

Crowdfunding Research in the Information Systems Discipline and Beyond: Development and Outlook

Sunghan Ryu^{a*}, Keongtae Kim^b, Jungpil Hahn^c

^a Associate Professor, USC-SJTU Institute of Cultural and Creative Industry, Shanghai Jiao Tong University, China

^b Associate Professor, Department of Decision Sciences and Managerial Economics, CUHK Business School, Chinese University of Hong Kong, Hong Kong

^c Associate Professor, Department of Information Systems and Analytics, School of Computing National University, Singapore

ABSTRACT

In this opinion article, we review the current streams of the information systems (IS) literature on crowdfunding and discuss how the literature has contributed to expanding our understanding of crowdfunding. Reflecting on the review, we propose avenues for future research to expand the existing knowledge on this impactful topic for the benefit of researchers and practitioners.

Keywords: Crowdfunding, Information systems, IT-enabled platform, Opinion article, Startups

I. Crowdfunding as an IT-enabled Platform for Transformation of the Financial Sector

Information technology (IT) has disrupted industries and markets by expanding the scope of crowd participation in diverse business activities. Specifically, IT-enabled platforms have transformed various industries and markets by lowering transaction costs, extending the reach of networks, and enabling better access to resources. Novel IT-enabled platforms have reduced market frictions for various resources, such as transportation, accommodation, data, and ex-

pertise (Burtch et al., 2018a; Greenstein and Zhu 2018; Guerin et al., 2019; Kim and Viswanathan 2019; Mindel et al., 2018). Among others, the arrival of crowdfunding, an IT-enabled fundraising platform, has changed the financing industry for early-stage start-ups in creative and innovative domains that previously suffered from a lack of financial resources (Geva et al., 2019; Hong et al., 2018; Kim and Hann 2019; Ryu, 2019).

Crowdfunding offers early-stage entrepreneurs and ventures a new way to raise capital outside of the purview of “experts,” who, in the past, had primary control over access to promising ventures. Crowdfunding helps these entrepreneurs and ven-

*Corresponding Author. E-mail: shryu@sjtu.edu.cn

tures to turn to the crowd to support their projects (Gleasure and Feller, 2016; Ryu and Kim, 2018). Crowdfunding helps ventures to promote their ideas to their (potential) fans, users, or customers and create a network of loyal customers. The expansion of crowdfunding positively affects start-ups and creators with new ideas, regardless of the domain, as extensive opportunities beyond the limited pool of financing channels are made accessible to creators, enabling them to have access to financial resources at a scale previously thought impossible. Additionally, ordinary people currently have access to opportunities for financing novel initiatives, and are therefore able to obtain returns from these new creations and innovations (Li and Wang, 2019; Ryu and Kim, 2016; Ryu et al., 2020). Crowdfunding serves the role of connecting creators with novel ideas to contributors with diverse motivations to financially support these ideas to bring them to life (Jiang et al., 2021). It serves to democratize the distribution of capital and the process of innovation, supporting creators from different domains in a way that could not be supported under traditional channels, such as banks and venture capitalists (VCs).

In this opinion article, we review the current streams of the information systems (IS) literature on crowdfunding and discuss how the literature has contributed to expanding our understanding of crowdfunding. Reflecting on the review, we propose avenues for future research to expand the existing knowledge on this impactful topic for the benefit of both researchers and practitioners.

II. A Decade of Crowdfunding Research

Crowdfunding has emerged as an important re-

search topic during the past decade, not only in the IS discipline but also in other relevant disciplines, including entrepreneurship (Colombo et al., 2015; Mollick 2014), marketing (Dai and Zhang, 2019), and economics (Agrawal et al., 2014; Agrawal et al., 2015). The existing literature supports the view that crowdfunding possesses common aspects to traditional funding sources and distinctive aspects as a new platform or service. Crowdfunding is similar to traditional funding sources such as VCs in that potential contributors make decisions to contribute to a venture via a crowdfunding platform based on their perceptions about the venture. For example, the evaluation of creators and their resources/capabilities is essential in the crowdfunding context, similar to that of traditional investors with respect to the founders of ventures (Hong et al., 2018; Ryu and Kim, 2018). The differences between traditional investors and crowdfunding contributors are that the latter group may be influenced by motivations that are different from that of the former group. A strand of research has identified specific attributes or characteristics of crowdfunding campaigns and their creators that boost individual contributors' behaviors and consequently contribute to crowdfunding success (Ryu and Kim, 2018; Zheng et al., 2017). Consequently, the crowdfunding campaign design is a critical factor in the context of crowdfunding success (Burtch et al., 2018b; Jiang et al., 2021; Kim and Viswanathan, 2019; Li and Wang, 2019; Yang et al., 2020).

In addition to carefully crafting a campaign, understanding the social aspects of crowdfunding is critical to ensure the success of the campaign (Kang et al., 2017; Kim and Viswanathan, 2019; Zheng et al., 2014). Due to the transparency of crowdfunding platforms, creators must appreciate the importance of the dynamics of the fundraising process. For example, social

factors such as who the early contributors are (Kim and Viswanathan, 2019), the momentum of contributions throughout the fundraising process (Burtch et al., 2013), and the concurrent presence of significant projects of other creators (Geva et al., 2019; Yang et al., 2019) have been shown to influence crowdfunding outcomes. Creators are expected to develop strategies to mobilize a group of early contributors according to the nature of the campaign, to carefully monitor the progress of not only their own campaigns but also that of the other creators' campaigns. The substantial internal and external social capital of a creator in the crowdfunding platform should help the creator to trigger the momentum of the crowdfunding campaign for achieving crowdfunding success.

Although the existing literature has identified some implicative mechanisms of crowdfunding, this body of literature has several limitations. While it has sufficiently examined the influencers of crowdfunding campaign success and individual contributors' behaviors, less attention has been paid to the motivation of players on both sides. Creators and contributors opt for crowdfunding with different motivations (Li and Wang, 2019; Ryu and Kim, 2016; Ryu and Kim, 2018; Ryu et al., 2020). The existing literature has not established how those motivations interact with other factors, such as crowdfunding campaign characteristics.

It is well known that crowdfunding plays an increasingly important role in the broader financing ecosystem for creative projects and ventures. However, much of the academic literature on crowdfunding has focused on the success of campaigns "within" the crowdfunding platforms (Geva et al., 2019; Kim et al., 2021; Ryu and Suh, 2020; Yang et al., 2019). There is still a lack of thorough understanding of how crowdfunding influences post-crowdfunding outcomes. Our understanding of how crowdfunding,

as an IT-enabled platform, has impacted the start-up financing industry, is also limited.

III. Prospect of Crowdfunding Practice and Research

The limitations of extant research offer exciting potential directions for future research. In addition to being a fundraising platform, crowdfunding provides additional advantages for a venture, ranging from feedback and suggestions from contributors and the acquisition of an initial group of loyal customers (i.e., the marketing lens) to follow-up fundraising opportunities to scale up as a business (i.e., the entrepreneurship lens). Therefore, in addition to the IS perspective, crowdfunding should be examined from a multidisciplinary perspective. Indeed, crowdfunding is evolving by converging with different players, domains, and technologies.

First, established companies have started to employ crowdfunding for the development and marketing of new products. They have realized that they can benefit from crowdfunding in many ways. Through a crowdfunding campaign, they can conduct a pre-launch validation of their innovative idea as a way of conducting market research. Although established firms' monetary needs are minimal, crowdfunding enables them to observe the initial market response to an innovative product from a batch of potential consumers and collect helpful feedback. Future studies could examine the role of crowdfunding regarding these marketing aspects, including how to promote the co-creation process between creators and backers. In this regard, researchers can delve deeply into how different motivations interrelate with crowdfunding success and creator/contributor behaviors. Specifically, because motivations are psychological factors, exam-

ining how motivations interact with other attributes such as demographic, campaign, or platform characteristics would yield fruitful insights.

Second, crowdfunding has shown its potential to democratize access to finance (Kim and Hann, 2019). Future research can examine the conditions under which the potential of this financing method is more likely to be realized. Specifically, one can examine who and what types of start-ups benefit more from crowdfunding. Traditional funding sources, such as VCs, tend to underfund certain groups of entrepreneurs. For instance, female and non-white founders have been shown to have been disenfranchised by the traditional start-up funding industry. Start-ups located outside large cities such as San Francisco are also perceived to be at a clear disadvantage when considering this funding industry. It would be interesting to examine whether and how crowdfunding can reduce such biases and prejudices.

Third, to better understand the role of crowdfunding in the start-up ecosystem, there is an urgent need to study the potential role of crowdfunding in the start-up ecosystem in the long term. Currently, crowdfunding is being connected to production and distribution entities to provide more value to creators. Established crowdfunding platforms have tried to build an ecosystem for ventures in crowdfunded campaigns by collaborating with professional agencies regarding related domains such as design, manufacturing, packaging, and shipping. A pioneering stream of literature expands the perspective to post-campaign phenomena by examining the effects of crowdfunding success on the follow-up performance of ventures (Colombo and Shafi, 2019; Roma et al., 2017; Ryu et al., 2019; Sung et al., 2021; Thies et al., 2018). Future research can identify how crowdfunding affects subsequent performance in different aspects, for example, whether and how crowdfunding

interplays with other existing players (e.g., angel investors, venture capitalists, start-up accelerators).

Finally, crowdfunding is constantly evolving with emerging technologies. Blockchain technology is one of the relevant technologies for tracking the crowdfunding process, since it provides an alternative base for crowdfunding platforms. It provides a decentralized, secure, and robust method for storing and distributing information that can benefit crowdfunding in many respects. The ledger in a blockchain system enables accurate record-keeping for all campaign-specific activity on the crowdfunding platforms, including records before, during, and after the campaign. Future research could examine how these technologies can improve the credibility and trust of the crowdfunding process, and thus enhance crowdfunding performance. Moreover, surveys of more recent IT applications based on the crowdfunding approach, including Initial Coin Offerings (ICOs) and Non-Fungible Tokens (NFTs), would generate implications for academics and practitioners.

IV. Conclusion

The steady growth of studies on crowdfunding reflects the increasing popularity of crowdfunding in academia and legitimizes it as a promising research field. However, despite the growth of crowdfunding research, many important questions remain unaddressed, and new questions are constantly being raised. Thus, the purpose of this article is to provide a clear, albeit high-level, picture of the existing crowdfunding research in the IS discipline and other relevant disciplines and offer several directions for future research. We hope that our article will help stimulate further research in this significant and exciting domain.

<References>

- [1] Agrawal, A., Catalini, C., and Goldfarb, A. (2014). Some simple economics of crowdfunding. *Innovation Policy and the Economy*, 14(1), 63-97.
- [2] Agrawal, A., Catalini, C., and Goldfarb, A. (2015). Crowdfunding: Geography, social networks, and the timing of investment decisions. *Journal of Economics & Management Strategy*, 24(2), 253-274.
- [3] Burtch, G., Carnahan, S., and Greenwood, B. N. (2018). Can you gig it? An empirical examination of the gig economy and entrepreneurial activity. *Management Science*, 64(12), 5497-5520.
- [4] Burtch, G., Ghose, A., and Wattal, S. (2013). An empirical examination of the antecedents and consequences of contribution patterns in crowd-funded markets. *Information Systems Research*, 24(3), 499-519.
- [5] Burtch, G., Hong, Y., and Liu, D. (2018). The role of provision points in online crowdfunding. *Journal of Management Information Systems*, 35(1), 117-144.
- [6] Colombo, M. G., and Shafi, K. (2019). Receiving external equity following successfully crowdfunded technological projects: An informational mechanism. *Small Business Economics*, 56, 1507-1529.
- [7] Colombo, M. G., Franzoni, C., and Rossi-Lamastra, C. (2015). Internal social capital and the attraction of early contributions in crowdfunding. *Entrepreneurship Theory and Practice*, 39(1), 75-100.
- [8] Dai, H., and Zhang, D. J. (2019). Prosocial goal pursuit in crowdfunding: Evidence from kickstarter. *Journal of Marketing Research*, 56(3), 498-517.
- [9] Geva, H., Barzilay, O., and Oestreicher-Singer, G. (2019). A potato salad with a lemon twist: Using a supply-side shock to study the impact of opportunistic behavior on crowdfunding platforms. *MIS Quarterly*, 43(4), 1227-1248.
- [10] Gleasure, R., and Feller, J. (2016). Emerging technologies and the democratisation of financial services: A metatriangulation of crowdfunding research. *Information and Organization*, 26(4), 101-115.
- [11] Greenstein, S., and Zhu, F. (2018). Do experts or crowd-based models produce more bias? Evidence from Encyclopedia Britannica and Wikipedia. *MIS Quarterly*, 42(3), 945-960.
- [12] Guerin, R., Hosanagar, K., Xinxin, L., and Sen, S. (2019). Shared or dedicated infrastructures: on the impact of reprovisioning ability. *MIS Quarterly*, 43(4), 1059-1079.
- [13] Hong, Y., Hu, Y., and Burtch, G. (2018). Embeddedness, pro-sociality, and social influence: Evidence from online crowdfunding. *MIS Quarterly*, 42(4), 1211-1224.
- [14] Jiang, H., Wang, Z., Yang, L., Shen, J., and Hahn, J. (2021). How rewarding are your rewards? A value-based view of crowdfunding rewards and crowdfunding performance. *Entrepreneurship Theory and Practice*, 45(3), 562-599.
- [15] Kang, L., Jiang, Q., and Tan, C. H. (2017). Remarkable advocates: An investigation of geographic distance and social capital for crowdfunding. *Information & Management*, 54(3), 336-348.
- [16] Kim, K., and Hann, I. H. (2019). Crowdfunding and the democratization of access to capital-An illusion? Evidence from housing prices. *Information Systems Research*, 30(1), 276-290.
- [17] Kim, K., and Viswanathan, S. (2019). The 'experts' in the crowd: The role of experienced investors in a crowdfunding market. *MIS Quarterly*, 43(2), 347-372.
- [18] Kim, K., Park, J., Pan, Y., Zhang, K., and Zhang, X. M. (2021). *Risk disclosure in crowdfunding*. Information Systems Research.
- [19] Li, G., and Wang, J. (2019). Threshold effects on backer motivations in reward-based crowdfunding. *Journal of Management Information Systems*, 36(2), 546-573.
- [20] Mindel, V., Mathiassen, L., and Rai, A. (2018). The sustainability of polycentric information commons. *MIS Quarterly*, 42(2), 607-632.
- [21] Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing*

- 29(1), 1-16.
- [22] Roma, P., Petruzzelli, A. M., and Perrone, G. (2017). From the crowd to the market: The role of reward-based crowdfunding performance in attracting professional investors. *Research Policy*, 49(9), 1606-1628.
- [23] Ryu, S. (2019). *Beauty of crowdfunding: Blooming creativity and innovation in the digital era*. New York, NY: Routledge.
- [24] Ryu, S., and Kim, Y. G. (2016). A typology of crowdfunding sponsors: Birds of a feather flock together? *Electronic Commerce Research and Applications*, 16, 43-54.
- [25] Ryu, S., and Kim, Y. G. (2018). Money Is not everything: A typology of crowdfunding project creators. *Journal of Strategic Information Systems*, 27(4), 350-368.
- [26] Ryu, S., and Suh, A. (2020). Online service or virtual community? Building platform loyalty in reward-based crowdfunding. *Internet Research*, 31(1), 315-340.
- [27] Ryu, S., Kim, K., and Hahn, J. (2019). The effect of crowdfunding success on subsequent financing outcomes of start-ups. *Academy of Management Proceedings*, 2019(1), 17486.
- [28] Ryu, S., Park, J., Kim, K., and Kim, Y. G. (2020). Reward versus altruistic motivations in reward-based crowdfunding. *International Journal of Electronic Commerce*, 24(2), 159-183.
- [29] Sung, N., Kim, K., and Viswanathan, S. (2021). Equity crowdfunding and startup performance. *Academy of Management Proceedings*, 2021(1), 12437.
- [30] Thies, F., Huber, A., Bock, C., Benlian, A., and Kraus, S. (2018). Following the crowd-does crowdfunding affect venture capitalists' selection of entrepreneurial ventures? *Journal of Small Business Management*, 57(4), 1378-1398.
- [31] Yang, L., Wang, Z., and Hahn, J. (2019). The impact of blockbusters in crowdfunding. *Academy of Management Best Paper Proceedings*, 2019(1), 12317.
- [32] Yang, L., Wang, Z., and Hahn, J. (2020). Scarcity strategy in crowdfunding: An empirical exploration of reward limits. *Information Systems Research*, 31(4), 1107-1131.
- [33] Zheng, H., Li, D., Wu, J., and Xu, Y. (2014). The role of multidimensional social capital in crowdfunding: A comparative study in China and Us. *Information & Management*, 51(4), 488-496.
- [34] Zheng, H., Xu, B., Wang, T., and Chen, D. (2017). Project implementation success in reward-based crowdfunding: An empirical study. *International Journal of Electronic Commerce*, 21(3), 424-448.

◆ About the Authors ◆



Sunghan Ryu

Sunghan Ryu is an associate professor at USC-SJTU Institute of Cultural and Creative Industry in Shanghai Jiao Tong University. He is also the founding director of the Center for Digital Creative Enterprise Research and serves as the series editor for the Digital Entertainment series of Sage Business Cases. His research interests include digital innovations in cultural and creative domains and effective digital technology applications in the creative entrepreneurial context. He is the author of the book “Beauty of Crowdfunding: Blooming Creativity and Innovation in the Digital Era” (Routledge, 2019). His research works appeared in prestigious academic journals, including *Journal of Strategic Information Systems*, *International Journal of Electronic Commerce*, *Internet Research and Electronic Markets*, among others.



Keongtae Kim

Keongtae Kim is an associate professor in Department of Decision Sciences and Managerial Economics, Chinese University of Hong Kong (CUHK) Business School. Prior to joining CUHK, he was an Assistant Professor at Department of Information Systems at the City University of Hong Kong. His main research focuses on crowdfunding, digital innovation/entrepreneurship, FinTech, and Economics of AI/ML. His research has been published at *Information Systems Research* and *MIS Quarterly*, among others. He has won several awards including Young Researcher Award of CUHK, AIS Early Career Award, and Management Science Meritorious Service Award.



Jungpil Hahn

Jungpil Hahn is an associate professor in the Department of Information Systems and Analytics at the School of Computing at the National University of Singapore (NUS). He served as the Head of the Department of Information Systems and Analytics from July 2015 to June 2021. His research focuses on open innovation, organizational learning and knowledge management, software development processes, software project management and human-computer interaction. His research has been published in *Management Science*, *Information Systems Research*, *Organization Science*, *Journal of Management Information Systems*, and *MIS Quarterly*, among others. He has received numerous awards and accolades for his research, teaching and service, including two “Best Paper in Track” Awards at the 2020 International Conference in Information Systems, the “Best Paper Award” at the Workshop on Information Technology and Systems (WITS) in 2016, and the “Best 2013 Published Paper Award” from the Organizational Communication and Information Systems (OCIS) Division of the Academy of Management, and so on.

Submitted: September 18, 2021; 1st Revision: October 22, 2021; Accepted: November 05, 2021
