provide information products and services gained popularity (Seetharaman, 2020), resulting in the rise of information-related crowdfunding projects launched to withstand the consequences of the pandemic. The most acute problems in this context are the lack of jobs and social distancing, and moving to crowdfunding

platforms seems to be the most appropriate solution. Therefore, this study aims to study the influence of economic, social and environmental factors on the success of crowdfunding projects, especially during the pandemic. The study focuses on interrelated donor attractions and assesses the impact of each factor on one's decision to participate in the project.

Research Methodology

This paper is a systematic review that uses meta-analysis of empirical data from multiple studies to assess the effect of incentives in crowdfunding. As there is very little literature on the problem of crowdfunding during COVID-19, and most sources focus on finding medicines and morbidity statistics, this study relied on materials from DonorsChoose.org, a crowdfunding platform for education projects (Althoff & Leskovec, 2015).

Algorithm of Selection of Individual Studies

Because meta-analysis bases on statistical processing of results from single studies, this study converts statistics to a general metric form with Pearson correlation. Here, the magnitude of the impact is estimated for each work examined. Studies in meta-analysis were selected under the following criteria:

- 1) direct or indirect empirical data;
- 2) details on the sample size are present;
- 3) coefficients of correlation between the amount of donation and the donor count are computed and can be converted to other correlation coefficients;
- 4) studies and data sampling are dated no earlier than 2012;
- 5) in order to avoid cross-references, only original sources (peer-reviewed journals) are used.

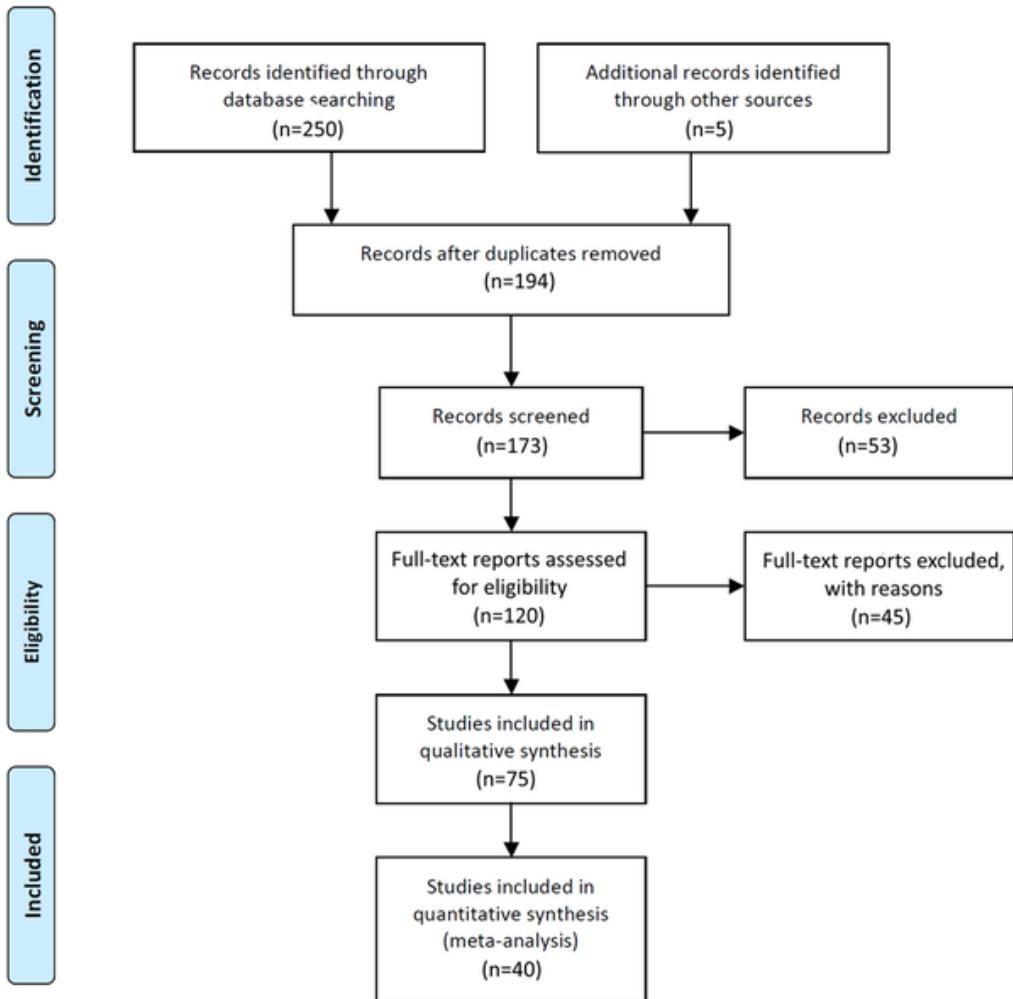
The analysis procedure was carried out according to the PRISMA-P protocol (<http://www.prismastatement.org/Extensions/Protocols.aspx>). The systematic literature review process is depicted in Figure 2.

As can be seen in Figure 2, a systematic review derives the most relevant quantitative data from project reports that provide general information (Gurevitch et al., 2018). Meta-analysis defines one variable per source, which is expressed as an effect size (Pearson's correlation coefficients), and then the effect sizes are entered into a statistical model to estimate the overall or absolute effect. This model takes into account the variation (which arises from variance within one sample) in effect size between the examined sources. It is also worth noting that all sources had the same common effect. In addition, this model assumes that there can be a difference within the same random sample. This work presents the absolute and relative effects of each of the factors affecting the crowdfunding project's success. In this study, the coefficients of correlation between the amount of donation and the donor count are computed and can be converted to other correlation coefficients.

In order to maintain data independence in meta-analysis, one finding per sample was taken. A total of 50 empirical studies were found, of which only 10 met the selection criteria.

A number of scientists focused on two types of behavioral events, *donation recurrence* (whether one donor will make donations at some time intervals in the future) and *donor retention* (whether a donor will remain on the crowdfunding platform until a future time) (Zhao et al., 2019). These terms describe the major aspects of relationship building among donors (Pitchay et al., 2021). Studies normally use large-scale behavioral data collected from crowdfunding. This information is important because the problem of donor attrition (many donors donate only once or very few times within a rather short time and then leave) is a crucial issue for sustainability of crowdfunding platforms and traditional charitable organizations. From this perspective, analyzing factors and predicting donor behaviors are an urgent task.

Figure 2. PRISMA flow diagram describing the systematic literature review process



A mixed method study conducted in 2017 examines factors that influence backers' trust in crowdfunding when rewards are delayed (Kim et al., 2017). Based on in-depth interviews with crowdfunding participants, it was found that a rich set of factors influenced the trust of backers, including backers' role identity and domain knowledge, backers' research on a creator's background, communication between participants during delays, and duration of delays. The study is rich in terms of evidences, reports on a regression analysis of 4089 delayed projects, and analyses such indicators as the funding goal, number of backers, percentage of funds raised, number of reward levels, and previous crowdfunding experience.

In the study of Vismara (2016) one may find a sample of 271 projects listed on the UK platforms, Crowdcube and Seedrs, between 2011 and 2014. Another paper explores donation in the original sense of the term, e.g., blood donation (Veldhuizen, 2010). This work was considered in the present research for understanding the basics of donor's emotional response to donation.

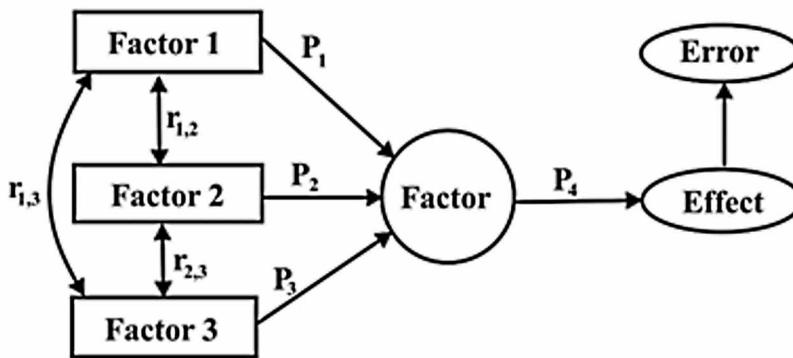
User interactions were studied in the work of Gerber et al. (2012) through the example of more than 50 crowdfunding projects. In their next work (Gerber & Hui, 2013), authors focused on

human-computer interaction issues and the scale of study was as large as in 2012. Authors Sewaid, Garcia-Cestona & Silaghi (2021) offer an empirical study of a random sample of 1835 crowdfunding companies on the Kickstarter platform and analyze the problem of overcoming information asymmetry.

Path Diagram of Direct and Indirect Estimates

Methodology in this study allowed synthesizing direct and indirect estimates of the relative factor effects for the same case under study. The two zero-approximation theories were compared in a direct research. An indirect estimate was obtained from research comparing these two theories by the general comparative method. To investigate indirect effects, a path analysis approach was used in which the extent to which the casual variable changes was measured. Change of the casual variable affects the dependent variable both directly and indirectly through the correlation coefficient (r). This analysis is presented in the form of a path diagram (Figure 3).

Figure 3. A Path Diagram: factors 1, 2, and 3 directly impact the effect and interact with each other to indirectly impact the effect



The path diagram illustrates the connection (arrows) of path coefficients (P_i) and correlation coefficients (r_{ij}) between various factors. Here, P_i represents a partial regression coefficient that measures the magnitude of the direct effect of one variable or another, holding other variables constant. The diagram displays the links between three factors, which can have effects that are same but of different magnitude. Factors that match in terms of effect constitute the major factor. The path coefficients P_i between one factor and the major factor as well as correlation coefficients r_{ij} between factor pairs may be expressed for the correlation coefficients (r_i) as follows:

$$\begin{aligned}
 r_1 &= P_1 P_4 + r_{1,2} P_2 P_4 + r_{1,3} P_3 P_4 \\
 r_2 &= P_2 P_4 + r_{1,2} P_1 P_4 + r_{2,3} P_3 P_4 \\
 r_3 &= P_3 P_4 + r_{2,3} P_2 P_4 + r_{1,3} P_1 P_4
 \end{aligned}
 \tag{1}$$

Path coefficients in formula (1) can be calculated using simultaneous equations. Path and correlation coefficients can be used to calculate direct and indirect effects (Table 1).

A single factor influencing donor retention can have varying effects investigated by different randomized studies, i.e., an evidence network. Direct and indirect estimates from many different

Table 1. Equations for direct, indirect and total effects

	Direct effect	Indirect effect	Total effect
Factor 1			
Factor 2			
Factor 3			

comparators can help compare the hypotheses about the influence of one or another factor. Using this meta-analytic methodology, the study synthesized different pieces of information and evaluated a number of internally consistent hypotheses about the relative influence of donor retention factors.

Results

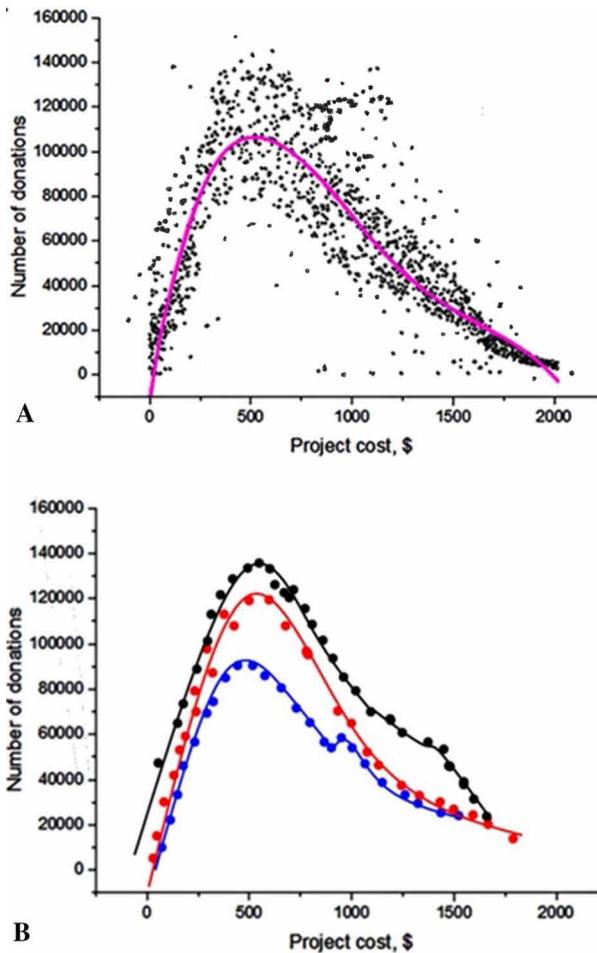
Based on the empirical data examined, it can be stated that donor trust is a key factor to loyalty. The organization’s ability to reach the set goals on time and a transparent public report are the major inducements to attract and maintain a wide audience of crowdfunding platform users and a foundation of sustainable relationships between parties involved in a crowdfunding project. To complete the picture of a good service provider, the impediments involve an incorrect fundraising goal, failure to meet deadlines, and report delays. Donor’s motivation is greatly undermined by the failure to meet the crowdfunding goal as well as by sudden changes thereof. Therefore, it is extremely important not to allow destabilization between the processes within the project and at the level of obligation fulfillment, as this will result in an information asymmetry. Donors who donated a project, which reached successes afterwards, are more likely to return. There are several reasons for such a behavior: donors trust the platform more, as their donations contribute to the cause, i.e. the public offering makes sense. These phenomena represent a response to the ongoing process of global social transformation and a social request for participation in share-value projects (Chen et al., 2019). Aside from that, donors feel themselves involved and receive greater recognition if donations are made to successful projects. It is the sense of impact that comes to the forefront in further cases and serves as emotional filler within a stable relationship between the parties. Results of the empirical data analysis distinguish three factors that impact both the participation in crowdfunding and the amount of donor contribution: economic, social or ecological interests. Table 2 presents a summary of estimates of the direct and indirect effects inflicted by these factors (all data relate to a single work).

Table 2. Estimates of direct and indirect effects of different factors

Factor	Direct effect	Indirect effect	Total effect
Social	0.16	0.02	0.18
Economic	0.9	-0.3	-0.2
Ecological	0.1	-0.14	-0.07

Data in the Table above show a positive correlation of the social factor. An unambiguous conclusion was drawn by comparing different works (Figure 4). In various empirical studies, the social factor exhibits a different impact on decision-making. Besides, the histogram below illustrates that indirect effects add more to the total effect than the direct effects. Results concerning other factors are similar.

Figure 4. Histogram of direct, indirect and total effects of the social factor: a summary of results from multiple works

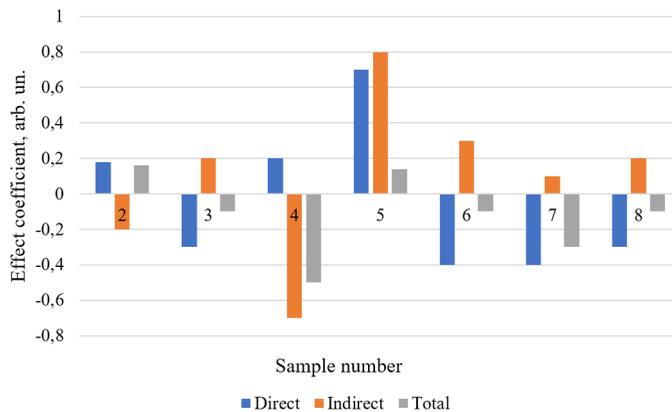


Despite the advantages of meta-analysis, the researchers split over the validity of indirect comparisons. One of the main points of criticism is the nature of the meta-analytic evidence. Despite the fact that donors were randomized within the frame of each specific project scenario, they were not randomized to all studies included in the review. Moreover, the crowdfunding campaigns lacked balance between the number of donors, project goals and project duration. Therefore, indirect comparisons are non-randomized comparisons and provide observational, rather than randomized, evidence. For this reason, indirect comparisons of donor attraction/retention factors may be more susceptible to bias due to the mixing of sources and the presence of options to choose from (e.g., the choice of a comparator depends on the relative effect of a hypothetical factor).

Various statistics show an inverse correlation (after a certain threshold is reached) between the sense of involvement and the crowdfunding goal; the larger the sum of money needed to make the project possible, the lower the number of donations. Figure 5a illustrates this trend with a graph created using the data that were collected during many crowdfunding campaigns. As it can be seen, the function is not smooth and broad peak; perhaps this means the presence of multiple peaks. This result can be easily explained by heterogeneity of input statistics, which come from different countries, and apply to different cultural and economic contexts of crowdfunding. Figure 5b shows trends given in random papers in order to demonstrate heterogeneity and ambiguity of data under

study. The presence of several peaks indicates the connection between the factor that is involved in decision-making and the project cost. Anyway, a common pattern aligning different countries is that after reaching a certain fundraising maximum, the activity of donors monotonically decreases, with the next threshold becoming higher compared to the first goal. This confirms that there is a need to use tools that are most adaptive, correspond to social demands, and provide the most vivid and stable feedback while managing crowdfunding projects.

Figure 5. a) The number of donations in relation to the crowdfunding goal, adapted from papers under consideration; (b) Comparative trends for three single studies



Donors make donations based on an amount that remains almost unchanged (Althoff & Leskovec, 2015). Thus, the need arises to retain a donor not by the incentive to higher donations, but by maintaining the amount on a steady level. In light of current global trends, donor retention is becoming a fundamental priority.

In 2019, the average amount of donations was \$303.70, which is 26.5% more than in 2018 (\$223.08) (Althoff & Leskovec, 2015). About 0.55% of all donors donate over \$5000 (68.42%). Each of them on average donates \$75.606 during the whole life. Such donors also have the highest retention rates of 51.69%. At the same time, 84.8% of all donors donate less than \$100 (8.83% of all donations) with an average donation of \$42.31. The retention rate of such donors corresponds to 39.54%.

In 2018, the retention rate of novice donors (donated for the first time in 2018) equaled 19.53%; about 29.32% for renewed donors (did not donate in 2018 but donated earlier); and 48.10% for repeated donors (those who donated in 2018 and earlier). This confirms that in 2019 the overall trust for crowdfunding among donors decreased.

Taking into consideration the information above, trust is believed to be a determinant factor for donations. First of all, because the donation is exclusively voluntary and bases on donor's desire to contribute to the project implementation through the introduction of financial resources.

This desire can be legally influenced through the use of the following tools:

- creation of a typical donor portrait to prevent difficulties due to cultural differences. For example, donors of Western culture prefer when something is presented with “cool” and “wow!” effect. However, the emphasis on the same emotional aspect for representatives of the East can lead to undesirable consequences (Corsini & Frey, 2021);

- strategies for building trust. A donor must be sure that after receiving the money, the project will be managed effectively. It is necessary to demonstrate other achievements and social accounts of a project founders, providing information about the team background;
- future donors rewarding. All the donors should receive a reward. Donors or company names can be indicated in a special place of the released product. For example, in a computer game or on the pages of comics, one of the characters may bear the name or even the appearance of the donor. Such a bonus often plays a decisive role in choosing a project;
- development of a funding threshold and a way to receive payments above this threshold. Often after reaching 100% of the amount declared by the project, the fees cannot stop for a long time. Therefore, it is necessary to give a clear signal that one also has ideas for using these additional funds. Otherwise, this will negatively affect the reputation of a team. However, the disbursement of funds should be implemented for purposes close to the original business idea;
- permanent communication during the campaign and the disbursement of funds. It is better to inform donors about expenditures as well as any arising delay and discrepancy. Often, many former donors donate money to projects if they require more than planned through personal communication channels (Raudeliūnienė et al., 2018). However, in this case, information on the progress of the implementation of a business idea should be presented to donors on a stable basis, but not only in the moments of inconsistency. It also should be noted that donors are mostly using mobile channels to receive information and make donations (Haltofova, 2018). Therefore, it is advisable to include additional features for accessing project information via mobile phones;
- reports on donations receipt effectively influence donor trust. Even if the use of donations is not controlled, the information should not stop flowing into the network.

In addition, the use of social networks is an important aspect in implementing the promotion of crowdfunding and crowdsourcing projects. It is expected that active crowdfunding platforms on social media will further stimulate the growth of the crowdfunding market in the near future. According to startups.com, for 2020, 12% of Facebook shares, 3% of Twitter shares, and 53% of email shares are converted into donations.

The contribution of the findings to this work can be corroborated by reports from Mordor Intelligence and the Global Entrepreneurship Monitor. According to Mordor Intelligence's global crowdfunding study (<https://www.mordorintelligence.com/industry-reports/crowdfunding-market>) for the period 2019-2020 there is an intensive growth in the development of crowdfunding based on rewards. For example, startups in the United States make up over 17.4% of the country's total population. This indicates tremendous opportunities for reward-based crowdfunding in the region. In addition, with the huge crowdfunding market in North America, this opportunity is expanding even further. For example, according to the Global Entrepreneurship Monitor Report 2019, among the key drivers of economic growth in Turkey in 2019 were improved business environment by 10% and more than \$331 billion attracted to the economy through reward-based crowdfunding with stable employment opportunities. In addition, during the onset of the COVID-19 pandemic, there has been a sharp increase in the number of crowdfunding cases based on donations and rewards aimed at supporting the population affected by the global pandemic. For example, in April 2020, Facebook launched the Facebook Fundraiser, a platform where people can raise money for charity to help others during a pandemic.

Thus, relations with donors remain a full-fledged element of crowdfunding activity and require efficient management to maintain a high level of donor trust in the project.

Discussion

Similar results were obtained in other studies. In the work of Gleasure and Feller (2016), studies of dominant factors by category crowd lending, crowd fairness, crowd patronage, philanthropy have shown that common variables linking these categories, such as blurring organizational boundaries

and payment for participation, are new paradigms affecting the success of crowdfunding and crowdsourcing, and require additional attention to detailed study. A study on the knowledge-based and stakeholder management perspectives focused on mathematical modeling of development (González-Ramos et al., 2018). It was found that the opportunity to reach intensive development of energy-efficient and renewable energy sources encourages firms to participate in the crowdfunding campaign and support innovative strategies for the more rapid development of new technologies. A meta-analysis of research projects that compare crowdfunding with traditional funding mechanisms (Sauermann et al., 2019) show that attention of the crowd is given to projects that convey new simple concepts, have smaller budgets and are likely to be implemented within a shorter timeframe, rather than previous merits and experience of the project creator. According to statistical analysis, students, junior researchers, and female scientists are more likely to succeed than senior scientists. Furthermore, donation-based crowdfunding, along with the operator of the Internet platform, involves people who raise funds on a gratuitous basis (Petruzzelli et al., 2019). The study showed that the crowd may apply decision criteria than are distinct from those applied in traditional funding agencies. The direct and indirect factors affecting decision-making, however, were not investigated. Therefore, the present approach can help many scientists and researchers find the right path towards success in promoting their project.

Projects that have been already launched attract more donors and funding, and many companies should consider this before starting the fundraising campaign (Garimella et al., 2017). Hence, the pre-financing planning can significantly increase the chance of raising money. A number of works have emphasized the role of social networks in a successful crowdfunding campaign (Kaur & Gera, 2017; Rasskazova et al., 2019), which help introduce the product to potential donors of different age, gender, and with different interests.

Other important aspects of the crowdfunding platform are the period of funds withdrawal and financing methods (Gavurova et al., 2018). There are fixed and flexible methods of financing. With a fixed method, the financing initiator receives the money if the project has met the goal set. Within the flexible method, various options are possible: the platform may set contributions if the project does not meet the campaign goal; or additional financing of the project can be performed. Consequently, the costs of servicing money raised through crowdfunding depend on fees charged by the platform, and the degree to which the fundraising goal has been achieved (Fenwick et al., 2017). When successfully implemented crowdfunding transactions positively affect the image of their initiator, the failed ones can damage the reputation of the project team (Nania & Sulung, 2019). Besides, there are risks of losing the authorship of the idea embedded in the project. If a business idea is not protected by a copyright, other entrepreneurs can take it with full openness and make it widely available on the Internet with all the ensuing consequences.

Comparison of modern business models with traditional ones in crowdsourcing and crowdfunding shows a significant impact of new concepts on the dynamics of project success (Allon & Babich, 2020). The work discussed their shortcomings and advantages and proposed new concepts in the field of operations management; promising areas were highlighted. According to the analysis results (Battaglia et al., 2020) for Italian crowdfunding campaigns from January 2020 to June 2020, it was found that the COVID-19 pandemic crisis strongly influenced changes in the key factors in attracting sponsors to fund the project. It was also found that donors trust their investments more to companies with high R&D expenditure and technological projects. A study of the impact of FinTech projects in the Finnish commercial banking sector on stakeholder engagement during the pandemic period (Hundal & Zinakova, 2020) showed that FinTech had a greater impact on the growth of the IT sector, crowdsourcing and peer-to-peer financing. It was also shown that there has been a significant increase in collaboration between banks and FinTech startups. A study of McKinsey & Company reports for small and medium-sized enterprises in Ecuador during the onset of the pandemic (García-Vidal et al., 2020) showed that successful companies in a crisis implement new operational models for team

empowerment and flexible business models for solving problems and getting the best results in post-pandemic times.

Conclusion

Methods to improve sustainability of relationships between those who are involved in a crowdfunding project. Trust is a critical factor in the effectiveness of a crowdfunding project, so the crowdfunding platform must constantly strive for openness with donors. Long-term goal setting and reporting should be delivered on time and strive for completeness. As the study demonstrates, donor donations are becoming more often closer to the completion of projects. They also donate more often to those who implement their project close to the donor (in particular, in the same host country). Also, the disclosure of donor information can lead to greater engagement as many donors strive to meet the desire for public recognition.

Crowdfunding platforms should strive for standardization, transparency and regularity of reporting in order to increase the credibility of not only donors, but also public opinion. Lack of transparency remains a major donor relationship problem. In the face of COVID-19 and other threats, mistrust in the crowdfunding market will persist as long as there are no common standards for such platform activities. Since significant differences in the national regulatory mechanisms of countries do not allow the creation of a single legal mechanism, the standardization initiative becomes the responsibility of the market participants themselves. As the study shows, the most important area for the further development of sustainable donor relations after the end of the pandemic should be a donor clustering system. Eliminating conflicts against a background of cultural differences or the level of reward can be realized by examining the portrait of a typical donor. Donor classification funds are needed to assess the stability and reliability of working with them, and these funds will provide great guarantees to new investors in the future. Achieving these goals requires researching social media accounts and activity and other forms of social interaction.

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