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REVIEW

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Crowdfunding for innovation: a comprehensive empirical review

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Abstract

Crowdfunding has emerged as a transformative alternative to traditional innovation financing. Limitations of conventional funding sources have led to increased interest in alternative financing mechanisms. Crowdfunding, leveraging online platforms, has democratized access to capital, enabling entrepreneurs to develop products and services that align with broader population needs. This paper surveys the literature, demonstrating how crowdfunding platforms have opened doors to capital for entrepreneurs who might otherwise have found it challenging to secure funding through established channels. While crowdfunding's impact on innovation is multifaceted and contingent on factors like innovation type, entrepreneur quality, and regulatory frameworks, its growth trajectory remains robust, solidifying its significance as a source of entrepreneurial finance. The study aims to (1) analyze the effectiveness of crowdfunding in bridging the funding gap for startups, (2) compare crowdfunding with other forms of entrepreneurial finance, (3) assess crowdfunding's role in fostering innovation, (4) differentiate between crowdfunding and crowdsourcing, and (5) identify the types of innovation facilitated by crowdfunding. Effective crowdfunding implementation hinges on these factors, necessitating concerted efforts from entrepreneurs, investors, and policymakers to surmount associated challenges and harness its potential for innovation and economic growth. The findings highlight the necessity for a supportive regulatory framework and the importance of transparency and trust in crowdfunding practices. This study underscores the role of policymakers in creating an environment that fosters innovation through alternative financing. However, this study is limited by the availability of comprehensive data across different crowdfunding platforms and regions. Further empirical research is needed to generalize the findings across various contexts, deepen our understanding of crowdfunding's impact on innovation, and develop strategies to leverage the potential of crowdfunding for innovation.

Keywords Crowdfunding, Financing innovation, Innovation, Entrepreneurial finance

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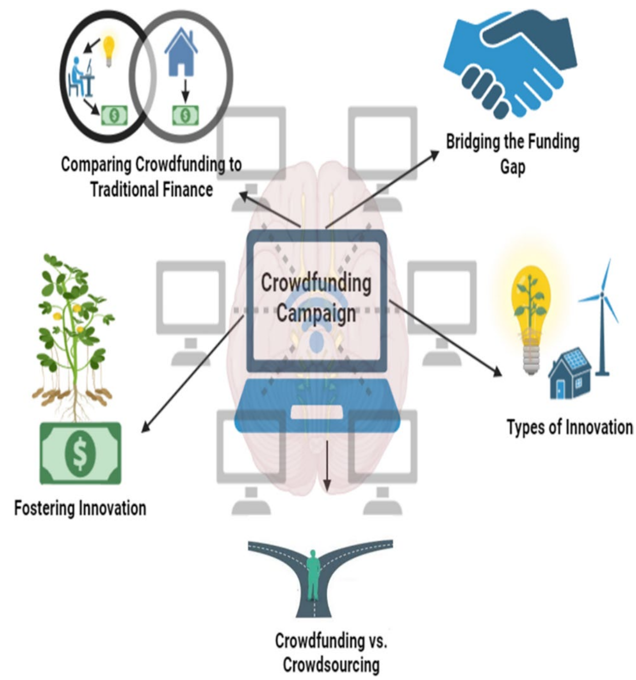
Graphical abstract



Introduction

According to Schumpeter [82], investing opportunities, allocating resources, and financing innovation are some of the critical functions that finance and financial institutions perform within the economy. Since innovation is a significant source of growth [53], the selection of the best projects is crucial. Entrepreneurial startups, especially those sponsored by private sources like venture capital funds and business angels, play a significant role in driving innovation [13, 14, 28, 54]. By providing financial support to projects and mitigating adverse selection, financial institutions contribute to the development of innovation. This paper discusses the impact of crowdfunding, a new form of financing, on the innovation and growth generated by small entrepreneurial firms.

According to Lee et al. [59], while startups are often considered better suited for certain types of innovation, they also face unique challenges. One such challenge is the inherent risk associated with innovation, which can make financing risky, particularly for small firms. On the contrary, big corporations have the advantage of diversifying their risk by investing in various income-generating ventures and research initiatives. Meanwhile, small businesses face more significant challenges due to information asymmetry issues, which can pose challenges in obtaining conventional forms of funding, such as bank loans. Carpenter and Petersen [19] highlighted this concern. In such cases, smaller and younger companies might rely more heavily on venture capital funds and business angels for equity financing, as per the pecking order theory proposed by Myers [71]. These investors are more qualified to help them evaluate, assist, and monitor these companies. There may be market failures without this support [3, 12]. Innovation is often unique to a particular company and cannot be transferred or sold, making it impossible for startups to use their innovation as collateral to secure bank financing. This is compounded by the fact that many startups do not generate revenue in their early years, making it difficult for them to make regular interest payments.

Crowdfunding has emerged as a novel type of financing for entrepreneurial ventures that are often unable to secure funding through traditional means. Since the financial crisis in 2008, traditional financing sources for small- and medium-sized enterprises (SMEs) have been scarce, leading to the emergence of a new form of finance known as crowdfunding. Innovative startups facing hurdles in accessing early-stage funding can find this financing approach particularly advantageous, as it helps to bridge the financial gap that frequently impedes their progress. Crowdfunding has various forms, including reward-based crowdfunding, donation-based crowdfunding, loan-based crowdfunding, and equity crowdfunding. The World Bank estimates that by 2025, crowdfunding will have reached a value of $300 billion. In 2015, there were over 1300 crowdfunding platforms worldwide with a total volume of nearly $140 billion. All crowdfunding segments have experienced growth, including equity crowdfunding, which has been prohibited in many countries until recently due to its high level of regulation. The various types of crowdfunding have emerged due to the diversity of projects seeking financing, including those that are artistic and social in nature, and do not necessarily involve technological innovation. However, this paper's focus is on crowdfunding for innovative entrepreneurs and therefore does not cover the entire spectrum of crowdfunding activities [31, 33, 40, 52, 56, 82, 83, 85].

Crowdfunding is not a recent phenomenon and has been used for financing projects in the past. Macht and Weatherston [65] cite an example of Joseph Pulitzer, the publisher of New York World, who in 1884 requested assistance from his readers to finance the Statue of Liberty's construction. This call to action led to more than $100,000 in donations from 125,000 individuals, and the newspaper cited the names of donors. In addition to financing, crowdfunding also offers the opportunity for the crowd to provide feedback or evaluate a project, which is not a new idea, as Galton [32] demonstrated that a large and diverse crowd could make accurate decisions when the right incentives were in place. This phenomenon, also known as vox populi or wisdom of crowds, has been studied by several researchers, including Surowiecki [90] and Larrick et al. [57]. However, the question remains whether the crowd can evaluate innovation-driven projects effectively, given the specific expertise required.

Academic research on crowdfunding has gained momentum in the last decade, with early studies focusing primarily on reward-based and loan-based crowdfunding. The availability of data from crowdfunding platforms like Kickstarter, Indiegogo, Prosper, and Kiva has enabled researchers to explore the impact of various project and entrepreneurial characteristics on campaign success. These characteristics include funding goals, project presentation, geographic location, the size of one's social network, personality traits, and team dynamics. Many studies have examined these factors, including Lin et al. [63], Mukrimaa et al. [69], Mollick [66], Agrawal et al. [1], Ahlers et al. [2], Allison et al. [5], Colombo et al. [21], Lin and Viswanathan [62], Giudici, Guerini, and Rossi-Lamastra [35], Zheng et al. [97], Popescul et al. [76], Rakesh, Choo, and Reddy [78], and Kuppuswamy and Bayus [55].

Some researchers have investigated whether crowdfunding can provide greater access to finance for individuals who are often discriminated against by traditional financial institutions, such as women and racial minorities. Crowdfunding benefits women more proportionally than minorities, but racism remains an issue in the USA [36, 39, 75, 80].

Studies have also examined the dynamics of crowdfunding campaigns, with research showing that reward-based campaigns generally follow a U-shaped pattern of contribution over time, while equity crowdfunding campaigns follow an L-shaped or U-shaped pattern, depending on the allocation mechanism [43, 45, 46, 55, 73, 84].

In the realm of economics and public policy, the connection between crowdfunding and innovation remains an understudied area, with some exceptions noted below. The purpose of this study is to examine the relationship between crowdfunding and innovation based on existing literature. The study focuses on investigating two separate channels through which crowdfunding may drive innovation. The first channel examines whether crowdfunding can serve as an effective funding source for innovative projects, potentially outpacing traditional financing methods and encouraging innovation. The second channel explores whether crowdfunding can facilitate public involvement in the innovation process, potentially leading to more innovative outcomes. Crowdfunding and crowdsourcing are occasionally used interchangeably [27, 44, 86, 94], highlighting a unique feature of crowdfunding compared to conventional funding approaches such as banks or professional equity investors. Mollick and Nanda's [67] research on artistic projects revealed that the crowd's ability to evaluate projects is comparable to that of experts. It remains to be seen if this finding applies to innovation-driven projects, but since the crowd is frequently the ultimate customer of the product being marketed, the fact that they offer funding, ideas, and feedback keeps the possibility open. While professional investors can offer guidance on business development, the public can provide immediate feedback on products. According to Strausz's principal-agent model [89], crowdfunding may not be effective in dealing with entrepreneurial moral hazard problems, which are better addressed by banks or venture capitalists. However, reward-based crowdfunding has been successful in reducing uncertainty about aggregate demand. It should be noted that this argument applies only to reward-based crowdfunding and cannot be generalized to other forms of crowdfunding.

The current literature highlights the gap in understanding the nuanced dynamics of crowdfunding, particularly in its application across different economic contexts. Recent studies have shown the interplay of financial innovation, digitalization, and green technology in promoting business growth [17]. Moreover, the role of mega-infrastructure development in enhancing tourism sustainability and quality of life, especially in the context of COVID-19 challenges, has been explored [70]. Additionally, the impact of innovation, self-efficacy, and creativity-oriented HRM practices on enhancing organizational innovativeness has been highlighted [6]. These studies underscore the need for further research to understand how crowdfunding can leverage these dynamics to drive innovation.

The primary aim of this study is to create a connection between trust, innovation, and crowdfunding. Thus, the following section offers a general overview of the functioning of crowdfunding, which has largely depended on online platforms in recent years. The third section examines the potential of crowdfunding to fund innovative projects and stimulate innovation. This includes a discussion on the possible links between crowdfunding and other traditional financing methods. The fourth section explores additional ways in which crowdfunding can support innovation beyond just providing financial resources. Finally, the fifth section concludes by proposing potential areas for further research.

Literature Review and Theoretical Frameworks in Crowdfunding Research

In recent years, the body of the literature on crowdfunding and its impact on innovation has expanded significantly. Hussain et al. [48] explored the impact of knowledge sharing and innovation on sustainable performance in Islamic banks, highlighting the role of digital management and smart technologies in enhancing organizational performance. This study's findings can be applied to the context of crowdfunding, where knowledge sharing among backers and creators can enhance project outcomes.

Tan et al. [92] examined the role of digital management and smart technologies in sports education, emphasizing the importance of green growth and tourism in dynamic environments. Their research underscores the potential of crowdfunding to support sustainable and innovative projects in various sectors, including sports and tourism.

Mahmood et al. [71] investigated the effects of corporate social responsibility practices and environmental factors on the sustainable performance of business firms. Their study, which emphasizes the moderating role of social media marketing, is particularly relevant to crowdfunding, where social media plays a crucial role in campaign promotion and engagement with potential backers.

These recent studies highlight the evolving nature of crowdfunding and its potential to drive innovation across different sectors. However, the literature also reveals a gap in understanding the specific mechanisms through which crowdfunding influences innovation. This study aims to fill this gap by analyzing how crowdfunding can serve as an effective funding source for innovative projects and facilitate public involvement in the innovation process.

Understanding the theoretical frameworks utilized in crowdfunding research is crucial for comprehending the principles driving crowdfunding dynamics and outcomes. This section provides an overview of the major theories applied in crowdfunding research over the past 10 to 20 years, highlighting their applications and frequency of use.

Social Capital Theory emphasizes the importance of social networks and the resources embedded within these networks. In the context of crowdfunding, this theory is frequently used to explain how social connections and network size impact the success of crowdfunding campaigns. Approximately 30% of the reviewed studies have utilized Social Capital Theory, underscoring its significance in understanding the social dynamics that contribute to successful crowdfunding efforts.

Signaling Theory posits that individuals send signals to convey information and reduce information asymmetry. In crowdfunding, project creators use various signals, such as endorsements and quality indicators, to attract backers. This theory has been applied in about 25% of the studies, highlighting its relevance in analyzing how project creators can effectively communicate with potential backers to secure funding.

The ***Theory of Planned Behavior (TPB)*** explains how attitudes, subjective norms, and perceived behavioral control influence intentions and behaviors. In crowdfunding research, TPB is used to analyze the intentions of backers to support campaigns [51]. Approximately 15% of the studies have employed TPB, indicating its utility in understanding the psychological factors that motivate individuals to contribute to crowdfunding projects.

Information Asymmetry Theory addresses issues that arise when one party in a transaction has more or better information than the other. In the context of crowdfunding, this theory examines how information asymmetry between project creators and backers affects funding decisions. This theory has been referenced in about 10% of the studies, demonstrating its importance in exploring the challenges and strategies for mitigating information gaps in crowdfunding.

The ***Resource-Based View (RBV)*** focuses on the resources and capabilities that organizations possess and how these contribute to competitive advantage. In crowdfunding, RBV is applied to understand how the resources available to project creators, such as skills and networks, influence the success of their campaigns. Around 10% of the studies have used RBV, highlighting its relevance in assessing the resource-based factors that contribute to successful crowdfunding outcomes.

Finally, ***Institutional Theory*** examines how institutions—rules, norms, and beliefs—shape social behavior. This theory is utilized in crowdfunding research to explore how regulatory and cultural environments impact crowdfunding practices. Approximately 5% of the studies have employed Institutional Theory, emphasizing its role in understanding the broader environmental factors that influence crowdfunding activities.

This section highlights the diverse theoretical perspectives that have been applied in crowdfunding research, providing a comprehensive overview of the intellectual foundations of the field. By incorporating these theories, the manuscript not only strengthens its empirical insights but also offers a robust theoretical context for understanding the complex dynamics of crowdfunding.

Geographical and economic categorization of crowdfunding studies

Understanding how crowdfunding operates in different economic contexts is crucial for comprehending its impact on innovation. This section categorizes the empirical studies on crowdfunding based on their geographical context and distinguishes between developed and emerging economies, providing insights into regional variations in crowdfunding practices.

Developed economies

In developed economies, such as the USA, the UK, and Germany, significant research has been conducted to explore various aspects of crowdfunding. In the USA, studies by Mollick [66], Pope and Sydnor [75], and Greenberg and Mollick [36] focus on the determinants of crowdfunding success, the presence of discrimination in crowdfunding, and gender dynamics. These studies have identified key factors influencing the success of crowdfunding campaigns, found evidence of racial discrimination, and highlighted gender-related disparities in crowdfunding outcomes.

In the UK, the study by Cumming, Leboeuf, and Schwienbacher [23] provides a comparative analysis of different crowdfunding models. Their findings indicate that while keep-it-all models attract more campaigns, all-or-nothing models tend to have higher success rates. This insight into the effectiveness of various crowdfunding models is particularly relevant for understanding how campaign structure influences outcomes in a mature market.

Germany has contributed to the understanding of regulatory impacts on crowdfunding through the work of Hornuf and Schwienbacher [41]. Their research examines the effect of regulations on the success and growth of equity crowdfunding, highlighting the importance of a supportive legal framework in fostering the crowdfunding market. These studies from developed economies underscore the significance of regulatory environments, social dynamics, and market maturity in shaping crowdfunding practices.

Emerging economies

In emerging economies, the focus of crowdfunding research shifts to the role of social networks and peer-to-peer interactions, reflecting the different stages of market development and regulatory environments. In China, Lin et al. [63] investigate the dynamics of peer-to-peer lending, finding that social networks significantly affect funding decisions and outcomes. This study emphasizes the importance of social connections in the success of crowdfunding campaigns in a rapidly growing market.

India, another key emerging economy, is represented by the work of Agrawal et al. [1], who explore the role of social networks in crowdfunding. Their findings highlight that social network play a crucial role in the success of crowdfunding campaigns, demonstrating how interpersonal relationships and community support can drive crowdfunding success in contexts with evolving financial ecosystems.

Comparative insights

Comparing studies from developed and emerging economies reveals differences in how crowdfunding operates and its impact on innovation. Developed economies focus more on regulatory frameworks, social dynamics, and the maturity of the crowdfunding market [96]. In contrast, emerging economies emphasize the role of social networks and peer-to-peer interactions, reflecting the unique challenges and opportunities in these regions. Recent studies, such as those by Bargoni et al. [10] and Camilleri and Bresciani [22], provide comprehensive reviews that underscore these distinctions and highlight the diverse applications and implications of crowdfunding across different economic contexts.

Methods

Acquiring knowledge over an innovative strategy like crowdfunding is not like a one-day book chapter. To draw the overall scenario of crowdfunding, an innovative online platform, we have designed a six-month study period, following by proposed approaches of Agrawal et al. [1] and Baumgardner et al. [7]. In this study, we have performed the systemic review by following below steps and separated our research into some segments. However, for the far and foremost, we

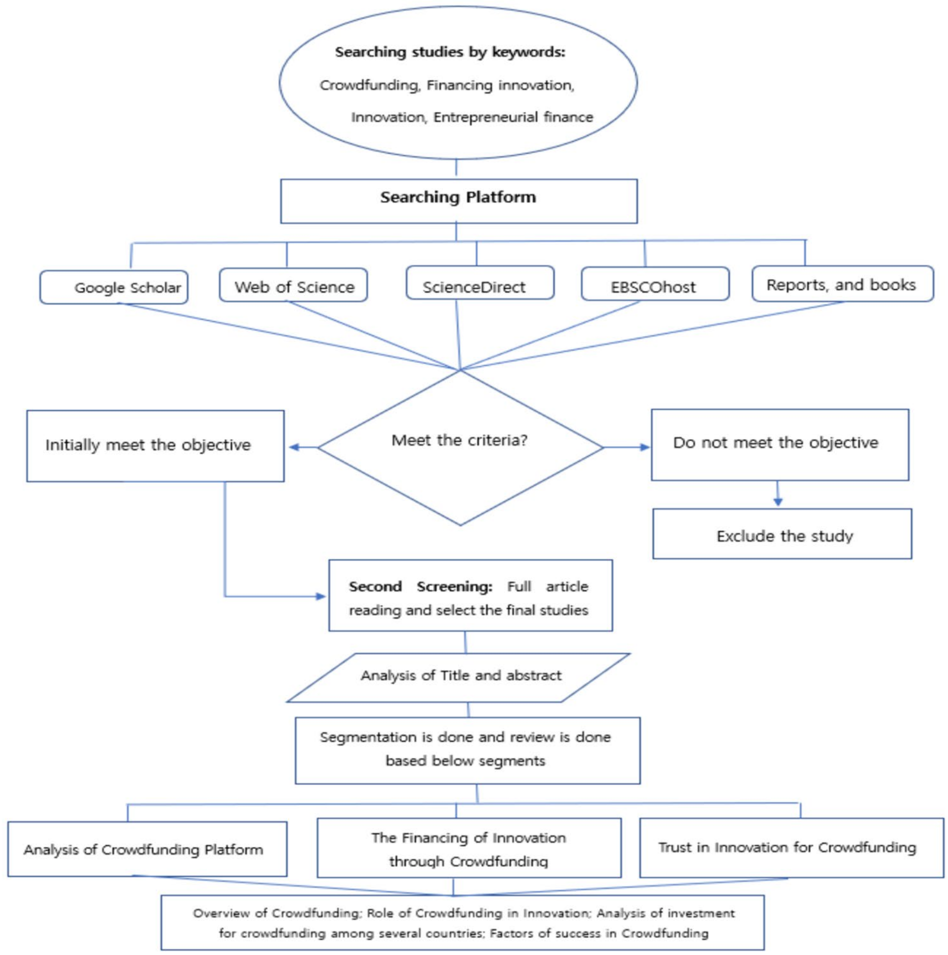


Fig. 1 Methodology of review process

have set our research goals, strategies, and then the selection as well as exclusion criteria. All the strategies of our research are reflected in Fig. 1.

The goal of this study is not only to figure out the relation between innovation as well as crowdfunding, but also the bridge of trust as well as crowdfunding. Therefore, we have selected some keywords, such as crowdfunding, financing innovation, innovation, entrepreneurial finance, and others to find out some specific research works regarding to our goals.

We have used some well-known search engines, like Google Scholar, Web of Science, Science Direct, EBSCOhost, where we have searched related articles following the keywords. In addition, some recent reports on crowdfunding from authentic sources and a number of book chapters over the innovation process of crowdfunding also have been included in the process of selecting researches. We have found initially 157 articles on the first search through the key points. However, we have finalized five questions to specify our research. These are 1. What's the role of crowdfunding in bridging the funding gap? 2. What's the difference of crowdfunding with other forms of entrepreneurial finance? 3. The role of crowdfunding in innovation. 4. Is the crowdfunding and crowd sourcing same? 5. What are the types of innovation and its enabling factor based on crowdfunding? Focusing on these five questions, we have figured out our objective of this study.

Among those initially selected articles, all the studies did not meet up our goal after reading the abstract, highlights and summaries. Therefore, we have excluded the researches initially which did not meet up the objectives and finalize total 109 articles, book chapters and blogs. Next, we again performed the screening of researches, and reports through the full text summarizing. Finally, we have selected total 78 research articles, book chapters, news reports in number.

As next step, we have segmented this study into three segments, as analysis of crowdfunding platform, the financing of innovation through crowdfunding, and the

Table 1 Summary of previous empirical studies on crowdfunding

References	Crowdfunding platform (s)	Focus of study	Methodology	Key findings
[66]	Kickstarter	Determinants of success in crowdfunding	Quantitative analysis	Identified project characteristics influencing success; geography and quality matter
[1]	Multiple	Role of social networks in crowdfunding	Empirical analysis	Social networks play a significant role in the success of crowdfunding campaigns
[63]	Prosper	Dynamics of peer-to-peer lending	Quantitative analysis	Found significant effects of social networks on funding decisions and outcomes
[75]	Prosper	Discrimination in crowdfunding	Empirical study	Found evidence of racial discrimination in crowdfunding
[2]	Multiple	Equity crowdfunding	Quantitative analysis	Highlighted the importance of financial literacy and information disclosure in campaign success
[5]	Kickstarter, Indiegogo	Impact of narrative and presentation	Qualitative analysis	The way a project is presented and narrated significantly affects its funding success
[21]	Multiple	Role of team dynamics in crowdfunding	Empirical analysis	Found that team characteristics and dynamics influence campaign outcomes
[36]	Multiple	Gender dynamics in crowdfunding	Empirical study	Identified gender-related disparities, with women performing better in certain contexts
[55]	Kickstarter	Temporal patterns in crowdfunding	Quantitative analysis	U-shaped pattern of contributions over the campaign period
[41]	Multiple	Regulation and equity crowdfunding	Empirical analysis	Examined the impact of regulations on the success and growth of equity crowdfunding

trust in innovation for crowdfunding. By analyzing the data from data bank through these segments, we have overviewed the role of crowdfunding in innovation.

Table 1 summarizes the analysis of previous empirical studies on crowdfunding, as shown below:

Understanding the functionality of crowdfunding platforms

While most crowdfunding campaigns currently take place on established platforms, it was not always this way, as the earliest campaigns were launched on self-made websites by a few entrepreneurs prior to the arrival of Indiegogo and Kickstarter in 2008 and 2009, respectively [8, 9, 60]. One such example is Trampoline Systems, a UK software firm that tried to raise £1 million for its development, but ended up only selling securities to accredited investors. Since then, the creation of platforms has streamlined the crowdfunding process by maintaining specific country-based rules (Fig. 2) and given greater exposure to projects, which has accelerated the growth of crowdfunding on a global scale. Today, a wide range of platforms operate in various formats, with some specializing in particular project types, and others offering entrepreneurs the flexibility to choose between

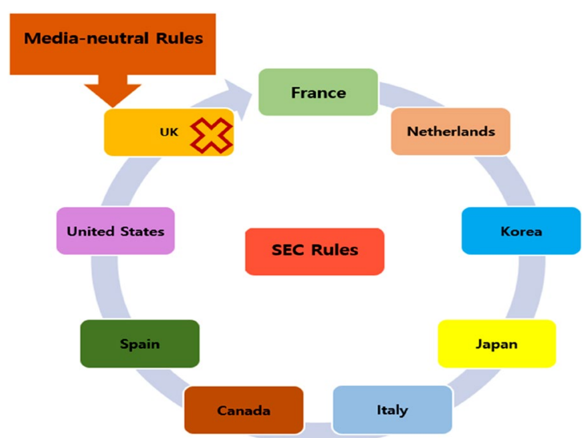


Fig. 2 Use of website of different countries maintaining rules for the frameworks for crowding activities

"all-or-nothing" or "keep-it-all" funding models [9]. Additionally, some platforms now provide the option for entrepreneurs to select between various crowdfunding models, such as reward-based and equity crowdfunding, with Indiegogo now offering equity crowdfunding as an option [41, 44].

The advent of social media has enabled the development of online platforms that connect businesses with potential investors, specifically small-scale individual investors with limited financial expertise but a willingness to invest a small amount of money, as observed by [30]. The collective accumulation of these small contributions can generate substantial funds. The reduced costs associated with online platforms have enabled small business owners to access funding from a larger group of people, which has led to the emergence of this trend [9, 13, 67].

As noted in the introduction, crowdfunding has evolved to include various forms (donation, reward, loan, equity) within a global ecosystem [59]. This diversity makes crowdfunding attractive to different entrepreneurial and innovative projects (Fig. 3) as it allows entrepreneurs to select the type of crowdfunding most suitable for their project when they cannot obtain necessary funding from traditional sources. Crowdfunding platforms act as intermediaries to match entrepreneurs/projects with backers/contributors and reduce costs, similar to two-sided markets [72, 79]. These costs may take different forms, such as search costs, information collection costs, and negotiation costs. Unlike traditional intermediaries such as banks that select projects themselves, crowdfunding platforms leave the decision to the crowd. They play a limited role as intermediaries by bringing together the two sides of the market and generally do not collect information themselves, but only provide a place for parties to share information to reduce costs for everyone [4, 34, 41].

Leboeuf and Schwienbacher [58] and Schwienbacher [87] suggest that crowdfunding platforms target various types of participants, not just entrepreneurs. Backers in reward-based crowdfunding are commonly given the project's product ahead of its public release as a form of reward. Consequently, backers' consumption decisions influence their contributions. In contrast, equity crowdfunding involves purchasing financial securities, making investors shareholders in the startup. As a result, the primary reason for backers to make investment decisions is to obtain financial returns. Loan-based crowdfunding platforms have similar financial goals, and backers have varying motivations depending on the type of platform. Later on, we will examine additional motivations that may complement the ones mentioned.

Crowdfunding platforms require entrepreneurs to make a significant amount of information public in order to persuade backers to contribute. Although this may pose a problem if others attempt to replicate the same idea, it is necessary to disclose relevant information to reduce information asymmetry and the risk of fraud, thereby reducing risk for the crowd. A buildup of fraud

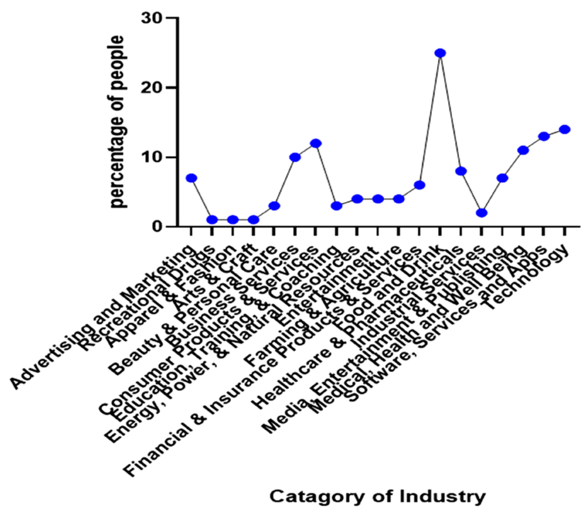


Fig. 3 Percentage of people from different industries who are investing for crowdfunding

cases could jeopardize the future of a platform or even the entire crowdfunding industry. Therefore, it is critical for platforms to be managed in a manner that minimizes risk for the crowd. Regulators have shown a great deal of interest in equity crowdfunding, which involves the public offering of financial securities that are already subject to heavy regulation, in recent years. The establishment of a favorable legal framework is essential for crowdfunding's growth. To support equity crowdfunding while minimizing risk for investors, various countries have introduced specific regulations. Loan-based crowdfunding has even been subject to regulation in some countries, such as France and the UK, according to Dushnitsky et al. [26] and Hervé and Schwienbacher [39].

The initial proposal for regulations for equity crowdfunding was made by the USA under the Jumpstart Our Business Startups (JOBS) Act of 2012; however, these regulations were not enforced until 2016 by the US Securities and Exchange Commission [88]. Subsequently, other countries such as Italy, France, Germany, Belgium, the UK, and Austria followed suit [38, 44, 45]. Although these regulations differ in their approach, they all aim to minimize risk for the crowd in equity crowdfunding, whether it is the risk of fraud or other types of investment risk that could affect innovative startups. Equity crowdfunding, which involves offering financial securities that are highly regulated to the public, has received significant attention from regulators in recent years. To promote the growth of crowdfunding, a supportive legal environment is essential. Several countries have introduced specific regulations to support equity crowdfunding and minimize the risk to investors. Loan-based crowdfunding has also been regulated in some countries, such as France and the UK, as noted by Dushnitsky et al. [26] and Hervé and Schwienbacher [39].

Crowdfunding's contribution to innovation financing

Bridging the funding gap: the role of crowdfunding

Crowdfunding is a method of financing that has been gaining increasing attention in recent years. It involves raising funds from a large number of individuals or organizations, usually via an online platform. Crowdfunding has been used to fund various projects, including innovative and entrepreneurial ventures, creative projects, social initiatives, and charitable causes. The global crowdfunding market has been growing rapidly, and it is expected to reach $300 billion by 2025 [7].

The emergence of crowdfunding has been attributed to the funding gap that exists for many entrepreneurs and innovative projects. This gap refers to the difficulty that many businesses face in obtaining financing, particularly in the early stages of development when they lack a track record or collateral to secure traditional financing. Crowdfunding provides a solution to this problem by allowing entrepreneurs to raise funds from a large number of individuals, who may be more willing to take a risk on an innovative idea than traditional investors.

There are different types of crowdfunding, including donation-based, reward-based, loan-based, and equity-based [99]. Each type appeals to different types of projects and investors. Donation-based crowdfunding involves raising funds from individuals who are motivated by philanthropy or social causes. Reward-based crowdfunding involves offering backers a non-financial reward, such as early access to the project's product or a mention in the credits. Loan-based crowdfunding involves borrowing money from individuals who receive interest payments and repayment of the principal. Equity-based crowdfunding involves selling shares in the company to investors who receive a share of the profits.

The success of a crowdfunding campaign depends on several factors, including the quality of the idea, the marketing strategy, and the ability to build trust with potential backers. Entrepreneurs must provide a compelling description of their project and its potential benefits, as well as details on how the funds will be used. Crowdfunding platforms often require entrepreneurs to meet a minimum funding goal before the funds are released, which provides an incentive to set realistic funding targets.

One of the key advantages of crowdfunding is that it can provide more than just financial support. It can also help entrepreneurs to validate their idea and build a community of supporters. This can be particularly valuable for early-stage ventures, which may benefit from feedback and input from potential customers or partners. Crowdfunding can also provide a platform for entrepreneurs to showcase their project and gain exposure, which can be useful for marketing and attracting additional investors.

However, crowdfunding also has its challenges and risks. One of the main challenges is the need to disclose a large amount of information to the public, which can expose entrepreneurs to the risk of copycats or competitors. In addition, there is a risk of fraud or misuse of funds, which can damage the reputation of the entrepreneur and the crowdfunding platform. Crowdfunding also requires a significant amount of effort and time to set up and manage, which can be a burden for entrepreneurs who are already stretched thin.

Regulation of crowdfunding varies by country and type, with equity-based crowdfunding being the most heavily regulated due to the sale of securities. The US was among the initial countries to suggest equity crowdfunding regulations with the Jumpstart Our Business Startups (JOBS) Act of 2012 passed by the US Securities and Exchange Commission in 2016 [88]. Subsequently, many other countries, such as Italy, France, Germany, Belgium, the UK, and Austria, followed suit [38, 39].

Regulations require issuers to disclose specific information about their company and operations to minimize risk for investors. Additionally, they set limits on the maximum amount that each investor can invest, which may be based on the investor's available wealth for investment. Moreover, the emergence of crowdfunding has also challenged traditional forms of finance, such as banks and venture capital firms. Crowdfunding allows entrepreneurs to bypass the traditional gatekeepers of finance and directly access a large pool of potential investors. This democratization of finance has the potential to address some of the inequities in the current system, where access to funding is often limited to a privileged few. In particular, crowdfunding has the potential to address the funding gap faced by women and minority entrepreneurs, who have historically faced greater difficulty accessing finance [2, 13].

However, despite the potential benefits of crowdfunding, there are also concerns about its risks and limitations. One major concern is the risk of fraud and the potential for backers to be misled by unscrupulous entrepreneurs. To address this risk, crowdfunding platforms typically require entrepreneurs to disclose detailed information about their projects, and many platforms also use screening mechanisms to assess the credibility of projects before they are listed. Nonetheless, the risk of fraud remains a concern, and the failure of high-profile projects can damage the reputation of crowdfunding platforms and erode trust in the industry as a whole.

Another limitation of crowdfunding is its potential to exacerbate the problem of information asymmetry between entrepreneurs and investors. Crowdfunding platforms often require entrepreneurs to disclose a large amount of information about their projects, but it can still be difficult for investors to assess the potential risks and returns of investing in a particular project, especially if the project involves a new or untested technology. This can lead to a situation where investors overvalue or undervalue certain projects, which can lead to inefficiencies in the allocation of capital [33]. Moreover, the lack of liquidity in crowdfunding markets can make it difficult for investors to exit their investments if they need to access their capital before the project reaches its conclusion.

To sum up, crowdfunding has the potential to address the funding gap faced by many entrepreneurs and to democratize access to finance. However, it also presents risks and limitations, including the potential for fraud, the exacerbation of information asymmetry, and the lack of liquidity in crowdfunding markets. These limitations highlight the need for continued research and development of best practices in the crowdfunding industry to maximize its potential benefits and minimize its risks. Overall, crowdfunding represents a promising avenue for the financing of innovation, but its full potential has yet to be realized.

The interconnection of crowdfunding with other forms of entrepreneurial finance

Crowdfunding has not emerged as a stand-alone method of entrepreneurial finance. Rather, it has been developed as an alternative or complement to other forms of financing, such as venture capital, angel investing, and traditional bank loans [49, 61]. In fact, some studies suggest that crowdfunding can be used as a tool for entrepreneurs to signal the quality of their ventures and to attract other types of financing [46, 66]. For example, a successful crowdfunding campaign can act as a positive signal to venture capitalists or angel investors that the entrepreneur has been able to generate support and interest from a broad audience.

On the other hand, crowdfunding may also have a negative impact on the willingness of venture capitalists and angel investors to invest in a venture. In particular, if the entrepreneur has already raised funds through a crowdfunding campaign, venture capitalists or angel investors may view the venture as being less attractive since the entrepreneur has already diluted the equity [25]. In addition, venture capitalists and angel investors may also be concerned about the type of crowd that has invested in the venture, especially if the crowd is not sophisticated enough to assess the quality of the venture [49].

In contrast to venture capital and angel investing, which are typically focused on providing equity financing to startups, crowdfunding can also be used to raise debt financing. Loan-based crowdfunding, also known as peer-to-peer lending, involves the issuance of loans to entrepreneurs by a large number of individual investors [41]. Although loan-based crowdfunding is still a relatively small segment of the crowdfunding market, it has been growing rapidly in recent years [21]. Loan-based crowdfunding is particularly attractive to entrepreneurs who are looking for financing without having to give up equity in their ventures [8]. Moreover, since the terms of the loan are negotiated directly between the entrepreneur and the crowd, loan-based crowdfunding can also provide a flexible source of financing for entrepreneurs who may not meet the strict underwriting criteria of traditional banks [42, 44, 50].

Crowdfunding has become increasingly intertwined with other forms of entrepreneurial finance. While it was initially seen as a substitute or complement to traditional sources of funding such as venture capital and angel investing, more recent research suggests that crowdfunding can also be used in conjunction with these sources of financing [20]. For example, a study by Tendelilin [91] found that entrepreneurs who received funding from both crowdfunding and venture capital were more likely to experience higher growth rates than those who only received funding from one source.

Furthermore, crowdfunding can also serve as a way to mitigate some of the risks associated with traditional financing. According to a report by Baumgardner et al. [7], crowdfunding can provide a more diversified funding base for entrepreneurs, reducing their dependence on a single source of capital. Additionally, crowdfunding can serve as a way to validate a business idea or product before seeking funding from traditional investors. A successful crowdfunding campaign can demonstrate demand for a product or service, which can increase the likelihood of receiving funding from traditional investors [18].

However, the relationship between crowdfunding and traditional forms of entrepreneurial finance is not always positive. While crowdfunding can signal quality to traditional investors, it can also dilute the equity of a venture and potentially make it less attractive to investors [25]. Moreover, venture capitalists and angel investors may view the crowd as a less sophisticated source of capital and may be wary of ventures that are primarily funded through crowdfunding [81].

In recent years, new forms of crowdfunding have emerged that blur the lines between traditional financing sources. For example, equity crowdfunding platforms are now offering hybrid financing options that combine elements of equity and debt [37]. Such hybrid financing options can provide entrepreneurs with greater flexibility in terms of financing structures and can potentially appeal to a wider range of investors.

Overall, while the interconnection between crowdfunding and other forms of entrepreneurial finance is complex and evolving, it is clear that crowdfunding has become an important part of the entrepreneurial funding landscape. As such, it is important for entrepreneurs and investors alike to understand the various ways in which crowdfunding can be used in conjunction with other forms of financing.

Crowdfunding as a valuable tool for financing innovation

In summary, crowdfunding has emerged as a valuable tool for financing innovation. It can help fill the funding gap that exists for innovative ventures that struggle to secure financing through traditional channels. Crowdfunding has the potential to democratize access to capital and provides a way for entrepreneurs to connect with a large pool of investors who are willing to support their ventures.

Several studies have highlighted the positive impact of crowdfunding on innovation. For example, Tendelilin [89] found that crowdfunding has a positive effect on innovation in terms of product development and market expansion. The study also revealed that crowdfunding can facilitate the commercialization of innovative ideas by providing the necessary financial support.

Moreover, a recent report by Baumgardner et al. [7] highlights the growing importance of crowdfunding as a source of financing for innovative ventures. The report notes that crowdfunding has become an increasingly important part of the overall innovation ecosystem and has the potential to disrupt traditional forms of financing.

Overall, crowdfunding has the potential to benefit both entrepreneurs and investors. Entrepreneurs can access capital that might not have been available to them through traditional financing channels, while investors can participate in the funding of innovative ventures and potentially reap financial rewards. As the crowdfunding industry continues to grow and mature, it is likely that we will see more research on the impact of crowdfunding on innovation and entrepreneurship.

Can crowdfunding platforms foster trust in the innovation process?

Crowdfunding and the impact on innovation

Trust is a critical component in the innovation process, as it enables entrepreneurs to attract funding, build partnerships, and gain customer loyalty [30]. However, building trust can be challenging for entrepreneurs, especially those working on innovative or untested ideas. This is where crowdfunding can play a crucial role in building trust and credibility.

Crowdfunding enables entrepreneurs to test their ideas with a large and diverse group of individuals, including early adopters, potential customers, and industry experts. By sharing their ideas and progress updates, entrepreneurs can build a community of supporters who are invested in their success [34]. This community can serve as a valuable source of feedback, validation, and promotion, which can help to build trust and credibility for the entrepreneur and their venture.

Moreover, crowdfunding platforms themselves can also help to build trust by providing entrepreneurs with access to a large pool of potential backers, as well as tools and resources for managing their campaigns [1]. Crowdfunding platforms can also provide investors with assurance that their funds will be used for the intended purpose, as most platforms have strict rules and regulations governing the use of funds [21]. As a result, today's market value for crowdfunding has been noticeably increased for some specific countries (Fig. 4).

While building trust is an essential aspect of the innovation process, the impact of crowdfunding on innovation is still a topic of debate among scholars and practitioners. Some argue that crowdfunding can have a significant impact on innovation by providing entrepreneurs with access to funding and resources that they may not have been able to obtain through traditional sources [9, 66].

Others suggest that the impact of crowdfunding on innovation is more nuanced and depends on a range of factors, including the type of innovation, the stage of the venture, and the characteristics of the crowd [15, 40, 91]. For example, while crowdfunding may be an effective way to finance early-stage innovation, it may not be as well-suited for financing more mature ventures [9]. Similarly, while a diverse crowd can provide valuable feedback and insights for some types of innovation, it may not be as effective for others, such as highly technical or specialized innovations [91].

Despite these debates, there is evidence to suggest that crowdfunding can have a positive impact on innovation in certain contexts. For example, a study by Agrawal et al. [1] found that crowdfunding can be an effective way to finance innovative ventures in emerging markets, where traditional sources of financing may be limited. Similarly, a study by Mollick and Robb [68] found that crowdfunding can be an effective way to finance innovative ventures in industries that are typically underserved by venture capital, such as healthcare and education.

In summary, while the impact of crowdfunding on innovation is still a topic of debate, there is evidence to suggest that it can be a valuable tool for building trust

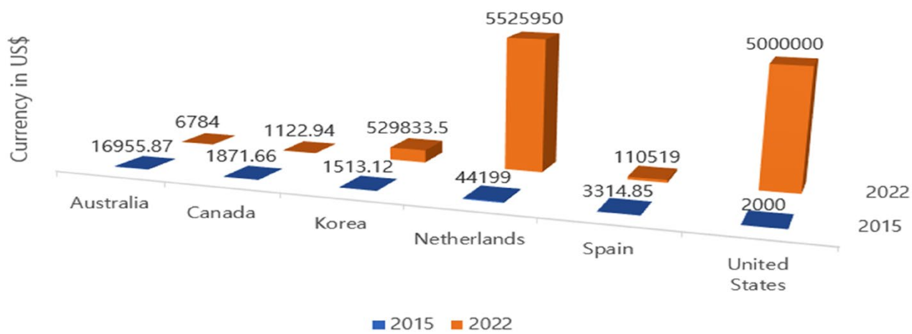


Fig. 4 Comparison of investment limit on crowdfunding among different countries between 2015 and 2022. All the data of Australia [13, 16], Canada [14, 16], Korea [15, 16], Netherlands [11, 16], Spain [16, 17], and the USA [12, 16] collected from authentic sites

and credibility in the innovation process and for financing innovative ventures, particularly in emerging markets and underserved industries.

Interconnection between crowdfunding and crowdsourcing

Crowdsourcing, which refers to the practice of outsourcing tasks or services to a large group of people or community through an open call, has been linked to crowdfunding in recent years. Crowdfunding platforms provide an opportunity for entrepreneurs to not only raise funds but also to engage with potential customers and get feedback on their products or services through crowdsourcing [34]. This can be particularly valuable for entrepreneurs who are developing innovative products or services that are difficult to evaluate in a traditional market research setting [1].

Several studies have examined the link between crowdfunding and crowdsourcing, and how they can be used together to spur innovation. Colombo et al. [21] found that crowdfunding can act as a catalyst for crowdsourcing, by increasing the visibility of the project and attracting more contributors. Similarly, Mollick [67] and Belleflamme et al. [9] found that crowdfunding campaigns can serve as a tool to identify potential customers and to test the market demand for a product or service.

Moreover, crowdfunding can also help entrepreneurs to leverage the collective intelligence of the crowd to solve complex problems and to generate new ideas [15]. By involving the crowd in the innovation process, entrepreneurs can tap into a diverse pool of talent and expertise that can lead to new insights and breakthrough ideas. Tendelilin [91] found that the success of a crowdfunding campaign can be positively associated with the level of engagement between the entrepreneur and the crowd, suggesting that active crowdsourcing can enhance the innovation potential of crowdfunding.

However, it is important to note that while crowdfunding and crowdsourcing can be powerful tools for innovation, they also come with their own challenges and risks. Mollick and Robb [68] highlight the importance of managing the expectations of the crowd, as well as the potential for intellectual property theft and other forms of misconduct. Overall, the interconnection between crowdfunding and crowdsourcing offers promising opportunities for entrepreneurs to innovate and engage with their communities, but requires careful management and attention to the potential risks.

The role of crowdfunding in driving innovation

Crowdfunding has been identified as a potential driver of innovation by providing access to funding for ventures that may not have been able to secure traditional forms of financing [30, 34]. The innovation potential of crowdfunding has been attributed to several factors, such as the ability to access a large and diverse group of potential investors, the possibility of validating product-market fit, and the feedback received from the crowd during the campaign [1, 24, 42].

Moreover, crowdfunding has been shown to have a positive impact on the success of ventures, as measured by metrics such as patent applications, product commercialization, and market share [10, 16, 67]. For instance, Mollick and Robb [68] found that ventures that used crowdfunding were more likely to have filed for patents and to have introduced new products to the market compared to ventures that did not use crowdfunding.

Crowdfunding has also been linked to the co-creation of innovation through the use of crowdsourcing. Crowdsourcing involves the use of external stakeholders, such as customers or suppliers, to contribute to the innovation process [89]. Crowdfunding campaigns can be designed to encourage the crowd to contribute ideas and feedback, leading to the co-creation of products and services that better meet the needs of the market [1].

Overall, crowdfunding has the potential to make a significant contribution to the innovation process by providing access to financing, validating product-market fit, and facilitating the co-creation of innovation through crowdsourcing. However, the full potential of crowdfunding as a driver of innovation is yet to be fully realized, and further research is needed to better understand the mechanisms underlying its impact on innovation [23, 46].

Types of innovation based on crowdfunding

Crowdfunding has been identified as a key driver of innovation, and research has shown that crowdfunding has the potential to support a wide range of different types of innovation. In this section, we will examine the different types of innovation that can be supported by crowdfunding, based on recent literature.

Product innovation refers to the development of new products or improvements to existing products. Crowdfunding has been shown to be a particularly effective way to support product innovation, especially for early-stage ventures [30]. By leveraging the power of the crowd, entrepreneurs can raise the necessary capital to fund the development of new products and can also use crowdfunding campaigns as a way to test the market and validate demand for their products [36]. In fact, some research has shown that crowdfunding can be a better predictor of market demand than traditional market research methods [1].

One example of a successful product innovation campaign is the Pebble Watch. The Pebble Watch is a smartwatch that was launched through a crowdfunding campaign on Kickstarter in 2012. The campaign raised over $10 million in just 37 days, making it one of the most successful crowdfunding campaigns of all time. The success of the campaign demonstrated the demand for the product and helped the entrepreneurs behind the Pebble Watch secure additional funding from venture capitalists and angel investors [21].

Process innovation refers to the development of new processes or the improvement of existing processes. Crowdfunding can be an effective way to support process innovation, as it can provide entrepreneurs with the necessary capital to invest in new technologies or processes that can increase efficiency and reduce costs [10, 67]. For example, a startup may use crowdfunding to raise funds to develop a new manufacturing process that allows them to produce their products more efficiently, resulting in lower costs and higher profits.

Service innovation refers to the development of new services or improvements to existing services. Crowdfunding can also be an effective way to support service innovation, especially in the case of social entrepreneurship. Social entrepreneurs may use crowdfunding to raise the necessary capital to fund the development of new services that address social or environmental issues [16]. For example, a social enterprise may use crowdfunding to raise funds to develop a new service that helps to reduce food waste, or to provide clean water to communities in developing countries.

Business model innovation refers to the development of new business models or the improvement of existing business models. Crowdfunding can be an effective way to support business model innovation, as it can provide entrepreneurs with the necessary capital to invest in new business models and test them in the market [89]. By leveraging the power of the crowd, entrepreneurs can validate new business models and make necessary adjustments before launching to a wider audience. In addition, crowdfunding can also provide entrepreneurs with valuable feedback and insights from potential customers, which can help to refine their business models and increase their chances of success [68].

Social innovation refers to the development of new solutions to social or environmental problems. Crowdfunding can be an effective way to support social innovation, as it can provide entrepreneurs with the necessary capital to fund the development of new solutions to social or environmental issues [15]. In addition, crowdfunding can also help to raise awareness of social issues and increase public engagement in finding solutions to these issues. Social innovation is often driven by non-profit organizations and social enterprises that seek to create social value while also generating financial returns [77]. Crowdfunding can play an important role in financing social innovation, particularly for projects that are too risky or unconventional to attract funding from traditional sources [74]. One example of social innovation-based crowdfunding is Kiva, a microfinance platform that allows individuals to lend money to entrepreneurs in developing countries. Kiva has facilitated over $1.5 billion in loans to more than 4 million borrowers since its inception in 2005. Another example is Charity: Water, a non-profit organization that uses crowdfunding to finance clean water projects in developing countries. Charity: Water has raised over $500 million from more than 1 million donors since its launch in 2006. Crowdfunding can also enable the development of social enterprises, which are businesses that seek to generate both financial and social returns [24]. Social enterprises can use crowdfunding to test and validate their business models, raise capital, and build communities of supporters [64]. For example, Ethical Apparel Africa, a social enterprise that works with African garment factories to produce sustainable clothing, used crowdfunding to raise seed capital and attract early customers. In addition to financing social innovation, crowdfunding can also facilitate the diffusion of social innovations by enabling the co-creation and sharing of knowledge and resources among diverse stakeholders [77]. Crowdfunding platforms can act as virtual communities where individuals can exchange ideas, collaborate, and learn from each other [35]. For example, the crowdfunding platform StartSomeGood has a social enterprise accelerator program that provides entrepreneurs with mentorship, training, and access to a global network of social innovators.

Technological innovation refers to the creation of new or improved products, processes, or services through the application of scientific and engineering knowledge [85]. Technological innovation is often driven by startups and technology firms that seek to disrupt existing industries or create new markets. Crowdfunding can play a crucial role in financing technological innovation, particularly for projects that are too risky or experimental to attract funding from traditional sources [9]. One example of technological innovation-based crowdfunding is Oculus VR, a virtual reality headset company that raised $2.4 million through Kickstarter in 2012 to develop its first prototype. Oculus VR was later acquired by Facebook for $2 billion in 2014, and its technology has been used to develop a range of virtual reality applications, from gaming to healthcare. Another example is Pebble, a smartwatch company that raised $10.3 million through Kickstarter in 2012 to develop its first product. Pebble was later acquired by Fitbit for $40 million in 2016. Crowdfunding can also enable the development of open-source technologies, which are products or services that are developed and distributed under a license that allows users to access and modify the source code [11].

Enabling factors for innovative crowdfunding

The successful deployment of crowdfunding for innovation is contingent upon several enabling factors. First and foremost, a conducive legal and regulatory framework is necessary to facilitate the development of crowdfunding platforms [29]. Regulations must balance the need for investor protection with the promotion of innovation, by allowing sufficient flexibility for new business models and approaches [66].

Secondly, the availability of appropriate technological infrastructure is crucial for the development of innovative crowdfunding. This includes secure and reliable online platforms for crowdfunding, as well as digital tools for entrepreneurs to market their ventures, communicate with backers, and manage their campaigns [34]. Blockchain technology has also been identified as having the potential to enhance the transparency, security, and efficiency of crowdfunding [98].

Thirdly, the presence of a supportive entrepreneurial ecosystem is essential for the growth of innovative crowdfunding. This includes access to a skilled workforce, mentorship and training programs, and networking opportunities with investors, industry experts, and other entrepreneurs [16]. In addition, the availability of seed funding, government grants, and tax incentives can also facilitate the development of innovative ventures [74].

Finally, a culture that fosters creativity, risk-taking, and entrepreneurship is necessary to support the development of innovative crowdfunding. This includes a willingness to challenge traditional business models and embrace novel ideas, as well as a tolerance for failure and an appreciation for the learning opportunities that it provides [85]. Moreover, the alignment of societal values and mission-driven innovation can lead to the emergence of social innovation, whereby crowdfunding can be used as a means of advancing social and environmental causes [89].

Overall, the development of innovative crowdfunding requires a favorable legal and regulatory framework, appropriate technological infrastructure, a supportive entrepreneurial ecosystem, and a culture that fosters creativity and risk-taking. These enabling factors can facilitate the emergence of new business models, approaches, and ventures, leading to the creation of social and economic value.

The findings of this study are in alignment with several prior studies that highlight the positive impact of crowdfunding on innovation. For instance, Mollick [67] found that crowdfunding not only provides essential financial resources for startups but also serves as a valuable platform for market validation and community building. Similarly, Belleflamme, Lambert, and Schwienbacher [8] demonstrated that crowdfunding can effectively reduce funding gaps for early-stage ventures, enabling them to bring innovative products to market.

However, not all studies unequivocally support the positive impact of crowdfunding on innovation. A study by Cumming, Leboeuf, and Schwienbacher [23] indicates that while crowdfunding can facilitate funding for many projects, the success rates and subsequent performance of these projects can be highly variable. Factors such as the quality of the pitch, the social network of the entrepreneur, and the type of crowdfunding model used play significant roles in determining outcomes. This suggests that while crowdfunding has potential, its efficacy is not guaranteed across all contexts and projects.

There are also studies that present a more critical view of crowdfunding. For example, Agrawal, Catalini, and Goldfarb [1] argue that crowdfunding can sometimes lead to overestimation of demand and project viability due to the lack of stringent vetting processes compared to traditional financing methods. Moreover, Hui, Gerber, and Greenberg [47] found that crowdfunding might not always attract the necessary expertise or mentorship that traditional venture capital often provides, potentially limiting the long-term success of the funded projects.

Crowdfunding has been identified as a potential driver of innovation by providing access to funding for ventures that may not have been able to secure traditional forms of financing [9, 67]. The innovation potential of crowdfunding has been attributed to several factors, such as the ability to access a large and diverse group of potential investors, the possibility of validating product-market fit, and the feedback received from the crowd during the campaign [1, 23]. Moreover, crowdfunding has been shown to have a positive impact on the success of ventures, as measured by metrics such as patent applications, product commercialization, and market share [65].

While the positive impact of crowdfunding on innovation is evident in many studies, the variability in success rates and outcomes must be acknowledged. For instance, Cumming, Leboeuf, and Schwienbacher [23] indicate that while crowdfunding can facilitate funding for many projects, the success rates and subsequent performance of these projects can be highly variable. Factors such as the quality of the pitch, the social network of the entrepreneur, and the type of crowdfunding model used play significant roles in determining outcomes. This suggests that while crowdfunding has potential, its efficacy is not guaranteed across all contexts and projects.

Additionally, Agrawal, Catalini, and Goldfarb [1] argue that crowdfunding can sometimes lead to overestimation of demand and project viability due to the lack of stringent vetting processes compared to traditional financing methods. Hui, Gerber, and Greenberg [47] found that crowdfunding might not always attract the necessary expertise or mentorship that traditional venture capital often provides, potentially limiting the long-term success of the funded projects. These findings highlight the need for entrepreneurs to carefully plan and manage their crowdfunding campaigns to maximize their chances of success.

Recent studies have further explored the nuances of crowdfunding and its impact on innovation. Zhang et al. [95] investigated the role of knowledge management in sustainable innovation within small and medium enterprises (SMEs), highlighting the importance of organizational practices in fostering innovation. Wang et al. [93] examined the impact of economic corridors and tourism on the quality of life in local communities, suggesting that regional development initiatives can complement crowdfunding efforts to enhance innovation. Zhang et al. [95] discussed the influence of corporate business strategy and tax avoidance culture on organizational behavior, emphasizing the role of governance and ethical practices in the success of crowdfunding initiatives.

These studies underscore the multifaceted nature of crowdfunding and its potential to drive innovation across different sectors and contexts. However, they also reveal gaps in the literature that warrant further exploration.

Despite the growing body of research on crowdfunding, several areas remain underexplored or outdated. For instance, the impact of crowdfunding on specific types of innovation, such as process and service innovation, requires further investigation. Additionally, there is a need to explore the long-term sustainability of projects funded through crowdfunding, including their growth trajectories and market performance.

Further research should also consider the role of contextual factors, such as regional economic conditions and cultural differences, in shaping the success of crowdfunding campaigns. Studies could examine how crowdfunding platforms can better support entrepreneurs in different geographic locations and economic contexts, addressing the unique challenges they face.

Moreover, the interplay between crowdfunding and other forms of entrepreneurial finance, such as venture capital and angel investing, warrants deeper analysis. Understanding how these funding sources can complement each other and enhance the overall innovation ecosystem is crucial for developing effective funding strategies.

Conclusions

Crowdfunding has emerged as a viable alternative to traditional financing, significantly impacting the innovation landscape by democratizing access to capital and enabling diverse entrepreneurs to secure funding and validate their ideas. However, its effectiveness is influenced by factors such as the type of innovation, the quality of the entrepreneur, and the regulatory environment.

This study, based on existing literature, has limitations including potential publication bias and a primary focus on product innovation, which may overlook other innovation forms like process, service, and social innovation. The success of crowdfunding is also affected by regional economic conditions, cultural differences, and variability in campaign outcomes.

Future research should explore the impact of crowdfunding on different types of innovation and the long-term sustainability of crowdfunded projects. Examining contextual factors and the interaction between crowdfunding and traditional financing will provide valuable insights.

The findings align with prior research indicating crowdfunding's positive impact on innovation, but also highlight variability in success rates and the need for further exploration. Studies show that while crowdfunding can bridge funding gaps and support market validation, factors like pitch quality and the lack of stringent vetting processes can affect outcomes.

In conclusion, while crowdfunding holds significant promise as a tool for financing innovation, its full potential and challenges require further exploration. Addressing these limitations and expanding research will enhance understanding and help leverage crowdfunding's potential to foster innovation and drive economic growth.

Implications

This study provides significant insights into the role of crowdfunding in driving innovation and entrepreneurship. The findings suggest that crowdfunding can effectively bridge the funding gap for innovative ventures that struggle to secure traditional financing. By offering access to a large and diverse pool of potential investors, crowdfunding not only provides necessary financial resources but also facilitates market validation and community building. Entrepreneurs can leverage crowdfunding platforms to test their ideas, gather feedback, and build a loyal customer base early in their business lifecycle. Additionally, the study highlights the potential of crowdfunding to democratize access to capital, thereby supporting underrepresented groups in entrepreneurship. This democratization can lead to a more inclusive and diverse entrepreneurial ecosystem, fostering a wider range of innovative products and services.

Limitations

Despite its contributions, this study has several limitations. Firstly, as a narrative review, it does not involve new empirical data collection, which may limit the generalizability of the findings. The synthesis of existing literature may also be subject to publication bias, where only studies with positive results are published and considered. Secondly, the study predominantly focuses on product innovation, potentially overlooking other types of innovation such as process, service, and social innovation. Finally, the rapidly evolving nature of the crowdfunding landscape means that some findings may quickly become outdated as new platforms and models emerge.

Policy recommendations

To maximize the potential of crowdfunding in fostering innovation, several policy recommendations are proposed. Governments should consider implementing supportive regulatory frameworks that balance investor protection with the flexibility needed for innovative crowdfunding models. This includes setting clear guidelines for equity and loan-based crowdfunding to minimize fraud and protect investors while encouraging entrepreneurial activity. Additionally, policymakers should promote financial literacy and crowdfunding education programs to equip entrepreneurs and investors with the knowledge needed to navigate crowdfunding platforms effectively. Furthermore, creating incentives such as tax benefits for investors in crowdfunding campaigns could stimulate more significant investment in innovative projects. Lastly, policies should address the political factors that may impact crowdfunding, such as regulatory changes and economic instability, ensuring a stable environment conducive to crowdfunding activities.

Future research directions

Future studies should explore the impact of crowdfunding on different types of innovation beyond product innovation, including process, service, and social innovation. Additionally, there is a need for longitudinal studies to assess the long-term sustainability and performance of crowdfunded projects. Researchers should also examine the role of contextual factors such as regional economic conditions, cultural differences, and political stability in shaping the success of crowdfunding campaigns. Understanding these factors can provide valuable insights into how crowdfunding platforms can be tailored to support entrepreneurs in diverse geographic and economic contexts.

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