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Research Article

Understanding crowdfunding as collaborative networks for startups: A research agenda

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Abstract

Objective: To contribute to the expansion of crowdfunding strategies' efficiency by incorporating the perspective of a collaborative network in financing the startup's initial operation. The study focused on investigating crowdfunding as a network with a collaborative culture and management. **Methodology:** A literature review was conducted to identify conceptual convergences between crowdfunding and collaborative networks. The aim was to assess the potential improvement of crowdfunding strategies by understanding the process as a collaborative network. **Relevance/Originality:** The article presents an innovative and additional approach to crowdfunding strategy by conceptualizing and operationally supporting its design and management as a collaborative network. **Results:** The study provides a consistent conceptual comparison between crowdfunding and collaborative network dimensions, identifying the theoretical convergence between the two. As a result, it indicates the viability of collaborative networks as a relevant theoretical contribution to building and managing crowdfunding campaigns. **Theoretical and Methodological Contributions:** The research offers (a) consistent evidence of conceptual compatibility between the studied constructs and (b) proposes a research agenda with potential research questions for future studies based on the convergence between crowdfunding for startups and collaborative networks.

Keywords: Startup. Crowdfunding. Collaborative networks.

Compreensão do crowdfunding como redes colaborativas para startups: Uma agenda de pesquisa

Resumo

Objetivo: Contribuir para a expansão da eficiência de estratégias de *crowdfunding*, a partir da incorporação da perspectiva de uma rede colaborativa, no financiamento da operação de partida de *startups*. Nesse sentido, o foco do estudo residiu na investigação da propriedade da compreensão do processo de *crowdfunding* como uma rede com gestão e cultura colaborativa. **Metodologia:** inventário da literatura orientado para a identificação de convergências conceituais entre *crowdfunding* e redes colaborativas, avaliando-se a viabilidade de aperfeiçoamento potencial de estratégias de *crowdfunding* por meio da compreensão desse processo como uma rede colaborativa. **Relevância/originalidade:** o artigo oferece uma abordagem inovadora e adicional para a estratégia de *crowdfunding*, colaborando conceitual e operacionalmente no seu design e gestão, quando considerada como uma rede de colaboração. **Resultados:** o estudo oferece um cotejamento conceitual consistente entre dimensões associadas a *crowdfunding* e redes colaborativas, identificando o nível de convergência teórica entre essas e, desse modo, indicando a viabilidade de redes colaborativas como um aporte teórico relevante na construção e gerenciamento de *crowdfundings*. **Contribuições teórico-metodológicas:** o trabalho fornece, como principais contribuições teóricas, (a) evidências consistentes de compatibilidade conceitual entre os construtos estudados e (b) proposição de uma agenda de pesquisa, sugerindo-se potenciais questões de pesquisa para futuros estudos, baseada nessa convergência entre *crowdfunding* de *startups* e redes colaborativas.

Palavras-chave: *Startup*. *Crowdfunding*. Redes colaborativas.

INTRODUCTION

Historically, the development of technologies has manifested with varying intensity during different periods. For example, during the British Industrial Revolution (1760 – 1850), there was rural exodus and human labor was replaced by steam engines. In the Second Industrial Revolution (1890 – 1930), characterized by the discovery of electricity, internal combustion engines, and the use of chemicals in industry, new technological advancements emerged. The Third Industrial Revolution, known as the Information Technology Revolution, began in the 1960s and was influenced by the post-war period, marked by the emergence and introduction of new technologies (Harley & Crafts, 2000; Schwab, 2019). During the development of the Third Revolution, a significant historical milestone was the advent of the Internet. The Internet became an important source of information, replacing routines and evolving into the core of social, political, academic, and entertainment interactions on a global scale (Castells, 1999). Amidst these transformations, a distinctive form of operation emerged, involving the development of products, conducting business, and forming organizations known as startups. The etymology of the word "startup" suggests the notion of initiating and putting something into operation (Santos, 2020). The term gained prominence during the transition from the 20th to the 21st century, and since the end of the first decade of the latter, startups are understood as organizations operating in high-uncertainty environments, with scalability and ease of replication, where costs do not increase proportionally with growth (Blank & Dorf, 2014).

In the past decade, startups have undergone an economic transformation, revealing three key trends: (a) cost optimization, (b) more viable customer acquisition alternatives, and (c) improved methods of direct monetization (Miller & Bound, 2011). Various funding agents support the development of startups, such as (i) venture capital, (ii) angel investors, (iii) crowdfunding, (iv) startup labs, and (v) corporate venture capital (Aranha, 2016). In 2013, corporate venture capital Aileen Lee began identifying some startups as "unicorns" for achieving milestones comparable to finding a mythical creature. Startups with a market value exceeding $1 billion are considered unicorns (Kanbach & Stubner, 2016). These contribute to understanding the potential of new companies with reproducible and scalable models. In Brazil, startups with initial investment that sustain their operations for up to one year experience a discontinuation rate 2 to 2.5 times higher than those that start operations with operational costs covered for more than one year (Arruda et al., 2014). Thus, it can be recognized from this information that medium-term financing is a crucial aspect for the survival of startups. One external financing option for such businesses is crowdfunding.

Crowdfunding, a method of raising funds for emerging new businesses through communication and seeking support on digital platforms, is currently considered one of the most important sources of financing (Yuan et al., 2016). Crowdfunding has unique aspects of democratizing access to investments that were previously inaccessible to some investors. This financing strategy is primarily practiced according to four models: (a) donations, where the funder supports the cause without expecting rewards; (b) rewards, where there is an agreement on financial returns or products; (c) investments, where equity or securities are provided as compensation for the initial offering of securities; and (d) loans, where investors act as financiers, investing based on a previously agreed compensation rate (Cumming & Hornuf, 2018).

The development of crowdfunding access strategies is intrinsically related to the willingness of remote agents present on the web to engage. Therefore, a crucial aspect is the ability to attract these different agents collaboratively and convergently (Paschen, 2017). In other words, this movement can be understood as the creation of a collaborative network for resource contribution to the startup. The concept of collaborative networks implies the conjunction of different actors with the purpose of partnerships, collaboration, and collective benefits (Camarinha-Matos et al., 2019; Ciesielska & Janowski, 2019; Durugbo, 2016).

The formation of collaborative networks promotes the sharing of knowledge, resources, complementary competencies, and responsibilities (Ciesielska & Janowski, 2019; Kivleniece & Quelin, 2012; Xing et al., 2018), as well as their sustainability (Yahia et al., 2021). Recognizing the significance of research addressing the relationship between collaborative networks and crowdfunding, exploring the functionality of applying concepts related to the formation of collaborative networks potentially offers a more objective perspective on the resource-raising process through crowdfunding dedicated to startup financing. This logic led to the following research question: Does understanding crowdfunding as a result of the construction of collaborative networks provide new opportunities for understanding the resource-raising process for startups? Thus, the primary objective of this research is to conceptually investigate the contribution of collaborative network theory as a means to advance knowledge on crowdfunding strategies for startups.

THEORETICAL BACKGROUND

The daily routines of individuals have been irreversibly impacted by the expansion of connectivity facilitated by the increasing presence of the Internet in people's lives, enhancing interactivity and, notably, supporting initiatives related to ideas, concepts, products, and, in this context, businesses (Castells, 1999). Amid these observed changes, startups have emerged with a dynamic distinct from previously practiced organizational patterns, notably featuring shared leadership models. However, various factors have been identified as potential influencers or drivers of crowdfunding success (Janků & Kučerová, 2018; Moleskis et al., 2019; Wang et al., 2020).

Startups and the survival challenge in the early stage

Studies commonly depict successful startups; however, it is essential to recognize the significant presence of startups that fail to survive their initial years. One of the primary causes of failure in these new companies is insufficient capital to finance their operations during the early stage, a fact reflected in the solvency ratios of early-stage results (Stigen & Solstad, 2020). The Brazilian scenario is no different, with a quarter of startups failing to survive beyond one year due to a lack of capital (Arruda et al., 2014).

Arruda et al. (2014) suggest that the propensity for a startup in Brazil to continue past its first year of operation represents the initial and decisive challenge for these organizations. The crucial importance of financing capacity, and particularly its impact on the survival chances of startups, underscores the need for a robust fundraising strategy to increase the likelihood of business consolidation and vitality. Generally, technology startups do not generate revenue during the early development of their products, and when they do achieve results and access to revenue, it often fails to cover the company's fixed costs, such as salaries, facilities, and supplies (Chammassian & Sabatier, 2020). Hence, the importance of exceptional fundraising to address expenses incurred in the early life cycles of startups is evident.

According to McCarthy (2017), based on data collected by CB Insights, 70% of startups fail. Notably, for those funded by crowdfunding, the failure rate is even higher, reaching 97%. Among the main reasons for the discontinuation of new companies are: (i) resource depletion at 29%; (ii) competition surpassing them at 19%; and (iii) pricing/profit difficulties at 18%. The article supports the condition of the lack of significant revenue for technology startups during the early stages of product development.

Startups and crowdfunding

The evolution of startups, from conception to development through consolidation and expansion, involves significant connections to obtain knowledge and resources necessary for executing key activities, aiming for successful transitions between stages in the company's life cycle (Passaro et al., 2020). However, the stages of a startup are not delineated or identifiable in a standardized manner; in other words, there is no consensus on metrics or indicators that characterize a startup's life stage. Therefore, the choice of crowdfunding type, suggested as crucial for survival, warrants a more focused exploration, considering the establishment of a reserve fund for operational and growth stages, based on two funding approaches: third-party loans (leading crowdfunding) and equity investment (equity crowdfunding) (Paschen, 2017). This author proposes typologies for crowdfunding, distinguishing between tangible and intangible elements with three characteristics:

(i) Donations Crowdfunding, where the funder does not receive a tangible asset or right in exchange for the contribution;

(ii) Leading Crowdfunding, collective loan financing that mimics a debt security issued by the borrower, involving tangible interest;

(iii) Equity Crowdfunding, where investors purchase shares of the company, involving tangible interests.

In Akron, Ohio, a study on the impact of crowdfunding on public initiatives revealed a potential increase in government services, identifying characteristics of projects likely to succeed or fail. Civic crowdfunding, with a higher likelihood of success, should avoid controversial projects and present broad appeal, inducing the participation of hundreds or thousands to ensure unequivocal population representation. Characteristics linked to increased failure rates include the lack of clear identification of participants' roles, minimal governance concerning equity and representation, inconsistent integrity across process stages, and incorporating multiple approaches and disparate network actors (Hajiheydari & Delgosha, 2023). These characteristics suggest that the public is the most critical agent in fundraising through crowdfunding. Therefore, understanding and leveraging collaborative network dynamics may enhance the structuring and effectiveness of these conditions.

In the gaming market, crowdfunding has proven to be a relevant fundraising mechanism. From 2013 to 2016, over 290,000 projects were funded through just one of the platforms facilitating these transactions. Crowdfunding in this context has demonstrated characteristics beyond its primary role of fundraising, such as unifying access channels to capital and providing technical and market knowledge from the crowd for the game (Nucciarelli et al., 2017). These perspectives explore various aspects of the relationship between crowdfunding and startups. However, the literature does not identify approaches focused on constructing collaborative networks as a strategy for engaging actors in the crowd for startup fundraising.

The process of enhancing conditions for utilizing crowdfunding access strategies involves developing interest among potential funders in the digital space. That is, online promotion provides an opportunity for promising businesses to seek financial backing from third parties by offering partnerships to actors present on the internet. In this regard, the challenge is associated with the capacity for collective mobilization, that is, the construction of collaborative networks aimed at resource fundraising (Paschen, 2017). From this perspective, building collaborative networks oriented towards accessing required resources is linked to crowdfunding mechanisms.

Collaborative networks

The development of new technologies has propelled various fields of societal engagement, and with the expansion of collaborative networks, there has been a noticeable increase in different tools that offer new organizational formats (Camarinha-Matos et al., 2019). Focusing on the constructs of networks and collaboration, it is initially pertinent to distinguish between different concepts often associated with networks to avoid misunderstandings or biases in the conceptualization of this topic (Himmelman, 2001). The following operational definitions are therefore adopted:

- Networks: Structures based on connections involving exchanges and interactions that provide mutual benefit and value enhancement for participating actors. The ability of agents (individuals and/or organizations) to establish relationships, such as alliances and partnerships, has become a critical source of competitiveness (Brodie et al., 2019; Zaccarelli, 2000).
- Cooperation: The act of working together with others towards achieving a common goal. This term is frequently used to refer to joint efforts by individuals who share a common objective, where the alignment of interests is central to the qualification of working together (Salvato et al., 2017).
- Collaboration: The act of jointly creating or contributing to a common project by two or more actors. This term generally does not specify additional details regarding the objective or effectiveness of joint work but should not be confused with operating together, or cooperation (Castañer & Oliveira, 2020).
- Trust: The feeling of security in relations with others, associated with positive expectations of ethical, respectful, and honest behavior. Trust reduces transaction costs, particularly those related to uncertainties and opportunism risks, enhances social capital, and fosters solution-building and innovation (Shazi et al., 2015).

From the perspective of understanding the process of collective engagement, collaborative networks represent a competent approach for exploring the dynamics of collaborative systems, integrating multiple voluntary agents in the construction of solutions focused on shared objectives. Collaborative relationships among organizations generally entail, according to Camarinha-Matos et al. (2019), conditions such as:

- Sharing of risks and resources,
- Access to new markets,
- Focus on each member's specialties, and
- Maintaining high standards of agility and innovation.

The presence of these conditions leads to the recognition of the collective operation of actors as a result of a higher-level system characterized by complexity, autonomy, inherent logic, and evolutionary patterns (Zaccarelli et al., 2008). Collaborative networks imply high levels of competitiveness and new roles for organizations, although they may also lead to reduced sectoral competition and loss of identity (Mazzarol et al., 2013).

This topic is neither new nor widely known. Collaboration has always been, even if remotely or unintentionally, one of the most crucial pillars for the effective functioning of an organization. In the absence of collaborative competence, it is apparent that growth and innovation become challenging (Shuman & Twombly, 2010), as illustrated in Figure 1.

Figure 1

Key to innovation and growth

Note: Shuman and Twombly (2010, p.11).

Collaborative networks are present across a range of sectors, including finance, research and development for emerging small businesses (e.g., startups), accelerators, investors, universities, public agencies, and financial institutions (Granstrand & Holgersson, 2020; Wooldridge, 2015). These networks contribute significantly to development processes, innovation, and resource access (Prokop et al., 2019; Yahia et al., 2021). In a multi-level and creative system (Granstrand & Holgersson, 2020), collaborative networks facilitate integration, resource acquisition, and contribute to technological development and innovation (Ferasso et al., 2018; Jackson, 2011; Yahia et al., 2021).

Moreover, partnerships within collaborative networks tend to influence structures with value outcomes due to the changes and developments resulting from these partnerships (Xing et al., 2018). Given environmental pressures and a range of diverse problems, such outcomes would not be easily achieved by individual entities alone (Agranoff & McGuire, 2003; Ciesielska & Janowski, 2019; Durugbo, 2016). Thus, the mechanisms of governance and trust among peers within a collaborative network are foundational for its sustainability (Camarinha-Matos & Afsarmanesh, 2005; Ciesielska & Janowski, 2019; Xing et al., 2018; Yahia et al., 2021).

Crowdfunding and collaborative networks: Theoretical convergence

Crowdfunding, understood as collective financing based on financial contributions from various agents with different motivations, ranging from conventional investment perspectives to activist engagement, can be operationally associated with the availability of communication and information technologies that have become accessible in recent decades (Paschen, 2017; Yuan et al., 2016). However, it is important to recognize that there are different modalities of crowdfunding. In this sense, four models were acknowledged, as typified by Correia et al. (2024): (a) no compensation (resulting from donations and activism), (b) non-financial compensation (e.g., books, events), (c) interest and principal repayment (investment understood as a loan), and (d) equity and ownership participation (investment understood as capital infusion).

Regarding these different crowdfunding modalities, based on the profile of funders, various dimensions influence the success of a campaign. Funding campaigns with higher initial amounts, which could be a basis for increasing the likelihood of startup success, tend to have a lower probability of success (Koch & Siering, 2015, 2019). Additionally, an extended fundraising period decreases investor confidence, affecting the achievement of crowdfunding goals (Mollick, 2014; Shneor & Flåten, 2020). It is necessary to consider that the initiation of a crowdfunding proposal is conditioned from the outset by information asymmetry (Belleflamme et al., 2014; Wang et al., 2021), requiring attention to potentially decisive aspects such as communication and quality of promotion (Barbi & Bigelli, 2017; Behl et al., 2023; Levesque et al., 2017; Pitschner & Pitschner-Finn, 2014). Another condition associated with crowdfunding success, highlighted in the literature, is the reputation and social relationships of the campaign proposers, which can be assessed through verifiable connections and values (Agrawal et al., 2015; Borst et al., 2018; Hoos, 2022). Although proposers with a history of success in previous ventures is a positive factor (Zvilichovsky et al., 2013), this dimension was excluded as it is not representative of the startup model.

Thus, the potential dimensions of success in startup funding were identified as follows: goal modulation, fundraising period definition, information asymmetry (Wang et al., 2021), reputation, and social relationships (Behl et al., 2023) (Table 1).

Table 1

Startup's dimensions of crowdfunding success

Success Dimensions	References
Objectives' modulation	Shneor and Flåten (2020); Koch and Siering (2015)
Fundraising period	Shneor and Flåten (2020); Mollick (2014)
Communication and dissemination	Behl et al. (2023); Barbi and Bigelli (2017); Levesque et al. (2017)
Information asymmetry	Wang et al. (2021); Belleflamme et al. (2014)
Proposer reputation	Borst et al. (2018); Hoos (2022); Agrawal et al. (2015)
Social relationship	Borst et al. (2018); Hoos (2022); Agrawal et al. (2015)

Note: Elaborated by the authors.

Collaborative networks (or collaboration networks), as integrative arrangements based on the cooperation of different actors and endowed with an evolutionary dynamic characteristic of networks, providing innovation processes and access to resources in general (Yahia et al., 2021), suggest an important approximation to the concept of crowdfunding or collective financing. Considering the ability of collaborative networks to enhance processes such as adherence and engagement of actors and interaction among them, fostering the development of innovations and technology (Ferasso et al., 2018; Jackson, 2011), it is inferred that the system, constituted through this model, offers perspectives for constructing solutions that are differentially efficient compared to traditional management models. Thus, common attributes are observed, leading to a strategy of comparison between collaboration networks and crowdfunding, such as:

- The presence of a collective project as a proposal;
- Cooperation of different actors in the execution of a project;
- Individual decision of actors in the process of adherence;
- Access to participants' resources with a view to future compensation; and
- The outcome of success or failure shared by the network's actors.

Thus, the characterization of the foundations of the constitution and operation of collaborative networks provides potentially interesting aspects for the development of crowdfunding. Networks, when involving actors (individuals, organizations, and institutions), are often treated more as systems than as arrangements, due to characteristics such as dynamism, evolutionary nature, non-linear responses, adaptability, and innovation, among others (Shi et al., 2021). This type of network, also understood as virtual, allows for flexibility and efficiency, generally associated with the use of

technology. Collaborative networks present a set of distinctive dimensions (Wei et al., 2019): (a) Cooperation for a determined period, as the constitution of the network is temporary and dedicated to the exploration of a business opportunity (Wei et al., 2019); (b) Trust among partners, resulting from the need for willingness to cooperate and collaborate (Camarinha-Matos et al., 2019); (c) Technology, as a foundational resource for gains in interaction and efficiency in cooperative processes, involving the optimization of flows among participants (Gerber et al., 2012); and (d) Use of the best competencies under the domain of network component actors, constituting a system with competencies superior to those of individual participants (Durugbo, 2016; Najafi-Tavani et al., 2018) (Table 2).

Table 2

Distinctive dimensions of collaborative networks

Success Dimensions	References
Actors' cooperation	Wei et al. (2019); Huxham and Vangen (2004)
Partners' trust	Ciesielska and Janowski (2019); Yahia et al. (2021)
Underlying technology as resource	Yuan et al. (2016); Gerber et al. (2012)
Use of Best Skills	Najafi-Tavani et al. (2018); Durugbo (2016)

Note: Elaborated by the authors.

The composition of success dimensions of startup crowdfunding and distinctive dimensions of collaborative networks theoretically offers options for mapping research perspectives, whether by identifying theoretical gaps or constructing puzzle strategies of fitting distinct conceptual views on the same phenomenon.

METHODOLOGY

Considering the objective of the investigation, which is to identify similarities, convergences, and, above all, the potential for enhanced effectiveness in the management of crowdfunding from the perspective of collaborative networks, the methodological approach adopted was to prospectively understand the crowdfunding strategy through the theoretical lenses of collaborative networks. In this sense, the strategy involved comparing potential dimensions of success in startup crowdfunding (Agrawal et al., 2015; Barbi & Bigelli, 2017; Behl et al., 2023; Belleflamme et al., 2014; Borst et al., 2018; Hoos, 2022; Koch & Siering, 2019; Levesque et al., 2017; Mollick, 2014; Shneor & Flåten, 2020; Wang et al., 2021) e dimensões distintivas de redes colaborativas (Brodie et al., 2019; Camarinha-Matos et al., 2019; Castañer & Oliveira, 2020; Ferasso et al., 2018; Granstrand & Holgersson, 2020; Prokop et al., 2019; Shi et al., 2021; Xing et al., 2018; Yahia et al., 2021).

The adopted perspective was oriented towards verifying and establishing theoretical associations between collaborative networks and crowdfunding for startups. The motivation for the study focused on the relevance of constructs and variables present in collaborative network studies and, simultaneously, as potential conditioning factors and variables, among other intervening categories, in understanding crowdfunding for startups. Thus, operationally, the content of the articles was examined for both themes, not limited to keywords, and verifying the cross-incidence of the dimensions of success in crowdfunding for startups and dimensions of success in collaborative networks.

Arbitrarily, the criterion admitted was the number of shares (nC) present in the references for comparative purposes, considering (i) IMPORTANT for $n_c \geq 3$; (ii) PRESENT for $n_c = 2$; and (iii) POTENTIAL for $n_c = 1$. For example, trust among partners (a success dimension of collaborative networks) was observed in four instances related to dimensions of success in crowdfunding for startups, thus indicating an important research opportunity.

RESULTS AND DISCUSSION

The comparison between the theoretical foundations supporting crowdfunding and collaborative networks indicates the presence of spaces for integration between the two phenomena when treated together. Crowdfunding modalities, such as donations, third-party loans, and equity financing (Paschen, 2017), necessarily involve social categories like engagement, which fundamentally presuppose trust, cooperation, and/or confidence in competencies (Durugbo, 2016; Gerber et al., 2012; Najafi-Tavani et al., 2018; Wei et al., 2019). The relationship between crowdfunding proponents and potential co-optable actors must necessarily be developed based on social categories. In this sense, for each dimension of crowdfunding success, a reflection on the compatibility or appropriateness of the collaborative network approach was developed.

The achievement of crowdfunding objectives depends on the interest of financiers, with the decisions on initial offering and extension of the funding period being decisive variables for the success of the venture (Koch & Siering, 2019). The definition of objectives for a crowdfunding proposal must necessarily consider aspects such as trust and cooperation. Research on trust and performance increasingly suggests that relational behaviors inspired by trust improve performance, reduce transaction costs, and increase transaction value (Wroldsen & Assadi, 2023). Thus, the objectives adopted for a crowdfunding strategy must be guided and conditioned by the ability to access a universe of actors capable of engagement based on their nature (donations, investments, and/or equity financing).

The extension of funding periods correlates negatively with trust (Mollick, 2014; Shneor & Flåten, 2020), referring to a management process oriented by controlling the adherence rate and monitoring, for example, through qualitative surveys, the perceived risk by participating actors. The success of a venture has evolved substantially and involves active cooperation and high-quality relationships (Zheng et al., 2018). As a result, crowdfunding management must face the challenge of not limiting the relationship with financing actors to a purely transactional perspective, proposing continued interaction with them.

Communication and dissemination, as fundamental aspects in building, managing, and maximizing the chances of success of crowdfunding (Barbi & Bigelli, 2017; Behl et al., 2023; Levesque et al., 2017), demand competencies in accessing and interacting with networks, that is, they depend on technology mastery and understanding the needs of potential funding participants (Yuan et al., 2016). Without this exchange-based perspective, the perceived value in the offer tends not to be maximized, as a result of investment and risk reduction. Communication and dissemination, but particularly interaction, understood as two-way communication, play a decisive role that, however, can only be truly successful with an adequate understanding of the attributes valued by potential stakeholders. The information asymmetry present in this type of fundraising (Wang et al., 2021) can be associated with the need for interaction between proponents and resource providers in crowdfunding. The title of the cited article, 'Crowdfunding: tapping into the right crowd,' points to understanding the universe of actors sensitive to the proposal as a platform for relationship and interaction, increasing the probability of success.

Among the various variables associated with the success of financing based on crowdfunding strategy, such as project quality and technology, technical and managerial competence of entrepreneurs, and the ability to communicate and interact with potential investors, the literature indicates the proponent's reputation and social relationship (Agrawal et al., 2015; Borst et al., 2018; Hoos, 2022) as key aspects of this initiative. Thus, the consistent construction of a successful track record by the proponents, referenced by curated and, therefore, credible sources, operates as catalysts of the process. However, the social relationship with presence and interaction in networks oriented to the right crowds (Belleflamme et al., 2014; Wang et al., 2021) simultaneously provide recognized importance, perceived value,

risk reduction, and a higher probability of success. Collaborative networks, in this sense, understood as associations between actors with common or convergent interests, present themselves as a seemingly competent orientation strategy for building joint objectives by different actors (Huxham & Vangen, 2004; Shi et al., 2021; Wei et al., 2019), characteristic of crowdfunding processes.

Based on the conceptual convergence of approaches to the phenomena of crowdfunding and collaborative networks, a schematic representation was outlined between the dimensions considered for both, indicating spaces of cross-relationship based on the developed arguments (Figure 2). It should be recognized that Figure 2 does not claim to be exhaustive, but rather to suggest pictorially the associations between the investigated constructs.

Figure 2

Research opportunities

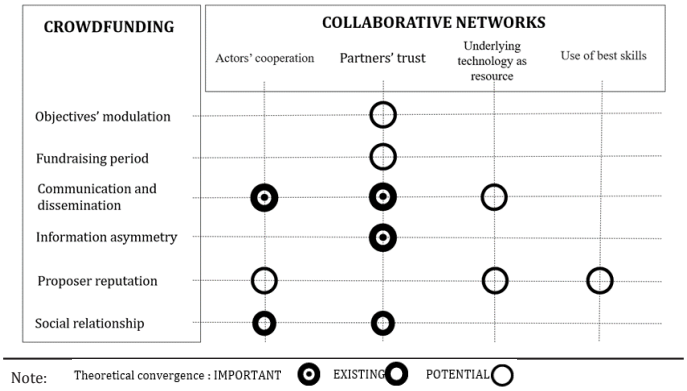

Figure 2 suggests theoretical convergence spaces between collaborative networks and crowdfunding strategies, additionally providing an assessment of the intensity of this relationship (important / present / potential), based on the presence of shared concepts in the literature for both constructs. Investigating such associations points to consistent alternatives for knowledge construction, considering that the theoretical foundations of the collaborative networks perspective appear to be compatible and potentially comprehensive in the planning and management of initiatives like crowdfunding. Thus, these potential theoretical gaps consistently offer opportunities for formulating research questions and advancing the understanding of concepts, identifying constructs, and developing strategies.

Regarding the development of studies, exploratory qualitative research is recommended, and if possible, the use of the Delphi method on the concepts of collaborative networks and crowdfunding to understand and confirm the existence of these associations. After confirming these associations, variables can be established for quantitative studies that could measure the intervention and association between constructs derived from these metrics. Among the research opportunities identified by the present study, some, directly resulting from the cross-analysis between collaborative networks and crowdfunding perspectives (Figure 2), are proposed as potential research questions for future studies (Table 3).

Table 3

Theme and proposed research questions

Theme (crowdfunding category)	Proposed research questions (relationship between crowdfunding categories and collaborative networks)
Objectives' Modulation	How does cooperation between actors intervene in the modulation of crowdfunding objectives?
Fundraising period	How does cooperation between actors intervene in the crowdfunding fundraising period?
Communication and dissemination	How does cooperation between actors affect the communication and dissemination of crowdfunding?
	How does trust between actors affect the communication and dissemination of crowdfunding?
	How does underlying technology intervene in the communication and dissemination of crowdfunding?
Information asymmetry	How does trust between actors affect information asymmetry in crowdfunding?
Proposer reputation	How does cooperation between actors affect the reputation of the crowdfunding proposer?
	How does underlying technology affect the reputation of crowdfunding proponents?
	How does the mastery of skills affect the reputation of a crowdfunding proposer?
Social relationship	How does cooperation between actors affect the crowdfunding proposer's commission?
	How does trust between actors intervene in the social relationship of crowdfunding?

Note: Elaborated by the authors.

FINAL CONSIDERATIONS

Collaborative networks, regardless of the specific terminology used, are fundamentally based on the establishment of structures characterized by interaction processes among actors motivated by achieving shared, convergent, or related objectives (Camarinha-Matos et al., 2019; Wei et al., 2019). Crowdfunding for startup development is considered a strategy related to interactivity and the engagement of third parties in support of a particular cause (Borst et al., 2018; Hoos, 2022). Both constructs are associated with the formation of networks and the presence of social categories (such as collaboration, trust, and cooperation) among agents as operational foundations. Thus, the objective of this study can be described as identifying new opportunities for understanding resource mobilization for startups by examining crowdfunding as a result of building collaborative networks.

The research findings, substantiated by the proposed research agenda, consistently point to the emergence of new and distinct theoretical perspectives for exploring constructs and variables present in collaborative network studies as conditioning factors, potential variables, and other intervening categories in understanding crowdfunding for startups. Further research possibilities can still be developed from this study. Promising research alternatives could include comparative analyses of crowdfunding strategies (donations, lending, and equity) from the perspective of collaborative network concepts. Constructs such as the effectiveness and efficiency of each strategy in financing could serve as a basis for evaluating crowdfunding performance or significant associations with startup survival.

Conflict of interest statement

The authors declare that there is no conflict of interest.

Authors' statement of individual contributions

Roles	Contributions				
	Telles, R.	Goes, W. M. de	Ferreira, G. G.	Zenke, A. A.	Ferraro, R.
Conceptualization	■	■			
Methodology	■	■	■		
Software			N.A.		
Validation				■	■
Formal analysis	■	■	■		
Investigation	■	■	■	■	■
Resources	■				
Data Curation	■		■		
Writing - Original Draf	■	■	■		
Writing - Review & Editing	■		■		
Visualization				■	■
Supervision	■				
Project administration	■				
Funding acquisition		■			

Note: Acc. CRediT (Contributor Roles Taxonomy): https://credit.niso.org/

REFERENCES

Agranoff, R., & McGuire, M. (2003). *Collaborative public management: New strategies for local governments*. Georgetown University Press.

Agrawal, A., Catalini, C., & Goldfarb, A. (2015). Crowdfunding: Geography, social networks, and the timing of investment decisions. *Journal of Economics & Management Strategy*, *24*(2), 253–274.

Aranha, J. A. S. (2016). *Mecanismos de geração de empreendimentos inovadores: Mudanças na organização e na dinâmica dos ambientes e o surgimento de novos atores*. ANPROTEC–Tendências. Brasília, DF: ANPROTEC.

Arruda, C., Nogueira, V., Cozzi, A., & Costa, V. (2014). Causas da mortalidade de startups brasileiras. *Núcleo de Inovação e Empreendedorismo, Fundação Dom Cabral*, 33.

Barbi, M., & Bigelli, M. (2017). Crowdfunding practices in and outside the US. *Research in International Business and Finance*, *42*, 208–223. https://doi.org/10.1016/j.ribaf.2017.05.013

Behl, A., Dutta, P., Sheorey, P., & Singh, R. K. (2023). Examining the role of dialogic communication and trust in donation-based crowdfunding tasks using information quality perspective. *The TQM Journal*, *35*(1), 292–319. https://doi.org/10.1108/TQM-06-2020-0139

Belleflamme, P., Lambert, T., & Schwienbacher, A. (2014). Crowdfunding: Tapping the right crowd. *Journal of Business Venturing*, *29*(5), 585–609. https://doi.org/10.1016/j.jbusvent.2013.07.003

Blank, S., & Dorf, B. (2014). *Startup: manual do empreendedor*. Alta Books Editora.

Borst, I., Moser, C., & Ferguson, J. (2018). From friendfunding to crowdfunding: Relevance of relationships, social media, and platform activities to crowdfunding performance. *New Media & Society*, *20*(4), 1396–1414. https://doi.org/10.1177/1461444817694599

Brodie, R. J., Fehrer, J. A., Jaakkola, E., & Conduit, J. (2019). Actor Engagement in Networks: Defining the Conceptual Domain. *Journal of Service Research*, *22*(2), 173–188. https://doi.org/10.1177/1094670519827385

Camarinha-Matos, L. M., & Afsarmanesh, H. (2005). Collaborative networks: a new scientific discipline. *Journal of Intelligent Manufacturing*, *16*(4–5), 439–452. https://doi.org/10.1007/s10845-005-1656-3

Camarinha-Matos, L. M., Fornasiero, R., Ramezani, J., & Ferrada, F. (2019). Collaborative Networks: A Pillar of Digital Transformation. *Applied Sciences*, *9*(24), 5431. https://doi.org/10.3390/app9245431

Castañer, X., & Oliveira, N. (2020). Collaboration, Coordination, and Cooperation Among Organizations: Establishing the Distinctive Meanings of These Terms Through a Systematic Literature Review. *Journal of Management*, *46*(6), 965–1001. https://doi.org/10.1177/0149206320901565

Castells, M. (1999). *A sociedade em rede* (Vol. 1). Paz e Terra.

Chammassian, R. G., & Sabatier, V. (2020). The role of costs in business model design for early-stage technology startups. *Technological Forecasting and Social Change*, *157*, 120090. https://doi.org/10.1016/j.techfore.2020.120090

Ciesielska, M., & Janowski, T. (2019). *Inter-governmental Collaborative Networks for Digital Government Innovation Transfer – Structure, Membership, Operations* (pp. 295–307). https://doi.org/10.1007/978-3-030-28464-0_26

Correia, S., Sousa, M., & Brandão, E. (2024). What do we know about the choices of entrepreneurs before the equity crowdfunding campaign? *Small Business Economics*. https://doi.org/10.1007/s11187-023-00868-x

Cumming, D., & Hornuf, L. (2018). *The economics of crowdfunding*. Springer.

Durugbo, C. (2016). Collaborative networks: a systematic review and multi-level framework. *International Journal of Production Research*, *54*(12), 3749–3776. https://doi.org/10.1080/00207543.2015.1122249

Ferasso, M., Wunsch Takahashi, A. R., & Prado Gimenez, F. A. (2018). Innovation ecosystems: a meta-synthesis. *International Journal of Innovation Science*, *10*(4), 495–518.

Gerber, E., Hui, J., & Kuo, P.-Y. (Patricia). (2012). Crowdfunding: Why People are Motivated to Post and Fund Projects on Crowdfunding Platforms. *Computer Supported Cooperative Work 2012, Workshop on Design Influence and Social Technologies: Techniques, Impacts and Ethics, Seattle, WA.*, *10*.

Granstrand, O., & Holgersson, M. (2020). Innovation ecosystems: A conceptual review and a new definition. *Technovation*, *90–91*, 102098. https://doi.org/10.1016/j.technovation.2019.102098

Hajiheydari, N., & Delgosha, M. S. (2023). Citizens' support in social mission platforms: Unravelling configurations for participating in civic crowdfunding platforms. *Technological Forecasting and Social Change*, *189*, 122366. https://doi.org/10.1016/j.techfore.2023.122366

Harley, C. K., & Crafts, N. F. R. (2000). Simulating the Two Views of the British Industrial Revolution. *The Journal of Economic History*, *60*(03), 819–841. https://doi.org/10.1017/S0022050700000346

Himmelman, A. T. (2001). On Coalitions and the Transformation of Power Relations: Collaborative Betterment and Collaborative Empowerment. *American Journal of Community Psychology*, *29*(2), 277–284. https://doi.org/10.1023/A:1010334831330

Hoos, F. (2022). Showing off or showing impact? The joint signalling effect of reputation and accountability on social entrepreneurs' crowdfunding success. *Management Accounting Research*, *54*, 100778. https://doi.org/10.1016/j.mar.2021.100778

Huxham, C., & Vangen, S. (2004). Doing things collaboratively: realizing the advantage or succumbing to inertia? *IEEE Engineering Management Review*, *32*(4), 11–20. https://doi.org/10.1109/EMR.2004.25132

Jackson, T. (2011). Societal transformations for a sustainable economy. *Natural Resources Forum*, *35*(3), 155–164. https://doi.org/10.1111/j.1477-8947.2011.01395.x

Janků, J., & Kučerová, Z. (2018). Successful crowdfunding campaigns: The role of project specifics, competition and founders' experience. *Finance a Uver*, *68*, 351–373.

Kanbach, D. K., & Stubner, S. (2016). Corporate Accelerators As Recent Form Of Startup Engagement: The What, The Why, And The How. *Journal of Applied Business Research (JABR)*, *32*(6), 1761. https://doi.org/10.19030/jabr.v32i6.9822

Kivleniece, I., & Quelin, B. V. (2012). Creating and Capturing Value in Public-Private Ties: A Private Actor's Perspective. *Academy of Management Review*, *37*(2), 272–299. https://doi.org/10.5465/amr.2011.0004

Koch, J.-A., & Siering, M. (2015, July). *Crowdfunding Success Factors: The Characteristics of Successfully Funded Projects on Crowdfunding Platforms*.

Koch, J.-A., & Siering, M. (2019). The recipe of successful crowdfunding campaigns. *Electronic Markets*, *29*(4), 661–679. https://doi.org/10.1007/s12525-019-00357-8

Levesque, V. R., Calhoun, A. J. K., Bell, K. P., & Johnson, T. R. (2017). Turning contention into collaboration: engaging power, trust, and learning in collaborative networks. *Society & Natural Resources*, *30*(2), 245–260.

Mazzarol, T., Limnios, E. M., & Reboud, S. (2013). Co-operatives as a strategic network of small firms: Case studies from Australian and French co-operatives. *Journal of Co-Operative Organization and Management*, *1*(1), 27–40. https://doi.org/10.1016/j.jcom.2013.06.004

McCarthy, N. (2017). *The Top Reasons Startups Fail [Infographic]*. Forbes. Retrieved September 24, 2024, from https://www.forbes.com/sites/niallmccarthy/2017/11/03/the-top-reasons-startups-fail-infographic/

Miller, P., & Bound, K. (2011). The startup factories. *NESTA. Http://Www. Nesta. Org. Uk/Library/Documents/StartupFactories. Pdf*.

Moleskis, M., Alegre, I., & Canela, M. A. (2019). Crowdfunding Entrepreneurial or Humanitarian Needs? The Influence of Signals and Biases on Decisions. *Nonprofit and Voluntary Sector Quarterly*, *48*(3), 552–571. https://doi.org/10.1177/0899764018802367

Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing*, *29*(1), 1–16. https://doi.org/10.1016/j.jbusvent.2013.06.005

Najafi-Tavani, S., Najafi-Tavani, Z., Naudé, P., Oghazi, P., & Zeynaloo, E. (2018). How collaborative innovation networks affect new product performance: Product innovation capability, process innovation capability, and absorptive capacity. *Industrial Marketing Management*, *73*, 193–205. https://doi.org/10.1016/j.indmarman.2018.02.009

Nucciarelli, A., Li, F., Fernandes, K. J., Goumagias, N., Cabras, I., Devlin, S., Kudenko, D., & Cowling, P. (2017). From value chains to technological platforms: The effects of crowdfunding in the digital game industry. *Journal of Business Research*, *78*, 341–352. https://doi.org/10.1016/j.jbusres.2016.12.030

Paschen, J. (2017). Choose wisely: Crowdfunding through the stages of the startup life cycle. *Business Horizons*, *60*(2), 179–188. https://doi.org/10.1016/j.bushor.2016.11.003

Passaro, R., Quinto, I., Rippa, P., & Thomas, A. (2020). Evolution of Collaborative Networks Supporting Startup Sustainability: Evidences from Digital Firms. *Sustainability*, *12*(22), 9437. https://doi.org/10.3390/su12229437

Pitschner, S., & Pitschner-Finn, S. (2014). Non-profit differentials in crowd-based financing: Evidence from 50,000 campaigns. *Economics Letters*, *123*(3), 391–394. https://doi.org/10.1016/j.econlet.2014.03.022

Prokop, V., Stejskal, J., & Hudec, O. (2019). *Collaboration for innovation in small CEE countries*.

Salvato, C., Reuer, J. J., & Battigalli, P. (2017). Cooperation across Disciplines: A Multilevel Perspective on Cooperative Behavior in Governing Interfirm Relations. *Academy of Management Annals*, *11*(2), 960–1004. https://doi.org/10.5465/annals.2014.0001

Santos, L. C. dos. (2020). Aspectos societários do "equity crowdfunding" no Brasil e o ecossistema das "startups." *Revista de Direito Bancário e Do Mercado de Capitais: RDB*, *23*(87), 13–41.

Schwab, K. (2019). *A quarta revolução industrial*. Edipro.

Shazi, R., Gillespie, N., & Steen, J. (2015). Trust as a predictor of innovation network ties in project teams. *International Journal of Project Management*, *33*(1), 81–91. https://doi.org/10.1016/j.ijproman.2014.06.001

Shi, X., Lu, L., Zhang, W., & Zhang, Q. (2021). Managing open innovation from a knowledge flow perspective: the roles of embeddedness and network inertia in collaboration networks. *European Journal of Innovation Management*, *24*(3), 1011–1034. https://doi.org/10.1108/EJIM-07-2019-0200

Shneor, R., & Flåten, B.-T. (2020). Crowdfunding Education: Objectives, Content, Pedagogy, and Assessment. In *Advances in Crowdfunding* (pp. 475–497). Springer International Publishing. https://doi.org/10.1007/978-3-030-46309-0_20

Shuman, J., & Twombly, J. (2010). Collaborative networks are the organization: an innovation in organization design and management. *Vikalpa*, *35*(1), 1–14.

Stigen, E. B., & Solstad, M. H. (2020). *Stigen, E. B., & Solstad, M. H. (2020). What are, if any, the explanatory financial factors of bankruptcy in Norwegian startups?* BI Norwegian Business School.

Wang, N., Liang, H., Xue, Y., & Ge, S. (2021). Mitigating Information Asymmetry to Achieve Crowdfunding Success: Signaling and Online Communication. *Journal of the Association for Information Systems*, *22*(3), 773–796. https://doi.org/10.17705/1jais.00679

Wang, W., Chen, W., Zhu, K., & Wang, H. (2020). Emphasizing the entrepreneur or the idea? The impact of text content emphasis on investment decisions in crowdfunding. *Decision Support Systems*, *136*, 113341. https://doi.org/10.1016/j.dss.2020.113341

Wei, S., Zhang, Z., Ke, G. Y., & Chen, X. (2019). The more cooperation, the better? Optimizing enterprise cooperative strategy in collaborative innovation networks. *Physica A: Statistical Mechanics and Its Applications*, *534*, 120810. https://doi.org/10.1016/j.physa.2019.04.046

Wooldridge, J. M. (2015). *Introductory Econometrics: A Modern Approach* (5th ed.). Cengage.

Wroldsen, J., & Assadi, D. (2023). Trust is not recognition: an exploration of revolts in crowdfunding. *International Journal of Entrepreneurship and Innovation Management*, *27*, 1–18.

Xing, Y., Liu, Y., & Cooper, S. C. L. (2018). Local government as institutional entrepreneur: Public–private collaborative partnerships in fostering regional entrepreneurship. *British Journal of Management*, *29*(4), 670–690.

Yahia, B. N., Eljaoued, W., Saoud, B. B. N., & Colomo-Palacios, R. (2021). Towards sustainable collaborative networks for smart cities co-governance. *International Journal of Information Management*, *56*, 102037. https://doi.org/10.1016/j.ijinfomgt.2019.11.005

Yuan, H., Lau, R. Y. K., & Xu, W. (2016). The determinants of crowdfunding success: A semantic text analytics approach. *Decision Support Systems*, *91*, 67–76. https://doi.org/10.1016/j.dss.2016.08.001

Zaccarelli, S. B. (2000). *Clusters e redes de negócios: uma nova visão para a gestão dos negócios*. Editora Atlas SA.

Zaccarelli, S. B., Telles, R., Siqueira, J. P. L., Boaventura, J. M. G., & Donaire, D. (2008). Clusters e redes de negócios: uma Nova visão para a gestão dos empresários. *São Paulo: Atlas*.

Zheng, X., Lu, Y., Le, Y., Li, Y., & Fang, J. (2018). Formation of Interorganizational Relational Behavior in Megaprojects: Perspective of the Extended Theory of Planned Behavior. *Journal of Management in Engineering*, *34*(1). https://doi.org/10.1061/(ASCE)ME.1943-5479.0000560

Zvilichovsky, D., Inbar, Y., & Barzilay, O. (2013). Playing Both Sides of the Market: Success and Reciprocity on Crowdfunding Platforms. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2304101