Essays on Crowdfunding Adoption and Behavior

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To my precious mother — a peasant farmer who saw my today and never gave up.

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Introductory Summary Chapter to Doctoral Dissertation (KAPPA)

Abstract

The aim of this dissertation is to examine aspects of crowdfunding adoption and behavior. Accordingly, the overarching research question answered by this dissertation is: what influences crowdfunding backers' contribution intentions and behaviors? The dissertation answers this question while focusing on dimensions of trust, community, and technological acceptance.

The dissertation is made up of three studies with one conceptual article (study 1), and two empirical studies (study 2 and 3). The conceptual study marries marketing and trust literatures and contextualizes their implications for the crowdfunding context. The result is the development of a framework of trust-based marketing strategies for crowdfunding campaigns, building on the understanding of the critical role played by trust in crowdfunding adoption by prospective backers.

The empirical studies (i.e., study 2 and 3), are based on the analyses of empirical data collected from actual platform users, while using Structural Equation Model techniques. These studies examine the antecedents of backers' contribution intentions and behavior, specifically in the context of reward crowdfunding in Finland. Study 2 explains backers' intention and behavior by testing the extensive version of the technology acceptance model (TAM). It confirms the relevance of the TAM model for properly capturing influential antecedents of backers' financial contribution intentions and behavior and further elaborates on the specific influences of backers' experiences and voluntariness, which challenge existing conceptualizations from other information and communication technology -related contexts. Study 3 builds on the view of crowdfunding as an embedded phenomenon in online communities, to develop a community-based crowdfunding framework for explaining backers' contribution intentions and behaviors, while highlighting the roles of community identification and community trust.

Accordingly, this dissertation contributes to crowdfunding literature focusing on understanding adoption and behavior. First, it outlines a novel framework for crowdfunding marketing strategies aimed at overcoming trust deficits and leveraging trust surpluses to enhance adoption and involvement of prospective backers. Second, it both enhances the generalizability of the application of the TAM framework to a reward crowdfunding context and highlight the limitations of generalizability where minor adjustments of the original conceptualization are needed. Third, it develops and empirically tests a new framework accounting for the importance of community dimensions in explaining crowdfunding intentions and behavior. A summary of the whole thesis is concisely captured in Table 2.

To enhance the reader's understanding of this dissertation, I deem it important to concisely define *four key terms* that are foundational in crowdfunding research. The first, ***"fundraiser"***, refers to any individual or organization seeking to raise funds using crowdfunding campaigns. The second, ***"backer"***, refers to any individual or organization providing finances to fundraisers' crowdfunding campaign(s) and/or sharing the crowdfunding campaign's information. The third, ***"crowdfunding campaign"***, includes all the public information provided about a fundraising effort by an individual or organization which specifies all related objectives, plans, conditions, and rewards/expected returns of the project and/or business seeking the funding. It involves relevant information provided on both a dedicated website as well as via social media postings. The fourth, ***"crowdfunding platform"***, is defined as a dedicated website that enables interactions between a fundraiser and a backer and acts as the platform on which funds are collected for crowdfunding campaigns.

1. Introduction

Despite its subtle existence in various informal ways in numerous societies throughout history, the crowdfunding phenomenon began to attract attention due to emerging novel initiatives observed online in the late 1990s. The better known of which was when Marillion (a British band) raised approximately US$60,000 via the internet to finance a tour (Hoegen et al., 2018). Around the same time, charities began to raise donations through online communities (Ordanini, Fisk, et al., 2011). In the early 2000s, online communities such as Kiva emerged as platforms for microloans in developing economies, and Zopa and Prosper also emerged as online platforms allowing everyone to lend money to others for interest (Belleflamme et al., 2015).

In the late 2000s, online communities such as Indiegogo and Kickstarter enabled ventures to collect money from the public through the internet in exchange for rewards such as products, services, and tokens of appreciation (Cumming et al., 2021). The next evolutionary step of the crowdfunding phenomenon started with spring-up of online platforms including GrowthVC and Crowdcube that allowed ventures to offer equity stakes to the public in return for monetary investments in those ventures (Ahlers et al., 2015). Today, with the spread and relative affordability of internet access, parallel to lasting implications of the 2008 financial crises in traditional financial channels, crowdfunding has become a catalyst of funding globally, either by complimenting, or partially replacing other traditional funding channels (Hoegen et al., 2018).

Generally, the term crowdfunding refers to the "efforts by entrepreneurial individuals and groups – cultural, social, and for-profit – to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries" (Mollick, 2014, p. 2). Paralleling the sequential development of the modern digital version of the crowdfunding phenomenon, crowdfunding is generally categorized into four models (Figure 1) elaborated as: D*onation crowdfunding*– backers expect no material or monetary reward as funds are provided based on philanthropic or civic motivations. *Reward crowdfunding*– provides non-monetary reward e.g., product or service to backers in exchange for the amount provided. *Peer-to-peer lending*– provides funders with interest on the funds provided which are paid in addition to the amount invested within a given time frame. *Equity crowdfunding*– provides

backers with an ownership stake in the funded project. Notably, the last two models and the first two models are categorized as investment models and non-investment models respectively (Ziegler et al., 2018).

Indeed, tremendous growth has been recorded in all models of crowdfunding (Ziegler et. al., 2021) where models such as reward crowdfunding were tagged as the most familiar (Ziegler et al., 2018) and lending models of crowdfunding as the most voluminous. Nevertheless, there is a significant proportion of failures and unsuccessful campaigns (Belleflamme et al., 2013; Forbes & Schaefer, 2017). For instance, Kickstarter (one of the most popular and successful crowdfunding platforms worldwide) failed to raise approximately two-thirds of its targeted amounts for published campaigns in 2020 (Statistica, 2021). Accordingly, a quickly growing body of research is exploring the crowdfunding phenomenon from various perspectives seeking to uncover what affects campaign success (Lagazio & Querci, 2018; Lukkarinen et al., 2016), backers' decision making (Hoegen et al., 2018), as well as investment intentions and behavior (Shneor & Munim, 2019). These studies examine a variety of variables capturing facets of: Fundraiser characteristics, project/campaign characteristics, backer characteristics, and platform characteristics (Hoegen et al., 2018; Rotem Shneor & Amy Ann Vik, 2020).

What is Crowdfunding?

"Efforts by entrepreneurial individuals and groups – cultural, social, and for-profit – to fund their ventures by drawing a relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries" (Mollick, 2014, p.2)

Equity — Funding is oriented towards ownership stake.

Lending — Funds provided are due for repayment with interest.

Reward — Funds are provided in exchange for a tangible product

Donation — Funds are provided with no monetary or tangible reward in return.

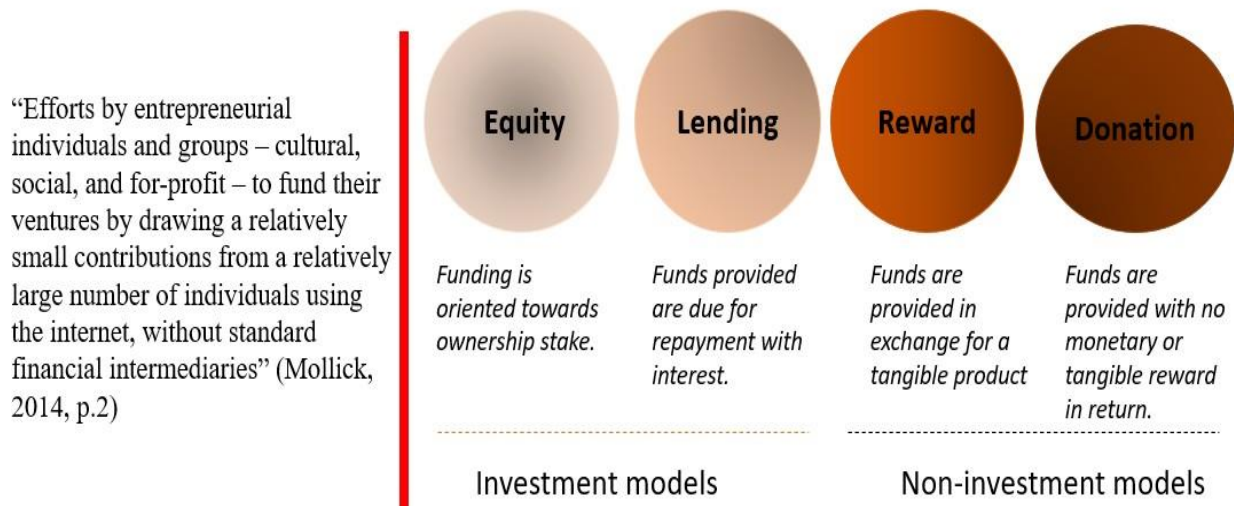Investment models | Non-investment models

Figure 1. Crowdfunding and Models

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Irrespective of the crowdfunding model on which these studies are based, these studies confirm that crowdfunding backers, on their way to pledging money to projects, first learn about or seek interesting opportunities on one of many platforms. Next, they collect and analyse relevant information communicated by the fundraiser and presented in the campaign. Finally, after considering various cues and information, they decide on whether and how much to invest/contribute. However, it is often claimed that most fundraisers are amateurs and lack fundraising expertise (Belleflamme et al., 2015; Kim & Petrick, 2021; Mollick & Nanda, 2016). Furthermore, it is also suggested that most backers are less sophisticated and generally less professional investors (Hoegen et al., 2018; Mollick & Nanda, 2016), partially explaining frequent evidence of herding behavior among the crowdfunding community members (Mollick & Nanda, 2016). Such premises indeed present several challenges.

Generally, novice fundraisers are more vulnerable to information problems (Carbo-Valverde et al., 2009), hence, encounter severe challenges providing the needed informational content when developing their campaigns (Yang et al., 2020). The consequences of such informational problems give rise to trust issues and reflect uncertainty regarding the fundraiser's ability to deliver on campaign promises. Indeed, crowdfunding is associated with some degree of risk (Shneor & Munim, 2019) either in terms of possible deviations from plans or outright loan defaults (Lin et al., 2017; Yoon et al., 2019), business failures and bankruptcies (Wojahn & Wilms, 2020), as well as late or non-delivery of pre-purchased products (Appio et al., 2020).

Despite abundant incidences of failure and unsuccessful campaigns (Belleflamme et al., 2013; Forbes & Schaefer, 2017), crowdfunding maintains strong growth in popularity while raising substantial volumes of capital, overall estimated at USD 113 billion in global volumes raised in 2020 (Ziegler et al., 2021). Hence, it is intriguing to understand the drivers of crowdfunding adoption and development.

Accordingly, the current dissertation addresses some of these issues in three distinct studies, including the following:

Study 1 (Titled: *A Trust-Based Crowdfunding Campaign Marketing Framework: Theoretical Underpinnings and Big-Data Analytics Practice*) conceptually developed a trust-based framework while suggesting a series of campaign strategies, each relevant to a unique configuration of trust conditions prevailing at campaign launch, while aiming to overcome trust deficits and leverage trust surpluses towards greater adoption by prospective backers.

Study 2 (Titled: *Explaining Reward Crowdfunding Backers' Intentions and Behavior*) empirically explains backers' contribution intentions and behavior by testing the technology acceptance model – TAM. Here, a focus is placed on perceptions of usefulness and ease-of-use and their respective antecedents in explaining backers' contributions and behaviors. The paper finds both evidence for confirming the roles by some of these, as well as a lack of association with others. The latter highlight limitations for the relevance of some of the factors assumed to affect adoption intentions and behavior in the original framework.

Study 3 (Titled: *The Influences of Community Identification and Trust on Crowdfunding Campaign Information-Sharing Intentions and Behaviors*) takes a different route, by building and testing a new and alternative framework that draws on dimensions of community identification and trust for explaining backers' contribution intentions and behavior. This approach argues for the centrality of community aspects for the well-functioning of online crowdfunding communities, which have largely been overlooked in earlier studies.

Accordingly, each study represents a different angle and complimentary insight into better understanding crowdfunding backer intentionality and behaviour in general, and in the reward crowdfunding context in particular. Study 2 and 3 present empirical evidence for the roles played by different antecedents of intentions and behaviour. Study 2 brings insights from the well-established TAM framework and exhibits the extent of its applicability in understanding backer acceptance of reward crowdfunding platforms. Study 3 provides different insights which pertain to the community aspects of backer behaviour, and by incorporating community identification and trust, as well as their own antecedents, it clearly shows that crowdfunding backer behaviour is not only about accepting a

technology, but also about community membership and engagement. Study 1 takes a different approach and builds on earlier research already showing sufficient empirical evidence for the importance of achieving prospective backers' trust for the well-functioning of crowdfunding practice. Accordingly, relevant insights are then converted into strategic formulations for campaign marketing practices that can help enhance prospective backers' trust under different conditions. In this respect, study 1 addresses issues of backer relationship and perceptions of the fundraiser (relational and informational/calculative trust), study 2 addresses issues of backer relations and perceptions of the platform/technology provider (focus on ease-of-use and usefulness), and study 3 addresses issues of backer relations and perceptions of the crowdfunding community of backers (focus on community identification and community trust).

Overall, the findings of this dissertation present several contributions. First, it goes beyond the notion of the importance of trust in crowdfunding and presents a concrete set of campaign marketing strategies to address different pre-launch market trust configurations. Second, the study both confirms and presents the limitations of a well-established framework for explaining ICT system adoption by contextualizing its testing in the reward crowdfunding context. Third, the study suggests a novel framework for explaining crowdfunding intention and behavior building on online community aspects of community identification and community trust, which have been largely overlooked in earlier studies of crowdfunding platform users.

The remaining part of this introductory summary chapter to doctoral dissertation (KAPPA) is organized as follows. Section 2 presents an overview of contribution intention and behavior in crowdfunding. Here, the current state of knowledge is presented while identifying relevant gaps. Section 3 presents the research design of the dissertation. Here, the philosophical position adopted for this dissertation, the study context, the data sources, the data analyses procedures, and their quality checks are highlighted. Section 4 presents the key findings of the dissertation. Section 5 presents the key contributions of each study followed by section 6 highlighting the limitations of each study and their related implications for prospective future research. Section 7 presents how the studies included in this dissertation have been disseminated for valuable peer-review and feedback.

2. Overview of Crowdfunding Contribution Intention and Behavior

2.1. Current state of affairs

The interest in better understanding backer intentions and behavior in crowdfunding is growing. Drawing on a wide range of theories, various researchers have suggested different explanations as to what affects backer intentionality and behavior. One group of studies mostly employ *signalling theory*, viewing it as a mechanism for limiting information asymmetry between backers and fundraisers in backers' decision making (e.g., Cappa et al., 2021; Kleinert et al., 2020; Kunz et al., 2017; Steigenberger & Wilhelm, 2018). Here, most studies identify various campaign elements as signal carriers, and examine their effects on campaign performance as an indicator for more and less successful convincing of backers.

A second group builds on *trust theory* as a mechanism for unlocking resources in the community by highlighting campaign features, user interactions, and community dynamics that enhance trusting relations (e.g., Alharbey & Van Hemmen, 2021; Chen et al., 2014; Kang et al., 2016; Liang et al., 2019). Here, studies examined the effects of different types of trust (i.e., calculative vs. affective) as well as the degree of trust towards different objects (i.e., towards platform, campaign, campaign creator, etc.).

A third group draws on social psychology by employing the *theory of planned behavior*, while highlighting the cognitive antecedents underlying backer intentionality and behavior (e.g., Baber, 2022; Chen et al., 2019; Shneor & Munim, 2019; Shneor, Munim, et al., 2021). Such studies mostly highlight the role of favourable attitudes and social norms, and to a lesser extent that of self-efficacy and perceived behavioral control in influencing intentions towards campaign support, as well as their resulting behaviors.

Finally, a fourth group has argued that backer engagement in crowdfunding behaviors depends on the extent to which such actions are congruent with the enhancement of the backer's *well-being* (e.g., Efrat, Gilboa, & Wald, 2020; Efrat et al., 2021; Sherman & Axelrad, 2020). Such studies show that contribution behavior is tightly associated with campaigns that enhance positive emotions, engagement, relationships, sense of meaning, and sense of accomplishment. Nevertheless, there are gaps remaining in understanding

campaign success, contribution intentions and behavior, as well as crowdfunding adoption by would-be backers/investors.

2.2. Identified gaps and unexploited areas

The dynamics of the crowdfunding phenomenon, and its tremendous growth in both popularity and volumes, presents researchers with interesting gaps left to be explored. Relatedly, this dissertation aims to covers some of these areas.

First, research on trust in crowdfunding practice largely remains untapped. Current literature on trust only empirically validates its critical relevance in enhancing crowdfunding contribution intentionality in both investment and non-investment models (Chen et al., 2014; Kang et al., 2016; Liang et al., 2019; Zhang et al., 2020), as well as campaign success (Zhao & Vinig, 2019) but often falls short in translating findings into holistic strategic approaches. However, the act of crowdfunding implies that fundraisers actively engage in online marketing of their projects to prospective backers (Belleflamme et al., 2015; Chen et al., 2016) and, yet, campaigns are often designed based on intuition rather than on strategy (Valtteri Kaartemo, 2017; Thürridl & Kamleitner, 2016). Therefore, understanding the elements of *what fundraisers can do to enhance the trust of prospective backers? And how do such actions vary under different initial trust conditions*? is deemed especially relevant for crowdfunding practice. Accordingly, study 1 of this dissertation fills this gap. Specifically, building on existing knowledge and insights and translating them into a typology of different marketing strategies relevant under different trust conditions.

Second, a defining aspect common across crowdfunding models is their embeddedness and inherent dependency on exchanges between members of an online community. Earlier on, crowdfunding was suggested to reflect community-enabled financing channels built on principles of crowdsourcing (Schwienbacher & Larralde, 2012), which incorporate community-based experiences that generate community benefits for contributors (Belleflamme et al., 2014). Equating active platform users with the crowdfunding community, most studies refer to crowdfunding community as the population of backers of campaigns on a specific platform (e.g., Colombo et al., 2015; Ryu & Suh, 2021; Zheng et al., 2014).

Furthermore, since a crowdfunding platform provides the technical infrastructure for exchanges, sets the rules for them, and ensures transaction integrity and legal compliance (Shneor & Torjesen, 2020) just as e-commerce platforms, their roles becomes very critical for crowdfunding practice. Nevertheless, crowdfunding platforms, as conduits of investing is novel, systematically deviating from the traditional channels of investing (Mollick, 2014) although mimicking traditional online commerce (Djimesah et al., 2022). As confirmed in traditional online transactions, consumers' buying behavior on internet platforms is dependent on their acceptance of the platform technology (Pavlou, 2003). Accordingly, it is highly possible that backers' contribution intentions and behaviors are similarly dependent on their acceptance of the technological solutions created by the crowdfunding platforms. Therefore, understanding; what drives the adoption of crowdfunding platforms? is deemed relevant for crowdfunding practice. In this context, earlier studies confirmed that platform-related factors significantly influence campaign success (Kaartemo, 2017; Rotem Shneor & Amy Ann Vik, 2020).

Nevertheless, empirical studies on the acceptance of crowdfunding as a novel funding mechanism have received less attention. The limited studies available only examine few components of technology acceptance models while overlooking the more complex nature and setting of relations underlying such frameworks (Djimesah et al., 2022; Jaziri & Miralam, 2019; Lacan & Desmet, 2017; Thaker et al., 2018). To fill this gap, the current study examines a more extensive version of Technology Acceptance Model (TAM) including factors capturing both cognitive instrumental processes and social influencing processes (Davis et al., 1989; Venkatesh & Davis, 2000) in explaining crowdfunding contribution intentions and behavior. Accordingly, this dissertation fills this gap under study 2. Specifically, testing the full TAM model rather than selected parts of it. Such effort helps assess the extent to which the model applies to reward crowdfunding realities, and the few deviations evident from the original framework.

Third, aspects related to the crowdfunding community may serve as both antecedents to- and outcomes of- providing support for crowdfunding campaigns. Accordingly, studies incorporating community aspects have often done so by suggesting it as triggers to contribution, as in the case of community identification (Gunawan et al., 2019; Rodriguez-

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Ricardo et al., 2018) or self-image congruence (Ryu & Suh, 2021), as well as the reward for contributions made, as in the case of community belonging (Bao & Huang, 2017; Colombo et al., 2015). Acknowledging the critical role played by community in crowdfunding practice, it is prudent to identify and examine the influence of various antecedents of crowdfunding community. Therefore, understanding first; whether crowdfunding community identification and trust are positively associated with crowdfunding contribution attitudes broadly, and information-sharing intentions and behaviors more specifically? Second, does a series of theoretically identified variables serve as antecedents of community identification and trust? Third, is the effect of identified antecedents on crowdfunding contribution attitudes, information-sharing intentions and behaviors mediated by community identification and trust? is deemed especially relevant for crowdfunding practice. Accordingly, a model integrating these antecedents with community-based variables, such as crowdfunding community trust and community identification is developed and tested for explaining backers' contribution attitudes broadly and intentions and behaviors. This line of inquiry is found to offer a better explanation for backers' actual contribution behavior, supporting earlier theoretical claims about crowdfunding as a community-embedded phenomenon (Belleflamme et al., 2014; Schwienbacher & Larralde, 2012). Accordingly, this dissertation fills this gap under study 3. Specifically, it offers a new framework and compares its explanatory power with that of a similar framework focused on cognitive antecedents of crowdfunding intentions and behavior.

3. Research design

The choice of a research design is inspired by the assumptions about the existence of things in the world (ontology) and, a researcher's perspective of the creation of scientific knowledge (epistemology). Thus, in this section, I present the philosophical foundation I adopted as well as the related methodology

3.1. Philosophical position

Positivism, critical realism, and constructivism which are also termed as objectivism, transcendentalism, and subjectivity respectively, are the main different school of thoughts

in social sciences (Morgan & Smircich, 1980) (Figure 1). Among these three positions, positivism dominates the social science context (Piekkari et al., 2009).

Positivism   *Critical realism*   *Constructivism*

←——→

Figure 2: Different Schools of Thought in Social Sciences.

The positivist's aim is at developing testable hypotheses and theories which are generalizable across contexts (Eisenhardt, 1989). Therefore, the positivists argue that, irrespective of the observer, there is one truth i.e., reality (Yin, 2013). This thought is variable-based (Ragin & Becker, 1992) and universal casual rules (i.e., not considering contexts) are used to explain relationships between variables (Eisenhardt, 1989).

From Figure 2, on the opposite side of the continuum is constructivism, which centres the creation of scientific knowledge around human imagination, which is captured from a phenomenon based oration. (Järvensivu & Törnroos, 2010; Piekkari et al., 2009). That is, constructivism argues that scientific knowledge is culturally and socially created through "interpreting perceptual experiences of the external world" (Jonassen, 1991, p. 10) in their context, which requires the researcher's interaction with the unit of analysis.

These two extreme paradigms, i.e., positivism and constructivism have their pros and cons. While positivism is objective and theories and findings aim to be generalizable to populations, it often underplays the study context, and hence, in the process of creating scientific knowledge, may overlook relevant unobserved concepts. On the other hand, constructivism gives room for the researcher to conduct an in-depth exploration of the phenomenon under investigation, but nevertheless, the findings emerging from such an approach are subjective and context specific.

Consequently, Bhaskar (2008) introduced critical realism, as a paradigm residing in between positivism and constructivism. Critical realism is grounded on the basis that; an objective reality exists, however, it exists at different layers (i.e., real, actual and empirical). To get to the reality, empirical observation bounded by consensus, subjectivity, and community-based criteria, are all necessary (Delanty & Strydom, 2003; Järvensivu &

Törnroos, 2010). Here, the main focus is on exploring the necessary generative mechanisms that shed new light on processes (Bhaskar & Hartwig, 2016).

The positivist approach is adopted in this dissertation. The choice is based on the view that reality can be objectively observed. Here, crowdfunding is an alternative financing concept that represents a degree of innovation regardless of national or social context and what drives users to engage with it can be objectively observed. Accordingly, developing testable hypotheses and theories which can be objectively recorded with standard measures helps to identify general trends while accommodating for variance in data by including multiple observations.

Nevertheless, being aware of the limitations of the positivist approach, further steps were taken to acknowledge contextual limitations by emphasizing boundaries to the generalization of the findings, presenting calls for study replications in other dissimilar contexts, as well as highlighting how certain unobserved concepts may affect the findings.

In this respect, the first study represents a theoretical development effort that predicts general and testable hypotheses linking trust conditions and effectiveness of marketing strategies to be adopted. The last two studies are quantitative theory testing, providing empirical evidence for a list of hypotheses. In both cases, there is no assumption of subjective socially constructed realities, but rather that multiple subjective realities can still have a common objective reality as representing the overall group rather than each of its constituent actors.

3.2. Context, data sources, analysis, and quality checks

Striving to achieve the aim of this dissertation in an ethical way, research ethical principles of the University of Agder and ethical research guidelines stipulated by best practices in survey data collection from users of online platforms and new technologies were followed (including; Aborisade, 2013; Newman et al., 2021; Roberts & Allen, 2015). These ethical procedures were followed right from our concepts and survey items development, data collection, data analyses through to the interpretation of insights into our recommendations while avoiding infringement on observers' privacy and misuse of data and inappropriate

reporting. Specifically, we have informed and received approval for data collection from the data protection unit in Norway. In accordance with obligations, all emails of respondents wishing to participate in the lottery of gift cards were deleted after these cards were distributed to ensure privacy protection and removal of any personal identifying data. Furthermore, all data were held on university systems protected behind passwords, and accessible only to principal researchers.

Study 1 conceptually drew insights from both online marketing and crowdfunding literatures to develop a trust-based crowdfunding marketing framework. Additionally, insight from big data analytics practice was considered. As a conceptual work, study 1's quality was ensured through exposure to feedback which was received at several conferences and seminars. Once accommodated, the revised versions of the paper went through three separate rounds of peer-reviews prior to publication.

Study 2 and 3 were empirical studies and were first subjected to rigorous preparations and data checks prior to analyses. These studies used data collected from users registered on Mesenaatti.me, which is Finland's largest reward crowdfunding platform. Finland occupied the 5th position in Europe in terms of total crowdfunding volumes and was the 2nd largest after the UK in terms of equity crowdfunding (Ziegler et al., 2018). Also, Finland is considered as one of the leading countries in terms of crowdfunding regulatory friendliness (Shneor & Munim, 2019). Therefore, Finland acts as a suitable context for this study.

We chose Mesenaatti.me due to its reputation as Finland's largest reward crowdfunding platform. Established in 2013, the platform had over 25,000 users and, at the time of data collection in 2016, had overseen fundraising of over EUR 3 million. Campaigns published on the platform were reward-based campaigns covering various sectors, including art, music, sports, hospitability, technology, education, and fashion, with a minimum amount requested per campaign ranging between EUR 1,000 and 50,000. Targeting both Finnish and international backers, the platform's interface is in both Finnish and English. The platform managers agreed to distribute to backers an invitation to participate in the web-survey, which was followed up by four reminders during Spring 2016. The survey included a long list of questions and items, and for boosting participation, respondents were offered

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participation in a lottery of 35 gift cards valued at EUR 200 each. According to Hair et al. (2010), after removing entries with missing data and those suspected of monotonous response bias (more than 10 identical consecutive entries), we were left with 556 responses, representing a 2.2% response rate. Descriptive statistics of our sample are presented in Table 1.

Notably, as the variables captured in the study are unobserved and latent (i.e., measured by multiple observed items), Structural Equation Modelling (SEM-lavaan package) techniques, particularly using the *lavaan package in R,* were employed for the analyses. SEM is the most suitable and powerful method for estimating and analyzing complex structural models that include many constructs, indicators, and model relationships compared to other statistical packages (Rosseel, 2012a). Hence the choice of SEM for the analyses was appropriate considering the research models for study 1 and 2. To ensure data quality, several procedures were followed for alleviating concerns with potential threats of common method bias (Philip M Podsakoff et al., 2003), non-response bias (Armstrong & Overton, 1977), as well as measurement validity and reliability (Cronbach, 1951; Claes Fornell & David F Larcker, 1981). Each check is separately described in detail in each paper. The data withstood the required qualifications while meeting thresholds suggested by best practice recommendations for multivariate data analysis.

Sex	Female – 1	275	49.46%
	Male - 0	281	50.54%
Average daily time devoted to online browsing, search and news (number of hours)	Up to 1 h	6	1.08%
	1 to 2 h	180	32.43%
	2 to 3 h	206	37.12%
	3 to 4 h	93	16.76%
	5 h to 6 h	46	8.29%
	6 h or more	24	4.32%
Average daily time devoted to using social and professional networking sites (number of hours)	Up to I h	52	9.37%
	1 to 2 h	227	40.90%
	2 to 3 h	149	26.85%
	3 to 4 h	81	14.59%
	5 h to 6 h	28	5.05%
	6 h or more	18	3.24%
Total financial contribution to campaigns	€ 0–30	138	24.82%
	€ 31–60	148	26.61%
	€ 61–150	141	25.36%
	€ 151–12,000	129	23.20%

Table 1: Descriptive Statistics

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4. Key results and findings

Study 1 conceptually develops a trust-based crowdfunding campaign marketing framework (TCMF) highlighting four trust conditions (trust deficit, information trust deficit, relationship trust deficit, and trust surplus) fundraisers face when launching their campaigns, each requiring a different marketing strategy (minimalist, technician, influencer, and innovator) for enhancing trust between fundraisers and prospective funders. Here, four main propositions were made aligning each campaign marketing strategy to a unique trust condition, aiming to enhance campaign success by alleviating relevant backers' trust concerns, and hence encouraging their adoption of crowdfunding as a channel for providing their support. First, A minimalist marketing strategy (i.e., minimal investment in campaign content and social media promotions) will lead to campaign success under conditions of overall trust surplus (enjoying both informational and relational trust surpluses at launch), but not under other trust conditions. Second, a technician marketing strategy (investing more in high quality campaign content but less in social media promotion) will lead to campaign success under conditions of informational-trust deficit (but relational trust surplus), but not under other trust conditions. Third, an influencer marketing strategy (invest more in high quality social media promotion but less in campaign content) will lead to campaign success under conditions of relational-trust deficit (but informational-trust surplus), but not under other trust conditions. And fourth, an innovator marketing strategy (investing in both high-quality campaign content and social media promotions) will lead to greater campaign success under conditions of overall trust-deficit (lacking both informational and relational trust at launch), than under other trust conditions.

Study 2 presents results that solidify the applicability of the technology acceptance model suggesting that it properly captures antecedents of backers' financial contribution intentions and behavior in the context of reward crowdfunding. The findings show that while both perceived usefulness and ease-of-use of crowdfunding platforms are positively associated with intentions, it is the former that exerts greater influence. Also, study 2 finds platforms' perceived usefulness to be positively and significantly associated with subjective norms, image, demonstrability, and task relevance to a strong degree, and with output quality to a lesser degree. Also, the study finds evidence of indirect effects where the platform's perceived usefulness mediates the effects of perceived ease-of-use on

contribution intentions and subjective norms on intentions, as well as image mediating the effect of social norms on perceived usefulness. While the above findings generally support the TAM's suggested relations between variables, other findings do not support other TAM predictions. Specifically, the study shows no moderating effects for voluntariness and experience, which contradicts earlier findings in studies conducted in non-crowdfunding contexts. These are mostly explained by little variance in terms of crowdfunding experience, being a relatively novel phenomenon for most crowdfunding platform users, which renders experience a non-influential explanatory variable. Furthermore, the no effect for voluntariness is explained by crowdfunding being a voluntary engagement by definition, as unlike work or government related ICT systems, it is not imposed on users, and their engagement with such systems are only of a voluntary nature. Furthermore, while reciprocity expectations may be evident in backing dynamics (André et al., 2017; Zheng et al., 2014), and may appear to influence backers to back projects involuntarily, these may not represent the majority of backers, who may not run campaigns themselves.

Study 3 presents several insights on the role played by community-related factors in crowdfunding backers' decision making by developing a community-based framework in predicting backers' crowdfunding campaign information-sharing intentions and behavior. First, the study finds that both community identification and community trust are positively associated with the following antecedents: enjoyment, homophily, and community outcomes expectations. Second, the study shows that while community identification is positively associated with antecedents including perceived tie strength and normative community pressures, community trust is not. Third, the study finds that both community identification and community trust are positively associated with attitudes and intentions towards information-sharing, while the latter is fully mediated by attitudes. Fourth, the study finds that, community identification is associated with information-sharing intentions both directly and indirectly, with the latter partially mediated by favorable attitudes. Fifth, the study finds that community identification is both directly and indirectly associated with information-sharing behavior, with the latter partially mediated by information-sharing intentions.

As such, both studies 2 and 3 further enrich the research on crowdfunding backers' intention and behavior, adding to the earlier explanations using signaling, trust, planned

behavior, and well-being theories. Specifically, the study exhibits the relevance of antecedents of technology acceptance such as usefulness and ease-of-use, while accounting for all model additional variables. Furthermore, while the previous effort confirms an existing framework in a new setting, the 3rd paper develops, tests, and confirms a third framework highlighting the importance of community identification, community trust, and their antecedents, all exhibiting its superior explanatory power vis-à-vis earlier approaches. Finally, while study 1 does not present a new explanation for backer intention and behavior, it does translate related concerns with trust and earlier empirical evidence about it into operational strategies crowdfunding fundraisers and platform operators may use in their practice. Table 2 below summarizes the key highlights of each of the papers included in the current dissertation.

	Study 1	**Study 2**	**Study 3**
Purpose	Theory Development	Theory Testing	Theory Development and Testing
Theoretical anchor and premises	Trust theory (Chen and Dhillon, 2003; Gefen, 2002) and distinction between informational and relational trust (Ba 2001, Kang et al. 2016)	Technology Acceptance Model (Venkatesh and Davis, 2000; Davis et al., 1989)	Suggesting a new framework building on Cognitive antecedents of behavior (TPB by Ajzen 1991) + theoretical concepts of community identification (Hsu et al. 2012) and trust (Posey et al. 2010)
Research question(s)	What can fundraisers do to enhance the trust of prospective backers? And how do such actions vary under different initial trust conditions?	What drives the adoption of crowdfunding platforms? More specifically, we explore: will backers' contribution behavior, as evidence of acceptance, depend on known antecedents as outline by the TAM frameworks?	(1) Are community identification and trust positively associated with contribution attitudes broadly, and information-sharing intentions and behaviors more specifically? (2) Does a series of theoretically identified variables serve as antecedents of community identification and trust? (3) Is the effect of identified antecedents on contribution attitudes,

			information-sharing intentions and behaviors mediated by community identification and trust?
Method	Conceptual development	Quantitative analyses, SEM-lavaan package	Quantitative analyses, SEM-lavaan package
Unit of analysis	Crowdfunding campaign	Crowdfunding campaign backer	Crowdfunding campaign backer
Data sample	N/A	566 registered users on the Mesenaatti.me reward crowdfunding platform	566 registered users on the Mesenaatti.me reward crowdfunding platform
Crowdfunding model	All crowdfunding models	Reward-crowdfunding	Reward-crowdfunding
Outcome variables	Campaign success	Financial backing intentions and behavior	Information-sharing intentions and behavior.
Key assumptions	Match between pre-launch trust conditions and campaign strategy will impact campaign success.	Perceived usefulness, ease-of-use, and subjective norms positively impact financial contribution intentions and behavior.	Perceived levels of community identification and community trust positively impact information-sharing attitudes.
Contributions	Suggests a trust-based marketing campaign strategies that fundraisers can use to enhance backers' contribution towards a campaign.	Confirms and extent the generalizability of crowdfunding platform-related and backers-related factors that influence backers 'adoption of crowdfunding and their financial contribution intentions and behaviors.	Examines the extent to which identification with and trust in crowdfunding community influences backers' information sharing intentions and behavior while examining antecedent of such identification and trust.

Table 2: Study Highlights

5. Contributions

As discussed above, this dissertation generally contributes to the understanding of backers' contribution intentions and behavior. As a whole, this dissertation sums up all aspects identified in literature to influence crowdfunding success in practice (i.e., campaign related factors, fundraiser related factors, platform related actors and funder related factors (Hoegen et al., 2018; Kaartemo 2017; Shneor & Vik 2020) and examines how they predict backers' contribution intentions and behaviors while incorporating aspects that are taken-as-given in crowdfunding research. This dissertation therefore provides useful tools for understanding crowdfunding backers' contribution intentions and behaviors which are practically aligned with fundraisers', funders', and platform operators' activities and further serves as a valuable resource for crowdfunding research. Highlighted below, are

the specific contributions of each study in greater detail and how each contributes to the coherent whole of the above-mentioned dissertation's contributions.

Study 1: First, study 1 contributes to earlier literature in developing a trust-based crowdfunding campaign marketing framework (TCMF) that is anchored specifically in the realities of crowdfunding practice, while being able to inform prospective fundraisers about the marketing efforts they should invest in when aiming to enhance prospective backers' trust. Second, study 1 goes beyond common practice in earlier research that has focused on identifying associations between specific campaign elements and success and proposes an integrated approach accommodating these insights into a more widely applicable framework anchored in trust theory. Third, unlike earlier research, the study does not ignore the fact that fundraisers enter the crowdfunding process under different pre-launch trust conditions, and hence require different marketing strategies for enhancing backer trust. Fourth, by comparing the (TCMF) to other relevant frameworks, the study exhibits its relative value added arguing that it offers greater concreteness and contextualization when compared to the elaborative likelihood model, and greater theoretical anchoring, cross-model generalizability, as well as campaign strategy diversity when compared to other crowdfunding marketing frameworks. Finally, the study goes beyond the theoretical level, and also suggests a practical approach for following the TCMF by employing big data analytics at various stages. In this respect, the current study help to translate fuzzy and intuitive notions of the importance of trust, into concrete strategic options, their alliance with trust conditions in the market, and the way to assess such trust conditions.

Study 2: First, study 2 fills a gap of studying crowdfunding behavior from both cognitive and social influence perspectives and is the first to empirically validate the applicability of the full TAM 2 model in the context of reward crowdfunding, specifically doing so in the small-open-economy context of Finland. Hence, complementing the theoretical arsenal used for explaining contribution intentions and behavior with respect to financial contribution behavior more generally. Second, the study shows that backers' perception of platform usefulness and ease-of-use are important antecedents of financial contribution intention. Here, while the previous study primarily surveyed students about an opportunity not yet fully available in their developing market environment, our study surveys actual crowdfunding platform users in a developed market. Third, it solidifies the relevant

antecedent roles played by cognitive aspects and social influences in understanding crowdfunding backers' contribution intentions and behaviors. Fourth, it confirmed that the ability to attract backers partly depends on platforms' perceived ease-of-use and perceived-usefulness hence an insight is given to practitioners towards developing features that enhance greater clarity about task relevance (for example - user cases and ready-made templates), output quality (for example – more indices and facts reflecting information about campaign performance), and result demonstrability (for example – linkages and seamless transfer of relevant information across social media and communication platforms), as when incorporating relevant visualizations and dashboard functionalities. Finally, the study shows that original conceptualization of TAM suggesting a moderating role for user experience and voluntariness of use are less relevant in the context of crowdfunding adoption by prospective backers.

Study 3: Study 3 suggests and further validates a novel model accommodating both the antecedents and outcomes of community identification and community trust in the context of reward crowdfunding backers' decision making hence solidifying crowdfunding as a community-embedded phenomenon. Second, the study shows that community identification and trust are important antecedents of information-sharing attitudes, intentions, and behavior, which are critical for successful crowdfunding campaign efforts. Third, the study further solidifies our understanding and extends the generalizability of the importance of community identification and trust in enhancing support for crowdfunding campaigns, while examining it in a new context, and with respect to information-sharing intentions and behavior in particular. Here, it is worth stressing that current study addresses the specific benefit of information sharing, which underlies the distribution and spread of crowdfunding campaigns through online networks, aiding fundraisers in reaching critical masses for ensuring successful fundraising, rather than financial contribution per se. As such, it deviates and adds an additional important dimension in understanding backer behavior, and the factors impacting it.

6. Limitations and implications for future studies

While this dissertation presents insightful findings and offers valuable contributions, it has some shortcomings that need to be acknowledged. Highlighted below are some key

limitations of the individual studies in this dissertation, and how they can be translated into fruitful future research initiatives.

Study 1: First, though the study is built on an integration of empirical evidence from earlier studies, the TCMF is conceptual in nature hence it should be subjected to empirical testing. In this respect, future researchers are encouraged to test the theory, as captured by the list of propositions suggested, in different crowdfunding models, as well as national contexts and institutional settings. Second, theoretically, the study is based on the hypothesis that trust is enhanced through marketing activities. However, others may wish to investigate the boundaries of such positive effects especially relating to arguments that marketing can also create information overload or, alternatively, may be discounted as noise and overlooked by prospective backers. Accordingly, research into what constitutes too much, or too little, marketing effort can further enhance our understanding and improve the quality of the study's advice for practitioners. Third, researchers may also seek to validate the value of big data analytics in informing the practical use of the TCMF. Such studies may either confirm the TCMF through analyses of trust, content quality, and social spread using big data analytical techniques; or examine which big data analytical techniques are best at predicting pre-launch trust, as well as the effectiveness of the suggested marketing approaches that emerge from such assessments.

Study 2: First, the applicability of the findings presented may be constrained to the national context in which data were collected, as well as to the specific type of crowdfunding considered (i.e., reward crowdfunding). Here, future studies may test the generalizability of the findings in new national contexts and different crowdfunding models (such as investment rather than non-investment models). Second, since familiarity and experience with technology evolves over time, future studies may explore the extent to which the findings hold in a longitudinal perspective, after backers' longer market experience with crowdfunding has been achieved. Third, the study focuses on financial contribution intentionality and behavior in a crowdfunding context but does not cover other types of supportive behaviors such as campaign information-sharing or product development feedback and engagement. Finally, the anchoring in an existing theoretical framework may present blind spots about factors that may be uniquely relevant to crowdfunding practice and not currently incorporated in the model. Here, both qualitative and quantitative

investigations may help flesh-out such variables and their respective effects, while adding them into the TAM-2 framework (for example – risk concerns, privacy concerns, and passion for cause).

Study 3: Here again, the generalizability of the findings may be constrained to the national-cultural context in which data were collected, as well as to the specific type of crowdfunding considered –reward crowdfunding. Therefore, future studies may attempt to test the generalizability of the findings in new national contexts, as well as with respect to different crowdfunding models such as equity investments, lending, or donation models. Second, the study focuses on information-sharing intentionality and behavior in a crowdfunding community context but does not cover other types of supportive behaviors such as financial contribution or product development feedback and engagements. Accordingly, future studies may re-test the suggested model with respect to other types of intentions and behavior in support of crowdfunding campaigns. Third, while the developed model in this study already is quite complex, it may still be improved by additional potentially influential variables that may serve as both antecedents of community identification and trust, as well as antecedents of attitudes, intentions, and behaviors that complement them. Accordingly, researchers may draw on relevant variables from other theories e.g., TAM and TPB to further develop the model.

7. Dissemination of papers

Aiming to improve the dissertation papers' quality, the three studies have been subjected to peer review and disseminated for gaining valuable feedback. Table 3 below highlights this dissemination process, as well as study authorship and status.

Study	Authorship	Conferences/seminars	Status
Study 1	Co-authored	Seminar organised by Cambridge Centre for Alternative Finance (CCAF), University of Cambridge (2021) UiA Crowdfunding Research Centre, Norway (2021)	Published in International Journal of Big Data Management

Study 2	Sole authored	World Finance Conference, (2021) European Academy of Management (EURAM) Conference, (2021) America's Conference on Information Systems, Minneapolis, USA (2022)	Accepted for publication: Baltic Journal of Management
Study 3	Co-authored	European Centre for Alternative Finance (ECAF) Conference, (2021) Seminar organised by UiA Crowdfunding Research Centre, Norway, 2022 10th Conference of the European Association for Behavior Analysis (EABA), Finland (2022) European Academy of Management (EURAM) Conference, (2022)	Under journal review: Electronic Markets

Table 3: Studies Dissemination, Authorship and Status

Reference

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STUDY 1: A Trust-Based Crowdfunding Campaign Marketing Framework: Theoretical Underpinnings and Big-Data Analytics Practice

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Abstract

Crowdfunding research often understates the campaign marketing dynamics that are at play. In this paper, we develop a trust-based crowdfunding campaign marketing framework (TCMF). Since trust underlies online transactions our framework highlights four trust conditions (trust deficit, information trust deficit, relationship trust deficit, and trust surplus) fundraisers face when launching their campaigns, each requiring a different marketing strategy (minimalist, technician, influencer, and innovator) for enhancing trust between fundraisers and prospective funders. Moreover, we compare the TCMF with earlier theoretical frameworks, while highlighting its unique contributions. Finally, we suggest the application of big data analytics in practical use of the TCMF.

Keywords: Crowdfunding; trust; marketing, content quality, social spread, big data, social media.

Acknowledgement

1. Introduction

Crowdfunding is a method of fundraising, where small financial contributions are collected from a potentially large group of backers while using the internet, and often without the involvement of standard financial intermediaries (Mollick, 2014). Such practice involves fundraisers' (i.e., entities requesting funds) interaction with prospective backers (i.e. entities contributing funds) via a platform (i.e. an intermediary facilitating communications and transactions) about a concrete campaign or loan request (i.e. a web-based presentation of a project to be funded and the conditions surrounding it). In the past decade, crowdfunding has been growing dramatically, with global volumes estimated to be surpassing USD 300 billion in 2018 (Ziegler et al., 2020). Unsurprisingly, this development has attracted much interest from academics, practitioners, and policy markets.

Crowdfunding is manifested through a wide range of fundraising models. At the most fundamental of levels, such models may be categorized as either 'investment models' or 'non-investment models' (Belleflamme & Lambert, 2016) depending on the types of compensation backers expect to receive in return for their financial contributions. Investment models include variants of crowdlending and equity crowdfunding offering financial returns to investors, while non-investment models include variants of reward and donation crowdfunding offering tangible and intangible non-financial returns to consumers and donors, respectively.

Regardless of model, crowdfunding incorporates a degree of risk embedded in the uncertainty surrounding a fundraiser's ability to deliver on campaign promises (Shneor & Munim, 2019) either in terms of possible deviations from plans or outright loan defaults (Lin et al., 2017; Yoon et al., 2019), business failures and bankruptcies (Wojahn & Wilms, 2020), as well as late or non-delivery of pre-purchased products (Appio et al., 2020). In addition to the risks inherent to crowdfunding practice, and while not representing mainstream developments, there has also been growing concerns with ethically questionable practice as captured by anecdotal evidence in cases suspected of fraud at both the platform and fundraiser levels (Shneor & Torjesen, 2020). In such cases, opportunities for intentional or unintentional abuse of power, misinformation, quality compromises, or incidents of hurting other stakeholders may emerge under pressures to perform successfully and in a very publicly transparent manner (Shneor & Torjesen, 2020).

Trust is a critical element that may help mitigate risks and uncertainties in online exchanges (Kim & Peterson, 2017; Pavlou & Chai, 2002), as well as enhance financial risk tolerance (Rahman et al., 2019). Accordingly, a growing body of literature has sought to investigate the role of trust in crowdfunding. Such studies find that trust enhances crowdfunding contribution intentionality in both investment and non-investment crowdfunding models (Chen et al., 2014; Kang et al., 2016; Liang et al., 2019; Zhang et al., 2020), as well as campaign success (Zhao & Vinig, 2019). Moreover, a different line of research at a macro level, considers trust conditions in various markets and their conduciveness to crowdfunding market development either conceptually suggesting such a positive relation (Kshetri, 2015), or empirically validating it with respect to crowdfunding volumes per capita (Ziegler et al., 2020).

Beyond these initial findings, research on trust in crowdfunding practice largely remains untapped. However, since the act of crowdfunding implies that fundraisers actively engage in online marketing of their projects to prospective backers (Belleflamme et al., 2015; Chen et al., 2016), valuable and closely related insights are adopted from studies of trust in e-marketing.

In the current study we wish to shift the focus from empirical validation of the association between trust and contribution intentionality and take it as a given. Instead, we aim to answer: *what fundraisers can do to enhance the trust of prospective backers? And how do such actions vary under different initial trust conditions*? - (Belleflamme et al., 2014)campaigns are often designed based on intuition rather than on strategy (Valtteri Kaartemo, 2017; Thürridl & Kamleitner, 2016). Furthermore, while research identifying the drivers and barriers to campaign success has proliferated in recent years (Valtteri Kaartemo, 2017; Rotem Shneor & Amy A. Vik, 2020), it often fell short of translating findings into holistic strategic approaches, only offering specific insights about the use of concrete campaign elements. Hence, a need for more general strategic approach remains. For this purpose, we engage in a theory development effort while proposing a trust-based crowdfunding marketing framework (hereafter 'TCMF') capturing different marketing strategies that can help fundraisers enhance prospective contributors' trust under differing pre-launch trust conditions. Specifically, we suggest four initial trust conditions

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representing combinations of either trust deficit or surplus with respect to two types of trust –calculus and relational trust. According to Kang et al. (2016), calculus trust or 'trust from the head' refers to trust created based on evaluation of conditions and information weighing costs and benefits, while relational trust or 'trust from the heart' refers to trust created based on repeated interaction between individuals over time that involves elements of care and concern. Each trust condition is then matched with a campaign e-marketing strategy that aims to both address trust deficits and leverage trust surpluses. This framework is then supported by a list of propositions arguing which strategy will be most effective at enhancing trust under each of the pre-launch trust conditions.

Later, the suggested trust-based framework will be compared to two earlier frameworks that can also be used for strategic design of crowdfunding campaigns. First, we compare the TCMF to an alternative persuasion-based theory, namely Petty and Cacioppo's (1986) Elaboration Likelihood Model (hereafter 'ELM'). Second, we compare our TCMF to a typology of reward-based crowdfunding campaigns (hereafter 'RCC') as suggested by Kraus et al. (2016). This discussion will review the commonalities and differences between the frameworks, while highlighting the unique contributions of the suggested TCMF with respect to each. Overall, we argue that the TCMF offers greater concreteness and contextualization when compared to the ELM, and greater theoretical-anchoring, cross-model generalizability, as well as campaign strategy diversity when compared to the RCC.

Finally, translating theory into practice, we build on studies heralding the use of big data in marketing (Camilleri, 2020; Ducange et al., 2018; Fan et al., 2015), as well as for trust assessments (Roy et al., 2017), and review the opportunities for its application in support of our suggested TCMF. First, using it for assessing pre-campaign trust conditions, which inform marketing strategy choices. And second, using it for assessing effectiveness of selected marketing strategies in enhancing contributions to, and promotion of, crowdfunding campaigns.

The remainder of the paper is structured as follows. First, we present a literature review of studies investigating the importance and manifestations of trust in online marketing, as well as in crowdfunding practice. Next, we suggest the TCMF, and outline a list of propositions capturing the fit between different marketing strategies and different trust enhancement

goals, as emerging from different pre-launch trust conditions. Later, we engage in a discussion comparing the TCMF with the ELM and RCC for highlighting the TCMF's contributions and unique value propositions. This theoretical discussion will then be followed by a review of opportunities for using big data and Social Media analytics for translating the theory into a concrete practical approach. Finally, the study concludes by suggesting related implications for research and practice.

2. Literature review

Trust reflects a willingness of one party to rely on another party and to act while becoming vulnerable to actions of the other party (Doney et al., 1998). According to Ba (2001), trust is defined in terms of its three central characteristics: reliability, predictability, and fairness. In e-marketing, trust lies in the consumer's subjective confidence in the e-marketer while accepting vulnerability to the actions of the e-marketer (Bart et al., 2005). The dimensions of online trust include competence/ability, integrity, and benevolence (Chen & Dhillon, 2003; Gefen, 2002). Due to the uncertainty, spatial separation, and information asymmetry often characterizing online exchanges, gaining consumer trust is considered as one of the most critical challenges of online marketing (Ba, 2001; Gefen et al., 2003; Ibeh et al., 2005; Kim & Peterson, 2017). In their review, Urban and colleagues (2009) found that online trust goes beyond privacy and security concerns, and is closely connected to website design, its formation is an ongoing process, and is heterogeneous across individuals and products.

Ba (2001) suggested that trust in business relations develops from calculus-based trust to information-based trust, and eventually into transference-based trust. *Calculus-based trust* is an on-going economic calculation whose value is derived by comparing the outcomes resulting from creating and sustaining the relationship to the costs of maintaining or severing it. *Information-based trust* is formed based on accumulated knowledge and experience, whereas relations develop, the parties gain more information about each other and create a degree of predictability about their likely actions under different conditions. *Transference-based trust* is that which is indirectly transferred from a trusted partner to a less known one. Here, one party develops trust to a 3rd party based on its existing trust to a 2nd party that endorses the 3rd party.

A different approach, presented by Johnson and Grayson (2005) in their analysis of trust in service relations, distinguished between cognitive and affective trust. *Cognitive trust* reflects a customer's confidence or willingness to rely on a service provider's competence and reliability, based on accumulated knowledge and experience. *Affective trust* reflects the confidence one places in a partner based on feelings generated by the level of care and concern the partner demonstrates, and is, therefore, based more on emotions rather than knowledge.

More recently, Kang et al. (2016) presented an approach suggesting a differentiation between *calculus trust* and *relationship trust*, which both synthesized earlier conceptualizations and was verified in a crowdfunding context. In this typology, the former refers to trust created based on evaluation of conditions and information weighing costs and benefits, while the latter refers to trust created based on repeated interaction between individuals over time that involves elements of care and concern. We will later use this classification in our conceptual development.

Since trust-building mechanisms reduce uncertainties arising from information asymmetries in exchange transactions, trust-building mechanisms are crucial to the prosperity of on-line marketplaces (Anderson & Swaminathan, 2011; Elliott & Speck, 2005; Greiner & Wang, 2010; Wang & Emurian, 2005). According to Brynjolfsson and Smith (2000) the main elements used to signal trust in online marketing include building a secure website, detailed quality content, and social media management. Similarly, a review of related research by Wang and Emurian (2005), identified four trust-inducing features including graphical design, structural design, content design, and social-cure design. In crowdfunding, the platform provides the secure website through which exchanges between fundraisers and backers are facilitated in accordance with pre-specified conditions (i.e. graphical and structural designs), while the fundraiser is tasked with providing detailed quality content and creating the necessary social media engagement promoting their project to prospective backers (Shneor & Flåten, 2015).

2.1 Quality content provision

Content refers to the substantive information being conveyed in a message (Hilligoss & Rieh, 2008). In e-marketing, content is considered as key to an effective marketing program, and includes both static information forming web-pages and dynamic rich media information such as videos, podcasts, user generated messages, and interactive features (Holliman & Rowley, 2014). According to Rieh (2002), quality information influences an audience's perceptions as the information it conveys is thought to be credible and worthy of trust.

Earlier research in the business-to-consumer context shows that information quality positively impacts consumers' perceived value of -and loyalty intentions towards- a website (Kim & Niehm, 2009), as well as their satisfaction from using it (Lin, 2007). Consumers' perceptions about efforts to provide quality content by sponsors of virtual communities positively influenced their sense of shared values and respect towards these sponsors, both of which positively impacted their trust towards the sponsors (Porter et al., 2012). Furthermore, the quality of commercial information shared on social networking sites was found to enhance consumer trust, which in turn enhanced purchase intentions and Word-of-Mouth intentions (Kim & Park, 2013). Similarly, in a business-to-business context, perceived information quality was found to significantly reduce perceived risks and enhance trust in interorganizational data exchanges (Nicolaou & McKnight, 2006).

In crowdfunding research, campaign content elements are some of the most frequently studied predictors of campaign success across crowdfunding models (Valtteri Kaartemo, 2017; Rotem Shneor & Amy A. Vik, 2020). Here, most studies find that successful outcomes of crowdfunding campaigns are positively associated with the length and detail of campaign texts (i.e. Aprilia & Wibowo, 2017; Greiner & Wang, 2010; Kunz et al., 2017), the use of concrete and precise language (i.e. Larrimore et al., 2011; Parhankangas & Renko, 2017), the number of updates provided by the fundraiser (i.e. Berliner & Kenworthy, 2017; Lechtenbörger et al., 2015; Li et al., 2016), as well as the inclusion of videos as dynamic content (i.e. Angerer et al., 2017; Josefy et al., 2017; Mollick, 2014).

However, these studies often used indicators capturing the availability and length of content elements, rather than evaluations of their actual quality (Rotem Shneor & Amy A.

Vik, 2020), leading to an underestimation of the variance in content quality. Such variance may serve as an explanation for contradictory findings in a minority of studies showing non-significant and negative effects also with respect to text length (i.e. Genevsky & Knutson, 2015), language concreteness (i.e. Allison et al., 2015), number of updates provided by fundraiser (i.e. Kromidha & Robson, 2016), and video inclusion (i.e. Frydrych et al., 2014), among others. The few studies that did examine quality aspects of campaign content have usually identified a positive association between campaign success and quality content (i.e. Calic & Mosakowski, 2016; Chan & Parhankangas, 2017; Hobbs et al., 2016). Furthermore, a recent study by Zhang and colleagues (2020) showed a significant positive association between information quality assessments and platform trust, which in turn impacts crowdfunding contribution readiness.

Furthermore, a recent study by Shneor et al. (2021) examined the role played by campaign content elements in campaigns success in different social trust contexts. It showed that elements associated with the central route to persuasion were more prevalent in campaigns from a low trust society than a high trust one, and that certain elements associated with the peripheral route to persuasion were more prevalent in campaigns from high trust societies than low trust societies. Hence, suggesting that the tweaking of various campaign content elements may serve to overcome relevant trust barriers in different contexts, while improving likelihood of campaign success.

2.2 Social media engagement

Once quality content is created, the next challenge is in ensuring it reaches a relevant audience of consumers. E-marketers aim to trigger social spread of marketing messages through viral marketing, which is defined as an exploitation of existing social networks by encouraging consumers to share product information with their friends (Leskovec et al., 2007). Such approach seeks to tap into the value of 'social proofing', as in when individuals look to the actions of others for clues about what constitutes appropriate action they should follow (Cialdini, 1993).

The key vehicle for achieving this is known as e-Word-of-mouth (hereafter 'eWOM'), which captures statements made by potential, actual, or former customers about a product

or company that are made available to the public via the Internet (Hennig-Thurau et al., 2004). Such statements can come in various forms such as consumer reviews and endorsements, or via the sharing of information created by others, including ads and promotional materials. Nevertheless, marketers are concerned with 'valuable virality', where promotional information is not only shared but is actually beneficial in terms of eliciting positive evaluations, purchase intentionality and behavior (Akpinar & Berger, 2017). In this context, Pihlaja et al. (2017), distinguish between anonymous eWOM and social eWOM, claiming that since the latter represents information from known senders it is deemed more trustworthy and hence also enables better decision-making.

Earlier research shows eWOM contributes to reducing information asymmetries in consumer markets (Manes & Tchetchik, 2018). Furthermore, it shows that positive eWOM enhances consumers' positive attitudes and trust, as well as perceived quality and purchase intentions (Ladhari & Michaud, 2015). Others suggest that its enhancement of purchase intentions is moderated by trust (See-To & Ho, 2014). Moreover, while higher number of positive reviews enhances product purchase intentions, when these become too informative, prospective consumers may experience information overload weakening such effect (Park & Lee, 2008). Overall, a meta-analysis of research on the effects of eWOM finds a positive association with sales, but the effectiveness of which differs by platform, product, and metric factors (Babić et al., 2016).

In the context of crowdfunding, social media engagements are integral to the very nature of fundraising, where fundraisers are tasked with reaching, informing, and persuading members of the crowd to contribute both financially and in sharing information about the campaign (Shneor & Munim, 2019). Accordingly, literature reviews on research examining factors impacting crowdfunding success across models have shown it to be impacted by various indicators of social media engagements and endorsements (Valtteri Kaartemo, 2017; Rotem Shneor & Amy A. Vik, 2020).

Here, studies show that campaign success is associated with a fundraiser's network size and number of social media contacts (i.e. Kunz et al., 2017; Lin et al., 2012; Vismara, 2016), the extent of social media shares of campaign information (i.e. Efrat, Gilboa, & Sherman, 2020; Hobbs et al., 2016; Wessel et al., 2017), backers' posting commentary and

feedback (i.e. Adamska-Mieruszewska et al., 2019; Berliner & Kenworthy, 2017; Lechtenbörger et al., 2015; Yum et al., 2012) and resulting interactions when fundraisers respond to them (Zhao & Vinig, 2019), as well as external public endorsements (i.e. Ahlers et al., 2015; Bukhari et al., 2020; Calic & Mosakowski, 2016; Greiner & Wang, 2010).

Here, again, while the above findings properly represent the general trends, a few inconsistent results are also evident in some studies, and mostly include non-significant and rarely a negative effect with respect to network size (i.e. Colombo et al., 2015; Hobbs et al., 2016) and certain modes of external public endorsements (i.e. Butticè et al., 2017; Guo et al., 2015). Such inconsistencies may be explained by ignoring the actual content of related eWOM messages that may be both positive and negative (Hennig-Thurau et al., 2004), or by non-linear relations, where too much information may at some point lead to information overload and negative effects on related outcomes (Park & Lee, 2008).

3. Suggesting the trust-based crowdfunding marketing framework (TCMF)

Crowdfunding practice implies that fundraisers actively engage in online marketing of their projects to prospective backers (Belleflamme et al., 2015; Chen et al., 2016). Hence, crowdfunding can be considered as one manifestation of online marketing. As such, it shares the criticality of gaining prospective backers' trust due to the conditions of uncertainty, spatial separation, and information asymmetry typical of online markets (Ba, 2001; Gefen et al., 2003; Ibeh et al., 2005; Wang & Emurian, 2005).

However, uncertainties in crowdfunding are further exacerbated by the fact that most fundraisers are often less known players offering products and services before they are fully developed (Zvilichovsky et al., 2018), while presenting them on relatively young platforms, which themselves operate under ambiguous regulatory conditions in many jurisdictions (Shneor & Flåten, 2015; Shneor & Torjesen, 2020). Unsurprisingly, against this backdrop, a growing body of research provides empirical evidence for the importance of trust in enhancing crowdfunding contribution intentions in both investment and non-investment models (Chen et al., 2014; Kang et al., 2016; Liang et al., 2019; Zhang et al., 2020).

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In the current paper, we propose a trust-based crowdfunding marketing framework (TCMF). Here, since providing quality information and creating social media engagement are two of the most critical trust-enhancing elements of online marketing (Brynjolfsson & Smith, 2000), and since both have proven fundamental for crowdfunding practice success across crowdfunding models (Valtteri Kaartemo, 2017; Rotem Shneor & Amy A. Vik, 2020), we suggest a 2x2 framework outlining four marketing strategies reflecting different configurations of intensity along these activities.

The suggested four strategies include the following: a '*Minimalist*' marketing strategy is that in which fundraisers invest little in creating quality campaign materials and in social media engagements; a '*Technician*' marketing strategy is that in which fundraisers develop high quality campaign materials investing in the detail and breadth of such information, while investing less in encouraging social media engagements; an '*Influencer*' marketing strategy is that in which fundraisers invest less efforts in development of quality campaign materials, but are highly active in developing and supporting high intensity social media engagements; and an '*Innovator*' marketing strategy is that in which fundraisers invest much effort both in developing high quality campaign materials and in developing high intensity social media engagements. Figure 1 presents these classifications graphically.

We further suggest that each of these strategies will be more effective in winning a prospective backer's trust when employed for addressing different prevailing trust conditions at the time of campaign launch. Building on the discussion above, we define trust conditions as those reflecting the prospective backer's degrees of calculus and relational trust towards the fundraiser at the time of their campaign launch. Accordingly, four pre-launch trust conditions are suggested.

'*Trust Surplus*' is the condition in which a fundraiser enjoys high levels of both calculus and relational trust. Such condition may be typical of a well-established, famous, or experienced fundraiser proposing a familiar project with a clear value proposition (for example - a popular musician raising funds for a new album release, a well-established non-profit fundraising for a new charity project, etc.).

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'*Informational Trust Deficit*' is the condition in which a fundraiser suffers from low levels of calculus trust but enjoys high levels of relational trust. Such condition may be typical of two different fundraisers. First, a well-established and well-connected fundraiser proposing

Figure 1. Trust-based crowdfunding marketing framework (TCMF)- Strategies

an innovative and riskier concept where ability to deliver on promises and create value is relatively uncertain (e.g., a successful entrepreneur's fundraising for a new highly ambitious technological project). Second, a fundraiser for a small-scale project collecting funds from a small group of well-familiar prospective backers (e.g., a local sports club fundraising for a local sports event, etc.).

'*Relational Trust Deficit*' reflects a condition in which a fundraiser enjoys high levels of calculus trust but suffers from relatively low levels of relational trust. Such conditions may be typical of fundraisers that are highly competent in their line of work but may be less extroverted or uncomfortable with required interpersonal dynamics in marketing and sales (for example- high-tech entrepreneurs more focused on technical perfection than customer satisfaction, cultural entrepreneurs more focused on artistic expression and quality than popular approval, etc.).

Finally, a '*Trust Deficit*' refers to the condition where a fundraiser suffers from low levels of both calculus and relational trust. Such condition may be typical of inexperienced fundraisers proposing innovative and novel products or services, and therefore need to tackle both the liability of newness as well as the uncertainties underlying their project (e.g. the early days of any budding entrepreneur, artist, social activist, etc.).

3.1 Propositions and conceptual integration

At the heart of the TCMF is the assumption that since crowdfunding campaign success depends on establishing backer trust, and since each fundraiser operates from a different trust condition at the time of campaign launch, each are expected to employ different strategies for overcoming trust gaps, as well as leveraging trust surpluses, in their campaign marketing efforts.

Here, since a *Minimalist* strategy assumes that success can be achieved without heavy investments in either content quality or social media engagements, it presupposes that the fundraiser already enjoys high levels of overall trust, including both calculus and relational trust, among prospective backers. In such cases, fundraisers aim to invest as little resources as possible for triggering contributions from their prospective backers, while reaping the benefits or existing high levels of trust such backers already have towards the fundraiser. Accordingly, we propose the following:

P1: *A minimalist marketing strategy will lead to campaign success under conditions of overall trust surplus, but not under other trust conditions*.

A *Technician* strategy assumes that success can be achieved without heavy investments in social media engagement but does require such investments in provision of quality content. Quality content is likely to have a greater contribution in enhancing calculus trust by answering prospective backers' concerns with detailed information presented in an attractive way. Such approach answers trust needs under market conditions of a calculus trust deficit, where fundraisers may enjoy existing high levels of relational trust but are required to invest in improving their calculus trust standing. Hence, we propose the following:

P2: *A technician marketing strategy will lead to campaign success under conditions of informational-trust deficit, but not under other trust conditions.*

An *Influencer* strategy assumes that success can be achieved without heavy investments in quality content but does require such investments in social media engagements, either leveraging existing levels of fame and followership of a fundraiser, or for other scale considerations. Social media engagements are likely to have a greater contribution in enhancing relational trust by answering prospective backers' concerns through the achievement of social proof, receiving third party endorsements, and tapping into an opportunity to further deepen an existing loose relations. Such approach answers trust needs under market conditions of a relational trust deficit, where fundraisers may enjoy high levels of existing calculus trust but need to improve their relational trust standing. Hence, we propose the following:

P3: *An influencer marketing strategy will lead to campaign success under conditions of relational-trust deficit, but not under other trust conditions.*

Finally, an *Innovator* strategy assumes that success can be achieved by heavily investing in both the provision of quality content and social media engagements. As presented earlier, while quality content is expected to enhance calculus trust, social media engagements are likely to enhance relational trust. Such approach answers trust needs under market conditions of overall trust deficit, where fundraisers need to improve both their initial calculus and relational trust standing. Hence, we propose the following:

P4: *An innovator marketing strategy will lead to greater campaign success under conditions of overall trust-deficit, than under other trust conditions.*

Figure 2 graphically summarizes which marketing strategies are expected to be most effective in promoting crowdfunding campaigns success under each pre-launch trust conditions faced by the fundraisers.

Figure 2. Trust-based crowdfunding marketing framework (TCMF)- trust conditions

4. Discussion

Building on both e-marketing and crowdfunding research that highlight the role of trust, its expressions and impact, an integrative framework of trust-based crowdfunding marketing strategies (TCMF) has been outlined. This framework links pre-launch trust conditions and campaign marketing strategies that are expected to best mitigate trust deficits while leveraging trust surpluses in support of more successful campaign outcomes. To assess the potential contributions of the TCMF, it is important to compare it to other relevant frameworks that may aid in answering similar questions about effective marketing communication.

In this respect, earlier research into marketing strategy in the context of crowdfunding has mostly drawn on the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986; Petty et al., 1983). The ELM proposes that persuasion in communication can be achieved through

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cues processed in a central and/or a peripheral route. The former refers to extensive consideration of the message arguments that leads to attitude formation, change, or endurance that is more persistent and predictive. The latter refers to little investment of cognitive efforts, and being relatively unaffected by argument quality, while relying on peripheral cues such as source credibility and heuristics. While this model is often hailed for its parsimony, flexibility in supporting a wide range of claims, as well as influence in terms of academic citation volumes, it also suffers from shortcomings in terms of practical applicability, predictive ability, and ambiguous relevance to new media environments that challenge the mass-media context from which it historically emerged (Kitchen et al., 2014).

Overall, employment of the ELM in crowdfunding research has shown its relevance to explaining backer contribution intentionality (Liang et al., 2019; Wang & Yang, 2019), as well as in predicting successful outcomes of campaigns (Greiner & Wang, 2010; Li et al., 2016; Zheng et al., 2016). Here, common practice involved defining certain campaign elements as either cues processed through the central or peripheral routes to persuasion, while finding that both have expected impacts in a variety of crowdfunding models.

A more concrete marketing strategy approach was presented by Kraus and colleagues (2016) in a study of reward-crowdfunding campaigns (RCC). Their results about campaign communication dynamics has led them to suggest a typology of three approaches labelled as– the communicator, the networker, and the self-runner. The Communicator is a fundraiser that is rewarded for his/her strong effort in attracting public attention while overseeing a relatively weak project in terms the attractiveness and perceived value of the product/service and the rewards on offer. The Networker is gradually building his/her support base offering attractive rewards first to close network of contacts, and gradually expanding to a greater network of support through attentive interaction with the community and resulting modifications to campaign elements. The Self-runner is a fundraiser promoting outstanding products/services with a value proposition that easily resonates with prospective backers, leading to rapid and enthusiastic social media reactions, viral spread of campaign information, which may also attract media attention and coverage.

In the remaining of the discussion, we compare these approaches to the TCMF while considering the behavioral trigger underlying each, the paths to influencing it, the factors

impacting such paths, as well as their marketing strategy implications. Table 1 summarizes this comparison. To avoid repetitive referencing, all claims about the ELM are based on the original papers by Petty and Cacioppo (1986; 1983), as well as the review on ELM research by Kitchen and colleagues (2014). Claims about the RCC are based on Kraus and colleagues (2016). And the claims about the TCMF are based on arguments made in the current paper.

First, the three frameworks differ in what they identify as the primary trigger of prospective backer's reaction to communication. While the TCMF places trust at the centre, as a prime objective of the e-marketing realities, the ELM is primarily concerned with persuasion, as the prime objective of mass-media marketing realities from which it emerged. Here, both assume that these behavioral triggers can be influenced throughout the campaign period by the proper use of- and modifications to- marketing communication elements. The RCC is not primarily concerned with either trust or persuasion, but rather with their outcomes along the campaign period. In this respect, neither of the models contradict the others, but rather complement them. This is evident in the sense that trust can coexist with-, have impact on-, or result from- persuasion (as in – 'I'm persuaded and trust', 'I trust therefore I am persuaded', or 'I am persuaded to trust'). Furthermore, as these evolve throughout the campaign period, they exhibit certain results that may manifest themselves in campaign dynamics described by the RCC.

Second, while the RCC does not consider differing paths to triggering behavior and only refers to communication as a generic way to convey information, the TCMF and the ELM present two complimentary paths each. Here, the TCMF argues that overall trust can be achieved by developing both calculus and relational trust, and the ELM suggests that persuasion can follow both a central and peripheral route. Some conceptual proximities may be identified in the sense that both calculus trust and the central route of persuasion assume a careful consideration of information presented, while assessing the quality of arguments, and their cost-benefit implications. Furthermore, both relational trust and the peripheral route of persuasion assume less cognitive effort, the reliance on pre-existing decision heuristics and the credibility of the information source that may be linked to more affective and emotive responses. Nevertheless, conceptual proximity should not be confused with conceptual equality, as in the cases where relational trust can be a factor in

Table 1. Summary of comparison between the TCMF, ELM and the RCC

	TCMF	ELM	RCC
Behavioral trigger	Trust	Persuasion	N/A (implied persuasion)
Paths to achieve behavioral trigger	Calculus trust Relational trust	Central route Peripheral route	Communication
Influencing factors	Message originator's: -Ability -Integrity -Benevolence	Message receiver's: -Ability -Motivation	Message originator's: -Sales effort required -Project value added
Applications in marketing	Quality content provision Social media engagement	Unspecified	Detailed description of the project Personal info about the project owner Networking Call for action
Marketing strategies	Minimalist Technician Influencer Innovator	Unspecified	Networker Communicator Self-runner
Scope of applicability	All models of fundraising including all models of crowdfunding	All models of communication	Reward-based crowdfunding

a central route to persuasion, among other cases.

Third, each framework considers several factors as having important impact on the path to triggering behavior. The ELM considers the communication receiver's ability and motivation to process the information as critical aspects defining the persuasion route to be used. The TCMF considers the communication receiver's perceptions about the

communication source's ability, integrity, and benevolence as critical aspects defining the degree of trust attributed to such source. The RCC considers the communication source's investment in sales efforts and the extent to which a communication receiver perceives their offering as valuable to be critical in defining the campaign development dynamics. Hence, unlike the ELM, the TCMF does not distinguish between differing levels of backers' ability and motivation to process information but assumes that they will be able and motivated to process information from a trusted source. In this respect, the ELM does not distinguish between trust levels as influencing persuasion processes either. The RCC and the TCMF are similar in that both suggest that a communication source needs to exhibit their abilities. However, they differ in the sense that the TCMF also requires fundraisers to exhibit integrity and benevolence towards backers, which are not considered in the RCC. Moreover, the TCMF does not consider perceived value-added benefits of fundraiser's offerings, which are acknowledged in the RCC.

Fourth, in terms of marketing applications, while the ELM does not directly address such concerns, both the TCMF and RCC do outline them. The TCMF highlights quality information provision and social media engagement as two critical elements in e-marketing communications, while the RCC suggests four content elements that include detailed description of the project, personal information about the project owner, networking, and call for action. While the essence of the identified elements is similar in both the TCMF and the RCC, the TCMF's elements are more broadly defined, as quality information may include detailed description and personal information about the fundraiser (as suggested by the RCC) but is not limited to these. And, similarly, social media engagements may include networking and call for action (as suggested by the RCC) but are not limited to these either.

Fifth, and as a direct result of the above, different configurations of e-marketing elements identified in both the TCMF and RCC jointly represent aggregate types of marketing strategies. However, while the TCMF strategies are devised as strategic solutions to pre-launch trust conditions, the RCC strategies reflect post-hoc descriptions of campaign dynamics based on public reaction. Moreover, while the RCC factors in product and reward attractiveness, these aspects are not considered in the TCMF, under an implied assumption that any product/service can be successfully promoted when employing a relevant

marketing strategy towards a relevant market segment. Such approach corresponds with a view that product attractiveness is subjectively evaluated, and that its perceived attractiveness can be influenced by proper segmentation and marketing communication configurations.

Accordingly, the two typologies do not fully correspond with each other. For example, while the RCC communicator seems similar to the TCMF influencer in the sense that both excel at social media engagements, the RCC associates communicators with low attractiveness of products, while the TCMF only considers quality of information about products, but not the quality of products themselves. Similarly, while the RCC self-runner may seem similar to the TCMF minimalist fundraiser, it assumes that the product is the main driver of campaign success, which is not the case in the TCMF, where a minimalist's campaign success is attributed to pre-existing calculus and relational trust regardless of product attractiveness.

Finally, each of the frameworks has a different scope of relevance. On the one end, the ELM may exhibit the widest relevance across all models of communication, including marketing and crowdfunding, but its generic nature undermines specificities required for practical applicability. On the other hand, the RCC exhibits a relatively narrower scope of relevance to reward crowdfunding, which may be extended to other crowdfunding models in follow up research. Accordingly, the TCMF represents a middle ground of relevance for a wide range of fundraising models including all models of crowdfunding, which may be extended to other e-marketing contexts in follow up research.

In summary, all frameworks provide valuable insights onto paths of triggering prospective backer behavior. Based on the discussion, we conclude that the TCMF offers greater concreteness and contextualization when compared to the ELM, and greater theoretical anchoring, cross-model generalizability, as well as campaign strategy diversity when compared to the RCC. As such, it accommodates core principles from each and complements them by shifting focus from persuasion to trust, which may be both a precursor to- and a result of- persuasion, and by suggesting pre-emptive strategic action that may influence campaign dynamics throughout the campaign period. Furthermore, it

presents a mid-range framework that is more context specific than the ELM, while suggesting wider applicability across fundraising models than the RCC.

4.1 From theory to practice: Big data in service of TCMF

For the TCMF to be of practical use, one needs to identify concrete methods for assessing its critical elements including trust, the quality of campaign and messaging content, as well as the effectiveness of its social media spread. A promising approach for assessing these elements is the application of big data analytics. Here, while the very definition of big data remains elusive, most researchers refer to it as data that are beyond the business's traditional technical, technological and managerial data processing capabilities (Provost & Fawcett, 2013). The unprecedented availability and richness of data made accessible through social media and the exponentially increasing computing power available to firms, have both led to advances in social media analytics using modelling, sentiment analysis, social network analysis, and text mining techniques (Ghani et al., 2019). These analytical approaches may represent critical dynamic capabilities (Shams & Solima, 2019), which when developed by crowdfunding platforms, may help enhance the effectiveness of campaigning efforts by their fundraisers, and the success of both campaigns and platforms overall.

The embeddedness of crowdfunding practice in online social networks, makes it a fitting context for harvesting critical insight from big data analytics in the service of campaign marketing in general, and trust-based marketing of campaigns in particular. Earlier studies have shown how the use of big data-driven technologies may be used for improving the collection and analysis of business intelligence (Fan et al., 2015), helping configure marketing strategy (Ducange et al., 2018), and enhance customer-centric approaches in marketing (Camilleri, 2020). These studies highlighted the usefulness of big data analytics for the purposes of analyzing perception and reputation with regards to brands, products, and the firms offering them; developing advertising, communications, and promotional activities; customer segmentation, profiling, and relationship management; competitor analysis and positioning; developing pricing strategies; supporting customer-focused product development efforts; and others.

Crowdfunding platforms that may wish to follow the suggested TCMF, should consider big data analytics to support such efforts. Here, building on Ghani et al.'s (2019) characteristics of big data analytics, one can argue that it can be used for descriptive and diagnostic purposes, when identifying pre-launch trust conditions or when measuring reactions to campaign messaging, as well as for prescriptive purposes in recommending effective ways to enhance content quality and/or social spread of campaign information.

First, when assessing pre-launch conditions, platforms may employ data analytics for assessing both the fundraiser and the product or firm they wish to raise funds for. In this context, earlier research has showed how sentiment analysis has been used to assess reputations and perceptions of products and firms (i.e. Mishra & Sharma, 2019; Vidya et al., 2015). However, in the case of crowdfunding, both fundraiser and brand may be less familiar to the prospective backer, and hence requiring a more nuanced approach. While assessing trust in the concept may draw on sentiment analysis with respect to similar or alternative products, rather than the specific concept being fundraised, assessing trust in the fundraiser may require a different approach.

For assessing trust in fundraiser, one may consider using the approach developed by Roy et al. (2017). Their work outlines the development and empirical testing of a social media analytics algorithm for systematically measuring individual actors' trust levels in a social network. These measures include scores for both 'trustingness' and 'trustworthiness'. Trustingness was defined as an actor's propensity to trust others in the network. Trustworthiness was defined as the extent to which and actor is viewed by others in the network as trustworthy. The two concepts are mutually interdependent, as the trustingness of an actor is dependent on the trustworthiness of its neighbors and vice versa. Accordingly, when calculating the trust scores of social network users, the authors factor both the quantity of incoming links and the quality of the sources of incoming links. Further adding strengthening their measures, they also factor the risks and losses that are associated with wrong decisions made during network engagement, which may vary in different networks (labelled as 'network trusting-decision involvement').

Second, once insights into prevailing trust in both fundraiser and concept can be evaluated and assessed, the applicability of different marketing strategies may follow. Analytics

examining pass-on behavior of messages in social networks can help identify triggers of social spread (Ketelaar et al., 2016) and, hence, support campaign messaging, formulation, and calls for action. Furthermore, Chi et al. (2015) highlight a series of content analyses reports which can generate word clouds (reflecting frequency and salience of terms used in related communications), topic analysis (distribution of conversations on specific topics according to set parameters), topic trend (temporal tendency with respect to themes of interest), influence viewer (identification of influential channels and users), river of news and share of conversation (list of discussions and share of certain themes out of total discussions). These together with analyst reviews can provide valuable insights into the quality of different campaign content elements, as well as generate recommendations for improvements based on existing content performance.

In this context, it is worth highlighting that while big data analytics may serve as a valuable source for relevant assessments and their resulting marketing strategies, it should be employed ethically while avoiding infringement on privacy and misuse of information harvested (Nair, 2020). Specifically, in the case of the TCMF, sensitive information about relationships and trustworthiness of individuals is assessed and needs to be developed with necessary sensitivities. And similarly, resulting recommendations for enhancement of social spread and content updates need to follow ethical guidelines, so as to avoid harm to individuals or groups that may be affected by them. Some examples of relevant pitfalls and remedies are presented in Shneor & Torjesen (2020), and may include situations where content recommendations may represent misinformation, or that social spread enhancers may verge on bullying and abuse.

In conclusion, while the above does not represent a comprehensive overview of all available techniques and approaches, it does present a compelling argument for the possibilities of using big data analytics as a practical approach, when following the TCMF. This is achieved by highlighting concrete analytic techniques and approaches that, when used ethically, can aid crowdfunding platforms in both assessing pre-launch trust conditions for each campaign, as well as a dynamic feedback channel for constant improvement of campaign content quality, and effectiveness of social media spread of campaign messaging.

5. Conclusion

The current paper has aimed at answering what fundraisers can do to enhance the trust of prospective backers and how they may achieve this under different pre-launch trust conditions. Building on earlier research from both e-marketing and crowdfunding, we engage in conceptual integration that culminates in a suggested trust-based crowdfunding marketing framework (TCMF). This framework accommodates both the needs of winning backers' trust to see campaigns succeed (Chen et al., 2014; Kang et al., 2016; Zhao & Vinig, 2019), as well as the fact that fundraisers enter the crowdfunding process with different pre-launch trust conditions. Accordingly, we suggest a list of propositions outlining which strategy is more likely to succeed under different initial trust conditions. The guiding logic of these propositions is the extent to which a strategy addresses relevant trust gaps as well as leverages relevant trust surpluses at the time of campaign launch. Translating these theoretical notions into practice, we conclude by suggesting big data analytics as an approach that can help both assessing pre-launch trust conditions, as well as the quality of campaign content, and the effectiveness of its messaging via social media.

In this respect, our study contributes to earlier literature in developing a framework that is anchored specifically in the realities of crowdfunding practice, while being able to inform prospective fundraisers about the marketing efforts they should invest in when aiming to enhance prospective backers' trust. As such, it goes beyond common practice in earlier research that has focused on identifying associations between specific campaign elements and success (Valtteri Kaartemo, 2017; Rotem Shneor & Amy A. Vik, 2020), and proposes an integrated approach accommodating these insights into a more widely applicable framework anchored in trust theory. Furthermore, unlike earlier research, the current work does not ignore the fact that fundraisers enter the crowdfunding process under different pre-launch trust conditions, and hence requiring different marketing strategies for enhancing backer trust. Moreover, by comparing the TCMF to other relevant frameworks, we exhibit its relative value added arguing that it offers greater concreteness and contextualization when compared to the ELM, and greater theoretical anchoring, cross-model generalizability, as well as campaign strategy diversity when compared to the RCC. Finally, we do not keep our suggestions at the theoretical level, and also review a practical approach for following the TCMF by employing big data analytics at various stages.

5.1 Implications for future research

While the current study presents interesting contributions, it also has some limitations that need to be acknowledged. Such limitations can also translate into fruitful directions for future research. First, as our work is conceptual in nature, and despite it being built on an integration of empirical evidence from earlier studies, the suggested framework should also be subjected to empirical testing. In this respect, future researchers are encouraged to test the theory in different crowdfunding models, as well as national contexts, which may vary by social trust levels (Delhey & Newton, 2005), as well as industry maturity levels (Ziegler et al., 2020).

Second, from a theoretical point of view, our work is based on the hypothesis that trust is enhanced through marketing activities. However, others may wish to investigate the boundaries of such positive effects. For example, it is unclear at what point does quality information become 'too corporate' or 'too professional' raising doubts among prospective backers about the actual financial needs of a fundraiser; at what point does quality information become information overload; or at what point does social media engagement become 'unpleasant' or even a 'harassment' for prospective backers. Accordingly, research into what constitute too much, or too little, marketing effort can further enhance our understanding and improve the quality of our advice for practitioners.

Third, researchers may also seek to validate the value of big data analytics in informing the practical use of the TCMF. Such research may either confirm the TCMF through analyses of trust, content quality, and social spread using big data analytical techniques; or examine which big data analytical techniques are best at predicting pre-launch trust, as well as the effectiveness of the suggested marketing approached that emerged from such assessments.

5.2 Implications for practice

The main implication for practice is that the TCMF encourages future crowdfunding fundraisers to engage in an assessment of the trust conditions prevailing between them and their prospective backers as part of their campaign planning before its launch. Based on such insights, fundraisers can better allocate resources between investments in developing quality content and/or social media engagement in their campaign design and marketing program. Such approach is expected to help fundraisers both overcome trust deficits, as

well as leverage trust surpluses when promoting the campaigns to backers in a more effective and cost-efficient way.

Furthermore, such understanding can also inform advice provided by platforms in their training or customer support services to prospective fundraisers. While the depth and breadth of customer support varies widely between platforms, the suggested framework serves as a support tool that can be communicated to fundraisers or even incorporated into campaign design tools on the platforms' interfaces. In the latter case, fundraisers may be probed about their assessment of various facets of pre-launch trust conditions that can automatically generate recommendations drawing attention to relevant elements in the campaign design.

Alternatively, committed platforms may seek to develop in-house data analytics capacities that may assess pre-launch trust conditions, and hence inform marketing strategy recommendations for their would-be fundraising customers, as well as provide them with real-time insights into the quality of their campaign's content and the effectiveness of their messaging via social media. Such services can come at a premium, and may also represent additional revenue streams for otherwise, cash-strapped platforms operating on small success-based commissions. Regardless of the commercial value developed through such applications of big data analytics, platforms should ensure ethical practice when collecting, analyzing, and interpreting insights into recommendations, while avoiding infringement on individual privacy or misuse of information (Nair, 2020).

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STUDY 2: Explaining Reward Crowdfunding Backers' Intentions and Behaviors

Prince Baah-Peprah

Abstract

Purpose – Earlier research into crowdfunding adoption has drawn on social psychology, trust, signaling, and well-being theories. Despite its wide appeal and use, the Technology Acceptance Model (TAM) has received little attention in terms of explaining the adoption of crowdfunding platforms. The current study examines the applicability of two versions of this framework: the original TAM1 and the extended TAM2 frameworks.

Design/methodology/approach – Data were collected through a survey distributed to the users of Finland's leading reward crowdfunding website, Mesenaatti, who have backed crowdfunding campaigns previously. We employed structural equation modelling (SEM–lavaan package) and conducted a series of quality tests to alleviate concerns with certain biases.

Findings – Analyses of 556 observations show support for all of the hypotheses that underlie both TAM frameworks, with two exceptions. Contrary to expectations, voluntariness does not moderate the effect of subjective norms on contribution intentions, and the effect of perceived ease-of-use is primarily mediated by perceived usefulness, rather than directly influencing intentions.

Originality/value – First, our study extends the generalizability of TAM to the context of crowdfunding, and with respect to financial contribution behavior. Second, it shows that backers' perceptions of platform usefulness and ease-of-use are important antecedents of crowdfunding contribution behavior, and that the former exerts greater influence than the latter. Third, it further clarifies the influences of relevant antecedents of crowdfunding backers' contribution intentions and behaviors. Specifically, we show that experience only weakly moderates the influence of subjective norms on contribution intentions, and voluntariness does not moderate this association. We discuss explanations for these findings and their implications for research and practice.

Keywords – Crowdfunding, technology acceptance model, intentions, behavior, usefulness, structural equation modelling

1. Introduction

Reward crowdfunding is a project fundraising mechanism in which backers provide financial support in return for non-monetary tangible and/or intangible rewards. In this respect, it resembles e-commerce, with two clear distinctions. First, reward crowdfunding often engages in pre-sales of unfinished products rather than finished ones and involves the risk of non-delivery or delivery of outcomes diverging from original promises stated in the fundraising campaign (Shneor and Torjesen, 2020). Nevertheless, the ability of reward crowdfunding to support market approval, awareness creation, promotional reach, idea testing, and communal concept development (Nucciarelli et al., 2017; Mollick and Kuppuswamy, 2014) makes it the "model that the general public is most familiar with when discussing crowdfunding activities" (Ziegler et al., 2020). Unsurprisingly, research into the phenomenon has grown, with increasing focus on what influences backers' contribution behavior (Short et al., 2017).

One group of researchers has built on social psychology by employing the *theory of planned behavior*, while highlighting the cognitive antecedents underlying backer intentionality and behavior (e.g., Shneor and Munim, 2019; Baber, 2022; Shneor et al., 2021). Also, considering the threat of moral hazard, hidden information problems, and the private cost of information related to crowdfunding (Strausz, 2017; Belleflamme et al., 2015; Deng et al., 2022; Miglo, 2022), a second group has mostly employed signaling theory, viewing it as a mechanism for limiting information asymmetry between backers and fundraisers in backers' decision making (e.g., Kleinert et al., 2020; Steigenberger and Wilhelm, 2018; Tajvarpour and Pujari, 2022) and enhancing effective persuasion (e.g., Bi et al., 2017; Anglin et al., 2018). A third group has argued that backers' engagement in crowdfunding depends on the extent to which such actions are congruent with the enhancement of their *well-being* (Sherman and Axelrad, 2020; Efrat et al., 2021). A fourth group has built on *trust-theory* as a mechanism for unlocking resources in the community by highlighting campaign features, user interactions, and community dynamics that enhance trusting relations (e.g., Kang et al., 2016; Chen et al., 2014; Alharbey and Van Hemmen, 2021; Liang et al., 2019; Baah-Peprah and Shneor, 2022).

As consumers' buying behaviors on e-commerce platforms are dependent on their acceptance of the platform technology (Pavlou, 2003), the current study examines; what drives the adoption of crowdfunding platforms? More specifically, we explore whether backers' contribution behavior, as evidence of acceptance, will depend on known antecedents as outlined by the TAM frameworks? Several studies have emphasized the importance of crowdfunding platforms (Odorović and Wenzlaff, 2020; Deng et al., 2022) as one of the three main actors in crowdfunding process, and the providers of the 'rules of the game' for backers and entrepreneurs (Maehle, 2020), as well as enacting codes of conduct (Odorović and Wenzlaff, 2020) and ensuring due diligence (Belleflamme et al., 2015).

Earlier research by Hoegen et al. (2018) confirmed that platform context – that is, the affordances, general features, and functionality of the platform (including which and how campaigns are visually presented to the potential investors) – affects the flow of backers' contribution processes. Furthermore, evidence from various lenses including sustainability and cultural and arts sectors confirms that the choice of crowdfunding platform as funding technology by a fund-seeker is more complex (Maehle, 2020; Rykkja et al., 2020) and should not be based on intuitions (Baah-Peprah and Shneor, 2022) as these platforms ultimately influence behaviors (Odorović and Wenzlaff, 2020), such as backers' contribution behaviors on the platform (Ordanini, Miceli, Pizzetti, & Parasuraman, 2011). Also, other theoretical papers intuiting relationships between certain variables and crowdfunding acceptance lack empirical support and most have not been tested directly (Miglo, 2022)

Despite this, the few studies that have looked at the acceptance of crowdfunding, notably reward crowdfunding, have received less attention and have only examined a few components of the technology acceptance model, while potentially underestimating relevant variables' influence (e.g., Djimesah et al., 2022). Therefore, it is valuable to find out whether backers' contribution intentions and behaviors in reward crowdfunding are dependent on their acceptance of crowdfunding platforms.

To fill this gap, we aimed to examine a more elaborate version of the Technology Acceptance Model (Venkatesh and Davis, 2000; Davis et al., 1989) (hereafter 'TAM') for

predicting reward crowdfunding contribution intentions and behavior. We conducted our analyses based on survey data collected from 556 registered users on Finland's leading reward crowdfunding platform: Messenatti.me. We employed structural equation modelling (SEM- lavaan package) and conducted a series of quality tests to alleviate concerns with various biases, followed by a report of our findings.

This study offers three main contributions. First, it solidifies our understanding and extends the generalizability of TAM in the context of crowdfunding, and with respect to financial contribution behavior more generally. Second, it shows that backers' perceptions of platform usefulness and ease-of-use are important antecedents of financial contribution behavior, and the former exerts greater influence than the latter. Third, it further clarifies the influences of relevant antecedents of crowdfunding backers' contribution intentions and behaviors. Specifically, it shows that subjective norms are only weakly associated with intentions, and that voluntariness does not moderate this association. We then discuss explanations for these findings, uniquely anchored in the Finnish context.

The remainder of the paper is structured as follows. First, we present current research in crowdfunding backer intentions and behavior, and then outline a series of hypotheses emerging from the application of the TAM to the reward crowdfunding context. We then present the methodological approach and the results of the analyses. These are discussed in light of earlier research, and explanations for both expected and surprising findings are suggested. We conclude by highlighting the contributions, limitations, and implications of the findings.

2. Literature Review

A growing body of literature has examined what drives contribution intentionality and behavior in crowdfunding. Some studies have highlighted the role of cognitive antecedents of favorable attitudes, perceived behavior control, self-efficacy, subjective norms, and social norms as underlying crowdfunding contribution intentionality and behavior (e.g., Shneor and Munim, 2019; Baber, 2022; Shneor et al., 2021). Other studies have focused on identifying the role of intrinsic and extrinsic motivations (e.g., Baber and

Fanea-Ivanovici, 2021; Allison et al., 2015; Bretschneider and Leimeister, 2017), with some focusing specifically on enhancement of well-being (Sherman and Axelrad, 2020; Efrat et al., 2021).

Furthermore, incorporating the threat of moral hazard, hidden information problems and private cost of information and how they influence potential backers' contribution decisions in crowdfunding (Strausz, 2017; Belleflamme et al., 2015; Deng et al., 2022), other studies have stressed the importance of mitigating risk by identifying signals that are effective at narrowing the information asymmetry between backers and fundraisers in backers' decision-making processes (e.g., Kleinert et al., 2020; Steigenberger and Wilhelm, 2018; Kunz et al., 2017; Tajvarpour and Pujari, 2022), and the use of effective signals in persuasion (e.g., Anglin et al., 2018; Bi et al., 2017). Others have traced the role of trust in unlocking resources within crowdfunding communities of backers, by examining related campaign features, user interactions, and dynamics that are congruent with the enhancement of trusting relations (e.g., Kang et al., 2016; Chen et al., 2014; Alharbey and Van Hemmen, 2021; Liang et al., 2019; Baah-Peprah and Shneor, 2022).

However, even when a campaign is diligently designed and the fundraiser is trusted by potential backers, the choice of crowdfunding platform becomes a relevant factor in influencing backer's contribution intentionality and behavior. That is, a platform can have both positive and negative influences on a backer's contribution intentions (Lacan and Desmet, 2017). Earlier literature reviews have identified several platform characteristics as critical for campaign success (Kaartemo, 2017; Shneor and Vik, 2020). These include aspects such as platform design, governing policies, and other hidden platform affordances that influence campaign success (Ordanini et al., 2011; Burtch et al., 2013). Relevant designs and affordances have been studied in various contexts within the IT domain (Davis et al., 1989), while drawing on concepts from psychology and human behavior (Koufaris, 2002). Such approaches use current online dynamics to explain and shape website usage and customer behaviors (Pavlou, 2003). In this context, the acceptance of crowdfunding platforms as a technology for facilitating fundraising of new ventures, as driven by a platform's perceived-ease-of-use and usefulness, is expected to impact backers' contribution intentions and behaviors. Therefore, we present a series

of hypotheses suggesting how TAM explains backers' financial contribution intentions and behaviors in crowdfunding.

2.1. *Technology Acceptance Model*

The TAM models have been thoroughly studied and verified in a large variety of information systems contexts, as documented in several comprehensive literature reviews and meta-analyses (Marangunić and Granić, 2015; Yousafzai et al., 2007b; Yousafzai et al., 2007a). However, their application for understanding backer intentions and behavior in crowdfunding has been limited. Some exceptions involve the use of the original and limited TAM model (Djimesah et al., 2022). At the most fundamental level, the original TAM model (hereafter 'TAM 1') postulates that there are two critical factors that positively affect an individual's acceptance of an information service system: their perceptions about the ease-of-use and usefulness of the system (Davis et al., 1989). Furthermore, TAM also suggests that perceived-ease-of-use positively affects the perceived-usefulness of the information system. Accordingly, it has been suggested that beliefs about ease-of-use and usefulness have a direct effect on the intention to use the crowdfunding platform. Finally, TAM assumes that the effect of perceived ease-of-use on intentions to use a crowdfunding platform is mediated by the perceived usefulness of the system. Accordingly, we hypothesized that:

H1: A backers' perceived ease-of-use of a crowdfunding platform positively influences their (a) perceived usefulness of a platform, and (b) intention to make a financial contribution to a campaign.

H2: A backer's perceived usefulness of a crowdfunding platform (a) positively influences their intention to make a financial contribution to a campaign, and (b) mediates the relationship between the backer's perceived ease-of-use of the platform and a backer's financial contribution intention.

Furthermore, a plethora of conceptual and empirical TAM-related studies confirmed the significant relationship between individuals' intention and their actual behaviors (Davis et al., 1989; Venkatesh and Davis, 2000; Pavlou, 2003). Such confirmation of the association between intentions and behaviors was also achieved in studies using alternative frameworks, such as the theory of planned behavior in varying context and settings (Ajzen, 2011), as well as specifically in the context of reward crowdfunding (e.g., Shneor and Munim, 2019; Shneor et al., 2021). Accordingly, we hypothesize that:

H3: A backer's financial contribution intention positively influences their financial contribution behavior.

Further expanding the basic TAM model by incorporating its antecedents, Venkatesh and Davis (2000) accounted for both social influence processes (subjective norms, experience, voluntariness, and image) and cognitive instrumental processes (task relevance, output quality, result demonstrability) in their extended understanding of the drivers behind perceived usefulness and perceived ease-of-use, and how they affect usage intention and behavior. This extended model is hereafter referred to as 'TAM 2'.

2.1.1. Cognitive Instrumental Processes

TAM 2 posits that when an individual can readily discern the positive results of using a system, the system is considered to be enhancing the ability to demonstrate the results of its use (Moore and Benbasat, 1991), and hence enhancing the system's perceived usefulness. In the context of crowdfunding, platforms that make campaign results easy to monitor, understand, and share with others are likely to be considered as more useful by prospective backers for their decision making and social information sharing efforts. Previous research has shown that the behavior of crowdfunding backers was affected by the status of campaign goal achievement at the time of consideration (Colombo et al., 2015), which can sometimes escalate into herding behavior (Clauss et al., 2018; Belleflamme et al., 2015), as well as reverse herding behavior (Zaggl and Block, 2019). Accordingly, we hypothesize that:

H4: Result demonstrability of a crowdfunding platform positively influences a backer's perceived usefulness of the platform.

Moreover, the perceived degree of applicability of the system to an individual's task-related goals impacts their perceptions about the usefulness of the system (Venkatesh and Davis, 2000). Beach and Mitchell (1978) posited that systems that are judged not to be task-relevant are eliminated from one's pool of options, and systems that are compatible with the task are selected. While earlier research has not examined the influences of task relevance directly in a crowdfunding context, it has been viewed through the lenses of backers' wellbeing, where thoughts on the positive functioning, meaningful activities, and achievable goals attained by backers through crowdfunding are considered to be relevant elements that influence backers' contribution decisions (Efrat et al., 2021). Accordingly, we hypothesize that:

H5: Task relevance of a crowdfunding platform positively influences a backer's perceived usefulness of the platform.

In addition to how task-relevant a system is, its output quality – that is, incorporating an individual's perception of how well the system performs a task – also affects the perceived usefulness of the system (Venkatesh and Davis, 2000). In the crowdfunding context, a platform must be regarded as providing quality services for prospective backers. If the services that a crowdfunding platform provides are viewed as insufficient or of lower quality in terms of ensuring transaction integrity, privacy protections, quality checks of onboarded campaigns, and timely information provisioning, backers may opt for alternative payment channels such as direct transfers or other digital payment solutions. Again, while earlier research has not directly examined the influences of output quality directly, some studies have highlighted the related aspects of platform trustworthiness (Ferreira et al., 2022), which may result from high degrees of output quality, finding trustworthiness to be positively associated with backer intentions (Alharbey and Van Hemmen, 2021) and behaviors (Zhang et al., 2020). Accordingly, we hypothesize that:

H6: Output quality of a crowdfunding platform positively influences a backer's perceived usefulness of the platform.

2.1.2. Social Influence Processes

Social interactions, including pressures, generally affect engagement in online transactions (Algesheimer et al., 2005). In crowdfunding, encouraging one's close social circle to engage in crowdfunding contribution has been found to be positively associated with their own contribution behaviors in a variety of social contexts (Bretschneider and Leimeister, 2017; Renwick and Mossialos, 2017; Shneor and Munim, 2019; Shneor et al., 2021). Furthermore, since crowdfunding engagement protrudes congruency with social preferences (Shneor and Munim, 2019), the more favorable subjective norms towards crowdfunding are, the more useful crowdfunding platforms are perceived to be for backers, who wish to behave in ways that are congruent with their social environments' preferences.

While earlier TAM research in a crowdfunding context has not examined the direct and indirect influences of subjective norms on perceived platform usefulness and backer's contribution intention, respectively (Djimesah et al., 2022; Bakri et al., 2021; Kazaure et al., 2020), a core proposition of Venkatesh and Davis' (2000) extended TAM model is that subjective norms influences perceived usefulness directly and can influence intention indirectly through perceived usefulness. Through a process of internalization, a system is perceived as useful when a person believes in a referent (a significant other in their social context), incorporates the referent's belief into his or her own belief structure, and, in turn, forms an intention to use the system (Venkatesh and Davis, 2000; Venkatesh and Bala, 2008). Accordingly, we hypothesize that:

H7: Favorable subjective norms positively influence a backer's (a) financial contribution intention, and (b) perceived usefulness of a crowdfunding platform.

H8: A backer's perceived usefulness of a crowdfunding platform mediates the relationship between favorable subjective norms and a backer's contribution intention.

Additionally, image/recognition – "the degree to which the use of an innovation is perceived to enhance one's … status in a social system" (Moore and Benbasat, 1991) – is affected by subjective norms and such an image affects the perceived usefulness of the innovation (Venkatesh and Davis, 2000; Venkatesh and Bala, 2008). Image is postulated to be the other social influence factor, in addition to subjective norm, that influences the

perceived usefulness of a system (Venkatesh and Bala, 2008; Davis et al., 1989; Venkatesh and Davis, 2000). Furthermore, in new systems adoption, personality recognition dimensions influences system usefulness (Saeed and Abdinnour-Helm, 2008; Godoe and Johansen, 2012). In a crowdfunding context, previous studies have not focused on how the image of backers influences their perception of crowdfunding platform usefulness, although earlier research has shown that expectation of recognition from others was one of the motivations for backers participating in crowdfunding projects (Bretschneider and Leimeister, 2017) and 'being seen to care' was a motivator for backer engagement in prosocial crowdlending (Cox et al., 2018). Accordingly, we hypothesize that:

H9: Subjective norms positively influence backer's image.

H10: Backer's image (a) positively influences their perceived usefulness of crowdfunding a platform; and (b) mediates the relationship between subjective norms and backer's perceived usefulness of a crowdfunding platform.

2.1.3. *Moderating Roles of User Experience and Voluntariness*

Normative pressure attenuates over time (Ram and Jung, 1991) with experience gained by users over a duration of time in which systems are implemented. Concrete sensory information (Doll and Ajzen, 1992), supplants reliance on social pressure, and cognitive evaluations are enhanced (Fazio and Zanna, 1981). Therefore, the significant effect of subjective norms on new system adoption becomes non-significant over time (Hartwick and Barki, 1994). Research documents herding in crowdfunding (Anglin et al., 2018; Mollick and Nanda, 2016; Vismara, 2016), which may be symptomatic of social influence in early adoption stages. This suggests that the contribution intentions of novel crowdfunding backers may rely more on the opinions and encouragement from others than their own judgement. However, while an introduction to crowdfunding may follow encouragement from peers, long-term and repeated engagement is influenced less by social cues and more by other aspects such as own interest in the project, and prior experiences with crowdfunding. Accordingly, we hypothesize:

H11: A backer's crowdfunding experience will negatively moderate the positive influence of subjective norms on (a) their financial contribution intention and (b) the perceived usefulness of a crowdfunding platform.

Finally, Venkatesh and Davis (2000), Hartwick and Barki (1994), and (Venkatesh and Bala, 2008) found that subjective norms had a significant effect on intentions in mandatory settings, but not in voluntary settings. In a voluntary context, and defining voluntariness as "the extent to which potential adopters of a system perceive the adoption decision to be non-mandatory" (Venkatesh and Davis, 2000), the association between subjective norms and potential adopters' intention attenuates (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000). While contributions to reward crowdfunding campaigns do not constitute mandatory settings, they are subject to community norms of reciprocity, which may impose a form of informal sense of obligation. Here, an entrepreneur's social ties and reciprocity obligations to fund other entrepreneurs had significant effects on crowdfunding performance in China and the US, as shown in Zheng et al. (2014). Similarly, in Europe, André et al. (2017) analyzed more than 3000 reward-based crowdfunding campaigns, finding that their success relied on reciprocal giving where a prior fund-receiver feels obligated to support others who contributed to their project in the past. Accordingly, we hypothesize that:

H12: Voluntariness will negatively moderate the positive influence of subjective norms on a backer's financial contribution intention.

In conclusion, all hypotheses are conceptually depicted in our research model in Figure 1.

3. Methods

3.1. Study Context and Data Collection

Data were collected from users registered on Mesenaatti.me in Finland. The Finnish crowdfunding market is an interesting context for our study due to the country's ranking in terms of crowdfunding volumes for past years (ranked eighth and seventh in alternative finance volumes per capita globally with USD 68.7 million and 70.42 million in 2018 and 2020, respectively) and its crowdfunding regulatory friendliness (one of the few European

pioneers to introduce crowdfunding specific regulations, with the Crowdfunding Act passed in parliament in 2016) (Ziegler et al., 2020). At a regional level, Finland is the leader of crowdfunding volumes in the Scandinavian crowdfunding market, accounting for 46 percent of Nordic crowdfunding volume growth in 2020 (Ziegler et al., 2020).
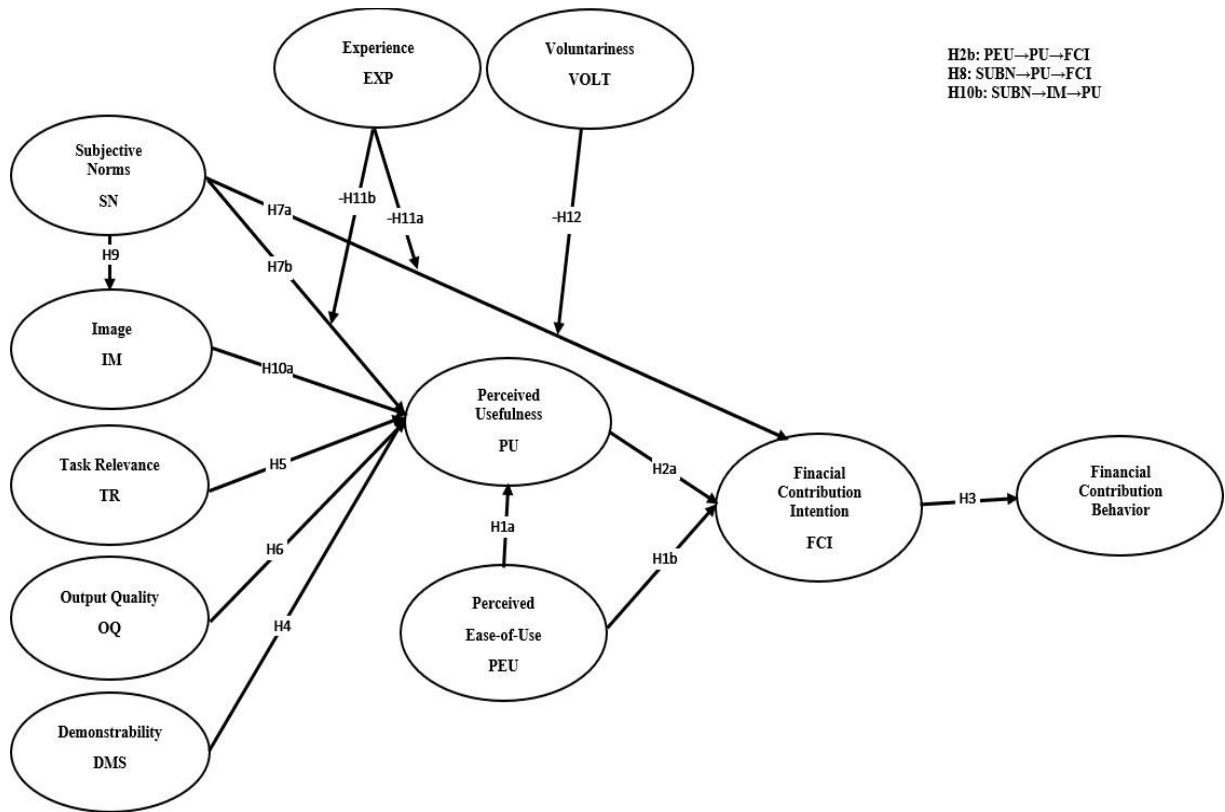
Figure 1: Research Model (summary of hypotheses)

We chose Mesenaatti.me due to its reputation as Finland's largest reward crowdfunding platform catering to a wide variety of sectors, and particularly in culture and arts production, consumer goods, food and beverages, simpler software and app development, as well as retail. Established in 2013, the platform had, at the time of data collection in 2016, over 25,000 users and had overseen fundraising of over EUR 3 million with minimum amount requested per campaign ranging between EUR 1,000 and 50,000. The platform primarily targets Finnish audiences. Nevertheless, the platform's interface is in both Finnish and English and some campaigns were also available in English when fundraisers were interested in international support or when initiated by immigrants. Our

survey included a list of questions available in English and Finnish. The first translation was made by a professional agency, the final version was the one revised by the platform managers to ensure fit with context specific jargon and terminology. Items were rated on a seven-point Likert-type scale ranging from 1 ("completely disagree with the statement") to 7 ("completely agree with the statement"). To boost participation, respondents were offered lottery gift cards as an incentive for providing their responses.

Notably, as crowdfunding backers are often not able to judge the quality of platforms' services before their usage of the platform (Odorović and Wenzlaff, 2020), our data were collected mostly from backers who have contributed to crowdfunding campaigns before, where contribution was measured based on backer's total amount contributed over all campaigns in the past year. Observations with missing data or those suspected of monotonous response bias were removed from the dataset. To ensure that our survey did not suffer from non-response bias, we split the sample between early and late responders and found no significant differences with respect to several background variables, including age, sex, time spent on online browsing, time spent on social media, and time spent on email.

Overall, in our cleaned sample of 556, 49.5 percent of respondents were female and 50.5 percent were male; 94.1 percent indicated having contributed to a campaign in the past year, while 5.9 percent did not make such contributions; and 24.8 percent reported contributing 0–30 euros, 27 percent reported contributing 31–60 euros, 25 percent reported contributing 61–150 euros, and 23 percent reported contributing 151 euros or more.

3.2. *Measurement Model*

The SEM-lavaan package in R-programming for structural equation modelling was used for our model's estimations and analysis. SEM is the most suitable method, as suggested by (Rosseel, 2012, Henseler et al., 2015) for estimating and analyzing complex structural models that include many constructs, indicators, and model relationships. Because of the complexity of our research model in terms of its items, constructs, and relationships among them, the choice of SEM-lavaan for our hypothesis testing was appropriate.

Latent constructs	Measurement items		Factor loadings	Source
FCI (financial contribution intention)	FCI1	Given the chance, I intend to financially contribute to crowdfunding campaigns.	0.857***	FCI1-3 adapted from "intention to transact" in Pavlou (2003)
	FCI2	Given the chance, I predict that I would financially contribute to crowdfunding campaigns in the future.	0.873***	FCI4-FCI5 adapted from "intention to participate" in Algesheimer et al. (2005)
	FCI3	It is likely that I will financially contribute to crowdfunding campaigns in the near future.	0.844***	
	FCI4	I have the intention to financially contribute to crowdfunding campaigns.	0.902***	
	FCI5	I intend to actively contribute to crowdfunding campaigns financially.	Removed	
PU (perceived usefulness)	PU1	Overall, I find the crowdfunding website (I usually visit) useful.	Removed	PU1-4 adapted from "perceived usefulness" (related to web retailer websites) in Pavlou (2003)
	PU2	I think the crowdfunding website I usually visit to be valuable to me.	0.799***	
	PU3	The content on the crowdfunding website I usually visit is useful to me.	0.909***	PU5-7 adapted from "perceived usefulness" (related to online travel communities) in Casalo et al. (2010)
	PU4	The crowdfunding website I usually visit is functional.	Removed	
	PU5	Using the crowdfunding website (I usually visit) helps me to identify interesting projects I can support.	Removed	
	PU6	Using the crowdfunding website (I usually visit) helps me to support projects and causes more efficiently.	Removed	
	PU7	In general, the crowdfunding website (I usually visit) is useful for finding interesting projects that need support.	Removed	
PEU (perceived ease of use)	PEU1	The crowdfunding website (I usually visit) is simple to use, even when using it for the first time.	0.875***	PEU1-4 adapted from "perceived ease of use" (related to online travel communities) in Casalo et al. (2010)
	PEU2	In the crowdfunding website I usually visit everything is easy to find.	0.917***	PEU5 adapted from "perceived ease of use" (related to blogging tools) in Hsu & Lin (2008)
	PEU3	The structure and contents of the crowdfunding websites I usually visit are easy to understand.	Removed	
	PEU4	It is easy to navigate and move within the crowdfunding website I usually visit.	0.910***	
	PEU5	Learning to use the crowdfunding website (I usually visit) is easy.	Removed	
SUBN (subjective norm)	SUBN1	People who are important to me think that I should contribute to crowdfunding campaigns.	0.845***	SUBN1-2 adapted from "social norms" (towards blog usage) in Hsu & Lin (2008)
	SUBN2	People who influence my behavior encourage me to contribute to crowdfunding campaigns.	0.787***	
	SUBN3	My colleagues think that I should contribute to crowdfunding campaigns.	0.786***	SUB2-4 adapted from "interpersonal influence" (towards online shopping) in Hsu et al. (2006)

	SUBN4	My friends think that I should contribute to crowdfunding campaigns.	0.886***	
IM (image)	IM1	People in my social/work environment who use crowdfunding websites have more prestige than those who do not.	0.919***	UR1-3 adapted from "image" (related to IT system use) in Venkatesh & Bala (2008)
	IM2	People in my social/work environment who use crowdfunding websites have a high profile.	0.716***	
	IM3	Using crowdfunding websites is a status symbol in my social/work environment.	Removed	
TR (task relevance)	TR1	Using crowdfunding websites is compatible with the way I like to support projects and causes.	0.874***	TR1-3 adapted from "compatibility" (related to mobile commerce) in Wu & Wang (2005)
	TR2	Using crowdfunding websites fits with my lifestyle.	0.808***	
	TR3	Using crowdfunding websites fits well with the way I like to contribute to projects and causes.	0.866***	
OQ (output quality)	OQ1	The crowdfunding website I usually visit is known to be dependable.	0.854***	OQ1-3 adapted from "web-retailer reputation" (related to web retailers) in Pavlou (2003)
	OQ2	The crowdfunding website I usually visit has a poor reputation.	Removed	
	OQ3	The crowdfunding website I usually visit enjoys a positive and good profile.	0.895***	
DMS (demonstrability)	DMS1	I have no difficulty telling others about the results of using crowdfunding websites.	0.785***	DMS1-4 adapted from "result demonstrability" (related to IT system use) in Venkatesh & Bala (2008)
	DMS2	I believe I can communicate to others the consequences of using crowdfunding websites.	0.804***	
	DMS3	The results of using crowdfunding websites are apparent to me.	Removed	
	DMS4	I may have difficulty explaining why using crowdfunding websites may or may not be beneficial.	Removed	
EXP (experience)	EXP1	I frequently contribute financially to crowdfunding campaigns.	0.810***	EXP1-2 adapter from "eWoM Participation" in Yoo et al. (2013)
	EXP2	I spend much effort in financially contributing to crowdfunding campaigns.	0.613***	
VOLT (voluntariness)	VOLT1	My use of crowdfunding websites is voluntary.	0.871***	VOLT1-3 adapted from "voluntariness" (related to IT system use) in Venkatesh & Bala (2008)
	VOLT2	Although it might be helpful, using crowdfunding websites is not compulsory in my work/study environments.	Removed	
	VOLT3	No one requires me to use crowdfunding websites.	0.771***	
FCB (financial contribution behavior)	FCB	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).	N/A	Adapted 'from financial contribution behavior' Shneor & Munim (2019)

Table I: Survey items, measurement properties and sources.

*Number of observations is 556 for all measurement items. Model fit: RNI = 0.973 > 0.95, CFI = 0.976 > 0.90 TLI = 0.969 > 0.90, RMSEA = 0.038 < 0.08, SRMR = 0.038 < 0.08, χ2 (t-statistic/degree of freedom i.e., 455.655/254) = 1.79 < 3. †p<0.10, *p<0.05, **p<0.01, ***p<0.001.*

First, we conducted an exploratory factor analysis, which resulted in the removal of some items that either exhibited cross-loadings or loading levels below 0.40 (Hair et al., 2010) (Table I).

Second, we performed a confirmatory factor analysis with all items that were deemed valid. Examination of the fit indices reveals that the ratio of the chi-square and degrees of freedom $(455.655/254) = 1.79$ and below the upper threshold of 3. The comparative fit index (CFI) of 0.976 and the Tucker-Lewis index (TLI) of 0.969 all exceed the minimum threshold of 0.90. Root mean square error of approximation (RMSEA) value of 0.038, and standardized mean square route (SRMR) value of 0.038, are all below the 0.08 maximum threshold. Hence, all indicators meet the threshold requirements recommended by best practice (Hair et al., 2010) and suggest good fit for our model.

Furthermore, we conducted a series of quality and rigorous tests to alleviate concerns with various biases. First, we tested for non-response bias comparing the means of two sub-samples of the first and last 278 respondents, where the p-values of; age, sex, time (number of hours) for online browsing, e-commerce, email, and social and professional networking sites were all greater than 0.05, confirming that our data do not suffer from non-response bias. Second, we performed all tests for common method bias (Harman's single factor, common latent factor, and marker variable) where our results indicated explanatory powers well below the maximum threshold of 50 percent. We also tested for reliability (Cronbach, 1951) and validity of our measures (Table II). None of the variables were normally distributed, so the robust maximum likelihood method was employed for SEM estimation (Rosseel, 2012).

4. Results

We estimated three different SEM models. Model (a) tested TAM1 (Davis et al., 1989) with control variables; namely, Hypotheses 1–3. Model (b) tested the theoretical extension of TAM2 (Venkatesh and Davis, 2000) with control variables but without moderating variables; that is, Hypotheses 1–10. Model (c) tested the TAM 2 (Venkatesh and Davis, 2000) with both control and moderating variables; that is, Hypotheses 1–12.

Regarding the models' goodness-of-fit indices and comprehensiveness, Model (c) (with CFI: 0.965, TLI: 0.957, RMSEA: 0.043, SRMR 0.040, and χ2: 2.04) had the best fit, while Model (b) had CFI: 0.962, TLI: 0.955, RMSEA: 0.046, SRMR: 0.059, and χ2: 2.17 and Model (a) had CFI: 0.964, TLI: 0.954, RMSEA: 0.069, SRMR 0.062, and χ2: 3.62. Accordingly, we focused on module (c) and present the results in Table III.

	FCI	PEU	PU	SUB	IM	TR	OQ	DMS	EXP	VOLT	Reliability
FCI	1	(0.126)	(0.213)	(0.130)	(0.021)	(0.282)	(0.164)	(0.159)	(0.377)	(0.027)	**0.92**
PEU	0.356	1	(0.460)	(0.012)	(0.002)	(0.342)	(0.513)	(0.245)	(0.031)	(0.169)	**0.93**
PU	0.462	0.678	1	(0.122)	(0.063)	(0.403)	(0.383)	(0.232)	(0.160)	(0.092)	**0.84**
SUBN	0.361	0.110	0.350	1	(0.246)	(0.084)	(0.022)	(0.012)	(0.154)	(0.001)	**0.89**
IM	0.145	0.040	0.251	0.496	1	(0.065)	(0.000)	(0.002)	(0.063)	(0.013)	**0.79**
TR	0.531	0.585	0.635	0.290	0.255	1	(0.473)	(0.271)	(0.131)	(0.204)	**0.88**
OQ	0.405	0.716	0.619	0.147	0.019	0.688	1	(0.342)	(0.063)	(0.299)	**0.86**
DMS	0.398	0.504	0.482	0.110	0.040	0.520	0.585	1	(0.073)	(0.328)	**0.77**
EXP	0.614	0.176	0.400	0.392	0.251	0.362	0.250	0.270	1	(0.000)	**0.66**
VOLT	0.165	0.411	0.304	-0.031	-0.113	0.451	0.547	0.573	0.019	1	**0.80**
AVE	**0.755**	**0.811**	**0.732**	**0.684**	**0.679**	**0.722**	**0.765**	**0.631**	**0.515**	**0.678**	

Table II. Latent construct correlations, and reliability (Cronbach's alpha) and divergent validity
Notes: The figures below and above the diagonal (in parentheses) are the correlations of the constructs and squared of correlations of the constructs respectively. AVE is the average Variance Extracted.

Regarding the explanatory power of the models (R²), Model (a) explained; 44.5 percent of backer's perceived usefulness of crowdfunding platform, 20.6 percent of backer's financial contribution intentions and 12.7 percent of backer's financial behavior. Model (b) explained 26.5 percent of backer's image, 61.2 percent of backer's perceived usefulness of crowdfunding platform, 28.4 percent of backer's financial contribution intentions, and 12.8 percent of backer's financial contribution behavior. Model (c) explained 33.8 percent of backer's image, 68.7 percent of backer's perceived usefulness of crowdfunding platform, 31.9 percent of backer's financial contribution intentions, and 13.10 percent of backer's financial contribution behavior.

Table III presents the results of the SEM analyses. Our results are consistent with both TAM models, except for the influence of voluntariness. We found perceived usefulness to a strong determinant of intention (supporting H2a). Also, the effect of percei-

Hypothesis:	Std. estimate Model (a)	Std. estimate Model (b)	Std. estimate Model (c)	Result
H1a: PEU→PU	0.667 (0.050)***	0.410 (0.060)***	0.467 (0.040)***	Accepted
H1b: PEU→FCI	0.101 (0.085)	0.123 (0.093)	0.103 (0.069)†	Accepted at 10%
H2a: PU→FCI	0.380 (0.090)***	0.317 (0.107)***	0.322 (0.077)***	Accepted
H2b: PEU→PU→FCI	0.253 (0.066)***	0.130 (0.047)***	0.150 (0.037)***	Accepted
H3: FCI→FCB	0.255 (0.047)***	0.257 (0.047)***	0.282 (0.044)***	Accepted
H4: DMS→PU		0.094 (0.055)	0.077 (0.032)*	Accepted
H5: TR→PU		0.216 (0.063)*	0.208 (0.041)***	Accepted
H6: OQ→PU		0.102 (0.073)	0.079 (0.047) †	Accepted at 10%
H7a: SUBN→FCI		0.236 (0.053)***	0.257 (0.043)***	Accepted
H7b: SUBN→PU		0.172 (0.043)***	0.185 (0.030)***	Accepted
H8: SUBN→PU→FCI		0.055 (0.022)**	0.059 (0.016)***	Accepted
H9: SUBN→IM		0.514 (0.045)***	0.582 (0.032)***	Accepted
H10a: IM→PU		0.089 (0.040)*	0.095 (0.027)**	Accepted
H10b: SUBN→IM→PU		0.046 (0.020)*	0.055 (0.015)***	Accepted
H11a: SUBN→FCI (EXP)			-0.085(0.052)†	Accepted at 10%.
H11b: SUBN→PU (EXP)			-0.026 (0.031)	Rejected
H12: SUBN→FCI (VOLT)			-0.043 (0.038)	Rejected
Controls: Age→FCB	0.183 (0.005)***	0.184 (0.022)***	0.190 (0.052)***	Age affects behavior
Gender→FCB	0.180 (0.119)***	0.180 (0.119)***	0.118 (0.176)***	Gender affects behavior

Table III: **Summary of Hypothesis Testing and Estimation Results.**
(*Standard error in parenthesis. ***p < 0.001, ** p < 0.01, *p < 0.05, †p < 0.10*)

ved ease-of-use on intention was found to be positive, but not as strong as perceived usefulness (weakly supporting H1b). The effect of perceived ease-of-use on perceived usefulness was highly significant and positive (supporting H1a). Also, the mediation effect of perceived usefulness was confirmed to be partial and highly significant (supporting H2b). Similarly, the relationship between usage intention and behavior was confirmed to be positive and highly significant (supporting H3).

Concerning cognitive instrumental processes, demonstrability was found to positively influence perceived usefulness (supporting H4). The influence of task relevance on perceived usefulness was highly significant and positive (supporting H5, both before and after introducing moderators). Similarly, output quality was found to have a positive effect on perceived usefulness (supporting H6). Concerning social influence processes, subjective norms were found to have a highly significant positive influence on perceived usefulness, financial contribution intentions, and backer's image (supporting H7a, H7b and H9). Also, the mediation effect of perceived usefulness between subjective norms and financial contribution intention was confirmed (supporting H8). Backer's image was found to positively influence perceived usefulness (supporting H10a). The mediation effect of backer's image between subjective norm and perceived usefulness relationship was confirmed (supporting H10b).

Regarding the roles of moderators, crowdfunding experience was found to negatively moderate the relationship between subjective norms and financial contribution intention (weakly supporting H11a). Also, experience negatively moderates the relationship between subject norms and perceived usefulness, despite its insignificant influence (rejecting H11b). However, voluntariness was not found to moderate the relationship between subjective norms and contribution intention (rejecting H12).

Finally, we found that age and sex both significantly influence financial contribution behavior, where female and older backers exhibited higher contribution behavior.

5. Discussion

Overall, our findings suggest that the TAM model properly captures the antecedents of backers' financial contribution intention and behavior in the context of reward

crowdfunding, supporting both TAM 1 (Davis et al., 1989) and TAM 2 (Venkatesh and Davis, 2000). Accordingly, the current study is one of the first to examine the applicability of the full TAM model in the reward crowdfunding contexts. Therefore, our study further complements the theoretical arsenal used for explaining contribution intentions and behavior and the specificities in terms of crowdfunding.

Specifically, we show that while both perceived usefulness and ease-of-use are positively associated with intention, the former exerts greater influence in reward crowdfunding. This is consistent with the results of a meta analyses using several hundreds of studies in other contexts, which found, overall, that the effect of perceive ease-of-use had a less important effect than perceived usefulness on user intentions (Yousafzai et al., 2007b). Nevertheless, when attempting to explain this result in our specific context, there may be relatively little variance in perceived ease-of-use, resulting from crowdfunding combining two systems users that may already be well familiar with: social media and e-commerce. In this respect, crowdfunding platforms do not represent usage difficulties beyond those that are already presented in existing popular websites. At the same time, views may differ to a greater extent with respect to perceived usefulness, or the extent to which crowdfunding platforms cater well to the needs of would-be backers. An alternative explanation may be that crowdfunding may include more than just one task, with some being easier than others, rendering an overall evaluation difficult and resulting in weaker effects, as suggested by Gefen and Straub (2000) and Keil et al. (1995).

Perceived usefulness was found to be positively and significantly associated with subjective norms, image, demonstrability, and task relevance to a strong degree, and to a lesser degree with output quality. The weaker association may be related to little variance in output quality of campaigns in the short term, which can be understood simply as whether a campaign was successful or not.

In addition to all direct effects, we also found evidence of indirect effects. These include perceived usefulness mediating the effects of perceived ease-of-use on contribution intention and subjective norms on intention, as well as image mediating the effect of social norms on perceived usefulness.

While the above findings generally support TAM's suggested relationships, our findings do not support its predictions of moderator effects for voluntariness and experience. First, finding no moderation effect of voluntariness may be crowdfunding-specific, as – by definition – users engage in crowdfunding contributions on a voluntary basis. Unlike software imposed on workers by companies they work for, the use of crowdfunding technologies depends on voluntary engagement. Furthermore, while reciprocity expectations may be evident in backing dynamics (Zheng et al., 2014; André et al., 2017), these may not represent the majority of backers, which may not run campaigns themselves. Second, the no-moderation effect of experience may again result from relatively short experience of most crowdfunding platform users, suggesting little variance in common low levels of related experience across most backers.

Furthermore, when we compare our study to earlier studies using various versions of TAM, we are able to highlight several new insights and contributions. This discussion refers to Djimesah et al. (2022), which used TAM1 only based on data from Ghana; Bakari et al. (2021), which used the UTAUT model based on Malaysian entrepreneurs seeking equity crowdfunding and Jaziri; and Miralam (2019) and Desmet (2017), which integrated other risk constructs with TAM1 based on Tunisian entrepreneurs and French Internet users, respectively.

First, while our study presents empirical evidence from actual platform users in a developed market context, earlier studies were conducted in developing market environments, where crowdfunding markets are at their infancy stage (Ziegler et al., 2020) or not yet fully available (e.g., Djimesah et al., 2022).

Second, our findings show that adding the additional variables of the extended TAM2 model against Djimesah et al. (2022) significantly weakens the effects of perceived ease-of-use on intentions, and its effect is primarily mediated by perceived usefulness. This is an important nuance that has been absent in earlier studies due to the use of less detailed models in those studies.

Third, we provide compelling evidence for the relevance of the more complete TAM2 model in understanding adoption of crowdfunding platforms beyond the core

insights of the more limited versions of the TAM1 used by Djimesah et al. (2022), the UTAUT model used by Bakri et al. (2021), and the TAM1 plus risk variables used by Jaziri and Miralam (2019) and Desmet (2017), all of which use a more limited set of variables than the TAM2.

Fourth, while prior studies have often analyzed crowdfunding adoption from the fundraisers' perspective – that is, the demand side – our study focuses on the supply side of crowdfunding adoption by collecting data from backers about their intentions and behaviors. Moreover, while an earlier study by Lacan and Desmet (2017) examined general Internet users' intentions to participate in crowdfunding, we examined actual crowdfunding platform users' behaviors, targeting an audience that is more familiar with crowdfunding, and can therefore better respond to questions about crowdfunding.

Furthermore, considering our study's uniqueness, we believe our findings could reach a wider audience beyond reward crowdfunding platforms. Here, we believe that our findings can be generalized across platforms offering different models of crowdfunding, such as equity and lending-based platforms. This is intuitive based on the generic nature of the core concerns of the TAM, namely with perceived ease-of-use and usefulness, which are relevant for any crowdfunding platform regardless of business model employed. This is because crowdfunding platforms often share similar interface features in terms of design, dashboard, contribution processes, visualization options, and user interactivity (Belleflamme et al., 2015) that influence backers' perceived usefulness and ease-of-use of crowdfunding platforms and backers' contribution intentions (Lacan and Desmet, 2017).

6. Conclusion

Understanding the antecedents of backers' contribution behavior is important for the support of crowdfunding practice. The present study fills a gap in the study of crowdfunding behavior, from both cognitive and social influence perspectives, and is the first to empirically validate the applicability of the extended TAM 2 model in the contexts of reward crowdfunding and its use in a small-open-economy national context. While this study confirms most direct effects, the relative novelty of reward crowdfunding may explain the absence of the predicted moderation effects of experience and voluntariness.

Nevertheless, our study has certain limitations that should be acknowledged while serving as an invitation for future studies. First, the applicability of findings may be constrained to the national context in which data were collected, as well as to the specific type of crowdfunding considered (that is, reward crowdfunding). Accordingly, future studies may test the generalizability of our findings in new national contexts and different crowdfunding models. Furthermore, while we believe that our findings can be generalized across platforms offering different models of crowdfunding, such as equity and lending-based platforms, such generalization should be tested empirically in follow-up studies. Such studies can predict similar results based on the generic nature of the core concerns of the TAM, namely with perceived ease-of-use and usefulness, which are relevant for any platform regardless of business model employed.

Second, although our study aimed to deal with selection biases and rather than using data from a single campaign, we collected data from backers who may have contributed to several campaigns, as suggested by (Moleskis et al., 2019). Nevertheless, our analysis is based on a single platform. Here, as platform effects have been found in crowdfunding studies (Cumming et al., 2021), our results may be influenced by platform-related biases. Hence future research may replicate our study with samples from other platforms.

Third, by using general rather than platform-specific terminology in our measurement items, we may have underestimated relevant perceptions towards the specific context in which our study is conducted. Accordingly, future studies may capture platform-specific sentiments by using wording that specifically refers to the platform in which data is collected.

Fourth, since familiarity and experience in technology evolves over time, future studies may explore the extent to which our findings hold in a longitudinal perspective after a longer market experience with crowdfunding. Fourth, while our model represents a high degree of complexity, additional variables may still be relevant for understanding backer intentions and behavior. Accordingly, future studies may further integrate additional factors adopted from other theories that have proven relevant for understanding backers, such as facets of trust from trust theory, cognitive antecedents from social psychology theory, as well as different dimensions of well-being.

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Our findings also suggest implications for practice. First, the ability to attract backers depends partly on a backer's perceived ease-of-use and perceived usefulness of a crowdfunding platform. Accordingly, to support favorable views of platform usefulness, platform operators may seek to develop features that enhance greater clarity about task relevance (for example, user cases and ready-made templates), output quality (such as more indices and facts reflecting information about campaign performance), and result demonstrability (for example, linkages and seamless transfer of relevant information across social media and communication platforms) by incorporating relevant visualizations and dashboard functionalities. In the same spirit, platform operators may seek to develop features that support greater social interaction (internal message exchanges, thematic groups, discussion rooms, etc.) and user image enhancement (such as icons, badges, awards, and recognition icons), as both have been shown to be highly relevant in shaping perceived usefulness.

Our findings also suggest that fundraisers should be concerned with their backers' perceptions of platform usefulness when evaluating different platforms and choosing one for their own fundraising campaigns. In this respect, fundraisers should assess the extent to which their platform of choice better supports result demonstrability, user interactions, and user image enhancement. Here, by opting for platforms that provide better features for these aspects of backer experience, fundraisers may avoid potential losses from use of platforms that do not enhance backers' own perceptions of usefulness, which may fail to translate into backing behavior.

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STUDY 3: The Influences of Community Identification and Trust on Crowdfunding Campaign Information-Sharing Intentions and Behaviors

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Abstract

Background: Despite references to crowdfunding as a community-embedded phenomenon, few studies explore the role of community in shaping backer's contribution behavior.

Aim: This study aims to develop a community-based framework to explain crowdfunding backers' behavior. Accordingly, the study identifies antecedents of community identification and community trust and examines how community identification and trust shapes crowdfunding backers' attitudes towards contribution and their campaign information-sharing intentions, and behavior.

Method: Data were collected through a survey distributed to the users of Finland's leading reward crowdfunding website, Mesenaatti.me. We employed structural equation modelling (SEM –lavaan package) and conducted a series of quality tests alleviating concerns with various biases.

Results: Analyses of 556 observations exhibit support for all the hypotheses with some exceptions. Findings show that both community identification and trust are positively associated with crowdfunding contribution attitudes and information-sharing intentions, but only community identification is associated with information-sharing behaviors. Enjoyment, homophily, and community outcome expectations are antecedents of both community identification and trust. Tie strength and normative pressures are antecedents of community identification. Contrary to expectations, normative community pressure first, positively influenced community identification and second, had no influence on community trust just as tie strength. Similarly, we found no significant influence of community identification on community trust, yet the influence of the later, on information sharing intentions is primarily mediated by attitude towards contribution. Similarly, rather than directly influencing information sharing behaviour, information sharing intention mediates community trust influence on information sharing behaviour. We discuss explanations for these findings and their implications for crowdfunding research and practice.

Keywords: Crowdfunding, community identification, trust, intentions and behaviors, information sharing, campaign

1. Introduction

Crowdfunding is a method of project fundraising which has seen global volumes surpassing USD 113 billion in 2020 (Ziegler et al., 2021). It is defined as the pooling of contributions from multiple backers via the Internet often without the involvement of traditional financial intermediaries (Mollick, 2014). However, this definition represents a common mechanism underlying a family of different models including both investment and non-investment fundraising, depending on the benefits backers are offered for their contributions (Belleflamme & Lambert, 2016). The former is mostly associated with equity investments and lending, while the latter with pre-purchase of rewards and the provision of donations.

Another defining aspect common across crowdfunding models is the embeddedness of exchanges between members of an online community. Owston (1998) defined an online community as a group of people that regularly interact online while sharing common goals, ideas, and values (for detailed conceptual discussion of online communities see (Hammond, 2017). Here, in a crowdfunding community people share the goal of helping peers in their fundraising efforts, share ideas about related opportunities, and promote values of financial democracy."

Earlier on, crowdfunding was suggested to reflect community-enabled financing channels built on principles of crowdsourcing (Schwienbacher & Larralde, 2012), which incorporate community-based experiences that generate community benefits for contributors (Belleflamme et al., 2014). Accordingly, the literature that followed is rich with references to the notion of a 'Crowdfunding Community'. Here, while a minority of studies associate the term with communities aggregating supporters around a specific common cause or project (e.g., Gleasure & Morgan, 2018; Murray et al., 2020), most studies refer to crowdfunding community as the population of backers of crowdfunding campaigns on a specific platform (e.g., Colombo et al., 2015; Ryu & Suh, 2021; Thies et al., 2018; Zheng et al., 2014), equating active platform users with the community.

Since the crowdfunding platform provides the technical infrastructure for exchanges, sets the rules for them, and ensures transaction integrity and legal compliance (Jiang et al., 2018; Shneor & Torjesen, 2020), we will follow the latter approach.

Accordingly, in the current study, a crowdfunding community is defined as the population of individuals engaged in supporting crowdfunding campaigns on a specific platform.

In this context, a recent literature review found consistent evidence for a positive effect of social capital developed within the crowdfunding community (i.e., internal social capital) on crowdfunding contribution behavior and that this effect increases over time (Cai et al., 2021). More specifically, research examining community-related aspects in crowdfunding have suggested that such aspects are both triggers to contribution, as in the case of community identification (Gunawan et al., 2019; Rodriguez-Ricardo et al., 2018) or self-image congruence (Ryu & Suh, 2021), as well as the reward for contributions made, as in the case of community belonging (Bao & Huang, 2017; Colombo et al., 2015).

However, while the crowdfunding community may serve as both an antecedent to, and outcome of providing support for campaigns, the actual support is given by its individual members. Two of the main forms of support provided by members include direct financial contribution to the campaign, and/or information-sharing about the campaign via social networks for the purpose of helping it reach a wider scale of potential supporters (Shneor & Munim, 2019). While the importance of the former is self-evident and intuitive, the importance of the latter has been established by evidence in studies confirming strong positive effects of both the scale and scope of campaign information-sharing and campaigns' successful outcomes across different national contexts and crowdfunding models (e.g., Bi et al., 2017; Borst et al., 2017; Efrat, Gilboa, & Sherman, 2020; Hobbs et al., 2016; Shneor, Mrzygłód, et al., 2021; Wessel et al., 2017). Such findings help highlight the integral part played by information-sharing in crowdfunding practice as the possibility to raise small sums from a large base of supporters depends on the ability to reach them, expose them to relevant information, and convince them to engage through persuasive communication.

Building on earlier research highlighting the importance of community identification (Casaló et al., 2010a; Sanz-Blas et al., 2021; Shen & Chiou, 2009) and trust (Hsu et al., 2012; Mittendorf et al., 2019; Tsai & Hung, 2019; Yeh & Choi, 2011) for successful functioning of online communities, the current study examines such relations in the context of reward crowdfunding. Accordingly, we seek to answer three related

questions. First, whether community identification and trust are positively associated with contribution attitudes broadly, and information-sharing intentions and behaviors more specifically? Second, we seek to examine whether a series of theoretically identified variables serve as antecedents of community identification and trust? Finally, we examine whether the effect of identified antecedents on contribution attitudes, information-sharing intentions and behaviors is mediated by community identification and trust?

For this purpose, we define community identification by adjusting Hsu et al.'s (2012) definition of online community identification to the crowdfunding context, whereby community identification is a sense that people come to view themselves as a member of the crowdfunding community and feel emotionally connected with other participants in the crowdfunding community. Furthermore, we define crowdfunding community trust by adjusting Posey et al.'s (2010) definition of online community trust to the crowdfunding context, whereby community trust is the degree to which an individual believes that those within his or her selected crowdfunding community are reliable and are trustworthy with information and resources shared within the community.

In the current study, we conduct our analyses based on survey data collected from registered users on Finland's leading reward crowdfunding platform – Messenatti.me. We employ structural equation modelling and conduct a series of quality tests alleviating concerns with various biases, which are then followed by a report of our findings.

Overall, we present several insights on the influence of community-related factors in crowdfunding backers' decision making. First, we find that both community identification and community trust are positively associated with the following antecedents: enjoyment, homophily, and community outcome expectations. Second, we show that while community identification is positively associated with antecedents including perceived tie strength and normative community pressures, community trust is not. Third, we show that both community identification and community trust are positively associated with attitudes towards contribution and information-sharing intentions, while the latter is fully mediated by attitudes towards contribution. Fourth, we show that community identification is associated with information-sharing intentions both directly and indirectly, with the latter partially mediated by favorable attitudes. Finally, we show

that community identification is both directly and indirectly associated with information-sharing behavior, with the latter partially mediated by information-sharing intentions.

Accordingly, our study offers several contributions. First, and most importantly, it suggests and validates a novel model accommodating both the antecedents and outcomes of community identification and community trust in the context of reward crowdfunding backers' decision making. Second, it shows that community identification and trust are important antecedents of attitudes towards contribution, information-sharing intentions, information-sharing and behavior, which are critical for successful crowdfunding campaign efforts. Third, it further solidifies our understanding and extends the generalizability of the importance of community identification and trust in enhancing support for crowdfunding campaigns, while examining it in a new context, and specifically with respect to information-sharing behavior. Furthermore, we also show that the explanatory power of the new model is greater than that of the frequently used and more generic Theory of Planned Behavior model.

2.   Literature Review

As crowdfunding practice spreads wider, the interest in better understanding backer behavior in crowdfunding also grows. Accordingly, various researchers have suggested different explanations as to what influences backer intentionality and behavior (Baah-Peprah, 2023) while drawing on a wide range of theories. One group of studies employs *signaling theory*, viewing it as a mechanism for limiting information asymmetry between backers and fundraisers in backers' decision making (e.g., Cappa et al., 2021; Kleinert et al., 2020; Steigenberger & Wilhelm, 2018; Sundermeier & Kummer, 2022). Accordingly, most studies identify various campaign elements as signal carriers and examine their effects on campaign performance as an indicator for more and less successful convincing of backers.

A second group builds on *trust theory* as a mechanism for unlocking resources in the community by highlighting campaign features, user interactions, and community dynamics that enhance trusting relations (e.g., Alharbey & Van Hemmen, 2021; Chen et al., 2014; Kang et al., 2016; Liang et al., 2019). These studies examined the effects of

different types of trust (mostly calculative and affective) as well as the degree of trust towards different objects (example; towards platform, campaign, campaign creator).

A third group draws on social psychology by employing the *theory of planned behavior*, highlighting the cognitive antecedents underlying backer intentionality and behavior (e.g., Baber, 2022; Chen et al., 2019; Shneor & Munim, 2019; Shneor, Munim, et al., 2021). Such studies exhibit the effect of favorable attitudes and social norms, and to a lesser extent that of self-efficacy and perceived behavioral control in influencing intentions towards campaign support as well as their resulting behaviors.

Finally, a fourth group has argued that backer engagement in crowdfunding behaviors depends on the extent to which such actions are congruent with the enhancement of the backer's *well-being* (e.g., Efrat, Gilboa, & Wald, 2020; Efrat et al., 2021; Sherman & Axelrad, 2020). Such studies show that contribution behavior is tightly associated with campaigns that enhance positive emotions, engagement, relationships, sense of meaning, and sense of accomplishment.

While notions of community are indirectly implied in these earlier studies, they are not fully captured and often camouflaged by other concepts. For example, interactions among crowdfunding community members (e.g., financial contribution, information-sharing, commentary and feedback, knowledge exchanges, etc.) may serve as signals reducing information asymmetries for prospective backers and mechanism enhancing trustworthiness of campaigns, fundraisers, and platforms. Intuitively, such trust enhancement and information asymmetry reduction can help shape favorable attitudes required for the development of related intentions and related behaviors. Furthermore, such information sharing may trigger reciprocal behaviors and expectations among members; and may enhance backers' sense of well-being through engagement, relations, positive emotions, sense of meaning, and achievement.

In line with the above, we argue that understanding crowdfunding intentionality and behavior can benefit from tighter contextualization in crowdfunding realities, which are embedded in and dependent on its community of supporters (Belleflamme et al., 2014; Cai et al., 2021; Colombo et al., 2015). While all theories hold merit in providing valid

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explanations for supporting intentions and behaviors, one may still suggest explanations that can serve as a common thread across them. In this respect, we are answering a call for more research into the cognitive features of crowdfunding contribution and the context in which relevant decisions are made (Hoegen et al., 2017).

Accordingly, we suggest that a community approach is warranted and can be captured through the influences of community identification and community trust. For this purpose, we propose the following definitions. First, we adjust Hsu et al.'s (2012) definition of community identification to the crowdfunding context, defining crowdfunding community identification as the sense when people come to view themselves as members of the crowdfunding community and feel emotionally connected with other participants in the crowdfunding community. Second, we adjust Posey et al.'s (2010) definition of online community trust, defining crowdfunding community trust as the degree to which an individual believes that those within his or her selected crowdfunding community are reliable and are trustworthy with information and resources shared within the community. Third, by crowdfunding community, we mean the population of supporters of various campaigns on a specific crowdfunding platform, as has been referred to in most earlier studies (e.g., Colombo et al., 2015; Ryu & Suh, 2021; Zheng et al., 2014).

Overall, some studies have examined relations between community and financial contribution behavior while largely ignoring community dimensions' influence in facilitating information-sharing (Thies et al., 2016). Since information-sharing has been widely acknowledged as essential to campaigns' success in a range of contexts and models (e.g., Bi et al., 2017; Borst et al., 2017; Efrat, Gilboa, & Sherman, 2020; Hobbs et al., 2016; Shneor, Mrzygłód, et al., 2021; Wessel et al., 2017), we focus on this specific manifestation of support in our study. Information sharing particular attractiveness is in its representation of a low threshold for community members' engagement, independence from availability of financial means, while at the same time close association with a supporter's own financial contribution intentions and behavior (Shneor & Munim, 2019).

Following the above arguments, we present a series of hypotheses suggesting the influences of community identification and trust in shaping community members' attitudes, intentions, and behaviors. We chose to focus on these specific aspects of

community for several reasons. First, the two complement each other in the sense that identification captures one's perceived place in the community (Hsu et al., 2012) and trust captures one's perceptions of other members of the community (Posey et al., 2010). Second, while identification implies affective and emotional connection (Hsu et al., 2012), trust may imply both calculative as well as affective connection (Kang et al., 2016). Finally, the two represent different mechanisms for overcoming risks associated with online transactions between individuals who may not always know each other, where community identification lubricates engagement through a sense of shared interests and objectives (Shen et al., 2011), while community trust lubricates engagement through a sense of shared protection and security (Pavlou et al., 2007).

Due to the limited literature examining community aspects of crowdfunding, in the following sections, we draw on relevant findings from a wider scope of research covering motivations and behaviors of users in other types of online/virtual communities.

2.1 Outcomes of Community Identification

In their seminal paper on social capital, Nahapiet and Ghoshal (Nahapiet & Ghoshal, 1998) argued that identification serves as a resource enhancing the motivation to combine and exchange knowledge in social groups. That is, if an individual identifies with the group they will be motivated to participate in its activities and help its members, as such actions will be congruent with their personal values (Bhattacharya & Sen, 2003).

Earlier research has shown that community identification was positively associated with community engagement in brand communities (Algesheimer et al., 2005) as well as with repurchase intentions both directly and indirectly through the mediating effects of helping other community members and engagement in advocacy (Mandl & Hogreve, 2020).

When brought into online contexts, several studies have shown that virtual community identification was positively associated with community participation and promotion behavior (Casaló et al., 2010b; Sanz-Blas et al., 2021) as well as the quantity of information shared among members (Chiu et al., 2006). Other studies showed that community identification directly influences intentions to participate in the community as

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well as indirectly, with the later effect being mediated by both attitudes and subjective norms (Casaló et al., 2010a). Similarly, a study of users in blog communities found that community identification is associated with attitudes towards using blog communities, and that such positive attitudes are themselves associated with intentions to remain with such communities (Shen & Chiou, 2009). Finally, and specifically in the context of crowdfunding, during funding period, fundraisers use linguistic devices to evoke a feeling of group cohesion and identity with the crowdfunding community (Dorfleitner et al., 2018) and this positively influences backers' intentions to participate in crowdfunding community activities (Gunawan et al., 2019; Rodriguez-Ricardo et al., 2018).

In accordance with the above, and the evidence for both direct and indirect effects of community identification, we suggest the following hypotheses:

H1: An individual's identification with the crowdfunding community positively influences the individual's: (a) attitude towards contribution (b) campaign information-sharing intentions; and (c) campaign information-sharing behaviors.

H2: An individual's attitude towards contribution will mediate the influence of the individual's identification with the crowdfunding community on individual's campaign information-sharing intentions.

H3: An individual's information-sharing intentions will mediate the influence of the individual's identification with the crowdfunding community on individual's campaign information-sharing behaviors.

2.2 Outcomes of Community Trust

Trust has been widely recognized as a critical aspect enabling online exchanges in general (Kim & Peterson, 2017) and crowdfunding in particular (Baah-Peprah & Shneor, 2022). This is mostly due to its role in mitigating uncertainties under conditions of information asymmetries, as often prevalent in online marketplaces (Pavlou et al., 2007). Under such conditions, individuals accept a degree of vulnerability in their interaction with others, when perceiving them to be capable, benevolent, and acting with integrity (Chen &

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Dhillon, 2003). Notably, research has shown that interpersonal trust has a positive effect on knowledge sharing, while uncertainty has a negative effect (Hsu & Chang, 2014). Furthermore, in various contexts such as virtual communities and open-source software communities, community trust was found to enhance individual's engagement and specifically sharing information (Chughtai & Buckley, 2008; Hsu et al., 2007; Nov, 2009).

A meta-analysis of online trust in e-commerce has shown that it was positively associated with six consequences including purchase intention, satisfaction, loyalty, intentions to use website, and repeat purchase intentions (Kim & Peterson, 2017). Studies examining trust in online communities showed a positive association between trust and engagement (Hsu et al., 2012). A study distinguishing between affective and cognitive trust (Yeh & Choi, 2011) found that cognitive trust was positively associated with information; giving, seeking, and passing to others outside the community while affective trust was associated with information giving and passing to others outside the community. Yet others found that the effect of cognitive trust on usage intentions are mediated by affective trust (Tsai & Hung, 2019).

Studies in the crowdfunding context find significant associations with respect to trust in platform and fundraiser, rather than trust in the community per se. Kang et al.'s (2016) survey of Chinese equity and reward crowdfunding backers showed that both relational and calculus-based trust were positively associated with willingness to invest. Liang et al.'s (2019) found that data from Chinese participants in their experiment showed a positive association between trust in fundraiser and investment intentions. Chen et al.'s (2019) survey in China found that trust was positively associated with intention to devote time and money for donation crowdfunding campaigns. Alharbey and Van Hemen's (2021) study of Saudi equity crowdfunding investors found that both trust in platform and trust in the fundraiser were positively associated with investment intentions, and that platform trust enhanced trust in the fundraiser. Furthermore, Baber and Fanea-Ivanovici's (2021) study of a mixed sample of European and Asian respondents found positive association between perceived trust (incorporating both platform and fundraiser trust) and intentions to participate in movies and web-series crowdfunding projects.

However, we argue for the importance of trust towards the crowdfunding community and its members rather than towards the technical operator (i.e., platform) or a

specific fundraiser. Hence, we draw on the evidence presented above for both direct and indirect effects of community trust in studies conducted in online communities and apply them in the context of a crowdfunding community. Accordingly, we hypothesize the following:

H4: An individual's trust in crowdfunding community will positively influence their (a) attitude towards contribution (b) campaign information-sharing intentions; and (c) campaign information-sharing behaviors.

H5: An individual's attitude towards contribution will mediate the influence of the individual's trust in crowdfunding community on the individual's campaign information-sharing intentions.

H6: An individual's campaign information-sharing intentions will mediate the influence of the individual's trust in crowdfunding community on the individual's campaign information-sharing behaviors.

Furthermore, earlier studies also identified relations between community identification and trust. Here, Hsu et al. (2012) showed that community identification was positively associated with community trust, which was then positively associated with community engagement intentions, suggesting a partial mediation effect for community trust. Yeh and Choi (2011) showed that community identification was positively associated with both cognitive and affective trust, which then affect information giving and passing intentions, again suggesting a mediation effect for trust. Hsu et al. (2014)'s studies of users of an online group auction site showed that identification was positively associated with trust in group members, which was then positively associated with attitudes towards online shopping.

While existing crowdfunding research did not previously examine these relations, we bring these insights into the crowdfunding context. Accordingly, we hypothesize the following:

H7: Individual's identification with a crowdfunding community will positively influence their trust in crowdfunding community.

H8 An individual's trust in crowdfunding community mediates the influence of identification with a crowdfunding community on the individual's (a) attitude towards contribution; (b) campaign information-sharing intentions; and (c) campaign information-sharing behavior.

2.3 Antecedents of Community Identification and Trust

We now turn to suggesting antecedents considered relevant to online community identification and trust.

2.3.1 Tie Strength

Classical network theory (Granovetter, 1983) suggests that tie strength reflects the amount of time, the levels of emotional intensity and intimacy (mutual confiding) and the reciprocal relations that characterize the tie. Earlier research in virtual communities showed that both reciprocal relations and relational strength enhance affective commitment to the community (Luo et al., 2021). More specific to identification, Bhattacharya and Sen (2003) suggested that frequent participation in group activities and interaction with other members enhances identification with the group. Similarly, Pai and Tsai (2011) showed positive association between community participation and community identification in a study of a virtual community. Furthermore, when considering trust, a study of social networking sites by Bapna et al. (2017) argued that a larger number of strong ties increases the likelihood of observing higher levels of trust within a population. More specifically, an earlier study of social capital in knowledge exchanges (Levin & Cross, 2004), showed that strong ties were positively associated with competence and benevolence-based trust. Additionally, stronger ties were found to trigger a community site's perceived trustworthiness (Brown et al., 2007). Building on these findings and their underlying logic, we hypothesize the following:

H9: An Individual's tie strength with other crowdfunding community members will positively influence the individual's (a) identification with the crowdfunding community; and (b) trust in the crowdfunding community.

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2.3.2 Enjoyment

Various studies have shown that participation in online communities is influenced by hedonic motives, such as enjoyment (Lou et al., 2013; Yoo & Gretzel, 2008). Such studies view community members as pleasure seekers, who achieve a sense of enjoyment from exchanges with fellow members of the community. Wang and Fesenmaier (2004), when studying online travel communities, argued that while being helpful towards others may be derived from self-satisfaction in the action itself, it also transforms an individual into someone with community norms, community commitment, and affinity to the community. Sanz-Blas et al. (2021) have identified play as one dimension of structural embeddedness that is positively associated with community-self connection in their study of a virtual community's users. Similarly, a study by Chang et al. (2020) showed that both enjoyment in helping and hedonic motivation (fun) enhance community identification. With respect to trust, research has shown that enjoying the use of certain online services enhances the trust in them (Rouibah et al., 2016). Since crowdfunding is a community, where members help each other through sharing of information and resources via online service providers, when applying the above insights in this context we hypothesize the following:

> *H10: An individual's enjoyment of crowdfunding activities will enhance their (a) identification with the crowdfunding community; and (b) trust in the crowdfunding community.*

2.3.3 Homophily

Homophily reflects situations where individuals who interact with one another are highly similar along certain attributes, which smoothens communication and results in more frequent information exchanges among them (Rogers & Bhowmik, 1970). According to Algesheimer et al. (2005) the cognitive aspect of community identification involves emphasizing the perceived similarities with other community members and dissimilarities with nonmembers. Hence, greater degrees of homophily may strengthen the sense of affinity with members of the community. With respect to trust, greater homophily was found to trigger a community site's perceived trustworthiness (Brown et al., 2007). Recently, Leonhardt et al. (2020) found that perceived homophily enhances consumers' trust and, in turn, their reliance on user-generated product information shared on social

media. Cho et al. (2020) showed that homophily was positively associated with trust in peer community members of a sharing economy online community. Specifically, related research in the crowdfunding context has found that homophily triggers herding behavior among community members (Petit & Wirtz, 2021), and that an activist variant of homophily is responsible for disproportional compensatory reactions in funding of women by women (Greenberg & Mollick, 2014). Nevertheless, such insights do not account for aspects of community identification or trust as potential carriers of such effects. Applying the above insights into the context of a crowdfunding community, we hypothesize the following:

> *H11: An individual' homophily with other crowdfunding community members will positively influence the individual's (a) identification with the crowdfunding community; and (b) trust in the crowdfunding community.*

2.3.4 Community Outcome Expectations

Outcome expectations are defined as the expected consequences of one's own behavior, where positive expectations serve as incentives encouraging certain behaviors (Bandura, 1997). Community-related outcome expectations are individual judgment of likely consequences for the virtual community following their knowledge-sharing behavior (Chiu et al., 2006). Indeed, earlier research showed that knowledge sharing in virtual communities is motivated primarily by community interest and moral obligation rather than by pure self-interest (Wasko & Faraj, 2000). Such concerns are consistent with the affective commitment component of community identification, where individuals feel committed to the well-being of their peer group members (Algesheimer et al., 2005). Furthermore, incentives aligned with ensuring commitment to the well-being of the community, enhances the trustworthiness of the community itself as a self-enhancing collective unit. Accordingly, if the outcomes of information-sharing in the community are regarded as incentives that add value to the community as a whole, it will trigger the affective commitment of its members to act in ways that ensure the group's well-being and enhance the trust in such self-improving collective. Applying this line of argumentation to crowdfunding communities, we hypothesize the following:

H12: An individual's outcome expectations of crowdfunding community will positively influence their (a) identification with the crowdfunding community; and (b) trust in the crowdfunding community.

2.3.5 Normative Community pressure

Group norms are often referred to in online community research as the agreement among members about their shared goals and expectations (Shen et al., 2011; Zhou, 2011). When users feel that their goals and values are consistent with those of other community members, they exhibit higher degrees of desire for engagement (Shen et al., 2011) and participation intentions (Zhou, 2011). Such normative commitment positively affects knowledge sharing intentions in virtual communities (Luo et al., 2021). However, when adherence to community norms is experienced as pressure, members may view the association and participation in the community as burdensome while weakening participation intentions in brand communities (Algesheimer et al., 2005), as well as in social networking sites (Sledgianowski & Kulviwat, 2009). Furthermore, normative pressures were also negatively associated with attitudes towards participation in blogging communities (Shen & Chiou, 2009). In the context of a crowdfunding community, Shneor and Munim (2019) found that perceived behavioral control was negatively associated with financial contribution intentions and information-sharing intentions, results which were interpreted as resistance to social pressure. Accordingly, since normative pressures represent less pleasant and burdensome experiences, they are likely to have negative effects on community identification and trust. And when applied into the context of information-sharing in a crowdfunding community we hypothesize the following:

H13: Normative community pressure will negatively influence an individual's (a) identification with a crowdfunding community; and (b) trust in that crowdfunding community.

In summary, Fig. 1 graphically presents the model of our hypothesized relations.
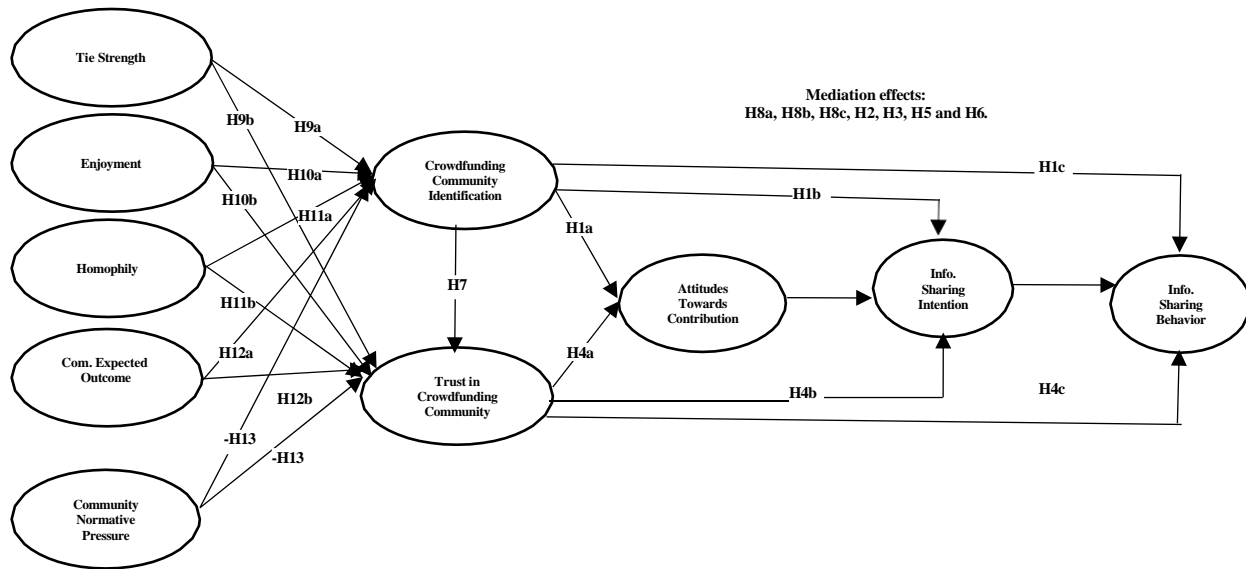
Fig. 1 Research model (antecedents and outcomes of community identification and trust)

3. Methods

3.1 Study Context and Data Collection

We collected data from users registered on Mesenaatti.me in Finland. We chose Finnish crowdfunding market as a context for our study due to the country's ranking in terms of crowdfunding volumes for the past years (ranked eighth and seventh in alternative finance volumes per capita globally with USD 68.7 million and 70.42 million in 2018 and 2020, respectively) and its crowdfunding regulatory friendliness (one of the few European pioneers to introduce crowdfunding specific regulations, with the Crowdfunding Act passed in parliament in 2016) (Ziegler et al., 2020, p. 43). At a regional level, Finland is the leader of crowdfunding volumes in the Scandinavian crowdfunding market, accounting for 46 percent of Nordic crowdfunding volume growth in 2020 (Ziegler et al., 2020, p. 43).

Data were collected from registered users of Mesenaatti.me, Finland's largest reward crowdfunding platform. Established in 2013, the platform had over 25,000 users and has overseen fundraising of over EUR 3 million in the first four years of operation. To leverage on manager's social capital and enhance participation, the platform manager distributed our invitation to participate in web-survey via email to people actively participating in the platform activities and have contributed to campaigns in the past one

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year, which was followed up by four reminders. The survey included a long list of questions and items, and for boosting participation, respondents were offered participation in a lottery of gift cards. After removing entries with missing data and those suspected of monotonous response bias (more than 10 identical consecutive entries) we were left with 556 responses, representing a 2.2% response rate. This is considered appropriate considering the huge volume of our survey questions as well as our targeted respondents. As confirmed by a meta-analysis of online survey response rate (Cook et al., 2000), 'response representativeness is more important than response rate in survey research'. Furthermore, 'a low response rate need not to affect the validity of the data collected, but it is still necessary to test for non-response effects and make corrections to the original data in order to maximize validity' (Templeton et al., 1997). Accordingly, in Table 2, our results for non-response effect were all within the appropriate threshold. In our sample of 556, 94.1% indicated contributing to a campaign in the past, while 5.9% have not made such

Sex	Female – 1	275	49.46%
	Male - 0	281	50.54%
Average daily time devoted to online browsing, search and news	Up to 1 h	6	1.08%
	1 to 2 h	180	32.43%
	2 to 3 h	206	37.12%
	3 to 4 h	93	16.76%
	5 h to 6 h	46	8.29%
	6 h or more	24	4.32%
Average daily time devoted to using social and professional networking sites	Up to I h	52	9.37%
	1 to 2 h	227	40.90%
	2 to 3 h	149	26.85%
	3 to 4 h	81	14.59%
	5 h to 6 h	28	5.05%
	6 h or more	18	3.24%
Total financial contribution to campaigns	€ 0–30	138	24.82%
	€ 31–60	148	26.61%
	€ 61–150	141	25.36%
	€ 151–12,000	129	23.20%

Table 1: Descriptive statistics

contributions. According to Hair et al. (2010) our sample size meets best practice recommendations for multivariate data analysis. Descriptive statistics of our sample are presented in Table 1.

3.2 Non-Response Bias

We follow the wave analysis (Armstrong & Overton, 1977) for checking non-response bias, while splitting our sample into the first and last 278 respondents. Table 2 shows the significance of differences between the two waves of responses along demographic variables. Accordingly, we do not find evidence for severe non-response bias in our sample.

	Mean of 1st respondents	Mean of 2nd respondents	T	Df	p value
Age	43.679	41.673	1.9153	551.89	0.056
Sex	0.471	0.518	-1.1019	554.00	0.271
Online Browsing	3.115	3.119	-0.034	553.00	0.973
E-commerce time	1.805	1.802	0.052	542.60	0.958
E-mail time	2.610	2.723	-1.234	553.00	0.217
Networking sites	2.751	2.745	0.064	552.95	0.949

Table 2. Non-response bias check

3.3 Normality Check

As a requirement for SEM estimations, we check for the multivariate normality in our data following the Mardia (1970) test. The test shows that our data were non-normally distributed. For robustness, we also check for univariate normality of all measurement items using the Shapiro and Wilk (1965) test. The results confirmed non-existence of univariate normality as all p-values were below 0.05. 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 (2012a). The rest of the analyses follow this approach.

3.4 Measurement Model

Since the concepts in our model do not have simple objective measures, we have opted for multi-item measurements presented in Table 3. All items were rated on a 7-point Likert-type scale, where '1' represented complete disagreement with the statement and '7' complete agreement with the statement. Reverse coding was used for items that were inversely framed. These items were adopted from earlier studies and readjusted to fit the

crowdfunding concept. Accordingly, we have used SEM, specifically the lavaan package in our analysis. This is due to SEM's ability to reliably test a complex set of hypothetical relationships among theoretical constructs as well as the relationships between the constructs and their observed indicators (Deng et al., 2018; Rosseel, 2012b).

First, we conducted an exploratory factor analysis (EFA) which resulted in the removal of some items (see Table 3), which either exhibited cross loadings or loading levels below 0.4 (J. F. J. Hair et al., 2010). Second, we followed this by a confirmatory factor analysis (CFA) with all items that were deemed valid.

Examination of the fit indices in Table 4 reveals that the ratio of the chi-square and degrees of freedom (738.555/375) was 1.97, and below the upper threshold of 3. The comparative fit index (CFI) of 0.961 and the Tucker-Lewis index (TLI) of 0.954, all exceed the minimum threshold of 0.9. Root mean square error of approximation (RMSEA) value of 0.042, and standardized mean square route (SRMR) value of 0.066, are all below the 0.08 maximum threshold. Hence, all indicators meet threshold requirements as recommended by best practice (J. F. J. Hair et al., 2010), and suggest good fit for our measurement model.

3.5 Validity and Reliability

Table 5 presents composite reliability for all our latent variables, with Cronbach alphas levels all well above 0.7, the recommended threshold (Cronbach, 1951). Furthermore, to confirm divergent validity, ensuring variables are distinguished from each other, we use the Fornell and Larcker (1981) criteria, showing in Table 5 that the squared correlations value for each construct is less than its respective average variance extracted value, confirming divergent validity.

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Latent constructs		Measurement items	Factor loadings	Source
TS (Ties strength)	TS1	Approximately how frequently do you communicate with other members of crowdfunding communities?	0.813***	TS1-3 adapted from "tie strength" (online WoM) in Chu & Kim (2011)
	TS2	Overall, how important to you are other members of crowdfunding community?	0.855***	
	TS3	Overall, how close do you feel to other members of the crowdfunding community?	0.902***	
NCP (Normative community pressure)	NCP1	My crowdfunding activities are often influenced by how other crowdfunding community members want me to behave.	0.914***	NCP1-2 adapted from "normative community pressures" (realted to brand communities) in Algesheimer et al. (2005). NCP3-4 adapted from "social norms" (realted to online travel communities) in Casalo et al. (2010)
	NCP2	To be accepted, I feel I must behave as other crowdfunding community members expect me to behave.	Removed	
	NCP3	Other community members expect me to participate in the crowdfunding community.	0.789***	
	NCP4	My participation in the crowdfunding community is often influenced by how other community members want me to behave.	0.869***	
EJMNT (Enjoyment)	EJMNT1	I find using crowdfunding websites to be enjoyable.	0.894***	EJMNT1-3 adapted from "perceived enjoyment" (related to IT system use) in Venkatesh & Bala (2008). EJMNT4 adapted from "perceived enjoyment" (related to blogging tools) in Hsu & Lin (2008)
	EJMNT2	The actual process of using crowdfunding websites is pleasant.	Removed	
	EJMNT3	I have fun using crowdfunding websites.	0.783***	
	EJMNT4	While using crowdfunding websites, I experience pleasure.	0.884***	
HOM (Homophily)	HOM1	In general members of crowdfunding communities think like me.	0.833***	HOM1-3 adapted from "homophly" (realted to SNS) in Chu & Kim (2011)
	HOM2	In general members of crowdfunding communities behave like me.	0.839***	
	HOM3	In general members of crowdfunding communities are like me.	Removed	
COE (Com. outcome expectation)	COE1	Contributing to crowdfunding campaigns will be helpful to the successful functioning of the crowdfunding community.	0.857***	COE1-3 adapted from "community-realted outcome expectations" (related to online communities) in Chiu et al. (2006)
	COE2	Contributing to crowdfunding campaigns would help crowdfunding communities to continue operations in the future.	0.865***	
	COE3	Contributing to crowdfunding campaigns would help the crowdfunding community grow.	0.896***	
CID (Community identification)	CID1	I am very attached to the crowdfunding community.	Removed	CID1-4 adapted from "community identification" (realted to brand communities) in Algesheimer et al. (2005).
	CID2	The friendships I have with other crowdfunding community members mean a lot to me.	Removed	
	CID3	If a crowdfunding community member planned something, I would think of it as something "we" would do rather than something "they" would do.	Removed	

		I see myself as part of the crowdfunding community.		CID5-7 adapted from "identification" (related to online communities) in Chiu et al. (2006).
	CID4	I feel a sense of belonging towards the crowdfunding community.	0.807***	
	CID5	I have a feeling of togetherness or closeness in the crowdfunding community.	0.904***	
	CID6	I am proud to be a member of a crowdfunding community.	0.842***	
	CID7		Removed	
TCC (Trust in crowdfunding com)	TCC1	Crowdfunding community members will not take advantage of others even when the opportunity arises.	0.773***	TCC1-4 adapted from "trust" (related to online communities) in Chiu et al. (2006).
	TCC2	Crowdfunding community members will always keep the promises they make to one another. Crowdfunding community members behave in a consistent manner.	0.722***	
	TCC3	Crowdfunding community members are truthful in dealing with one another.	Removed	
	TCC4		0.902***	
ATT (Attitudes towards contribution)	ATT1	I think I would like to contribute to crowdfunding campaigns.	0.782***	ATT1-2 adapted from "attitude" (towards blog usage) in Hsu & Lin (2008).
	ATT2	I am likely to feel good about contributing to crowdfunding campaigns.	Removed	
	ATT3	I think contributing to crowdfunding campaigns is good for me.	0.857***	ATT3-6 adapted from "attitude" (towards online shopping) in Hsu et al. (2006)
	ATT4	I think contributing to crowdfunding campaigns is appropriate for me.	Removed	
	ATT5	I think contributing to crowdfunding campaigns is beneficial for me.	0.830***	
	ATT6	I have a positive opinion about contributing to crowdfunding campaigns.	0.754***	
ISI (Information sharing intention)	ISI1	I intend to share information about crowdfunding campaigns I know of more frequently in the future.	Removed	ISI1-6 adapted from "eWoM intention" in Cheung & Lee (2012).
	ISI2	I intend to share information about crowdfunding campaigns I supported more frequently in the future.	0.892***	
	ISI3	I will always provide information about crowdfunding campaigns I know of at the request of others.	Removed	
	ISI4	I will always provide information about crowdfunding campaigns I supported at the request of others.	Removed	
	ISI5	I will try to share information about crowdfunding campaigns I know of in a more effective way.	Removed	
	ISI6	I will try to share information about crowdfunding campaigns I supported in a more effective way.	0.921***	
ISB (Information sharing behavior)	ISB1	I frequently share information about crowdfunding campaigns.	0.900***	ISB1-2 adapted from "eWoM participation" in Yoo et al. (2013).
	ISB2	I spend much effort sharing information about crowdfunding campaigns.	0.735***	

Table 3. Survey items, measurement properties and sources

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Goodness-of-fit indices	Requirement and reference	SEM Model
CFI	> 0.90, Bentler (1990)	0.961
TLI	> 0.90, Bentler and Bonett (1980)	0.954
RMSEA	< 0.08, Hu and Bentler (1999)	0.042
SRMR	< 0.08, J. F. Hair et al. (2010)	0.066
$\chi 2$ *(t-statistic/df)*	< 3 J. F. Hair et al. (2010)	1.97 *(738.555/375)*

Table 4: Goodness-of-fit indices for SEM models

	Reliability	ISB	ISI	TCC	EJMT	CID	HOM	NCP	TS	COE	ISA
ISB	**0.790**	1	(0.465)	(0.037)	(0.090)	(0.131)	(0.134)	(0.021)	(0.100)	(0.047)	(0.159)
ISI	**0.900**	0.682	1	(0.102)	(0.129)	(0.116)	(0.108)	(0.015)	(0.090)	(0.099)	(0.269)
TCC	**0.840**	0.193	0.319	1	(0.126)	(0.207)	(0.202)	(0.050)	(0.082)	(0.259)	(0.192)
EJMT	**0.890**	0.300	0.359	0.354	1	(0.151)	(0.092)	(0.019)	(0.042)	(0.063)	(0.282)
CCID	**0.880**	0.362	0.340	0.455	0.388	1	(0.476)	(0.307)	(0.231)	(0.124)	(0.115)
HOM	**0.820**	0.366	0.329	0.450	0.303	0.690	1	(0.215)	(0.135)	(0.126)	(0.103)
NCP	**0.890**	0.144	0.122	0.223	0.138	0.555	0.464	1	(0.077)	(0.004)	(0.001)
TS	**0.890**	0.316	0.300	0.286	0.205	0.481	0.368	0.278	1	(0.071)	(0.032)
COE	**0.910**	0.217	0.315	0.509	0.251	0.353	0.355	0.061	0.267	1	(0.180)
ATT	**0.880**	0.399	0.519	0.438	0.531	0.340	0.321	0.038	0.180	0.424	1
AVE		*0.676*	*0.822*	*0.644*	*0.731*	*0.726*	*0.700*	*0.738*	*0.735*	*0.762*	*0.651*

Table 5: Latent construct correlations, reliability (Cronbach's alpha) and divergent validity

Note: The figures below and above the diagonal (in parentheses) are the correlations of the constructs and squared of correlations of the constructs respectively. **Construct keys:** *information sharing behavior (ISB), information sharing intention (ISI), trust in crowdfunding community (TCC), enjoyment (EJMT), crowdfunding community identification (CCID), homophily (HOM), normative community pressure (NCP), tie strength (TS), community outcome expectation (COE), attitude towards contribution (ATT).*

3.6 Common Method Bias

Common method bias may arise in situations when the same measurement scale is used throughout a survey. We examine whether our data suffers from common method bias following procedures suggested by Podsakoff et al. (2003). First, we use Harman's single-factor approach by creating a single factor with all measurement items in EFA with no rotation where the single factor explains 28% of variance in our sample, which is below the recommended maximum threshold of 50%. Second, we use the common latent factor

approach by adding a 'common' latent factor in the original CFA model, for which there is no reason to assume correlations with the model's latent variables and fixed equal factor loading of all measurement items of the common factor. This yielded a value of 0.589, which is then squared, indicating that an explanatory level of 35%, which is again below the 50% threshold level. Finally, for further robustness, we also use the marker variable approach (Williams et al., 2010), employing the 'sense of entitlement' factor and its seven items (Campbell et al., 2004). The marker variable yielded a common loading of 0.502, whose square value indicates an explanatory power of 25%, also below the 50% threshold. These rigorous checks alleviate concern of a common method bias problem in our data.

4. Results

Fig. 2 and Table 6 present the results of our analyses. We tested all hypothesized associations with two additional controls – age and sex. As shown in Table 4, our model passes all goodness-of-fit tests, and results with the following levels of explanatory power, as captured by the r-square values (see Fig. 2): 63.8% for community identification, 40.1% for community trust, 24% for attitudes, 31.1% for information-sharing intentions, and 50.2% for information-sharing behavior.
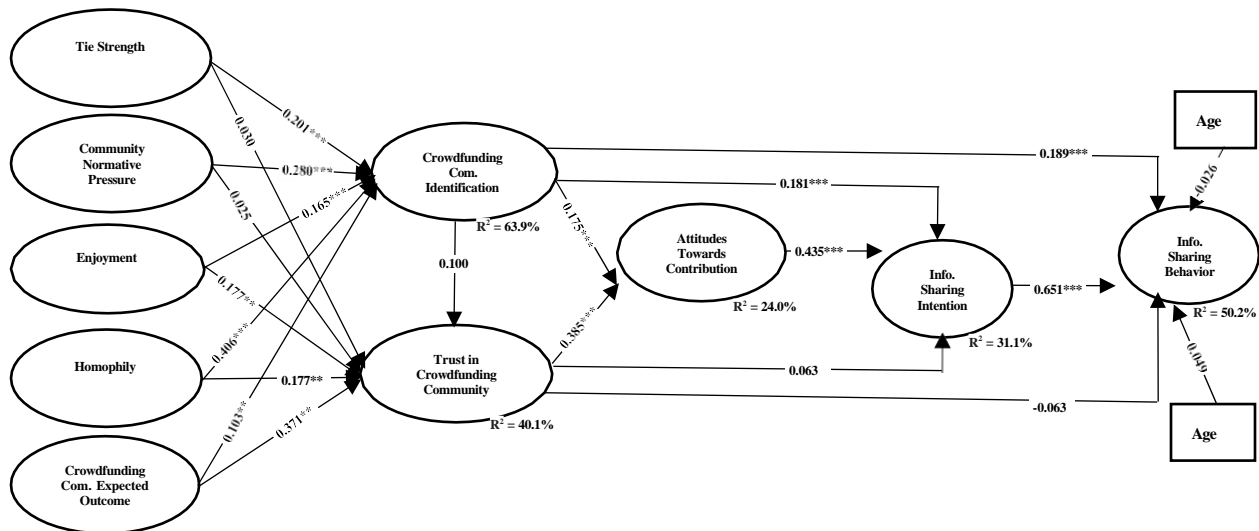behavior.

Fig. 2 Estimated Structural Equation Model
Note: Number of observations is 556 for all constructs. Goodness-of-fit indices: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. CFI = 0.961 > 0.90, TLI = 0.949 > 0.90, RMSEA = 0.043 < 0.08, SRMR = 0.066 < 0.08, $\chi 2$ = 1.97 < 3 (t-statistic/df 738.555/375).

Hypothesis	Std. estimate	Result
Outcomes of crowdfunding community identification and trust		
H1(a): Community identification → attitudes towards contribution	0.175 (0.048)***	Supported
H1(b): Community identification → information-sharing intentions	0.181 (0.056)***	Supported
H1(c): Community identification → information-sharing behavior	0.189 (0.053)***	Supported
H7: Community identification → community trust	0.100 (0.067)	Not supported
H4(a): Community trust → attitudes towards contribution	0.385 (0.078)***	Supported
H4(b): Community trust → information-sharing intentions	0.053 (0.076)	Not supported
H4(c): Community trust → information-sharing behavior	-0.095 (0.064)	Not supported
Attitudes → information-sharing intention	0.435 (0.062)***	
Information-sharing intentions → information-sharing behavior	0.651 (050)***	
Mediation effects		
H8(a): Community identification→ community trust→ attitudes towards contribution	0.039 (0.029)	No mediation
H8(b): Community identification→ community trust → information-sharing intentions	0.005 (0.007)	No mediation
H8(c): Community identification → community trust→ information-sharing behavior	-0.010 (0.010)	No mediation
H2: Community identification → attitudes towards contribution → information-sharing intentions	0.076 (0.027)**	Partial mediation
H3: Community identification → information-sharing intentions→ information-sharing behavior	0.118 (0.036)***	Partial mediation
H5: Community trust → attitudes towards contribution → information-sharing intentions	0.168 (0.046)***	Full mediation
H6: Community trust → information-sharing intentions→ information-sharing behavior	0.035 (0.047)	No mediation
Antecedents of crowdfunding community identification and trust		
H9(a): Tie strength → community identification	0.201 (0.800)***	Supported
H9(b): Tie strength → community trust	0.030 (0.066)	Not supported
H10(a): Enjoyment → community identification	0.165 (0.036)***	Supported
H10(b): Enjoyment → community trust	0.177 (0.043)**	Supported
H11(a): Homophily → community identification	0.406 (0.068)***	Supported
H11(b): Homophily → community trust	0.177 (0.065)**	Supported
H12(a): Community outcome expectation → community identification	0.103 (0.034)**	Supported
H12(b): Community outcome expectation → community trust	0.371 (0.043)***	Supported
H13(a): Normative community pressure → community identification	0.280 (0.063)***	Not supported
H13(b): Normative community pressure → community trust	0.025 (0.058)	Not supported
Controls		
Age	-0.026 (0.004)	Non-sig.
Sex	0.100 (0.049)	Non-sig.

Table 6. Summary of hypotheses testing and estimation results

Note: Number of observations is 556 for all constructs. Goodness-of-fit indices: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. CFI = 0.961 > 0.90, TLI = 0.949 > 0.90, RMSEA = 0.043 < 0.08, SRMR = 0.066 < 0.08, $\chi 2$ = 1.97 < 3 (t-statistic/df 738.555/375).

First, in terms of the outcomes of community identification, we find that it was positively associated with attitudes, intentions, and behaviors towards information-sharing, supporting hypotheses H1(a), H1(b), and H1(c). We also find that attitudes partially mediate the effect of community identification on information-sharing intentions, supporting H2, as well as that intentions mediate the effect of community identification on information-sharing behavior, supporting H3.

Second, in terms of outcomes of community trust, we find that it was positively associated with attitudes, but not with intentions of behavior, hence supporting H4(a) and but not H4(b) and H4(c). We also find that attitudes fully mediate the effects of community trust on intentions, hence supporting H5, but we find no mediation effects of community trust between intentions and behavior, hence H6 is not supported.

Third, exploring potential relations between community identification and trust, we find no direct relationship between community identification and trust, hence H7 is not supported. Unsurprisingly, community trust does not mediate the effects of community identification on attitudes, intentions, and behavior either, and hence H8(a), H8(b), and H8(c) are not supported.

Fourth, when examining the antecedents of community identification, we find that tie strength, enjoyment, homophily, community outcome expectations, and normative community pressures have a positive effect on community identification, supporting H9(a), H10(a), H11(a), and H12(a), but not H13(a), expecting these relations to be negative. Finally, when examining the antecedents of community trust, we find that enjoyment, homophily, and community outcome expectations are all positively associated with community trust, supporting H10(b), H11(b), and H12(b). However, no significant association is identified with respect to tie strength and community normative pressures, thus H9(b) and H13(b) are not supported.

5.   Discussion

Our findings confirm the importance of community identification and trust in enhancing information-sharing attitudes, intentions, and behaviors in the context of online

crowdfunding communities. An aspect deemed critical for the success of fundraising efforts via crowdfunding (e.g., Bi et al., 2017; Borst et al., 2017; Efrat, Gilboa, & Sherman, 2020; Hobbs et al., 2016; Shneor, Mrzygłód, et al., 2021; Wessel et al., 2017).

First, earlier crowdfunding studies documented a direct positive association between community identification and participation intentions (Gunawan et al., 2019; Rodriguez-Ricardo et al., 2018). Our study confirms this association and adds evidence that this effect is also partially mediated by attitudes towards crowdfunding contributions. This finding is more in line with earlier studies conducted in other types of online communities including online travel communities (Casaló et al., 2010a) and blogging communities (Shen & Chiou, 2009).

Second, earlier studies in crowdfunding identified positive relations between trust in fundraiser and/or trust in platform and contribution intentions (Alharbey & Van Hemmen, 2021; Baber & Fanea-Ivanovici, 2021; Kang et al., 2016; Liang et al., 2019). Different from these studies, we focus on trust in the crowdfunding community, which may have some but not complete overlap with trust in the platform. Regardless, we show that this specific kind of trust is positively associated with attitude, which also fully mediates its effects on intentions. However, it does not seem to exert influence on actual information sharing behavior. This contradicts earlier findings from studies in non-crowdfunding contexts, which do confirm associations between trust and behavior in an online brand community (Yeh & Choi, 2011), and gaming communities (Hsu et al., 2012; Tsai & Hung, 2019). Here, a likely explanation for the discrepancy is that these studies did not incorporate attitudes and intentions in their models, while only measuring behavior. Such modelling may camouflage the complex relations between attitudes, intentions and behavior and their antecedents, which are specified in the model estimated in the current study.

The above explanation may also be extended to the surprising findings where community identification did not affect community trust, and that community trust did not mediate effects of community identification. This can result from the non-specification of attitudes and intentions in models of some studies (Hsu et al., 2012; Yeh & Choi, 2011), or non-specification of behavior in others (Hsu et al., 2014). An alternative explanation

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may be embedded in the specific context of our study, with Finland representing a high trust society (Shneor, Mrzygłód, et al., 2021), which may lead to lower variance in responses concerning the trusting of others, compared to other environments. Combining the above arguments with the fact that outside our model, crowdfunding community identification was significantly correlated with trust in crowdfunding community (see Pearson correlation in Table 5), one can argue that the two factors are associated, but this association is relatively weaker when considering all other effects captured in our model, especially when collecting such data in high trust social contexts.

Next, in terms of the antecedents of crowdfunding community identification we find support for a positive association with tie strength, supporting earlier findings in a study of virtual communities in the context of online shopping (Pai & Tsai, 2011); positive association with enjoyment, supporting earlier findings in a study of online travel community (Chang et al., 2020); positive association with homophily, supporting arguments made in a study of brand community (Algesheimer et al., 2005); and positive association with community outcome expectations, supporting arguments made in studies on knowledge sharing communities (Kolekofski & Heminger, 2003; Wasko & Faraj, 2000). However, contrary to our expectations, we find a positive association between crowdfunding community identification and community normative pressures. The latter finding could be explained by the potential non-linear effect of normative pressure, which can be encouraging up to some point, but then discouraging if becoming too unpleasant, as suggested by Hsu et al. (Hsu et al., 2012). In such a case, the evidence in our study indicates that community normative pressures in reward crowdfunding have not crossed this boundary, and still result in positive normative commitment (Luo et al., 2021) rather than burden.

With respect to the antecedents of trust in crowdfunding community, our study supports earlier findings with respect to its positive association with enjoyment (Rouibah et al., 2016) and homophily (Brown et al., 2007; Cho et al., 2020). And we also present evidence for a new association between community outcome expectations and trust in crowdfunding community. However, we find no significant association between community trust and tie strength, which contradicts earlier findings in studies of online communities (Brown et al., 2007) and social media (Leonhardt et al., 2020). A possible

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explanation is the different focus of these studies on information seeking and evaluation rather than sharing, and more importantly in the different models being tested, which did not include the core variables of our model – attitudes and intentions, and hence ignoring the complex relations they have with the relevant antecedents explored in our study. Furthermore, we also do not find support for our prediction of a negative association between normative pressures and trust in crowdfunding community. This result could be explained by a combination of earlier claims about non-linear effects of normative pressures, and low variance of community trust in high trust societies.
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5.1 The Community Approach Versus the TPB

Viewing the complete set of our results, one can suggest that our model represents an alternative explanatory framework for information-sharing intentionality and behavior. With that in mind it may be worth comparing it to existing theories in use. Here, while various theories may be used for this purpose, we decided to use the theory of planned behavior (Ajzen, 1991) for fleshing out our model's unique aspects and relative contribution. This was done for two main reasons: first, the TPB's wide acceptance and frequent use for understanding intentions and behaviors in a range of online communities, allowing for broad relevance and generalizability; and second, from a pragmatic perspective, any additional measure added to our survey represented an additional burden in answering it, and hence inclusion of at least one additional theory and all its related measures was deemed sufficient for the purpose of showing the added value of the new model.

From a conceptual perspective, the crowdfunding community approach builds on the TPB in assuming that intentions supersede behavior in volitional decision making, and that attitudes towards a behavior are an important antecedent of intentionality and behavior. However, while the TPB includes perceived behavior control and subjective norms as the remaining antecedents, the model suggested here includes crowdfunding community identification and trust. In this sense, while the TPB has general and wide applicability, the crowdfunding community approach is more anchored in online community realities. Such anchoring highlights the importance of identification with a collective (i.e., a community)

to trigger an affective commitment to its well-being, and the importance of trust in exchanges involving high information-asymmetry and uncertainties.

Moreover, while a community approach may be congruent with the core premises of subjective norms, the two concepts reflect the influence of different social circles, which may have some degree of overlap, but are not equivalent. Subjective norms refer to influence exerted by people in the close social circle of an individual, involving relations that are likely to be characterized by high identification and trust. An online community is likely to include people well outside an individual's close social circle, which nonetheless may enjoy a degree of trust and with whom the individual may identify, and hence exert influence on the individual's behavior.

Furthermore, from an empirical perspective, we explored the explanatory power of the two models based on data collected from the same target sample. Accordingly, our survey included items for measuring perceived behavioral control, self-efficacy, subjective norms, and social norms allowing us to estimate the most elaborate of TPB models with the same outcome variables, namely crowdfunding– information-sharing attitude, intentions, and behavior. Table 7 presents the models' fit indices and explanatory power of our key outcome variables. Overall, our suggested crowdfunding community model exhibits stronger fit along all indices, as well as providing higher explanatory power for the information-sharing behavior, as a key independent variable. However, the TPB offers higher explanatory power for attitudes towards contribution and information-sharing intentions. Accordingly, our integrative framework, using concepts from different studies contributes to the arsenals of explaining backers' attitudes towards contribution, information-sharing intentions, and behaviors in crowdfunding by presenting a new behavioral framework grounded in community assumptions.

	CFI	TLI	RMSEA	SRMR	$\chi 2$ (t-statistic/df)	R^2 ISA	R^2 ISI	R^2 ISB
	(> 0.90)	(> 0.90)	(< 0.08)	(< 0.08)	(< 3)			
Community Model	0.961	0.954	0.043	0.066	1.96	24%	31.1%	50.2%
TPB-based Model	0.929	0.919	0.057	0.077	2.63	36.2%	33.8%	41.7%

Table 7: Empirical comparison of model

6. Conclusion

Information-sharing is critical for the success of crowdfunding practice. Our study provides evidence for the importance of community identification and community trust in enhancing information-sharing in crowdfunding. A model, accounting for both the outcomes and antecedents of crowdfunding community identification and trust, is presented and tested based on a sample of 556 crowdfunding platform users from Finland. The results show that crowdfunding community identification is positively associated with information-sharing attitudes, intentions, and behaviors, while trust in crowdfunding is associated with information-sharing attitudes, which further fully mediates its effect on information-sharing intentions. We also show that enjoyment, homophily, and community outcome expectations are positively associated with both crowdfunding community identification and trust in crowdfunding community, while tie strength and normative pressures are only associated with crowdfunding community identification but not trust in crowdfunding community. As such, our study presents an alternative framework for explaining information-sharing behavior in crowdfunding, as part of a wider set of behaviors in support of crowdfunding campaigns.

6.1 Implication for Practice

Our findings may also highlight several implications for practice. First, platform managers are encouraged to invest further in community support features and tools that may enhance lock-in through strengthened identification and trust in the community. For example, such elements may include a variety of benefits to self-organizing groups within the community that enhance their interactions and sense of affinity and strength of relation, as well as opportunities to experience enjoyment from collective action. Other strategies may include awarding trust badges to selected members of sub-groups and/or introducing voting functionalities for related group decision-making within the community as well as for capturing and sharing sentiments around different opinions, expectations, and normative claims.

From the perspective of fundraisers, efforts should be made to convey how their projects and campaigns are congruent with platforms' community interests and goals, highlight aspects of homophily with its community members, as well as provide evidence

of good community citizenship. Moreover, fundraisers can use campaign tactics that may create opportunities for community members to experience enjoyment from collective action in the forms of individual/group rewards for supportive behavior.

6.2 Limitations and Implication for Research

While presenting interesting findings, our study has some limitations that should be acknowledged and serve as invitations for future research. First, the generalizability of our study may be constrained to the national-cultural context in which it was collected-Finland, as well as to the specific type of crowdfunding considered – reward crowdfunding. Accordingly, future studies may attempt to test the generalizability of our findings in new national contexts, as well as with respect to different crowdfunding models such as equity investments, lending, or donation giving.

Second, our study focuses on information-sharing intentionality and behavior in a crowdfunding community context but does not cover other types of supportive behaviors such as financial contribution or product development feedback and engagements. Hence, future studies may retest the suggested model with respect to other types of intentions and behavior in support or crowdfunding campaigns.

Third, our model includes a measure of attitudes towards contribution which is broadly defined and not specific to information-sharing. Such a choice presents attitudes towards a wide spectrum of contribution methods which may include information-sharing, but may also allude to financial contribution, or expertise- and knowledge-sharing. While we deem general attitudes towards contribution relevant in the current study, this nonetheless presents an opportunity for future research. Here, related studies may consider more specific measurement of attitudes towards information-sharing and examine whether related results vary significantly from those captured in the current study.

Fourth, while our model is already quite complex, it may still be improved by additional influential variables as both antecedents of community identification and trust, as well as antecedents of attitudes, intentions, and behaviors that complement them. Accordingly, researchers may draw on relevant theories to further develop the model. For

example – adopting concepts such as ease-of-use and perceived usefulness underlying the Technology Acceptance Model (Venkatesh & Davis, 2000) may constitute an interesting direction. Alternatively, incorporating other intrinsic and extrinsic motivations (Deci & Ryan, 2012) into the model, may also contribute to its future development. Finally, an additional avenue for future research may revolve around the testing potential effects of interaction terms among antecedents and community identification and trust. Specifically, researchers are encouraged to examine potential positive effect of the interaction between homophily and tie strength on both community identification and trust, as well as of interaction between tie strength and enjoyment on community identification.

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