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Research Article

Crowdfunding, Networks, and Technology: A Model of Institutional Emergence in Sustainable Entrepreneurial Ecosystems

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ABSTRACT

The purpose of the study is to explore how the sustainable entrepreneurship ecosystem impacts social networks, which in turn influences the emergence of institutions. Additionally, the present work leverages technological advancement and social networks to uncover the intricate mechanism by which crowdfunding impacts institutional diversity.

The quantitative data collected from 256 participants, comprised of angel investors, venture capitalists, government employees (regulators) and other entrepreneurs or individuals (educationists) that promote entrepreneurial activities, are analyzed through the PLS-SEM method. Convenience sampling technique was adopted to collect the dataset.

The current study explored that sustainable entrepreneurship ecosystem positively influences the institutional emergence, including those funded through crowdfunding. The results revealed that technological advancement and the presence of strong social networks positively impact the relationship between the sustainable entrepreneurship ecosystem and the emergence of different types of institutions.

Organizations need to leverage social media analytics with technological tools to gain the deeper understanding the need for new institutions. Moreover, organizations involved in technological innovation and entrepreneurship need to analyze how these innovations influence the market, regulatory framework and environment. Policymakers and communities' leaders need to encourage social networking spaces as part of strategies to nurture the entrepreneurial ecosystem.

The changing environment and technological advancement encourage the entrepreneurial ecosystem to structure new entities with specific objectives to thrive, bolstered supportive networks. The present work provides novelty in existing literature by adding an additional layer to understand the impact of social networks and technological innovation on forming new institutions.

Keywords: Institutional emergence, Sustainable entrepreneurial ecosystem, Technological advancement, Social network, Crowdfunding.

INTRODUCTION

The entrepreneurship ecosystem has gained recognition as a key driver in the development and transformation of institutions across the globe (Guerrero et al., 2020). The essential part of this transformation lies with an entrepreneurship ecosystem that interconnects elements such as finance (Khatami et al., 2021), supportive networks, cultural norms (Alaassar et al., 2021), government initiatives or innovation, which foster entrepreneurial activities for creating a conducive environment for businesses to start, grow and scale. However, this ecosystem demands supportive structures such as accelerators, incubator or professional service providers that offer guidance and support to entrepreneurs. Fundamentally, crowdfunding has become an essential part of attracting startups or small businesses to enroll in an entrepreneurship ecosystem (Kukurba et al., 2021), particularly those who may not have

access to traditional financing options. Another element that impacts the needs of businesses is technological innovation. Technological advancement forces businesses to embrace ecofriendly activities for sustaining in well-aware environments (Munir & Watts, 2024). The widespread use of social networks and secure payment mechanisms has transformed the way of individual thinking; rather than relying on venture capital or banks, individuals directly reach out to their network or beyond to fund their projects. The digital innovation not only supports monetary transactions but also acts as a medium for campaign creators, lowering the cost and accessible to a broader range of people. Attributable to this, it fosters the rise of new types of institutions centered around sustainable productions.

Another crucial component of crowdfunding is social network, allowing individuals or businesses to use their personal or professional networks to secure support (Dejean, 2019). The social network has the tendency to behave in a dual role; firstly, it promotes the sustainable production benefits and create awareness; secondly, it serves as social proof, reassuring potential backers about the credibility and appeals (Chung et al., 2021). In addition, social networks influence the crowdfunding which in turn leads to the formation of single motivated communities driven by specific causes. According to Yanez-Valdes & Guerrero (2023) that crowdfunding has evolved into a hub for individuals that share common values or goals, such as advocating sustainability, innovation, or social impact investing. These communities foster the common goal collectively and form a new type of institutions for catering to the unique needs and preferences of particular groups.

The convergence of technological advancement, social network and dynamic entrepreneurship has led to the institutional emergence within the crowdfunding space. There are various models of crowdfunding, such as equity-based, debt-based, reward-based and donation-based. However, there is a need of impact-focused crowdfunding platforms that prioritize social and environmental causes, with a goal to develop purpose driven institutions that align with broader societal goal. These platforms serve as new forms of social institutions, concentrating on collective well-being and support ventures that addresses social issues. This transformation focuses on the evolving entrepreneurial ethos, where success is not only dependent on financial returns but are measured through constructive social impact.

Crowdfunding has significantly transformed the entrepreneurial ecosystem, driving the emergence of diverse institutions that cater to the needs of communities (Logue & Grimes, 2019). Technological advancement can influence how well the entrepreneurial ecosystem operates (Elia et al., 2020), while social networks can facilitate collaboration, information sharing and resource mobilization, which are essential for institution formation. Hence, the evolution of crowdfunding contributes to a broader array of funding options and promotes the formation of new institutions. Through crowdfunding, a range of institutions can emerge based on demographic needs, catering to environmental issues and social goals, reflecting on a dynamic and interconnected entrepreneurial ecosystem. Based on this, the current study explores that "*How does the sustainable entrepreneurial ecosystem, particularly through crowdfunding, contribute to the emergence of different types of institutions?*"

Dinh et al. (2024) posed the above research question in their integrative literature review. The present work additionally takes technological advancement and social network, with the aim to capture the nuanced mechanism through which institutional diversity is impacted by the crowdfunding. Technological advancement can moderate the relationship by amplifying the reach and efficiency and enabling the emergence of new institutions with more resources. Temporarily, social networks, as mediator, enable the information flow, influence, mobilize resources and support the crowdfunding platform. The dual approach speeds up the institutional formation in the presence of acceptable factors and offers valuable insights into how ecosystems evolve in a digitally interconnected world.

LITERATURE REVIEW

2.1 Sustainable Entrepreneurship Ecosystem and Institutional Emergence

The Sustainable Entrepreneurship Ecosystem (SEE) serves as a platform for initiating projects and schemes that aim to assimilate economic, social and environmental objectives (Volkmann et al., 2019). One of the crucial elements of SEE is crowdfunding, which connects with the pool of individuals bearing a common goal to invest in. Traditionally, crowdfunding aims to connect with a wide network of individuals supporting viable ventures by investing and providing monetary backing through collective means. However, through various platforms like GoFundMe and Kickstarter, other ventures and financiers can access a global audience with the aim of gaining exposure and securing funds. These means of raising capital are not only viable for the individual entrepreneurs but also beneficial for the

wider ecosystem by creating a demand for new institutions that are willing to provide funding to viable ventures (Cicchiello, 2019). For example, the wide acceptance of these viable crowdfunding ventures has prompted the rise of the crowdfunding platforms devoted solely to the green schemes like One Planet Crowd. Moreover, the achievements of these crowdfunding projects inspire the creation of the supporting institutions, like legal frameworks for green investments, certification organizations for verifying sustainability claims, and networks connecting viable capitalists with impact investors.

Hence, we have formed the following hypothesis:

Hypothesis 1: A strong sustainable entrepreneurship ecosystem positively influences the emergence of different types of institutions, including those funded through crowdfunding.

2.2 Sustainable Entrepreneurship Ecosystem and Social Networks

Social networks serve as a significant medium for facilitating connections between ventures and financiers with the goal of providing support for viable ventures (Presenza et al., 2019). Social networks offer a promising platform for crowdfunding, facilitating the capitalization on viable relationships, forming trusts, and connecting to the potential financiers who are interested in investing in viable projects (Troise, 2020). Various social platforms like Facebook, Instagram, and other crowdfunding groups offer the infrastructure for these social networks, enabling capitalists to connect with the vast audience.

Crowdfunding relies on social networking media, as the success of campaigns hinges the financiers' capability to use these platforms to gain primary support and momentum. SEE adopts these social networking infrastructures by forming online platforms, organizing business events, and creating forums that help in connecting the viable fund raisers with compatible audiences and other stakeholders (Laurell et al., 2019). These networking media profoundly impact financers who aim to advertise and promote crowdfunding campaigns, establish credibility and secure funds for their success and future prospects. This leads to the hypothesis:

Hypothesis 2: A robust sustainable entrepreneurship ecosystem positively influences the development of social networks among entrepreneurs and stakeholders, facilitating connections for crowdfunding opportunities.

2.3 Social Networks and Institutional Emergence

Social media networks facilitate the movement of capital, information and funding, which are core for the formation and prosperity of crowdfunding ventures. Through the social media platform, individual and communities connect with each other, sharing resources, funding, ideologies, and information that aid in the creation of shared and mutual groups aimed at achieving the crowdfunding goals and objectives. These social media networks help the smooth functioning of crowdfunding ventures by enlarging the scope and integrity of funding initiatives, enabling fundraisers with viable ventures to link with viable stakeholders (Chung et al., 2021). These social platforms also assist in building integrity, which is a significant element of crowdfunding accomplishments, by helping investors depend on the social groups' recommendations and analyzing the validity of such ventures.

Social networks work as a facilitator in the development of new, viable organizational ventures and businesses. Crowdfunding, as a formal institution, benefits from the connections and alliances formed through these social networks (Fehrer & Nenonen, 2019), hence making it easy to secure funds and capital that may not have been possible by the means of traditional funding methods. The growth of digital media has transformed this method by allowing the users to rapidly arrange the capital.

Hypothesis 3: Strong social networks facilitate the institutional emergence focused on sustainability, particularly by enhancing access to crowdfunding.

These social media platforms foster integrity, facilitate awareness and enhance community support, enabling the viable ventures for acquiring funds and assistance.

2.4 Mediating Effect of Social Networks

Social networks work as a mediating variable by forming a bond between the sustainable entrepreneurship ecosystem and the rise of the institutional infrastructure. Whether social networks are online or offline, they work as a facilitator for crowdfunding success and prospects. The mediating role of social networks enables them to gather different stakeholders to back up the sustainable institutional formation. By enabling capitalists to benefit from private and

professional connections, these networking solutions can strengthen the viability of potential ventures and enhance crowdfunding projects (Sequeira et al., 2007). These networks assist in reaching niche markets that are compatible with the collective goals and objectives of the sustainable ventures, thereby inspiring investors to invest in sustainable ventures (Dejean, 2019). These social platforms are not only helpful in the individual crowdfunding scenario but also play a crucial role in shaping the wider organizational setting by enhancing the development of the platforms, legal structures and social standards that provide assistance to sustainable ventures and businesses.

The mediating effect of social media is apparent by the increased approach to the crowdfunding ventures by developing a route to the viability of the progress of the ventures (Salem et al., 2022; Sahaym et al., 2019). These social media platforms enhance integrity, legality and groups engagement, all crucial for the success of crowdfunding ventures. The increase in robustness of these social forums will lead to the formation and advancement of organizations focusing on viability and the emergence of new types of alliances, innovation and organizational growth.

Hypothesis 4: Social networks mediate the relationship between the sustainable entrepreneurship ecosystem and the emergence of different types of institutions, such that a stronger ecosystem leads to stronger networks, which in turn enhance institutional emergence through improved crowdfunding access.

2.5 Moderating Effect of Technological Advancements

Technology has transformed the crowdfunding efforts through improvements in reach, scope and effective capital acquisition. Continuous innovation in technology creates new opportunities for connecting with potential investors and other key participants in fund-raising efforts, as well as developing a strong social media platform (Medina-Molina et al., 2019). Numerous technological advancements, such as blockchain, mobile applications, and social networks, contribute to the fundraising efforts. These innovations have led to the feasibility of access for investors and other stakeholders worldwide, making it simple to connect and secure capital for viable crowdfunding projects. Technological advancements enhance the efficiency of social media platforms by facilitating quick communication, enhance alliances with the fund providers and enable them to easily reach large and diverse communities (Moon & Hwang, 2018). Furthermore, it enables better tracking of project progress, real time updates and transparency for establishing the trust among investors. The likelihood of funding success improves by taking advance analytics, machine learning and AI tools. Hence, strengthening the technological capabilities can increase the positive impact on sustainable entrepreneurial ecosystem and social networks. Based on this, the following hypothesis has been developed:

Hypothesis 5: Technological advancements moderate the relationship between the sustainable entrepreneurship ecosystem and social networks, such that the positive effect of the ecosystem on social networks—and consequently on crowdfunding success—is stronger at higher levels of technological advancement.

2.6 Moderated Mediation Effect

Technological advancement can improve the effectiveness of social networks and the transition from an ecosystem to the institutionalization of sustainable practices relies on the ability of entrepreneurs to tap into social networks. The use of new innovative tools for building connection, knowledge sharing and trust can mobilize the resources and secure funds for sustainable ventures (Leone & Schiavone, 2018). Subsequently, crowdfunding as an innovative financial tool thrives on support from these networks to guide entrepreneurs and bring their ideas to fruition. Digital platforms, social media and data analytics have transformed the way investors think and gather information. Technological advancement in social networking has facilitated better engagement (Bargoni et al., 2022), making the network more powerful in mediating the relationship between the sustainable entrepreneurial ecosystem and institutional emergence. Hence, the hypothesis underscores the importance of technology to not only expand the social networks but amplify the need for new institutions.

Hypothesis 6: Technological advancements moderate the mediating effect of social networks on the relationship between the sustainable entrepreneurship ecosystem and the emergence of different types of institutions, such that the indirect effect of the ecosystem on institutional emergence through social networks and crowdfunding is stronger when technological advancements are high.

We drew a conceptual framework (Figure 1), based on the above six hypotheses to explain the impact of sustainable entrepreneurship ecosystem on social networks, which in turn influences the emergence of institutions. Furthermore, technological advancements can strengthen or weaken this mediating effect.

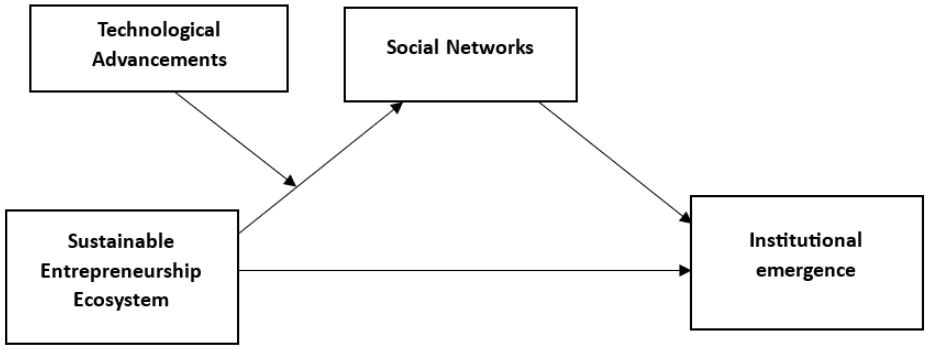

Figure 1: Conceptual Framework

2.7 Theoretical Insights into the Hypothesis

For the theoretical foundation based on developed conceptual framework, the Technology Organization Environment (TOE) framework and social network theory (SNT) have been undertaken. These theories support in comprehending the interaction between the hypothesis. Technology Organization Environment (TOE) framework explains the impact of technology on organizational process and the external environment. The theory elaborates on the importance of technology in changing the dynamics of organizations and can act as a driving force for evolving the entrepreneurial ecosystem, particularly when resources are aligned with the infrastructural needs of new institutions. In our developed hypothesis, technological advancement is considered a technological dimension of the TOE framework that facilitates the development of a sustainable entrepreneurial ecosystem by improving organizational capabilities, adding innovative strategies and enable effective communication with other networks. Consequently, the business model is strengthened. Furthermore, the environment dimension is taken from external factor such as social networking which can shape the institutionalization process. Technology influences how social networking interacts with the entrepreneurial ecosystem, either supporting or hindering institutional development.

Another theory, social network theory, complements the TOE framework by emphasizing the need of networking with external factors. The theory reflects on the structure and dynamic of relationships between actors within a network. Social connection is a mode of exchanging information, connections and opportunities that is important for the growth of entrepreneurial ventures (Liu et al., 2021). Hence, networking support in resource exchange is necessary for the development of new institutions. Networking helps entrepreneurs connect with investors, mentors or regulator, which is beneficial for business survival and for finding opportunities to develop new institutions. Crowdfunding is a suitable example of how social networks enable entrepreneurs to take benefits from existing opportunities and cater the new needs of the market.

The integration of TOE and social network theory covers the dynamic of conceptual framework. The theoretical lens depicts that technological advancement supports networking among entrepreneurs, investors and other stakeholders through which resources, information and facilitation are obtained to develop new institutions that capture the needs of the market.

MATERIAL AND DATA COLLECTION

3.1 Sampling Techniques

The data was collected from 256 participants. These participants are comprised of angel investors, venture capitalists, government employees (regulators) and other entrepreneurs or individuals (educationists) that promote entrepreneurial activities. The rationale for selecting individuals as the primary unit of analysis stems from the crucial role in shaping the crowdfunding ecosystem. These individuals interact with innovative tools, their decisions are influenced by social networks and they contribute to the institutional emergence by supporting sustainable ventures. The convenience sampling technique has been adopted to collect the data. The data was collected from an

online survey using Google Form. Within one month of distributing 332 questionnaires to participants, 77.1% response rate has been achieved.

3.2 Measurement Items

The questionnaire measurement items were adopted from previous studies. The dimension of sustainable entrepreneurial ecosystem items was adopted from Manimala et al., 2019. The adopted dimensions are government support (13 items), education and training support (07 items), professional and technical support (07 items), entrepreneurial capabilities (05 items) and funding support (05 items). Technological advancement items were adopted from Martin-Rojas et al., 2011. The social network divided into personal and professional, as suggested by Ozgen and Baron (2007). The personal network items were adopted from Sequeira et al. (2007) and professional network items were adopted from Ozgen and Baron (2007). The institutional emergence measurement items was developed by own, it comprises of 08 items. The 5-point Likert scale has been adopted, ranges from strongly agree to strongly disagree.

RESULTS

4.1 Participants Demographic Profile

The demographic profile of participants is comprised of gender, age, experience, occupations and institution size. Table 1 provides detailed information about the participants demographic:

Table 1: Participants demographic profile

Characteristics	***Percentage***
Gender	
Male	*92%*
Female	*08%*
Age	
18-25	*04%*
26-35	*31%*
36-45	*57%*
45 plus	*08%*
Experience	
0-5 years	*11%*
6-10 years	*35%*
11-15 years	*32%*
16-20 years	*08%*
20 plus	*14%*
Occupations	
Investors	*46%*
Venture capitalist	*19%*
Employee	*17%*
Entrepreneur	*16%*
Educationist or Trainer	*2%*
Other	*0%*
Institution Size (employees)	
Small (74 and below)	*52%*
Medium (75 to 200)	*31%*
Large (above 201)	*17%*

4.2 Measurement Validity

There were no missing values, as all questions were marked compulsory in the online survey. For common method variance, a Harman single factor test was conducted and found that no single factor is explaining the most of the variance in the set of variables.

The measure scale is modified from the adopted studies of three variables (sustainable entrepreneurial ecosystem, technological advancement and social network). The new scale items were developed to account for the institutional emergence. We conducted the EFA and CFA using SPSS to examine the validity and reliability of the study. The pilot testing was conducted with 07 participants to verify the clarity of the modified and developed items. Two experts assess the developed questionnaire and modification was made based on their constructive feedback.

Cronback alpha was used to check the internal consistency of all constructs; the value is above 0.7; indicating good reliability. Factor loading, significance and squared multiple correlation (R^2) were used to examine the commonality (shown in Table 2). All values are above the acceptable range.

Table 2: Results from factor analyses

Variables	Ranges of standardized parameters	Range of R^2	Construct reliability	Extracted variance
Dimension of Sustainable Entrepreneurial ecosystem				
Government support	0.789-0.896	0.698-0.901	0.897	0.809
Education and training support	0.895-0.974	0.693-0.897	0.907	0.876
Professional and technical support	0.821-0.937	0.711-0.872	0.887	0.709
Entrepreneurial capabilities	0.798-0.922	0.593-0.921	0.709	0.693
Funding support	0.759-0.899	0.601-0.839	0.930	0.895
Technological advancement	0.857-0.938	0.707-0.849	0.904	0.853
Social network				
Personal network	0.786-0.925	0.605-0.879	0.764	0.743
Professional network	0.801-0.941	0.716-0.909	0.831	0.761
Institutional Emergence	0.792-0.942	0.701-0.953	0.798	0.708

The model provides an excellent fit to the data. The absolute fit index, chi square (X^2= 856.0, p=0.05) indicate significance. The GFI of 0.951 (high) and RMSEA of 0.042 suggest that the developed model presents the data well. Moreover, the values of AGFI=0.958, CFI=0.932, NFI=0.971 and NNFI=0.985 are all above 0.9, further confirming a strong model fit. The parsimonious fit value is under 3, which indicates that the model is not overly complex and has high explanatory power.

4.3 Hypothesis Testing

Table 3 shows the direct effect and indirect effects of the hypothesis. All direct effects (H1, H2, and H3) show positive correlation. Beta coefficients indicate the effect size and standard deviation shows the variability. H1 results show that a stronger sustainable entrepreneurship ecosystem fosters the institutional emergence, particularly those funded through crowdfunding. With a t statistic (8.97) and p-value less than 0.05, the relationship is highly significant.

The H2 result demonstrates a positive relationship between sustainable entrepreneurship ecosystem and social network. A strong entrepreneurship ecosystem strengthens social connections. The t statistics (6.15) and p value (0.012) indicate statistical significance.

The H3 results show that stronger social network help foster the development of new institutions. The beta coefficient (0.698), t statistics (4.33) and p value are less than 0.05, indicating a significant positive relationship between SN and IE.

Table 3: Hypothesis of direct and indirect effect

Hypothesis	Relationship	Beta coefficient	St. deviation	T statistics	P values	Decision
H1	SEE → IE	0.678	0.061	8.97	< 0.000	Supported
H2	SEE → SN	0.581	0.073	6.15	0.012	Supported
H3	SN → IE	0.698	0.059	4.33	< 0.000	Supported
Mediation Analysis						
H4	SEE→SN→IE	0.405	0.043	6.62	0.001	Supported
Moderation Analysis						
H5	TA x SEE →SN	0.235	0.519	7.94	0.031	Supported

Note: SEE: Sustainable Entrepreneurship Ecosystem; IE: Institutional emergence; SN: Social networks; TA: Technological advancements

H4 shows that social network mediates the relationship. It means strong entrepreneurship ecosystem influences the social network, which in turn drives the creation of different institutions. The t statistics (6.62) and p value (0.001) are less than 0.05, indicating statistical significance.

H5 shows that the effect of the sustainable entrepreneurship ecosystem on institutional emergence is stronger in the presence of technological advancement. The t statistics (7.94) and p value (0.031) are less than 0.05, supporting the moderation effect of technological advancement on EE and IE.

Moderation-Mediation Through Process Model (Hypothesis 6)

Table 4 presents the moderation mediation model of hypothesis 6 (H6). Conditional mediation (CoMe) through the PLS SEM process option is used. Figure 1 shows that technological advancement interacts with the mediated path of SEE→SN→IE. The index value of moderation mediation is 0.164, calculated through TA x SEE →SN * SN → IE, which indicates that moderation mediation through process model is significant. The advancement in technology leads to a shift in SEE→SN→IE. At low levels of TA, the indirect effect is high and at high levels, the indirect effect is low (0.189).

Table 4: Moderation-mediation through Process model

Description	Estimate	Confidence interval low/high	P value
Low level of TA	*0.254*	*0.156/0.294*	*0.012*
Moderate level of TA	*0.219*	*0.132/0.231*	*0.029*
High level of TA	*0.189*	*0.157/0.201*	*0.031*
Index of Moderation-mediation	*0.164*	*0.102/0.210*	*0.033*

DISCUSSION

The study addresses the recommended research question from Dinh et al.'s (2024) integrative literature review on sustainability-orientated crowdfunding. The Dinh et al. (2024) study underscores the need to address the existing

literature gap. The present study explored that the sustainable entrepreneurship ecosystem positively influences the institutional emergence, including those funded through crowdfunding. The study also employs the moderation-mediation process model, which considers technological advancement as a moderator and social network as a mediator. The results revealed that technological advancement and the presence of strong social network positively impact the relationship between the sustainable entrepreneurship ecosystem and institutional emergence. Kukurba et al. (2021) asserted that the sustainability element of crowdfunding can create value in small and medium enterprises, while limiting their research on other value measurement elements. The current research broader its scope by incorporating technological advancements and social networks into the process of creating value within the sustainable entrepreneurship ecosystem. Nguyen et al. (2021) find that there is positive relationship between technology and social value creation in crowdfunding through the adoption of various infrastructures. By honing in on technology advancement and social networks, the present research specifically points out the social value creation of crowdfunding in the context of technology advancement. This could include the role of AI, innovations and processing time that create value in terms of user experience and engagement in crowdfunding. Conversely, Nguyen et al. (2021) discuss infrastructure generally, but specific focus of social network as a kind of infrastructure, explore how social connections and sharing support in crowdfunding success and value creation. Social network influences the crowdfunding performance, identified by Liu et al., (2021), however, the study limits its scope in terms of institutional development. Our research demonstrates a positive role of social networks in promoting instructional diversity and transformative support for improving their performance by stimulating the formation of various institutes such as non-profit organizations, community initiatives and social enterprises. Hence, the changing environment and technological advancement encourage the entrepreneurial ecosystem to structure new entities with specific goals to flourish that are supported by network. The present work provide novelty in existing literature by adding an additional layer to understand the impact of social networks and technological innovation on forming new institutions.

Future Implications and Limitation of the Study

The future implications, segregated into research and practical implications of the study, are explained in Table 5:

Scope of research work	Research implications	Practical implications
Synergies between technological advancement and social network	Future research may need to specify technology types such as AI, blockchain or digital platforms that interact and facilitate the social connections to embrace the institutional diversity.	Organizations need to leverage social media analytics with technological tools to better understand their need for new institutions.
Role of social network in building entrepreneurial ecosystem	Future studies need to research on online communities, influencers' role and network dynamics that shape local and global entrepreneurial cultures and institutions.	Policymakers and communities' leaders need to encourage social networking spaces as part of strategies to nurture the entrepreneurial ecosystem.
Response of emerging institutions and technology adoption	Future research needs to create a feedback loop in understanding the evolution of technology and the development of institutions.	Organizations involved in technological innovation and entrepreneurship need to analyze how these innovations influence the market, regulatory framework and environment.
Impact of social network on institutional diversity	Future research needs to consider how different networks like personal, professional, community networks and timeline of network (short- or long-lasting relations) impact the institutional diversity within entrepreneurial ecosystem.	Platforms or organizations need to add targeted features into niche groups for better understanding the entrepreneurs' needs.

Scope of research work	Research implications	Practical implications
Role of entrepreneurial ecosystem in institutional longevity and success	Future studies need to focus on entrepreneurial ecosystem in institutional longevity and success that emerges from social network interactions.	Ecosystem builders and economic developers need to focus on institution sustainability through innovation and networking for continuous engagement and resource sharing.

The study limits its scope to technological advancement; there are other factors such as regulatory, economic change and customer preference shifts that could also impact the institutional emergence. The second limitation pertains to the social network, it's complexity and multifaceted nature may not encompass all aspects of social influence such as cultural and offline interactions. Thirdly, crowdfunding varies by sectors that might be important in understanding the institution's creation.

Declarations

The authors have no relevant financial or non-financial interests to disclose.

Disclosure of Potential Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Research Involving Human Participants and/or Animals

This research does not involve human interaction, participation or animals.

Informed Consent

All data used in this research has been provided voluntarily by participants, who have given informed consent for the use of their data.

REFERENCES

[1] Alaassar, A., Mention, A.-L., & Aas, T. H. (2021). Ecosystem dynamics: exploring the interplay within fintech entrepreneurial ecosystems. *Small Business Economics*, *58*. https://doi.org/10.1007/s11187-021-00505-5

[2] Bargoni, A., Ferraris, A., Bresciani, S., & Camilleri, M. A. (2022). Crowdfunding and innovation: a bibliometric review and future research agenda. *European Journal of Innovation Management*. https://doi.org/10.1108/ejim-06-2022-0310

[3] Chung, Y., Li, Y., & Jia, J. (2021). Exploring embeddedness, centrality, and social influence on backer behavior: the role of backer networks in crowdfunding. *Journal of the Academy of Marketing Science*, *49*. https://doi.org/10.1007/s11747-021-00779-x

[4] Cicchiello, A. F. (2019). Building an entrepreneurial ecosystem based on crowdfunding in Europe: the role of public policy. *Journal of Entrepreneurship and Public Policy*, *8*(3), 297–318. https://doi.org/10.1108/jepp-05-2019-0037

[5] Dejean, S. (2019). The role of distance and social networks in the geography of crowdfunding: evidence from France. *Regional Studies*, *54*(3), 329–339. https://doi.org/10.1080/00343404.2019.1619924

[6] Dinh, J., Andrew Jay Isaak, & Marius Claus Wehner. (2024). Sustainability-oriented crowdfunding: An integrative literature review. *Journal of Cleaner Production*, 141579–141579. https://doi.org/10.1016/j.jclepro.2024.141579

[7] Elia, G., Margherita, A., & Passiante, G. (2020). Digital entrepreneurship ecosystem: How digital technologies and collective intelligence are reshaping the entrepreneurial process. *Technological Forecasting and Social Change*, *150*(150), 119791. https://doi.org/10.1016/j.techfore.2019.119791

[8] Fehrer, J. A., & Nenonen, S. (2019). Crowdfunding networks: Structure, dynamics and critical capabilities. *Industrial Marketing Management*. https://doi.org/10.1016/j.indmarman.2019.02.012

[9] Guerrero, M., Liñán, F., & Cáceres-Carrasco, F. R. (2020). The influence of ecosystems on the entrepreneurship process: a comparison across developed and developing economies. *Small Business Economics*, *57*(2). https://doi.org/10.1007/s11187-020-00392-2

[10] Khatami, F., Scuotto, V., Krueger, N., & Cantino, V. (2021). The influence of the entrepreneurial ecosystem model on sustainable innovation from a macro-level lens. *International Entrepreneurship and Management Journal*, *18*. https://doi.org/10.1007/s11365-021-00788-w

[11] Kukurba, M., Waszkiewicz, A. E., Salwin, M., & Kraslawski, A. (2021). Co-Created Values in Crowdfunding for Sustainable Development of Enterprises. *Sustainability*, *13*(16), 8767. https://doi.org/10.3390/su13168767

[12] Laurell, C., Sandström, C., & Suseno, Y. (2019). Assessing the interplay between crowdfunding and sustainability in social media. *Technological Forecasting and Social Change*, *141*, 117–127. https://doi.org/10.1016/j.techfore.2018.07.015

[13] Leone, D., & Schiavone, F. (2018). Innovation and knowledge sharing in crowdfunding: how social dynamics affect project success. *Technology Analysis & Strategic Management*, *31*(7), 803–816. https://doi.org/10.1080/09537325.2018.1554858

[14] Liu , Y., Chen, Y., & Fan , Z.-P. (2021). Do social network crowds help fundraising campaigns? Effects of social influence on crowdfunding performance. *Journal of Business Research*, *122*, 97–108. https://doi.org/10.1016/j.jbusres.2020.08.052

[15] Logue, D., & Grimes, M. (2019). Platforms for the people: Enabling civic crowdfunding through the cultivation of institutional infrastructure. *Strategic Management Journal*, *43*(3). https://doi.org/10.1002/smj.3110

[16] Manimala, M. J., Thomas, P., & Thomas, P. K. (2019). Perception of Entrepreneurial Ecosystem: Testing the Actor–Observer Bias. *The Journal of Entrepreneurship*, *28*(2), 316–342. https://doi.org/10.1177/0971355719851908

[17] Martín-Rojas, R., García-Morales, V. J., & García-Sánchez, E. (2011). The influence on corporate entrepreneurship of technological variables. *Industrial Management & Data Systems*, *111*(7), 984–1005. https://doi.org/10.1108/02635571111161253

[18] Medina-Molina, C., Rey-Moreno, M., Felício, J. A., & Romano Paguillo, I. (2019). Participation in crowdfunding among users of collaborative platforms: the role of innovativeness and social capital. *Review of Managerial Science*, *13*(3), 529–543. https://doi.org/10.1007/s11846-019-00329-4

[19] Moon, Y., & Hwang, J. (2018). Crowdfunding as an Alternative Means for Funding Sustainable Appropriate Technology: Acceptance Determinants of Backers. *Sustainability*, *10*(5), 1456. https://doi.org/10.3390/su10051456

[20] Munir, T., & Watts, S. (2024). Exploring eco-friendly business practices and corporate innovation in Pakistan. *International Journal of Innovation Science*. https://doi.org/10.1108/ijis-03-2024-0078

[21] Nguyen, L. T. Q., Hoang, T. G., Do, L. H., Ngo, X. T., Nguyen, P. H. T., Nguyen, G. D. L., & Nguyen, G. N. T. (2021). The role of blockchain technology-based social crowdfunding in advancing social value creation. *Technological Forecasting and Social Change*, *170*, 120898. https://doi.org/10.1016/j.techfore.2021.120898

[22] Ozgen, E., & Baron, R. A. (2007). Social sources of information in opportunity recognition: Effects of mentors, industry networks, and professional forums. *Journal of Business Venturing*, *22*(2), 174–192. https://doi.org/10.1016/j.jbusvent.2005.12.001

[23] Presenza, A., Abbate, T., Cesaroni, F., & Appio, F. P. (2019). Enacting Social Crowdfunding Business Ecosystems: The case of the platform Meridonare. *Technological Forecasting and Social Change*, *143*, 190–201. https://doi.org/10.1016/j.techfore.2019.03.001

[24] Sahaym, A., Avi) Datta, A., & Brooks, S. (2019). Crowdfunding success through social media: Going beyond entrepreneurial orientation in the context of small and medium-sized enterprises. *Journal of Business Research*. https://doi.org/10.1016/j.jbusres.2019.09.026

[25] Salem, I. E., Elkhwesky, Z., Baber, H., & Radwan, M. (2022). Hotel resuscitation by reward-based crowdfunding: A critical review and moderated mediation model. *Tourism Management Perspectives*, *43*, 100986. https://doi.org/10.1016/j.tmp.2022.100986

[26] Sequeira, J., Mueller, S. L., & Mcgee, J. E. (2007). The influence of social ties and self-efficacy in forming entrepreneurial intentions and motivating nascent behavior. *Journal of Developmental Entrepreneurship*, *12*(03), 275–293. https://doi.org/10.1142/s108494670700068x

[27] Singh, B., Srivastava, S., Chaudhuri, R., Chatterjee, S., & Demetris Vrontis. (2024). Assessing the entrepreneurial business performance from a dynamic capability and TOE framework: moderating role of

crowdfunding support. *Journal of Small Business and Enterprise Development*. https://doi.org/10.1108/jsbed-10-2023-0462

[28] Troise, C. (2020). Discovering the underlying dynamics of crowdfunding networks: entrepreneurs' ties, crowdfunders' connections and community spin-offs. *Journal of Enterprising Communities: People and Places in the Global Economy*, *14*(2), 277–298. https://doi.org/10.1108/jec-03-2020-0018

[29] Volkmann, C., Fichter, K., Klofsten, M., & Audretsch, D. B. (2019). Sustainable entrepreneurial ecosystems: an emerging field of research. *Small Business Economics*, *56*. https://doi.org/10.1007/s11187-019-00253-7

[30] Yáñez-Valdés, C., & Guerrero, M. (2023). Equity crowdfunding platforms and sustainable impacts: encountering investors and technological initiatives for tackling social and environmental challenges. *European Journal of Innovation Management*. https://doi.org/10.1108/ejim-03-2022-0127