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# Reward crowdfunding contribution as planned behaviour: An extended framework

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## ABSTRACT

Reward crowdfunding is a popular channel for entrepreneurial fundraising, whereby backers receive non-monetary benefits in return for monetary contributions while accepting risks of non-delivery on campaign pitch promises. To understand contribution behavior in this context, we apply the Theory of Planned Behavior (TPB) for analyzing contribution intentionality and behavior, as well as their antecedents. We use survey data from 560 users of Finland's leading reward crowdfunding platform—Mesenaatti. Our findings show that an extended TPB model holds for reward crowdfunding and that both financial-contribution intentions and information-sharing intentions predict behavior. This highlights the dual nature of reward crowdfunding-contribution intentions and behavior, where information sharing helps reduce information asymmetry and serves as a quality signal in support of financial contribution. This paper also presents significant differences in attitudes, self-efficacy, financial contribution and information-sharing intentions between high-sum and low-sum contributors.

## 1. Introduction

Crowdfunding is an emerging channel for entrepreneurial and project funding, which has seen exponential growth in recent years, reaching a volume of EUR 262 billion in 2016, a 208% increase from EUR 130 billion in 2015 (Ziegler et al., 2018). Crowdfunding refers to the ability to obtain funding from multiple backers with each backer providing a relatively small amount, instead of raising large sums from a few backers (Belleflamme, Lambert, & Schwienbacher, 2014). This process is usually performed online and often without standard financial intermediaries (Mollick, 2014).

Crowdfunding can be viewed as community-enabled financing, drawing on the principles of crowdsourcing, while being adapted into the context of fundraising (Macht & Weatherston, 2015). Thanks to its anchoring in communities, crowdfunding incorporates advantages beyond the actual sums raised from interested members. Such benefits include access to valuable and timely feedback, knowledge and technology to concepts under development (Gerber & Hui, 2013; Nucciarelli et al., 2017), demonstration of project legitimacy (Frydrych, Bock, Kinder, & Koeck, 2014), as well as direct access to, and interaction with, multiple stakeholders such as prospective customers, business partners, media, existing, future funders, etc. (Mollick & Kuppaswamy, 2014). Moreover, from an entrepreneurial perspective, crowdfunding may be used throughout the entrepreneurial process, from opportunity

recognition to marshaling of resources and capacity development (Shneor & Flåten, 2015).

Nevertheless, crowdfunding is manifested via a family of different models rather than through a single format. The primary crowdfunding models include lending, equity, reward, and donation. Whereas lending and equity are viewed as investment models, reward and donation are regarded as non-investment models. Clarifying and elaborating on Ziegler et al.'s (2018) definitions, the various models may be defined as follows: In *peer-to-peer lending* individuals or institutional funders provide loans to borrowers with the expectation of repayment of the principal and a set interest within a certain timeframe. In *equity crowdfunding* individuals or institutional funders buy an ownership stake in a company or organization. In *reward crowdfunding* backers provide funding to individuals, projects, or organizations in exchange for non-monetary rewards, products, or services. And, finally, in *donation crowdfunding* backers provide funding based on philanthropic or civic motivations with no expectation of monetary or material reward. However, while the above review captures the four core models, variations and combinations of them do exist (Ziegler et al., 2018).

A popular channel for entrepreneurs to raise funding for their ventures is reward crowdfunding. In 2016, reward crowdfunding volumes were estimated at EUR 191 million in Europe (Ziegler et al., 2018), USD 598 million in the Americas (Ziegler et al., 2017), and USD 2.08 billion in Asia-Pacific (Garvey et al., 2017). Reward crowdfunding

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represents a unique offering. On the one hand, it does not offer a monetary reward for risks taken, as in the case of investment. However, on the other hand, it represents financial transactions that are associated with the relatively high risks of full or partial non-delivery, as well as late or deviating delivery with respect to the original campaign pitch promises. Moreover, pre-sales via reward crowdfunding resembles a business-plan pitching more than traditional advertisements, as their focus is on demonstrating legitimacy (Frydrych et al., 2014). Also, similar to traditional entrepreneurial fundraising, campaign success depends on successful leveraging of social capital within the entrepreneur's network (Butticè, Colombo, & Wright, 2017; Colombo, Franzoni, & Rossi-Lamastra, 2015; Skirnevskiy, Bendig, & Brettel, 2017).

Thus far, crowdfunding research has focused primarily on understanding the factors that impact campaign success and failure (Short, Ketchen, McKenny, Allison, & Ireland, 2017). Some of this research has begun to address the backer's perspectives and their motivations for engaging in and financially backing crowdfunding campaigns (Macht & Weatherston, 2015). Another area beginning to draw research attention has been post-pledging satisfaction with the crowdfunding process and outcomes (Xu, Zheng, Xu, & Wang, 2016). Accordingly, recent literature reviews have highlighted the need to further address the backers' perspectives and psychology (McKenny, Allison, Ketchen, Short, & Ireland, 2017). These reviews acknowledge that the nature of backers' perspectives depends on the crowdfunding model examined, as motivations for backing non-investment versus investment crowdfunding campaigns are likely to be driven by different antecedents (Belleflamme et al., 2014; Macht & Weatherston, 2015; Mollick, 2014; Ordanini, Miceli, Pizzetti, & Parasuraman, 2011). These notions are further supported by claims that understanding the crowd is fundamental to understanding crowdfunding, much like understanding angel investors and venture capital are fundamental to understanding traditional investment (Josefy, Dean, Albert, & Fitza, 2017).

The current paper seeks to address this gap by introducing a cognitive perspective into understanding crowdfunding behavior. Such an approach recognizes that everything we do is influenced by mental processes through which we acquire, transform, and use information. Specifically, we sought to analyze contribution behavior in the context of the reward crowdfunding model, while examining it as a planned behavior. This is achieved by studying the extent to which the Theory of Planned Behavior (hereafter, *TPB*) (Ajzen, 1991) can be used to capture crowdfunding contribution intentionality and behavior, as well as their antecedents. Here, the assumption is that, due to the relative novelty of its digital manifestation, the importance of risks involved, and its financial implications for participants, individuals are unlikely to engage in crowdfunding contribution behavior without at least some preliminary consideration. In examining contribution intentionality and behavior, we answer earlier calls to strengthen the budding literature on motivational factors in crowdfunding behavior. To date, research has mostly ignored the prospective influence of cognitive antecedents in crowdfunding contribution behavior.

Furthermore, we extend the generic TPB framework by acknowledging the dual nature of crowdfunding behavior as driven by intentions to make financial contributions as well as intentions to share campaign information with others. Financial contribution intention is defined here as an individual's intent to provide monetary backing to a crowdfunding campaign. Information sharing intention is defined here as an individual's intent to share information about a crowdfunding campaign with others in their social and professional networks. Since crowdfunding behavior is anchored in social media interactions and users' exposure to online Word-of-Mouth (hereafter, *WoM*) (Castillo, Petrie, & Wardell, 2014; Colombo et al., 2015; Feller, Gleasure, & Treacy, 2017; Lehner, 2014), we incorporate both information sharing and financial contribution intentions into an extended TPB model adapted to the reward crowdfunding context.

Accordingly, the current study presents an analysis of survey data

collected from 560 users of the Finnish leading national reward platform: Mesenaatti. Finland offers an interesting context of study, as it is considered one of Europe's leading countries in terms of crowdfunding volumes and regulatory friendliness (Ziegler et al., 2018). Examination of users of a national platform from a small open economy represents an interesting complementary window on to crowdfunding dynamics transpiring outside large global platforms (such as Kickstarter and Indiegogo), which have been a popular research context for earlier studies (Short et al., 2017).

Overall, our findings support the conceptual application of our extended TPB framework in the reward crowdfunding context and highlight the importance of two intentional components - financial contribution and information sharing - in predicting crowdfunding behavior. Specifically, we found that attitudes, self-efficacy, and subjective norms positively affect financial contribution intentions. Surprisingly, perceived behavior control was found to have a negative effect on intentions. In addition, attitudes and subjective norms were found to have a positive effect on information sharing intentions. Financial contribution intentions were found to affect information sharing intentions positively, and both these intentions had a positive effect on financial contribution behavior. When splitting the sample into high- and low-sum contributors in a post-hoc test, we found that high-sum contributors exhibited significantly higher levels of attitudes, self-efficacy, as well as both financial-contribution and information-sharing intentions than did small-sum contributors.

The remainder of this paper is structured as follows. We first present a review of the literature regarding the backers' perspectives and related psychological aspects in crowdfunding. We then develop a list of hypotheses aimed at testing the relevance of an extended TPB framework in the context of reward crowdfunding contribution behavior. Subsequently, we present our findings and discuss them in light of earlier research. Finally, we conclude by highlighting key contributions, limitations and implications for research and practice.

## 2. Literature review

Crowdfunding research has focused on analyzing factors that impact campaign success and failure (Short et al., 2017), some of which serve as bridges to understanding the backers' perspective of crowdfunding contribution behavior (Macht & Weatherston, 2015). The limited research that has addressed the backers' perspectives, independent of campaign outcomes (that is, success and failure), collectively suggest that backers' in non-investment crowdfunding models are driven by several sources of motivation: the desire to collect rewards, help others, support causes, and community belonging (Burtch, Ghose, & Wattal, 2013; Gerber & Hui, 2013; Ordanini et al., 2011; Ryu & Kim, 2016). Backers in investment crowdfunding models are shown to be motivated by supporting entrepreneurs, prospective financial returns, enhancing their image, lobbying for campaigns serving their needs, and achieving direct contact with related ventures (Bretschneider & Leimeister, 2017; Cumming & Johan, 2013; Ordanini et al., 2011). Furthermore, a recent study of equity crowdfunding backers has also revealed that herding has a significant moderating effect on backers' reward motivation (Bretschneider & Leimeister, 2017).

A study by Cholakova and Clarysse (2015), including both investment and non-investment crowdfunding models, found that financial rewards were the primary motivator behind an individual's decision to pledge, while non-financial motivations played only a secondary role. An additional study, conducted in the investment context of equity crowdfunding, identified three clusters of investors, as defined by their motivation to back equity crowdfunding campaigns in Finland (Lukkarinen, Wallenius, & Seppälä, 2017). The clusters included *donation-oriented supporters*, who are predominantly motivated by the opportunity to participate and help; *return-oriented supporters*, who are motivated by both financial returns and opportunity to participate and help; and *pure investors*, who are motivated predominantly by financial returns.

An additional line of inquiry includes a few studies that explored factors impacting intentionality in the context of crowdfunding. Kang, Gao, Wang, and Zheng (2016) built on the cognitive basis of trust approach (Hooghe, Marien, & de Vroome, 2012) and examined the investment willingness of investors on two Chinese equity platforms. Kang et al.'s (2016) findings indicate that both calculus trust and relationship trust directly affect willingness to invest. Furthermore both types of trust were found to mediate the effects of network externality (project value increases the more investors join), informativeness (provision of sufficient information), perceived accreditation (efforts taken to verify capital needs), third-party seal (certification of documents), and social interaction ties (tie strength and communication frequency) on willingness to invest. A different study (Zhao, Chen, Wang, & Chen, 2017), built on social exchange theory (Homans, 1958), examined backers on a Taiwanese reward crowdfunding platform, finding that backers' commitment to the project as well as the project's perceived risk positively impacted funding intentions.

Furthermore, a recent study (Daskalakis & Wei, 2017) examined the effects of different risk perceptions on investment willingness in equity and lending crowdfunding of respondents from Spain, Germany, and Poland. Investing equity investments, the study revealed that concerns about fraudulent borrowers had a negative impact on investment willingness in Germany, with similar effect regarding concerns about fraudulent platforms in Spain and Poland, and concerns about poor campaign information in Poland. Moreover, with respect to lending, significant effects were identified only in Poland, where concerns with fraudulent borrowers and fraudulent platforms negatively impacted investment willingness.

### 2.1. Theory of planned behavior (TPB)

We wish to contribute to this line of research by theoretically anchoring it in the Theory of Planned Behavior (Ajzen, 1991). Thus, to pursue this approach, we regard crowdfunding contribution behavior as a planned behavior as are the roles played by its antecedents. The assumption, then, is that due to the relative novelty of crowdfunding's digital manifestations and its financial implications for participants, individuals are not likely to engage in contributing to crowdfunding campaigns without at least some preliminary consideration. Specifically, the research discussed above identified risks, commitment, and trust as explaining willingness to back crowdfunding campaigns (Daskalakis & Wei, 2017; Kang et al., 2016; Zhao et al., 2017). The studies also suggested both volitional control and a need for intention as precursors to crowdfunding contribution behavior. Accordingly, adopting the TPB framework further enhances our understanding of intentionality in the context of crowdfunding contribution behavior and its antecedents.

At its core, the TPB suggests that the likelihood of an individual performing a particular behavior is affected by that individual's intention to engage in such behavior (Ajzen, 1991). According to Ajzen, intentions capture the motivational factors influencing a behavior, indicating how hard one is willing to try and how much effort one plans to exert in order to perform a behavior. While later meta-analyses have confirmed the important link between intentions and behaviors has been confirmed in later meta-analyses (Armitage & Conner, 2001; Sheeran, 2002), intentions can only find expression in behavior if a person is free to decide whether or not to perform the behavior (Ajzen, 1991). Hence, the TPB represents an extension of the Theory of Reasoned Action (Fishbein & Ajzen, 1975), which was deemed less adequate for dealing with behaviors over which people have incomplete volitional control (Ajzen, 1991).

The TPB further suggests that intention to engage in a behavior is affected by several subjective positions: one's attitude towards the behavior, perceived behavioral control (PBC), and perception of subjective norms (SUBN) (Ajzen, 1991). Attitudes are the overall evaluations of the behavior by the individual, capturing the extent to which he

or she views the behavior favorably. PBC is the individual's perception of how easy or difficult the performance of a certain behavior is, capturing the extent to which he or she views themselves as having the capacity to perform it. Subjective norms are the individual's beliefs about whether significant others think he or she should engage in the behavior and are assumed to capture the extent of perceived social pressures exerted on individuals to engage in a certain behavior.

One aspect of conceptual fine-tuning relates to PBC. While the original conceptualization of PBC resembled that of self-efficacy (Bandura, 1982), thanks to its focus on perceptions of one's own ability to perform a behavior, later literature has argued that a dimension capturing one's belief about the extent to which the outcome of a behavior can be influenced by one's own efforts should be acknowledged and treated separately (Manstead & Eekelen, 1998; Terry & O'Leary, 1995). This argument was made by linkage to diverse sources of control, where self-efficacy relates to internal controls such as ability and motivation, while PBC relates to external controls such as task difficulty, access to resources, securing cooperation of others, and luck.

Another conceptual consideration relates to the empirical identification of two types of subjective norms: injunctive and descriptive norms. According to Manning (2009), injunctive norms relate to social pressure to engage in a behavior based on the perception of what other people want you to do (termed here as *subjective norms*). Descriptive norms relate to social pressure to engage in a behavior based on the observed or inferred behavior of others (termed here as *social norms*). For the current crowdfunding context, then, one way to capture inferred behavior of others may be through commentary made by experts and media on crowdfunding practice and experiences. While the original conceptualization was that of an injunctive norm (Ajzen, 1991), it was recently recommended to incorporate both types of normative measures should be included in planned behavior studies (Ajzen & Fishbein, 2005). Accordingly, we examined both subjective and social norms in the present study.

### 2.2. Reward crowdfunding contribution intention

The TPB has been widely used to examine the adoption of other Internet-based services and Internet-mediated marketplaces by prospective users in many contexts: participation in online communities (Casaló, Flavián, & Guinalú, 2010), acceptance of e-services (M.-H. Hsu & Chiu, 2004), adoption of e-commerce (Grandón, Nasco, & Mykytyn, 2011), adoption of e-banking (Shih & Fang, 2004), Internet purchasing (George, 2004), online shopping (M.-H. Hsu, Yen, Chiu, & Chang, 2006), online trading (Gopi & Ramayah, 2007), online social networking (Baker & White, 2010), spreading of e-WoM (Fu, Ju, & Hsu, 2015), co-creating in social media (M. F. Y. Cheung & To, 2016), playing online games (Lee, 2009), and watching in-app mobile advertisements (M. F. Y. Cheung & To, 2017).

Based on these robust findings indicating the applicability of the TPB framework for explaining user behavior in various digitally mediated marketplaces and networking sites, we introduce the TPB into the context of contributor behavior in the crowdfunding context in general, and the reward crowdfunding context in particular. Since crowdfunding contribution behavior is within an individual's volitional control and also requires some level of pre-consideration in light of its various risks, we consider TPB to be a suitable theoretical framework for analyzing its antecedents. By applying the TPB, we seek to enhance our understanding of factors contributing to the development of intentions in addition to contribution behavior and complement the limited research on motivational factors in crowdfunding behavior.

Moreover, building on the notion that crowdfunding behavior incorporates both financial transactions and social information sharing within an online community context (Colombo et al., 2015; Lawton & Marom, 2012; Lehner, 2014; Shneor & Flåten, 2015), we suggest a theoretical extension that is specifically adapted to this context by distinguishing between financial-contribution intentions and

information-sharing intentions as antecedents of crowdfunding financial-contribution behavior.

We define financial-contribution intention as an individual's intention to provide monetary backing to a crowdfunding campaign. We also define information-sharing intention as an individual's intention to share information about a crowdfunding campaign with others in their social and professional networks (e.g., via social media, e-mail correspondence, and conversation). Information about campaigns may encompass several aspects. Examples of these aspects include campaign objectives, timeline, concept and business descriptions, rewards and incentives, links to detailed information, subjective evaluations of attractiveness, as well as indications about one's own intention to contribute or actual contributions made to the campaign.

More specifically, we argue for the importance of adding the information-sharing dimension based on the following considerations. Since reward crowdfunding involves risks of non-delivery, late delivery, or deviating delivery on promises made by campaigners, such situations can be characterized by relatively high information asymmetries. Since prospective contributors are both exposed to and engaged in crowdfunding contribution opportunities via WoM on social media, WoM can be regarded as a mechanism for reducing information asymmetries (Manes & Tchetchik, 2018), as well as an important signal evaluating attributes of offerings (Lim & Chung, 2011). Indeed, positive WoM was found to be positively associated with investment decisions in crowdfunding contexts (Bi, Liu, & Usman, 2017), and the number of social media shares was found to be positively associated with campaign success in both reward (Hobbs, Grigore, & Molesworth, 2016) and donation crowdfunding (Berliner & Kenworthy, 2017).

Overall, one can consider information sharing as a path for enabling indirect financial contributions by influencing others to consider contributing to crowdfunding campaigns, or to solidify one's own choice to contribute. As noted earlier, the reviewed studies have shown that risk perception, trust, and commitment influence contributions to crowdfunding campaigns (Daskalakis & Wei, 2017; Lukkarinen et al., 2017; Zhao et al., 2017). Accordingly, one could argue that upon sharing information regarding crowdfunding campaigns, one reduces risk perceptions and enhances trust by exposing the crowdfunding campaign to others' scrutiny. Moreover, one's own commitment to contribute is thus strengthened.

Hence, applying the extended TPB framework suggested above would imply that attitudes, PBC, self-efficacy, subjective norms, and social norms will all serve as antecedents of intentions to contribute financially and share information about crowdfunding campaigns. The extent to which an individual may be willing to contribute to a crowdfunding campaign depends on how favorably he or she views such behavior and has positive expectations about performing it. Positive perspectives can promote both one's own intention to contribute as well as encourage others to contribute by sharing information about the campaign with them. Accordingly, we hypothesize the following:

**H1.** The more favorable the attitude towards crowdfunding behavior, the higher the levels of financial-contribution intentions (H1a), and the higher the crowdfunding information-sharing intentions (H1b).

The extent to which individuals consider their ability to make financial contributions to crowdfunding campaigns can be associated with both internal (self-efficacy) and external controls (PBC). *Internal controls* relate to the extent to which individuals consider themselves sufficiently capable and knowledgeable to perform a certain behavior. In the context of crowdfunding engagements, one can consider both capabilities to contribute financially directly or indirectly by sharing information about the campaign with others who can contribute to it. Similarly, *external controls* relate to the extent to which individuals consider themselves as able to overcome task difficulties and secure access to resources and cooperation with others. Thus, in the context of

crowdfunding engagements, one can consider capabilities to secure resources and cooperation of others for direct financial contribution or indirect contribution by sharing information about the campaign with others who can contribute to it. Accordingly, we hypothesize the following:

**H2.** The greater the individual's self-efficacy regarding crowdfunding engagement, the higher the individual's levels of financial-contribution intentions (H2a), and the higher the crowdfunding information-sharing intentions (H2b).

**H3.** The greater the individual's perceived behavior control regarding crowdfunding engagement, the higher the individual's levels of financial contribution intentions (H3a), and the higher the crowdfunding information-sharing intentions (H3b).

Furthermore, the extent to which individuals are willing to contribute to a crowdfunding campaign depends on the extent to which their social environment encourages them to do so (subjective norm) and the extent to which others' contribution to crowdfunding campaigns enhances their own willingness to do so (social norms). First, regarding subjective norms, it has been shown that social pressure plays an important role in a variety of behaviors in online environments (Fu et al., 2015), donation gift giving (Meer, 2011), as well as purchase situations (Algesheimer, Dholakia, & Herrmann, 2005). In the same spirit, when applied to crowdfunding, the greater the perceived encouragement or pressure to contribute financially, the more likely one is to contribute and to share information about campaigns as a signal of their contribution behavior for signaling compliance with social pressures. Second, with respect to social norms, the impact of others' behavior has been found to have an impact on contribution behavior through herding effects (Bretschneider & Leimeister, 2017; Renwick & Mossialos, 2017). Hence, one could expect that the more an individual perceives social norms as favorable to crowdfunding contributions, the more likely he or she would choose to participate in it and signal to others they are participating in it by sharing information with them. Accordingly, we hypothesize the following:

**H4.** The greater the subjective norms are perceived as favorable to crowdfunding engagement, the higher the levels of financial-contribution intentions (H4a), and the higher the crowdfunding information-sharing intentions (H4b).

**H5.** The greater the social norms are perceived as favorable to crowdfunding engagement, the higher the levels of financial-contribution intentions (H5a), and the higher the crowdfunding information-sharing intentions (H5b).

Building on self-presentation theory (Bareket-Bojmel, Moran, & Shahar, 2016; Schlenker & Leary, 1982), one may suggest that if crowdfunding contribution can be viewed as conveying a positive social signal, individuals are likely to contribute to crowdfunding campaigns, at least partly, to enhance their social image. Indeed, earlier findings in the context of prosocial crowdlending show that self-presenting funders exhibit higher levels of visible funding activity in terms of number of loans made (Cox et al., 2018). Furthermore, enhancing one's image was found to be a significant predictor of investment on the German equity crowdfunding platform, Innvestment (Bretschneider & Leimeister, 2017). Alternatively, one could argue that information sharing follows financial-contribution intention as part of strategic self-interest in proactively enhancing the likelihood of campaign success, and reception of goods to be ordered via the campaign. Here, earlier studies have shown that social media engagement with campaign information (Bi et al., 2017) and number of shares of campaign information are associated with campaign success (Berliner & Kenworthy, 2017; Hobbs et al., 2016), even though these dynamics may vary across cultures (Cho & Kim, 2017). Accordingly, we hypothesize the following:

**H6.** The greater the individual's financial-contribution intentions, the greater the individual's information-sharing intention.

Finally, by merging these theoretical assumptions with the TPB's core premises (Ajzen, 1991), we propose that both aspects of intentionality in crowdfunding – financial-contribution and information-sharing intentions will impact reward crowdfunding contribution behavior. The relationship between intentions and behavior has been well documented both conceptually and empirically, in a large body of research that includes multiple meta-analyses (Armitage & Conner, 2001; Sheeran, 2002). However, this relationship may not hold in all contexts as variations in the antecedents of intention may lead to a situation in which intentions may exist but would not be translated to behavior. For example, despite having a favorable attitude and receiving social encouragement, an individual may lack the knowledge of how to contribute financially or lack information about relevant campaigns or lack available resources to contribute, thus, resulting in non-contribution. Similarly, under social pressure and with the ability to contribute, but having a less favorable view of crowdfunding, highly individualist people may resist social pressure and expectations, thereby reducing intentions to contribute. Moreover, one may be pressured to contribute without having any intention to do so by higher authorities (e.g. employers, spiritual leaders, and spouses). Hence, as long as the behavior is not entirely within the volitional control of the individual, and to the extent that it requires pre-consideration, various combinations of cognitive antecedents can have an impact on whether intentions are translated into behavior. Hence, we hypothesize the following:

**H7.** The greater the individual's financial-contribution intentions, the greater the likelihood of the individual's financial-contribution behavior.

**H8.** The greater the individual's crowdfunding information-sharing intention, the greater the likelihood of the individual's financial-contribution behavior.

Overall, the suggested model, represents an extended TPB approach to reward crowdfunding as an intentional behavior. This extension includes two aspects. The first is the addition of information-sharing intentions as an important component, separate from financial-contribution intentions. The second is the addition of an association between the two intentions expected to lead to crowdfunding contribution behavior.

The first addition to the TPB approach is based on the claim that since crowdfunding relates to the collection of relatively small sums from multiple individuals, the success of such a campaign depends on enlisting the support of many individuals to contribute. This is achieved through information-sharing, which informs prospective contributors about the opportunity while concurrently facilitating risk reduction and trust enhancement. Accordingly, we suggest that the cognitive antecedents of behavioral intentions impact both information-sharing (H1b-5b) and financial-contribution intentions (H1a-5a) and that both intentions affect behavior (H7 and H8).

Once we have established why we need to include information sharing in the model, we supplement an additional association, suggesting that one's own intention to financially contribute is expected to influence one's intention to share information about that same campaign with others (H6). As such, the logic shifts from the role of information sharing in crowdfunding regardless of own contribution intentions, to its specific role, given that financial contribution intentions have been formed. Hence, the argument we use for this specific association suggests that once financial contribution intentions are formed, the individual has a vested interest in sharing the information with others to enhance the likelihood of the campaign they intend to contribute to being successful.

### 3. Methods

Data were collected among users of Finland's largest reward

crowdfunding platform -Mesenaatti.me, which has overseen the raising of close to EUR 3 million in 504 successful campaigns out of a total of 792 campaigns running between 2013 and 2017 (64% success rate). Finland represents a small open economy that has embraced crowdfunding as part of the digitalization of the finance sector and enjoys a relatively crowdfunding-friendly regulatory environment (Gajda, 2017). In 2015 and 2016, Finland was ranked first among the Nordic countries and fifth in Europe in terms of total volume raised through crowdfunding and volume raised per capita (Ziegler et al., 2018).

Data presented in this paper were part of a larger data collection effort requiring participants to devote up to 60 min to complete a web-based survey using SurveyXact comprising > 400 items. Invitations were sent to all registered e-mails on the platform, numbering 25,000 users, regardless of whether these individuals have contributed to a campaign. Four reminders were sent between April and May 2016, as recommended by Dillman (2006). To partially counter the demanding nature of the survey and to encourage respondents to participate, participants were promised partaking in a lottery of 35 gift cards valued at USD 200 each. To ensure anonymity, respondents' e-mails were deleted after the announcement of gift card winners.

Overall, our data collection effort resulted in 1710 responses, representing a response rate of 6.8%. However, after removing observations with missing data and those suspected of monotonous response patterns, we remained with complete data from 560 respondents (2.2% response rate). For this purpose, a monotonous response pattern was defined as recording the same response for ten consecutive items (including items from at least two separate multiple-item constructs). Thirty-one respondents (5.5%) indicated that they had not contributed to a crowdfunding campaign before, while 529 respondents (94.5%) indicated they had made such contribution. Table 1 presents the sample's descriptive statistics.

The sample size is sufficient for our analysis according to best practice recommendations and meets some of the most stringent requirements (Hair, Black, Babin, & Anderson, 2010). Indeed, upon examining sample size relative to frequency in a population (Sekaran & Bougie, 2016), we achieved > 97% confidence that our sample is adequately representative of the population of the platform's users,

**Table 1**  
Sample descriptive statistics.

Variable	Categories	Frequency	Percentage
Gender	Female – 1	284	50.71%
	Male - 2	276	49.29%
Education	< 12 years	66	11.79%
	High school/ gymnasium	107	19.11%
	Bachelor's degree	155	27.68%
	Master's degree	205	36.61%
Average daily time devoted to online browsing, search and news	PhD degree	27	4.82%
	Zero	6	1.07%
	Up to 1 h	183	32.68%
	1 to 2 h	209	37.32%
	2 to 3 h	93	16.61%
	3 to 4 h	46	8.21%
Average daily time devoted to using social and professional networking sites	5 h or more	23	4.11%
	Zero	52	9.29%
	Up to 1 h	230	41.07%
	1 to 2 h	150	26.79%
	2 to 3 h	81	14.46%
	3 to 4 h	29	5.18%
Total Financial contribution to campaigns	5 h or more	18	3.21%
	Quartile 1: € 0–30		25%
	Quartile 2: € 31–60		25%
	Quartile 3: € 61–150		25%
	Quartile 4: € 151–12,000		25%

considering statistical power of 80%. For a known population, the sample size at a given confidence level can be estimated using Cochran's (1977) equation as follows:

$$\text{sample size } (n) = \frac{\frac{z^2 * p(1-p)}{e^2}}{1 + \left(\frac{z^2 * p(1-p)}{e^2 * N}\right)}$$

Here,  $z$  = two-tail  $z$ -score from the  $z$ -distribution table for a given confidence level (for example, 2.17 at 97% confidence level),  $p$  = hypothesized percentage frequency of outcome factor in the population (typically, 50% ± 5),  $e$  = margin of error (typically 5% for confidence level of 95%), and  $N$  = population size.

The survey was first piloted among 12 participants including individuals with and without prior crowdfunding contribution experience, and adjustments were made based on their feedback. The resulting version was then translated from English to Finnish through a professional translation agency. This version of the translation was then reviewed and modified by Finnish native-speaking employees of the Mesenaatti platform to ensure proper interpretation and adequacy for crowdfunding-specific jargon.

Since mono-method studies may lend themselves to a certain level of method bias, we have followed Conway and Lance's (2010) recommendations for overcoming these challenges by creating multiple versions of the survey by presenting the question items in random order for each respondent, using multiple item constructs and examining their validity via confirmatory factor analyses, as well as checking for convergent and discriminant validity.

To check for response bias, we compared two sub-samples of the first and last 280 respondents and found no significant differences of means with respect to gender, education level, time devoted to browsing, time devoted to e-commerce, and time devoted to e-mail correspondence as evident in Table 2. A significant difference at the 0.05 level was identified with respect to age; however, since the mean age in the first group was 43, while the mean age in the latter group was 41, we consider this to be a statistically significant difference within a similar narrow age group, rather than reflecting significantly different age groups.

Furthermore, to check for common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), we followed the analytical techniques examining Harman's single factor, common latent factor and a common marker variable, as well as their recommended threshold levels (Eichhorn, 2014). First, we performed exploratory factor analysis considering only one latent factor and no rotation, using all the measurement items. This single factor explained about 32% of the variance, which is below the recommended threshold of 50%. For further confirmation, we added a 'common' latent factor in the original CFA model, which was uncorrelated with other latent variables and fixed equal factor loading of all measurement items of the common factor. From the value equal factor loading (0.625), we observed that the common factor explained about 43% of the variance, which is also below the recommended level. Finally, we used the marker variable methods, using the multiple item scale of psychological entitlement (Campbell,

**Table 2**  
Response bias check.

	Mean first responders	Mean last responders	T	df	P value
Age	43.546	41.375	2.074	557.40	0.039
Gender	1.529	1.518	0.253	558.00	0.800
Education level	3.014	2.939	0.790	557.55	0.430
Web browsing time	3.096	3.121	-0.268	557.93	0.789
E-commerce time	1.807	1.811	-0.058	553.22	0.953
E-mail time	2.607	2.732	-1.352	557.87	0.177

1. Null hypothesis: The mean is the same for both first and last respondents' samples.

Bonacci, Shelton, Exline, & Bushman, 2004) as the marker variable and found that the common variance explained further decreased to 35%. These findings suggest that there is no serious threat of common method bias in our data.

### 3.1. Measurement

All latent constructs in the model have been measured with multi-item measures adopted from previous studies and conceptually adjusted and re-specified into the crowdfunding context. Self-report measures were used because they were deemed most suitable for capturing individuals' perceptions. The measures used included the items presented in Table 3. Items were rated on a 7-point Likert-type scale, ranging from 1 (completely disagree with the statement) to 7 (completely agree with the statement). Exploratory factor analysis led us to remove two items that did not load on one of the factors as expected (retained and removed items are presented in Table 3). CFA verified that the emerging factor structure reflected our conceptualization. Table 4 presents descriptive statistics, the correlation matrix and reliability for all latent constructs in our model.

All factor loadings were significant ( $p < 0.001$ ) showing that included items for each latent variable reflect a single underlying construct. The reliabilities and variance extracted for each variable indicate the model's reliability and validity. All construct reliabilities exceeded or were close to 0.70 (R. Bagozzi & Yi, 1988). Variance extracted estimates were all 0.5 and above. Hence, according to Fornell and Larcker (1981) discriminant validity was evident as the AVE within factors were greater than the squared correlations between the latent variables, as presented in Table 5.

### 3.2. Analysis

We checked for normality using the Shapiro-Wilk test. Our data were found to be non-normally distributed for all variables: financial contribution behavior,  $W = 0.985$ ,  $p < 0.001$ ; financial contribution intention,  $W = 0.981$ ,  $p < 0.001$ ; information sharing intention,  $W = 0.977$ ,  $p < 0.001$ ; attitudes,  $W = 0.955$ ,  $p < 0.001$ ; perceived behavior control,  $W = 0.682$ ,  $p < 0.001$ ; self-efficacy,  $W = 0.913$ ,  $p < 0.001$ ; social norms,  $W = 0.981$ ,  $p < 0.001$ ; and subjective norms,  $W = 0.955$ ,  $p < 0.001$ . Accordingly, as none of the variables were normally distributed, the Satorra-Bentler rescaling method (also known as robust maximum likelihood) was employed for SEM estimation, as suggested by Rosseel (2012) (Fig. 1).

Table 6 presents the estimation results when using two different dependent variables capturing financial contribution behavior. Estimation (a), corresponding to the model in Fig. 2(a), is based on a two-item measure of financial contribution behavior rated on a 7-point Likert-type scale. Estimation (b), corresponding to the model in Fig. 2(b), is based on a single item measuring the log value of the total sum of contributions to reward campaigns in Euros. See Table 3 for specific item text formulations in the survey.

With complex SEMs, such as the one in this study, it is difficult to achieve non-difference between the theoretical and observed models at the 5% significance level, and since the test is sensitive to large  $N$ s, even a good-fitting model may be rejected. Considering this, both SEMs in Fig. 2(a) and (b) have good model-fit based on the ratio of chi-square and degrees of freedom (for 2a.  $[1186.09/568 = 2.09 < 3]$  and for 2b.  $[1107.67/535 = 2.07 < 3]$ ), as recommended by Bollen and Long (1992). All other goodness-of-fit measures meet the requirements: the Comparative Fit Index (CFI) at 0.95 is above the 0.90 recommended minimum threshold (Bentler, 1990); The Tucker-Lewis index (TLI) at 0.94 in model (a) and 0.95 in model (b) is above the 0.90 recommended minimum threshold (Bentler & Bonett, 1980); The Root Mean Square Error of Approximation (RMSEA) of 0.04 is well below the recommended maximum threshold of 0.08 (Hu & Bentler, 1999); and the Standardized Root Mean Square Residual (SRMR) at 0.06 is below the

**Table 3**  
Survey items, measurement properties and sources.

Latent construct	Measurement items*	Factor loadings	Source
ATT (attitude)	ATT1	0.841***	ATT 1-2 adapted and modified from “attitude” (towards blog usage) in Hsu and Lin (2008)
	ATT2	0.822***	
	ATT3	0.818***	
	ATT4	0.851***	
	ATT5	0.765***	
	ATT6	0.811***	
PBC (perceived behavior control)	PBC1	Removed	PBC 1-3 adapted and modified from “perceived behavioral control” (towards participation in online travel community) in Casaló et al. (2010)
	PBC2	0.842***	
	PBC3	0.846***	
	PBC4	0.765***	
	PBC5	Removed	
SELE (self-efficacy)	SELE1	0.786***	SELE 1-2 adapted and modified from “knowledge self-efficacy” (towards eWoM) in Cheung and Lee (2012)
	SELE2	0.700***	
	SELE3	0.820***	
	SELE4	0.857***	
SOCN (social norms)	SOCN1	0.711***	SOCN adapted and modified from “social norms” (towards s-services) in Hsu and Chiu (2004)
	SOCN2	0.836***	
SUBN (subjective norms)	SOCN3	0.855***	SUBN 1-2 adapted and modified from “social norms” (towards blog usage) in Hsu and Lin (2008)
	SOCN4	0.749***	
	SUBN1	0.849***	
	SUBN2	0.786***	
FCI (financial contribution intention)	SUBN3	0.786***	SUBN 3-4 adapted and modified from “interpersonal influence” (towards online shopping) in Hsu et al. (2006)
	SUBN4	0.883***	
	FCI1	0.851***	
	FCI2	0.860***	
ISI (information sharing intention)	FCI3	0.851***	FCI 1-3 adapted and modified from “intention to transact” in Pavlou (2003)
	FCI4	0.900***	
	FCI5	0.701***	
	ISI1	0.875***	
	ISI2	0.868***	
FINC (financial contribution behaviour)	ISI3	0.674***	ISI 1-6 adapted and modified from “eWoM intention” in Cheung and Lee (2012)
	ISI4	0.657***	
	ISI5	0.898***	
	ISI6	0.910***	
	FINC1	0.761***	
	FINC2	0.634***	
Amount	Roughly estimating please indicate how much money IN TOTAL have you contributed to reward-based crowdfunding campaigns in the past year? (please indicate currency and sum).		Own single item alternative measure for FINC

1. Number of observation is 560 for all measurement items.  
 2. Model fit:  $\chi^2(499) = 1457.71$ , CFI = 0.92, TLI = 0.91, RMSEA = 0.06, SRMR = 0.06.  
 3.  $\hat{\rho} < 0.10$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

**Table 4**  
Descriptive statistics and reliability (Cronbach alpha).

Variables	Mean	Median	SD	ATT	PBC	SELE	SOCN	SUBN	FCI	ISI	FINC	Reliability
ATT	4.975	5.00	1.304	1.000								0.92
PBC	6.419	7.00	1.011	0.242	1.000							0.86
SELE	5.538	5.75	1.227	0.471	0.487	1.000						0.87
SOCN	4.177	4.50	1.404	0.458	0.160	0.253	1.000					0.86
SUBN	2.925	3.00	1.382	0.448	-0.094	0.146	0.344	1.000				0.89
FCI	4.238	4.40	1.403	0.668	0.122	0.384	0.328	0.366	1.000			0.92
ISI	3.432	3.42	1.420	0.548	0.027	0.245	0.341	0.423	0.597	1.000		0.92
FINC	2.525	2.50	1.115	0.407	-0.033	0.256	0.212	0.391	0.661	0.582	1.000	0.65
Amount	186.59	60.00	669.26	0.129	0.004	0.166	-0.017	0.099	0.274	0.180	0.489	

1. Mean and SD are based on arithmetic average of all items measuring each latent variable.
2. Correlation matrix is based on the correlation among the latent variables constructed through confirmatory factor analysis.
3. Reliability represents the value of Cronbach Alpha.
4. Amount Mean and SD are in Euros.

**Table 5**  
Discriminant validity.

	ATT	PBC	SELE	SOCN	SUBN	FCI	ISI	FINC
ATT	1.000							
PBC	0.059	1.000						
SELE	0.222	0.237	1.000					
SOCN	0.210	0.026	0.064	1.000				
SUBN	0.201	0.009	0.021	0.118	1.000			
FCI	0.446	0.015	0.147	0.108	0.134	1.000		
ISI	0.300	0.001	0.060	0.116	0.179	0.356	1.000	
FINC	0.166	0.001	0.066	0.045	0.153	0.437	0.339	1.000
AVE	0.670	0.670	0.629	0.624	0.684	0.698	0.673	0.491

Squared Pearson correlations below diagonal are lower than Average Variance Extracted (AVE) of each latent variable; therefore, divergent validity is confirmed.

maximum threshold of 0.08 (Ibid.). Hence, acceptable support for the model is provided.

As for explanatory power, the R-square of the latent outcome variables in the main SEM model explains 46.5% of the variance of financial-contribution intentions, 41.8% of the variance of information-sharing intentions, and 49.2% of the variance of financial-contribution behavior.

Both model estimations show support for hypotheses H1(a) and H1(b), suggesting that favorable attitudes are positively associated with financial-contribution and information-sharing intentions. We also found support for H2(a), suggesting that self-efficacy is positively associated with financial-contribution intention, but not with information-sharing intentions rejecting H2(b). Hypotheses H3(a) and H3(b) were rejected, as we found significant negative association between PBC and financial-contribution intention and no association between PBC and information-sharing intentions. Hypotheses H4(a) and H4(b) were supported, suggesting subjective norms are positively associated with financial-contribution and information-intentions. However, Hypotheses H5(a) and H5(b) were both rejected, suggesting no association between social norms and financial-contribution and information-sharing intentions. H6 was supported, suggesting that financial-contribution intentions are positively associated with information-sharing intentions. Finally, while H7 posited a positive association between financial-contribution intentions and behavior, regardless of how financial-contribution behavior is measured, H8 was only supported when behavior was measured on two self-reported items, but not when behavior was measured by the actual amount contributed. This latter finding suggests that information-sharing affects financial contribution behavior, but not the sum contributed.

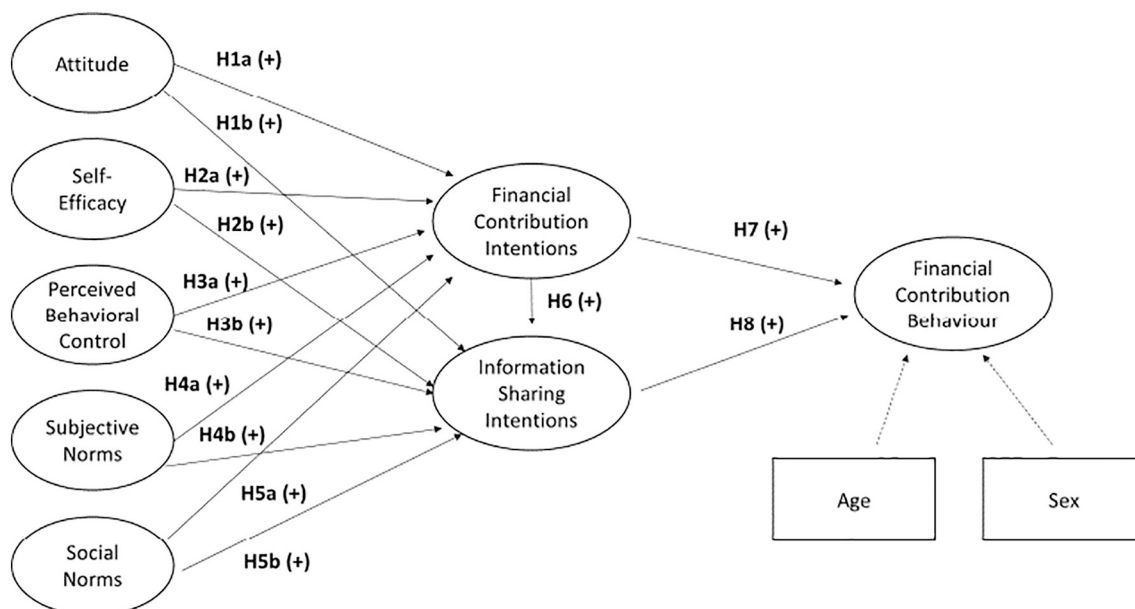


Fig. 1. Research model.



**Table 6**  
Estimation results.

Hypothesis	Relationship	Std. estimate (a)	Std. estimate (b)	Results
H1a	ATT → FCI	0.580*** (0.051)	0.585*** (0.051)	Confirmed.
H2a	PBC → FCI	-0.085* (0.052)	-0.084* (0.052)	Rejected. Negative effect instead of positive.
H3a	SELE → FCI	0.135** (0.054)	0.135** (0.054)	Confirmed.
H5a	SOCN → FCI	0.010 (0.042)	0.009 (0.042)	Rejected.
H4a	SUBN → FCI	0.090* (0.043)	0.085* (0.043)	Confirmed.
H1b	ATT → ISI	0.175** (0.054)	0.176** (0.055)	Confirmed.
H2b	PBC → ISI	-0.065† (0.052)	-0.064† (0.052)	Rejected. Weak negative effect instead of positive.
H3b	SELE → ISI	-0.012 (0.051)	-0.013 (0.051)	Rejected.
H5b	SOCN → ISI	0.082† (0.045)	0.083† (0.046)	Weakly confirmed.
H4b	SUBN → ISI	0.167*** (0.039)	0.167*** (0.040)	Confirmed.
H6	FCI → ISI	0.395*** (0.051)	0.395*** (0.052)	Confirmed.
H7	FCI → FINC	0.464*** (0.042)	0.274*** (0.050)	Confirmed
H8	ISI → FINC	0.311*** (0.045)	0.026 (0.053)	Confirmed
Control variables	Gender → FINC	-0.098** (0.076)	-0.170*** (0.107)	Females report higher financial contribution behavior.
	Age → FINC	0.028 (0.003)	0.184*** (0.004)	Age not affecting financial contribution behavior.

1. Particulars of (a) are for the SEM model where FINC is measured by two observed items and (b) for the model where FINC is measured by contribution amount.
2. Model fit (a):  $\chi^2(568) = 1188.09$ , CFI = 0.95, TLI = 0.94, RMSEA = 0.04, SRMR = 0.06.
3. Model fit (b):  $\chi^2(535) = 1107.67$ , CFI = 0.95, TLI = 0.95, RMSEA = 0.04, SRMR = 0.06.
4. Standard error in parenthesis.
5. †p < 0.10, \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

### 3.3. Comparison of high and low contributor group

Triggered by the above findings, we conducted a post-hoc analysis aiming to explore whether high and low financial-contributor groups differ in their levels of attitude, perceived behavior control, self-efficacy, social norms, subjective norms, financial contribution intention and information-sharing intention, we conducted a multi-group CFA. Multi-group analysis allows us to compare means or regression coefficients across groups, in the present case, high and low financial-contributor groups. We defined the two groups by the median value of the financial contribution amount (Euro 60). Thus, the low-sum contributor group consists of all respondents contributing amounts below 60 Euros (273 observations) and the high-sum contributor group was respondents with contributions at or above 60 Euros (287 observations).

As we sought to compare the means of latent constructs among high-sum and low-sum contributors, we need to first confirm scalar invariance (Byrne, Shavelson, & Muthén, 1989; Chen, 2008; Vandenberg & Lance, 2000). This is achieved by constraining factor loadings and intercepts equal across groups and then comparing the model with a metric invariance model where only factor loadings are constrained to be equal across groups. Initially, we failed to achieve scalar invariance, as there was a significant difference (p-value < 0.001) between the equal factor loading and the equal intercept model. However, partial scalar invariance (Byrne et al., 1989) was achieved after withdrawing the equality constraint of the intercepts of the variable FC5 across groups. Table 7 presents the measurement invariance analysis. The chi-square difference test indicated no difference (p = 0.069) between the equal loadings and equal intercepts measurement models at the 5% significance level. Thus, we can compare means of latent constructs of the scalar invariance model across groups.

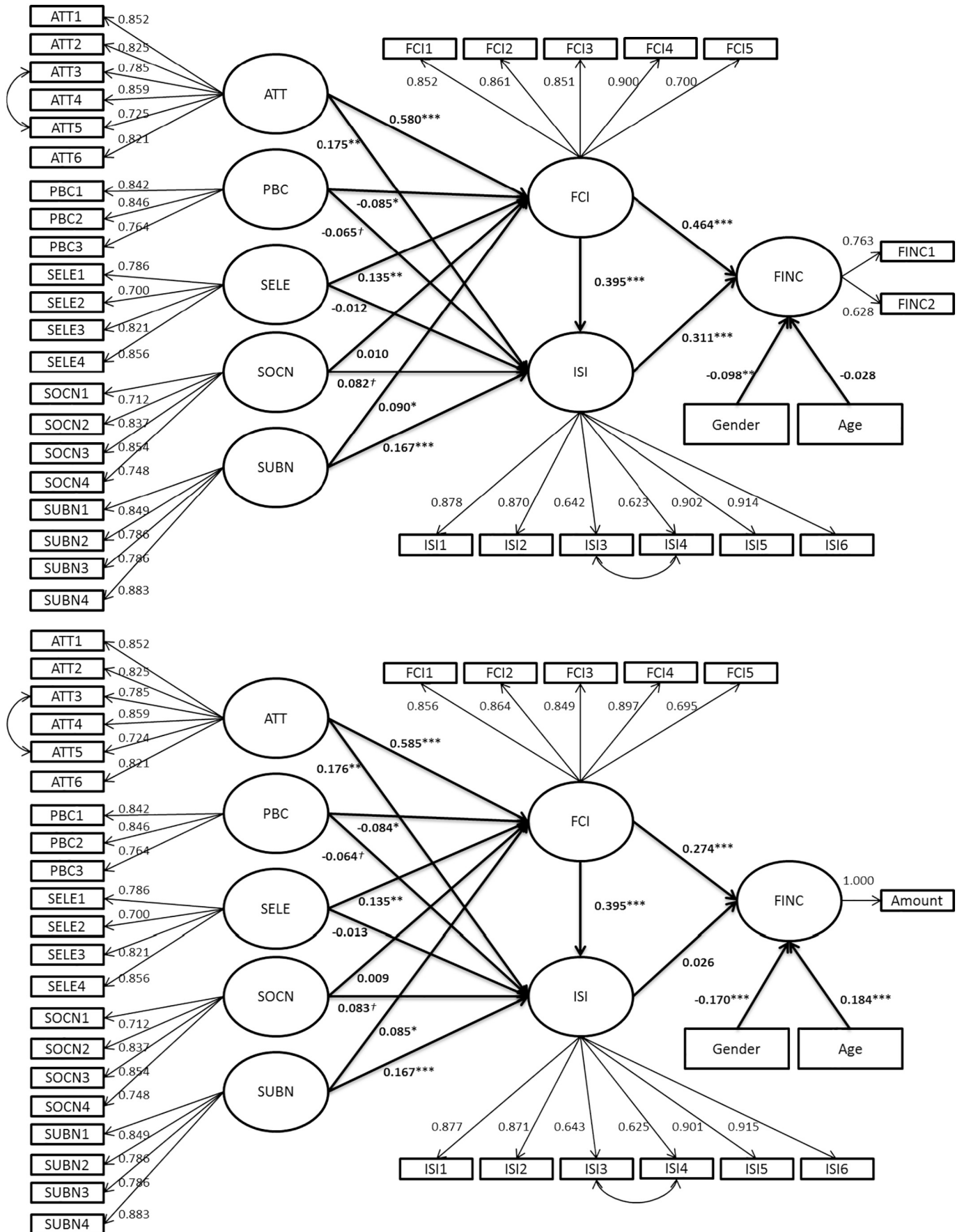
The results of this comparison suggest that the high-sum contributor

group exhibited significantly higher levels of attitudes (p-value = 0.007), self-efficacy (p-value = 0.035), financial contribution intention (p-value < 0.001) and information-sharing intention (p-value < 0.001) than did the low-sum contributor group.

When viewing these additional findings in relation to the current study's main hypotheses' findings, one may suggest that experience in crowdfunding contribution provides a possible explanation for some of the common variance captured in the noted significant associations. Here, contribution amount can be considered a proxy for repeated contributions, where higher sums are associated with more instances of contribution. In turn, repeated contributions may indicative of high levels of crowdfunding-contribution experience. When viewed through this prism, one may argue that not only do self-efficacy and attitudes directly affect intention to financially contribute, but they may also serve as mediators between crowdfunding contribution experience and intentions to contribute. Similarly, attitudes may not only directly affect the intention to share information but also serve as a mediator between crowdfunding-contribution experience and information-sharing intentions. However, whereas experience does enhance both self-efficacy and information-sharing intentions separately, these effects do not translate into a significant association between self-efficacy and information-sharing intentions.

### 4. Discussion

Overall, our findings suggest that our model properly captures the antecedents of financial contribution behavior in the context of reward crowdfunding and provides support for both the conceptual application of the TPB in this context, as well as the importance of the two intentional components – financial-contribution and information-sharing intentions in predicting crowdfunding behavior. By doing so, it offers



(caption on next page)

**Fig. 2.** (a). SEM model with FINC measured by two items.

1. Model fit:  $\chi^2(568) = 1186.086$ , CFI = 0.95, TLI = 0.94, RMSEA = 0.04, SRMR = 0.06.
2. †p < 0.10, \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**(b).** SEM model with FINC measured by contribution amount.

1. Model fit:  $\chi^2(535) = 1107.670$ , CFI = 0.95, TLI = 0.95, RMSEA = 0.04, SRMR = 0.06.
2. †p < 0.10, \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Table 7**

Measurement invariance test.

Multi-group CFA models	Df	Chisq	$\Delta$ Chisq	$\Delta$ Df	p-Value (> Chisq)	$\Delta$ CFI	$\Delta$ RMSEA
Configural	998	2326.3				NA	NA
Equal loadings	1024	2368.4	34.583	26	0.121	0.001	0.001
Equal intercepts	1049	2405.1	36.156	25	0.069	0.001	0

new insights into the role played by cognitive antecedents of crowdfunding contribution behavior, which haven't been examined thus far.

First, our findings show that all TPB (Ajzen, 1991) antecedents functioned as predicted by the theory, with significant positive effects of attitudes, self-efficacy, and subjective norms on financial contribution behavior. However, social norms, defined as those captured by media and expert opinions, do not affect financial-contribution intention, and only weakly affect crowdfunding information-sharing intentions. A potential explanation for this finding may be that views of crowdfunding by experts and media may include extreme opinions that capture both sceptics concerned about associated risks and consumer protection, as well as optimists expressing favorable views about the role of crowdfunding in the democratization of finance and consumer empowerment. Exposure to such opposing opinions may operate in both directions so that their effects cancel each other out, producing an overall non-significant effect.

Furthermore, and surprisingly, we found PBC to affect contribution behavior negatively rather than positively. This may be explained by separating the control and self-efficacy dimensions in our model. Whereas self-efficacy captures the ability to contribute to reward-crowdfunding campaigns in general, PBC captures the ability to control engagement in crowdfunding under conditions of exposure to crowdfunding campaigning. Placed in this context, PBC may reflect the ability to control contribution behavior under the condition of social pressure to contribute, which may characterize crowdfunding dynamics of social spread via social media and networking sites. Indeed, earlier research has shown that social and peer pressures have an impact on charitable giving (Frey & Meier, 2004; Meer, 2011), as well as purchase intentions (Gunawan & Huarng, 2015). Accordingly, PBC's negative effect on intentions may reflect an ability to resist social pressure in crowdfunding campaign dynamics. Thus, the more an individual can resist social pressure in crowdfunding campaigns, the less likely he or she is to develop contribution intentions.

While social media campaigning intensity and pressure have not been thoroughly studied in crowdfunding research, earlier studies have acknowledged the importance of social media campaigning and engagements in influencing campaign success in reward (Borst, Moser, & Ferguson, 2017; Hobbs et al., 2016), donation (Berliner & Kenworthy, 2017), and equity crowdfunding (Lukkarinen, Teich, Wallenius, & Wallenius, 2016), as well as viewing it as an integral part of the general crowdfunding process (Lawton & Marom, 2012; Mollick, 2014; Shneor & Flåten, 2015). Furthermore, Cho and Kim (2017) suggested that this may be influenced by culture, showing that higher number of campaign comments were positively associated with campaign success in the United States, but were associated negatively with success in the Korean context due to the uncertainty that this 'noise' generated in a relatively uncertainty-avoiding culture such as Korea.

Second, upon examining the antecedents of crowdfunding information-sharing intentions, our findings show that whereas most of

the TPB's antecedents functioned as predicted by the theory with significant positive effects of attitude and subjective norms and a weak effect of social norms on these intentions, no effects of self-efficacy and a weak negative effect of PBC we revealed. Here, the weak effect of PBC may be explained by reasoning similar to that posed above, suggesting that increasing levels of social pressure may trigger resistance among users who place value in their control over participation in crowdfunding, and hence, may make them more reluctant to share information in addition to reducing intentions to contribute financially. However, the lack of an effect of self-efficacy on information-sharing intentions may result from a situation in which those feeling both highly and minimally competent with making online financial transactions, may still feel equally competent when it comes to sharing information online about the campaigns. As sharing information may be considered less risky and less technically demanding than online transactions, our sample of crowdfunding platform users may be characterized by only little variability in terms of their perceived competence in sharing information online. Moreover, the variability that does exist maybe derived primarily from the capacity to contribute financially to a campaign rather than to share information concerning it.

Third, our findings also suggest that financial-contribution intention has a positive effect on information-sharing intentions. This finding may provide support for the applicability of the assumptions related to self-presentation theory (Schlenker & Leary, 1982) in the context of crowdfunding-contribution behavior. Thus, information sharing may present the individual with an opportunity to socially signal his or her engagement as a contributor, perceiving it as an activity viewed favorably by others. This finding is consistent with earlier research showing increased contribution behavior with backer visibility (Cox et al., 2018), and motivations for own image enhancement (Bretschneider & Leimeister, 2017). Alternatively, the finding may also be explained by assuming that once committed financially to a project, contributors have a vested interest in seeing it completed successfully to receive the rewards they purchased. Thus, to enhance the likelihood of the campaign's successful completion, contributors are likely to be more engaged in sharing information about this campaign to their respective network of contacts. These notions find support in earlier studies suggesting that number of social-media shares of campaign information positively impact the likelihood of campaign success (Berliner & Kenworthy, 2017; Hobbs et al., 2016).

In this context, and despite the presented arguments, one may also envisage a reverse causality, where information-sharing intentions positively affect financial-contribution intentions. Such claims may build on the reasoning that sharing information about a crowdfunding campaign may represent a lower threshold of effort and costs than would a financial contribution to such a campaign. Thus, once information is shared, one can consider reactions of others to that information in their decision whether to contribute financially to the campaign. This line of reasoning has received some support from game theory, where 'cheap talk' can sometimes affect real pay-off actions (Farrell, 1995). One way to settle these contradictory predictions is through a qualitative investigation of funders' own views on the issue. While this remains outside the scope of the current study, it does present an interesting opportunity for future studies.

Fourth, we have shown that both financial-contribution and information-sharing intentions affect financial-contribution behavior. This supports earlier notions expressed in the literature that both

aspects are fundamental to crowdfunding practice (Lawton & Marom, 2012; Mollick, 2014; Shneor & Flåten, 2015), with the current study presenting some of its first empirical evidence.

Finally, an insight indirectly emerging from the current post-hoc comparisons between low- and high-sum contributors, one may suggest that the crowdfunding-contribution experience could explain some of the common variance captured in significant associations identified in the present study. From a theoretical perspective, earlier work is inconsistent with respect to the role of experience in the context of TPB. Some consider this part of the PBC (Ajzen & Madden, 1986), while others claim that its total effect cannot be fully explained by its integration into PBC (R. P. Bagozzi & Kimmel, 1995). Regardless, one could argue that previous positive experience in crowdfunding contribution may further enhance individuals' favorable attitudes, as well as self-efficacy towards future crowdfunding contributions. In such cases, self-efficacy and attitudes do not only directly affect intention to financially contribute but may also serve as mediators between the crowdfunding-contribution experience and intentions to contribute. Hence, future studies may incorporate either longitudinal data or measures of previous crowdfunding contribution experience for properly capturing such effects.

#### 4.1. Limitations

While this study presents interesting findings and insights, it also has some shortcomings that should be acknowledged. First, whereas our findings may be somewhat constrained in terms of their generalizability beyond the national and platform context in which the data were collected, they are based on a relatively large sample in comparison with some earlier published studies. Moreover, the findings provide valuable insights into users of national platforms from small open economies (relative to most previous studies who derived their analyses from data scraped from global platforms such as Kickstarter). Nevertheless, a wider-scale, cross-country and cross-platform study may strengthen generalizability of the findings and illuminate the potential roles of contextual factors in shaping the phenomena under investigation. Indeed, earlier studies have shown evidence for differences between countries in terms of crowdfunding volumes (Ziegler et al., 2018), new crowdfunding platform creation levels (Dushnitsky, Guerini, Piva, & Rossi-Lamastra, 2016), relevant regulatory frameworks (Gajda, 2017), and campaign success drivers (Cho & Kim, 2017).

Similarly, the generalizability of the present findings is also constrained to the context of reward crowdfunding. It remains to be seen whether similar dynamics and effects are also evident in investment models of crowdfunding. This would be of particular interest, given that information sharing in investment crowdfunding may be more heavily regulated, incentive schemes may be more sophisticated, and financial literacy and competence play a greater role in decision making (Heminway, 2014; Niemand, Angerer, Thies, Kraus, & Hebenstreit, 2018).

Our analyses follow a conceptual path dependency, where our focus on the TPB framework affected our problem formulation and research design. We built on the extensive use of the TPB in understanding user behavior in multiple Internet mediated marketplaces. However, we also examined extensions to the original TPB formulation by incorporating social norms in addition to subjective norms, self-efficacy in addition to PBC, and using intentionality towards two distinct aspects (e.g., financial contribution and information sharing) in influencing reward-crowdfunding contribution behavior. Nevertheless, there is room for employing alternative theoretical anchors and frameworks for analyzing crowdfunding-contributor behavior and its antecedents, such as, the technology acceptance model (Venkatesh & Davis, 2000), social capital theory (Nahapiet & Ghoshal, 1998) and social cognitive theory (Bandura, 1986).

Finally, our study is a mono-method study which may lend itself to a certain level of method bias. Specifically, our data's reliability could

have been enhanced by linking and comparing self-reported data with platform data. However, our lack of access to the platform's own database and the assurance of anonymity for our participants, made such linkages impossible. Nevertheless, we addressed method-bias challenges by following recommendations by Conway and Lance (2010) in creating multiple versions of the survey through the random-order presentation of questionnaire items for each respondent, using multiple item constructs and examining their validity via CFA and checking for convergent and discriminant validity. Furthermore, as noted, our examinations of both response bias and common method bias indicated that such problems were not evident in our data.

#### 5. Conclusions

Reward crowdfunding is an important channel through which entrepreneurs can raise funding for their ventures. It implies non-monetary benefits in return for money contributed to projects by backers, while incorporating the relatively high-risk of non-delivery on pitch promises that are typical in entrepreneurial ventures. Our analyses contribute to the budding literature on motivational factors in crowdfunding contribution behavior in general, and by addressing the understudied role played by important cognitive antecedents of such behavior in particular. We demonstrated the applicability of the planned behavior approach to understanding crowdfunding contribution behavior while answering earlier calls for further research on the perspectives of crowdfunding backers and psychology in general (McKenny et al., 2017), and in the Nordic context in particular (Shneor, Jenssen, & Vissak, 2016).

We do so by applying an extended version of the TPB framework into the reward crowdfunding context while highlighting the antecedents of reward crowdfunding intentions as well as the dual impact of both financial-contribution and information-sharing intentions of crowdfunding financial contribution behavior. This was accomplished by our analysis of survey data collected from users of a national reward crowdfunding platform, operating in one of Europe's most crowdfunding friendly countries - Finland.

Our findings provide support for both the conceptual application of the TPB in the reward crowdfunding context and the recognition of the importance of the two intentional components – financial-contribution and information-sharing intentions in predicting crowdfunding behavior. We showed that attitude, self-efficacy, and subjective norms positively affect financial-contribution intentions, whereas social norms do not. Surprisingly, we found that PBC affects intentions negatively, and suggest that this may reflect resistance to excessive social pressure from campaigners among those who value their control over their contribution behavior. Moreover, we showed that favorable attitudes and subjective norms affect information-sharing behavior. Financial-contribution intentions positively were shown to positively affect information-sharing intentions. And both these intentions, in turn, positively affect contribution behavior. This finding stresses the dual nature of reward crowdfunding intentions, including both financial-contribution and information-sharing, which is often overlooked in the literature, given that most previous studies have focused on financial contribution.

Furthermore, we have also shown that upon comparing high- and low-sum contributors, the former group exhibited significantly higher levels of attitudes, self-efficacy, financial-contribution intention and information-sharing intention than did the latter. This suggests that efforts to enhance attitudes and self-efficacy may result not only in increased intentions to financially contribute, but also in actual contributions of larger sums.

In summary, our study offers several contributions. First, it fills a gap of studying crowdfunding behavior from a cognitive perspective, and the first to empirically validate the applicability of the TPB framework along with highlighted theoretical extensions in reward crowdfunding behavior. Specifically, this study provides evidence for

the dual nature of reward crowdfunding as depending on both financial-contribution and information-sharing intentions. As such, this theoretical extension represents a useful framework that may be applied and tested in other contexts. These may include non-investment crowdfunding models such as donation crowdfunding, where individuals both contribute financially and promote a cause by sharing information about it. Similarly, it may also apply to other e-commerce transactions, where individuals engage in both purchase and information sharing about purchases; these transactions may include cases of products with hedonic value (e.g. vacations), social signaling (e.g. festival participation), or status signaling (e.g. purchasing luxury goods).

Furthermore, the research contributes to a more pluralistic study of reward crowdfunding beyond global platforms such as Kickstarter and provides insights based on a national platform in a crowdfunding-friendly European country, such as Finland. In this context, it is also one of only few studies deriving its primary data directly from users, rather than data scraped off platform websites. Finally, our findings are based on the analysis of a relatively large dataset comprising of quality data that have withstood the required qualifications and a variety of bias tests.

### 5.1. Implications for research

In terms of research implications, our findings present evidence for the applicability of our TPB-based model in explaining reward crowdfunding intentions and behavior. However, to further validate our findings and extend their generalizability, much potential lies in replicating the current study in different national, cultural, platform, sector and crowdfunding model contexts. Such efforts may be particularly valuable when running comparative analyses in different institutional, cultural, and infrastructural environments that may be more or less conducive to crowdfunding practice. In addition, further study would be welcomed in countries characterized by different levels of economic development capturing various levels of necessity-driven versus improvement-driven channels of access to finance. In addition, a replication study comparing findings in different campaign categories or industrial sectors may also shed further light on the generalizability of the current findings, especially in comparative studies, such as cultural and creative industries versus high technology products and business-to-consumer concepts versus business-to-business concepts.

Furthermore, and more specifically, our proposed explanations for the revealed negative effect of PBC on intentions, anchoring it in the ability to resist social pressure when exposed to social-media-driven campaigning, present an interesting opportunity for empirically validating these suggestions. Thus, studies may explore the effects of campaign dynamics and related social pressure intensity on behavioral outcomes of prospective contributors. Furthermore, research may focus on identifying a tolerance curve for social-media interaction intensity and ascertaining levels of both effective and ineffective campaigning intensities.

Another promising research direction may involve using longitudinal data for analyzing the effects of crowdfunding-contribution experience on both TPB antecedents directly, as well as examining these antecedents' potential role as mediators of the effects of crowdfunding contribution experience on crowdfunding intentions and behaviors.

### 5.2. Implications for practice

The current findings suggest that organizations aiming to support and promote the use of crowdfunding (e.g. crowdfunding platforms, entrepreneurship support agencies), should consider offering crowdfunding training to both potential fundraisers and potential campaign backers. Such training may help build up related skill sets that can strengthen self-efficacy, as well as equip participants with sufficient background information enabling them to develop favorable attitudes towards crowdfunding, both of which enhance contribution intentions

and indirectly, behavior.

Furthermore, platforms may also consider a recognition scheme for supporters, enhancing their self-efficacy and attitudes by awarding them public recognition badges or status as “professional funders” and “expert funders” based on participation in training, number of campaigns supported, as well as their social media reach in information sharing about campaigns.

Finally, an additional emerging-insight is that entrepreneurs creating reward crowdfunding campaigns should manage a delicate balance in their promotional strategies in reaching out to contributors, but at the same time, avoid creating excessive social pressures that may trigger resistance among those who value control over their own contribution behavior.

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