IIAI Open Conference Publication Series
IIAI Letters on Institutional Research
Vol.004, LIR233
DOI: https://doi.org/10.52731/lir.v004.233

How to Enroll Industrial Collaborators in the Nascent Academic Entrepreneurship Under Uncertainty: A Concept Model

Wei Liu [*], Peisi Lin [*]

Abstract

Enrolling industrial collaborators is an ideal method for academia seeking commercialization of their research findings. We define and delineate novelty types of uncertain for academic entrepreneurs in the cooperative entrepreneurship contexts: the struggles to establish social ties with potential collaborators and hardness to strengthen the cooperative relationship. In developing our theory, we employ a two-stage model to uncover how academic entrepreneurs intentionally target desired pre-commitment towards industrial collaborators and then how they achieve sustained commitment to ultimately set up a company. Herein, we add important insights to complete the model. On one hand, individual proximity provides an important path for network construction and is regulated by reputation in the former stage. On the other hand, sufficient information feedback and knowledge sharing are required to engage both of them in the entrepreneurial journey in the latter one. Overall, we put forward the conceptual the model to illustrate this process.

Keywords: Nascent academic entrepreneurship, Dynamic commitment, uncertainty, concept model

1 Introduction

Recently, research lays more emphasis on academic entrepreneurship that the scholars from universities set up new ventures to commercialize the scientific and technological achievements rather than licensing or transferring their patents (Secundo and Elia, 2014). As the critical institution of education and knowledge production, the university accounts for heavy responsibilities of basic and applied research and brings together amounts of talents. However, the successful cases of technology transfer in university are actually rare, owing to absence of marketing experience and financial supports (Fayolle and Redford, 2014). What we know about academic entrepreneurship is largely based upon macro and medium levels, such as the institutional and cultural barriers of academic entrepreneurship and interactive relationship between academic entrepreneurship and industrial development (Villani et al., 2017). There has been no detailed investigation about the characteristics of entrepreneurs themselves, who have been thought of as pivotal contributors in the nascent process of new ventures (Hayter, 2016a).

From the perspective of resource-based view, the start-ups are more likely to survive and tend to have even better performance with more complementary resources (O'Brien & Sasson, 2017). Therefore, it is indeed a challenge to bring the innovations out of laboratories with insufficient resources for academic entrepreneurs. Surveys conducted by Freeman (2010) have shown that

[*] School of Economics and Business Administration, Chongqing University, Chongqing, China

the cooperative entrepreneurship engaged with industrial collaborators who can provide physical capital (material resources), intellectual capital (market knowledge and skills), and social capital (social network) is an ideal means to essentially assist new ventures striding over the "Valley of Death". The focus of university-industry linkages is now changing from cooperative innovation to cooperative entrepreneurship which refers to enroll industrial collaborators in the nascent entrepreneurial activity (Festel et al., 2013).

Although previous studies on nascent entrepreneurship that has examined the role of individual's ability, few have focused on the cooperative behavior of multi-founders (Powell and Baker, 2017). The enrollment of heterogeneous collaborators is two sides of the same coin. On the one hand, the cooperative entrepreneurship helps the new venture harness various resources to enhance competitiveness. On the other hand, because of the differences that they are working in various organizations, institutions even location from remote distance, they get little opportunities to know each other and much less profound communication, which fails to build trust. When making decisions to enroll industrial collaborators, academic entrepreneurs confront with high level of uncertainty. Under this environment, the nascent entrepreneurship is full of hazards such as the challenge of market changes and the replacement of technology life-cycle so that the cooperative relationship is vague and unclear. Where to find the intended collaborators and how to make consensus on the cooperative entrepreneurship, which are the critical first process. However, little is known about cooperative construction of multi-founders and it is not clear what factors can bridge the gap between the entrepreneurs of various backgrounds.

Relevant literature of team work in entrepreneurship suggests that commitment can help people to work together effectively, which might hold the key to collaborators enrollment under uncertainty (Erikson, 2002). Nevertheless, few researchers have addressed the issue of how multiple founders work through the commitment processes in this circumstance that may shape their cooperative efforts (Powell and Baker, 2017). Therefore, this study aims to building upon the foundation of prior work of the construction of entrepreneurship network and then expand its focus to consider a theoretically and practically important question for academic entrepreneur: how to find and actually make commitment with the intended industrial collaborators in the nascent academic entrepreneurship under uncertainty. We employ a two-stage model to uncover how academic entrepreneurs intentionally target desired pre-commitment towards intended industrial collaborators and then how they achieve continuous commitment to ultimately create a new venture.

The remainder of this paper is structured as follows: the second section outlines the theoretical background and derives our hypotheses. The third section describes the conceptual model to analysis and present dynamic process of enrollment. Implications and findings are presented in the fourth section.

2 Literature Review

2.1 Multi-founder cooperative entrepreneurship

Previous research has revealed the nature of nascent entrepreneurship, which refers to define as the process that a team or individual who intends to start a new venture has devoted efforts to establish but do not formally operate its business. A considerable amount of literature has been published on how to establish credit and sustainable development after opportunity identification and entrepreneurship commitment (Combs et al, 2023). So far, however, there has been little discussion about the mechanism of nascent entrepreneurship which is pretty complex and obscure (Liao and Welsch, 2005). For academic entrepreneurs, it is really a challenge to take the

first step in commercialization which is not their area of expertise in the nascent entrepreneurship. They often lack business know-how, as the founders are usually highly research-orientated scientists. This means, that besides enough capital, a start-up led by academic entrepreneurs also heavily relies on operational assistance in order to be successful.

Inventor Entrepreneurs (IE) is the typical model in the practice, which argues that academic entrepreneurs tend to commercialize their findings by themselves (O Shea et al., 2008). However, due to the role conflict between scholars and entrepreneurs or the lack of sufficient resources and capabilities to engage in business operations, IE model is under the risk of losing commercial opportunities. According to Würmseher (2017), there are the two more common models of Surrogate Entrepreneur (SE) and Founding Angel (FA) as alternative models to IE in the nascent entrepreneurship. As a SE, academic entrepreneurs who are reluctant to invest all of their time in start-ups or doubt their abilities to commercialize technology, which is the mainstream of the past. Indeed, its advantage is obvious that academic staff can make a profit from the beginning, but the commercialization process is likely to fail from lack of technical insights and scientific foundations (Lundqvist, 2014). Würmseher (2017) pointed out that the FA model is the ideal way to solve the dilemma. The participation of a founding angel (an industrial collaborator) begins with the evaluation of market opportunities for invention, and develops market operation continuously, promotes the process of entrepreneurship together with scientists (academic entrepreneurs), which is a kind of development to the classic entrepreneurship IE model (Festel and De Cleyn, 2013).

Recently, evidence for multi-founder cooperative entrepreneurship has been clear. According to the resource-based view, entrepreneurs usually need complementary resources to form and utilize opportunities, and only when the providers of these resources are more deeply committed to entrepreneurship, can they obtain resources efficiently (Abootorabi et al, 2024). Meanwhile, the theory of information decision-making demonstrates that diversity of team members can help to obtain heterogeneous resources and information, so there will be more opportunities and possibilities to share their knowledge and experience with others, which is conducive to grasping more comprehensive knowledge and information. On this basis, a more in depth discussion of team tasks is conducive to better team performance (Meyer and Scholl, 2009). However, the FA model and even the more established SE model have received little attention in literature - although these approaches have been used implicitly in some new venture creation (Würmseher, 2017).

2.2 Entrepreneurial commitment under uncertainty

In contrast to the discovery view that assumes a risky context in which some aspects of the future are known or at least can be uncovered (e.g., by trial and error), entrepreneurial agency can also be viewed as action under uncertainty (Townsend et al, 2018). Indeed, as a logical theoretical alternative to the discovery perspective, the creation view of entrepreneurial action embraces uncertainty as its distinguishing characteristic (Alvarez and Barney, 2007; Sarasvathy, 2001). Building on the classical definition of Knight and following the accessibility statements of (Alvarez and Barney, 2007), we agree with the view of Engel et al. (2017) that " at the time a decision is being made, decision makers cannot collect the information needed to anticipate either the possible outcomes associated with a decision nor the probability of those outcomes". When making decision to enroll the industrial collaborators, academic entrepreneurs have no access to available candidates and have no idea about the possible outcomes. For one thing, academic entrepreneurs lack business and financial-related networks (Visintin and Pittino, 2014), and members of research team have high homogeneity of academic background and experience, which makes it difficult to identify collaborators from other organizations. Even if they have built up the bridge

to communicate, it is also a cognitive gap between them, which make the enrollment process unstable. This is a novel cooperative uncertainty for the academic entrepreneurs besides the market and technology uncertainty.

To deal with the cooperative uncertainty, results from earlier studies demonstrate that the commitment plays a vital role in nascent process of new ventures. Comparing with financial instruments which can build solid bonds between investors and entrepreneurs, commitment is a fairly feasible method to fasten the cooperative relationship in an informal way. Relevant researches have suggested that commitment is a kind of the behavior or decision of entrepreneurs who identify with the role of founders and invest in intellectual capital and material capital, or emotional involvement to the entrepreneurship activities (Erikson, 2002). However, existing researches pay more attention to two different stages of the relationship between entrepreneurs and investors known as the beginning and ending. In the study of relationship initiation, scholars have identified motivations that promote investors and entrepreneurs to cooperate together. In the study of relationship breakdown scholars emphasized the factors that led to the formalization of relationships through investment round forecasting (Shane and Cable, 2002). Nevertheless, different from the static initiation and breakdown, commitment is a dynamic process which forms an essential part in the nascent entrepreneurship and is supposed to be exploited for the successful enrollment.

In summary, FA is a kind of ideal model for cooperative entrepreneurship, and the critical question is how to make it work in the actual technology commercialization. To deal with the uncertainty in the specialized circumstance, this paper applies a two-stage commitment model that would help academic entrepreneurs to enroll the industrial collaborators that best fits their needs and objectives.

3 Conceptual Commitment Model

Entrepreneurs face vague entrepreneurial goals, unpredictable entrepreneurial outcomes, and an entrepreneurial environment that changes with each action. The impact of uncertainty on entrepreneurial decision-making should not be ignored. When the target goals of enrolling intended industrial candidates are ambiguous and the entrepreneurial tasks are basically unstructured and complex, defining the problem itself is a viable solution (Nebus, 2006). Drawing on this line of thinking, this study attempts to define the problems that exist in the nascent stage of cooperative entrepreneurship as how to find and commit to industrial collaborators. Fig. 1 illustrates this dynamic process of commitment actions leading to the expansion of means and the convergence of goals, which conjointly shape entrepreneurs' perceptions of uncertainty and the development of their ventures. Propositions linking the process components of our model and summarizing the main takeaways from each of the sections below are also presented. Note that in our model, academic entrepreneurs may not start with a clear cooperative idea or goal in the background of high uncertainty. Instead, networking becomes almost the very first thing they do. Networking often precedes and is always intertwined with every aspect of the entrepreneurial process—from idea generation to resource acquisition, team formation, production and execution—none of which happens in a linear fashion. Rather, entrepreneurs have to emerge from continual efforts to maintain and create network ties.

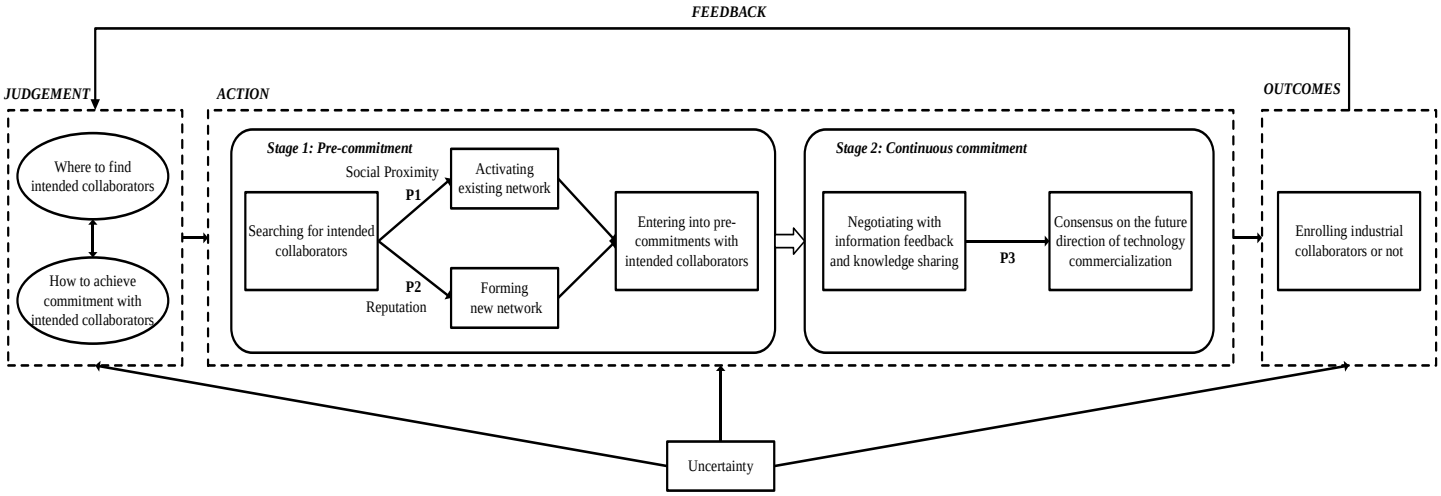

Figure 1: The dynamic commitment model to enroll industrial collaborators under uncertainty

Due to the lack of a common cognitive foundation, academic entrepreneurs and industrial collaborators will have major differences in key commercialization goals and technology path choices. Therefore, the second problem they encounter is how to establish continuous social interaction and promote the ultimate formation of commitments. Based on this, this research breaks down the enrollment process into two stages, and proposes to eliminate the uncertainty of cooperation through the implementation of pre-commitment and continuous commitment.

3.1 Activating existing network

In the process of finding an intended candidate, academic entrepreneurs tend to conduct preliminary searches based on existing tools, such as the identity, characteristics and preferences of entrepreneurs, the knowledge corridors they are in and the social networks they have participated in (Sarasvathy, 2001). In a sense, actions of academic entrepreneur are limited by previous tendencies and inertia, but they can also create new social paths. Bensaou et al. (2013) proposes that due to the limitations of resources and cognition, academic entrepreneurs can only build network relationships within cognitive boundaries, and then reconstruct entrepreneurial network by activating existing ties and forming new ties. In this process, the proximity of individuals provides an important path for the activation of network, which can increase the possibility of commitment.

The concept of proximity first referred to geographic proximity by Storper in 1989, a large body of literature ensued to study whether geographic distance is a detrimental factor in university–industry collaborations and whether other factors might be complementary to geographic proximity (Broström, 2010). Specifically, the French School of Proximity Dynamics introduces multiple dimensions of proximity and argues that these proximities are no less important than geographic proximity in promoting interactive learning and innovation (Shaw and Gilly, 2000). Boschma (2005) further elaborates this work by discussing the proper level of various proximities and whether cognitive, social, organizational, and institutional proximities can be complementary to geographic proximity. According to Boschma (2005), organizational proximity is a continuous variable measuring to what extent two organizations share the same organizational regulation, with the low extreme representing arm-length market relationships in a market and the high ex-

treme being hierarchical control within an organization. While organizational proximity coordinates inter organizational relationships at the micro-level, institutional proximity helps bring organizations together through sharing similar values and norms at the macro-level (Boschma, 2005). The institution-level values and norms could be informal cultures and habits that foster trust and facilitate interactions (e.g., a common language), or formal laws and rules (e.g., a legal system that effectively secure intellectual property rights) that reduce uncertainty and risks (Edquist and Johnson, 1996; le Duc and Lindeque, 2018). However, when the topic comes to academic entrepreneurship of multi founders from university and industry, organizational proximity and institutional proximity do not necessarily facilitate the enrollment process. In the individual level, universities are far from market and share the different constructions and institutions with the industry. Therefore, the organizational proximity and institutional proximity are natural barriers for academic entrepreneurs.

In a study on apparel firms in New York City, Uzzi (1997)claimed that many economic transactions were based on social networks rather than considerations of economic efficiency. People embedded in the social structure do not make their business decisions only based on theirself-interest. Therefore, in cooperative academic entrepreneurship, social networks are expected to play an important role, both in reducing opportunistic behavior and in the embeddedness effect. These socially embedded relations between organization, or their "social proximity" (Boschma, 2005) will reduce uncertainty, promote effective learning in addition to open communication and facilitate the transfer of tacit knowledge (le Duc and Lindeque, 2018). In this sense, social proximity would be an efficient approach to activate the existing network.

Proposition 1: Activating existing network by social proximity permits academic entrepreneurs to enter into pre-commitments with intended collaborators under uncertainty.

3.2 Forming new network

In tandem with networking actions aimed at activating potential collaborators such as family and friends, as well as reflecting on and co-creating initial venturing goals, academic entrepreneurs are also required to reach out and establish new contacts with strangers or, more broadly, any and all people they might meet in the routines of their lives (le Duc and Lindeque, 2018). The reason for this is that under uncertainty, there is simply no way to know in advance who will be the conduit for the next necessary resource or who will provide the piece of information that will change the venture's current direction(Engel et al., 2017). Indeed, entrepreneurs encounter "tremendous variation in terms of not only what resources are needed, but also when they are needed"(Newbert et al., 2013). Obviously academic entrepreneurs are not able to kick-off their ventures with direct strong ties to all relevant collaborators (Hallen and Eisenhardt, 2012). Thus, in addition to considerations of trust, availability or homophily that dominate early networking efforts, new ties are progressively formed based on the idea that exposure to diverse social resources provides a 'requisite variety' for idea generation, creativity, and growth (Elfring and Hulsink, 2007). Accordingly, the next key feature of networking under uncertainty is evident in efforts to cast a wide net and start interacting with potential collaborators in an ongoing process of negotiating and renegotiating the design of an emergent venture (Keating et al., 2014).

According to signal theory, entrepreneurs can use information about the nature of the opportunity they are pursuing, information about themselves (i.e., the entrepreneurs' charisma, trustworthiness, and reputation), or both, to enroll collaborators (Burns et al., 2016). The lack of information on supply and demand of new products and the imperfection of new technologies have led to market and technology uncertainty in academic entrepreneurship. In this case, the information

about the business opportunity itself is scarce, so they have to rely heavily on information about themselves to attract industrial collaborators. Especially, in the context of this study, the information about academic entrepreneurs themselves refers to the reputation, such as the school heritage, scholar honor and extraordinary academic experience.

To date, the existing research does not have a unified definition of the concept of reputation. Most scholars interpret the reputational connotation as: the sum of the evaluation and impression of the characteristics of the individual being evaluated and the historical behavior of the collaborators, which can be transmitted to the outside world as a signal to reduce the uncertainty about future activity (Shane et al., 2002). George et al. (2016)found through literature review that reputation is receiving widespread attention in collaborative decision-making. Livingston (2005)used online trading as an example to find that reputation can build a trust foundation to help buyers make decisions. Jian and Lee (2011)found CEO reputation is an important signal of credibility judgment in corporate capital investment and the wealth effect of investment is positively related to CEO reputation. Weng and Chen (2017)find that investors rely more on CEO reputation when buying stocks. Make judgments and other results. In recent years, the concept of reputation has been introduced in entrepreneurial research to explain the relationship between entrepreneurs and investors. Wood and McKinley (2010)found that entrepreneurs need investors to agree with his views on the future and reach a common understanding. Promote the identification and realization of partnerships. It can be seen that existing research has confirmed that reputation can serve as a signal to reduce uncertainty and build a foundation of trust to help individuals or organizations increase their attractiveness to obtain external support (mainly funds) and promote cooperation. Some scholars It is further pointed out that collaborators can participate in joint ventures through entrepreneurial business plans and entrepreneurs themselves, and the weaker the ability of collaborators to identify opportunities due to institutional differences, the smaller the role of business plans, the more they need to rely on entrepreneurs. The information is like a reputation for cooperation (Burns et al., 2016).

Given that industry entrepreneurs and academic entrepreneurs in this study are in different institutional frameworks, reputation signals need to be passed between different systems. Existing research shows that in other scenarios of industry-university integration, reputation can be transmitted and recognized between different systems and the greater the difference in the system (i.e., the higher the information asymmetry), the more prominent the role of reputation is confirmed. For example, Cable and Turban (2001) found that college reputation can be transmitted as a signal between different systems to help companies hire talent in the labor market. (Sullivan et al., 2018) found that good school reputation enables students to be in business. The market has a higher social recognition, and students from well-known universities tend to occupy better positions and earn higher incomes.

In summary, reputation has the role of reducing uncertainty and building a foundation of trust, and the signal can be transmitted between different systems. When the institutional differences are greater, the importance of reputation is more prominent.

Proposition 2: Forming new network by reputation permits academic entrepreneurs to enter into pre-commitments with intended collaborators under uncertainty.

3.3 Continuous commitment Stage

Academic entrepreneurs tend to interact more with industrial collaborators after the pre-commitment of academic entrepreneurship is reached. Although there are natural institutional and cognitive distances between academic entrepreneurs and industrial collaborators, with the deepening

of cooperation, social networks will diffuse norms of behavior, and the subjects of interaction will become more similar, and proximity will change. Secondly, cognitive diversity among heterogeneous entrepreneurs can lead to conflict and distrust, which in turn hinders decision-making. Therefore, the unity of cognition is the key to achieve the cooperation of academic entrepreneurship. In order to achieve the unity of cognition, academic entrepreneurs and industrial collaborators need to form a common knowledge base through multiple information feedback and knowledge sharing, so as to continuously reduce the cognitive distance between academic entrepreneurs and industrial collaborators, and promote the establishment of institutions, organizational construction and community through continuous commitment. We will build a network to achieve the commitment of cooperative entrepreneurship.

There are natural organizational, institutional and cognitive distances between academic entrepreneurs and industrial collaborators. Although they have been engaged in a social network, such gaps are still an obstacle for them to make further decisions. Based on the knowledge theory, knowledge sharing and integration between academic entrepreneurs and industrial collaborators is the key to the success of FA model (Hayter, 2016a). Especially in the process of reaching precommitment, two various types of entrepreneurs with potential entrepreneurial intention will share knowledge with the goal of achieving cooperation. (Hayter, 2016b) pointed out that the cooperation between academic entrepreneurs and industrial collaborators is possible only when the knowledge sharing and accumulation of specific projects reach a certain level. (Colombelli and Quatraro, 2018) argues that regional knowledge spillover has an important impact on the formation of local entrepreneurial motivation under the commitment of knowledge asymmetry and uncertainty according to entrepreneurial knowledge spillover theory.

Therefore, entrepreneurship organization members need to fully communicate and share individual knowledge. Entrepreneurial organizations need to make decisions and act on perceived uncertainties based on organizational knowledge, transiting from one uncertain state to another until the uncertainties are fully resolved (Packard et al., 2017). The inefficiency of organizational learning will lead to inadequate understanding of uncertainty, the failure of effective knowledge sharing and transmission among organizational members, resulting in overconfidence and wrong decision-making (Hayward et al. 2006, Dew et al. 2009). In view of this, after academic entrepreneurs and industrial collaborators form entrepreneurship organizations, the next step to be solved is knowledge sharing and transmission within the organization.

Proposition 3: learning mechanism by knowledge sharing and transmission helps to achieve continuous commitment.

To sum up, this study aims to break the black box of academic entrepreneurship incubation stage and construct a dynamic process framework model of cooperation between academic entrepreneurs and industrial collaborators under uncertainty of relationship. Herein, we add important insights to complete the model. On one hand, individual social proximity provides an important path for network construction and is supplemented by reputation in the former stage. This is not to say that all the intended candidates that academic entrepreneurs have found will engage in the new venture. Hence, on the other hand, sufficient information feedback and knowledge sharing are required to engage both of them in the entrepreneurial journey in the latter one. Besides the conceptual the model to illustrate this process, we then take a typical example called Royole from China to understand it better.

4 Implications and Conclusion

The paradigm of cooperative entrepreneurship has access to heterogeneous resources and information, so there will be more opportunities and possibilities for entrepreneurs to share their knowledge and experience with each other, which will help the new venture perform better. Because of role and cognitive conflict between these different individuals, we put forward novel uncertainties in the nascent process of academic entrepreneurship, and then flesh out a dynamic commitment model to explain how the academic entrepreneurs can find collaborators and actually make consensus on the cooperative entrepreneurship. Below, after detailing our main contributions to the literature, we turn to outline additional possibilities that can feed into a broader research agenda and hopefully change current conversations about networking altogether. These general arguments fill several important theoretical gaps in the literature and have a variety of implications for the study of academic entrepreneurship, and for the practice of academic entrepreneurship.

Firstly, much entrepreneurship researches focus on the attributes of single entrepreneurs or entrepreneurial organizations (Nicolaou et al., 2008). Few attention has been paid to the cooperative entrepreneurship of multi-founders, and we contribute to expanding its focus to consider the cooperative relationship between academic entrepreneurs and industrial collaborators. Hybrid identities of entrepreneurs appeare to be the two sides of the same coin. The theory we have proposed aims to tackle this dilemma and help to build the solid trust in the academic entrepreneurial team.

Secondly, we demonstrate the novelty uncertainty when the academic entrepreneurs are intended to enroll industrial collaborators. Meanwhile the conceptual model is proposed to explore implications for decision-making behaviors in the academic entrepreneurship over time. By taking uncertainty into account, we illuminate an overlooked but extremely relevant part of how industrial collaborators engage in the nascent venture. This contribution is important because extreme positions in the debate about the roles of structure and agency tend to discourage new theoretical understandings of the cooperative phenomenon (Bensaou et al., 2013). Instead, the position we take here may encourage more research on the dynamic and reciprocal influence of multi-individual actions.

Thirdly, for commitment research, we unfold a more dynamic mechanism to understand why industrial collaborators receive a pre-commitment, and how the process of continuous commitment would strengthen their bonds to form a venture together. This challenge is exacerbated under conditions of uncertainty where neither the possible outcomes associated with a decision nor the probability of those outcomes is known. Indeed, it is this uncertainty that excludes instrumental bonds from consideration as enrolled—or at best only weakly enrolled - in uncertain entrepreneurial endeavors. And the industrial collaborators enrollment process - especially under conditions of uncertainty - grows out of deeply social roots. That is, the study of nascent academic entrepreneurship - especially under uncertainty - is the study of how social groups are formed, how they evolve, and, ultimately, how they cooperate.

Overall, these insights help to construct a more refined and robust theory and implications for entrepreneurial practice. Going further, future studies building on our model may feed into a larger research agenda to better understand how the entrepreneurial context changes the way individuals interact with one another.

Acknowledgement

This work is supported by National Social Science Foundation of China (21AGL006).

References

[1] Abootorabi, H., Shankar, R. K., Rasmussen, E. and Wiklund, J. ,"Do hybrid goals pay off? Social and economic goals in academic spin-offs," Journal of Management Studies, Vol. 61, Issue 1, 2023, pp. 110-140. https://doi.org/10.1111/joms.12967

[2] Alvarez, S. A. & Barney, J. B. "Discovery and creation: Alternative theories of entrepreneurial action," Strategic entrepreneurship journal, Vol.1, Issue 1-2, 2007. pp. 11-26. https://doi.org/ 10.1002/sej.4

[3] Bensaou, B. M. & Galunic, C. & Jonczyk-Sédès, C. "Players and purists: Networking strategies and agency of service professionals," Organization Science, Vol. 25, Issue 1, 2013, pp.29-56. https://doi.org/10.1287/orsc.2013.0826

[4] Boschma, R. "Proximity and innovation: a critical assessment," Regional studies, Vol.39, Issue 1, 2005, pp61-74. https://doi.org/10.1080/0034340052000320887

[5] Broström, A. "Working with distant researchers—Distance and content in university–industry interaction," Research Policy, Vol. 39, Issue 10, 2010, pp.1311-1320. https://doi.org/10.1016/j.respol.2010.09.002

[6] Burns, B. L., Barney, J. B., Angus, R. W., & Herrick, H. N. "Enrolling stakeholders under conditions of risk and uncertainty," Strategic Entrepreneurship Journal, Vol.10, Issue 1, 2016, 97-106. https://doi.org/10.1002/sej.1209

[7] Colombelli, A. & Quatraro, F. "New firm formation and regional knowledge production modes: Italian evidence," Research Policy, Vol.47, Issue 1, 2018, pp. 139-157. https://doi.org/0.1016/j.respol.2017.10.006

[8] Combs J., Ketchen Jr D., Terjesen S., Bergh D. ,"After the startup: A collection to spur research about entrepreneurial growth," Strategic Entrepreneurship Journal, Vol.17, Issue3, 2023, pp.693-709, https://doi.org/10.1002/sej.1476

[9] Engel, Y. & Kaandorp, M. & Elfring, T. "Toward a dynamic process model of entrepreneurial networking under uncertainty," Journal of Business Venturing, Vol.32, Issue 1, 2017, pp.35-51. https://doi.org/10.1016/j.jbusvent.2016.10.001

[10] Erikson, T. "Entrepreneurial capital: the emerging venture's most important asset and competitive advantage," Journal of Business Venturing, Vol.17, Issue 3, 2002, pp. 275-290. https://doi.org/10.1016/S0883-9026(00)00062-8

[11] Fayolle, A. & Redford, D. T. "Handbook on the entrepreneurial university," Edward Elgar Publishing, 2014

[12] Festel, G. W. & De Cleyn, S. H. "Founding angels as an emerging subtype of the angel investment model in high-tech businesses," Venture capital, Vol.15, Issue 3, 2013, pp.261-282. https://doi.org/10.1080/13691066.2013.807059

[13] Freeman, R. E. "Strategic management: A stakeholder approach," Cambridge university press. 2010

[14] George, G., Dahlander, L., Graffin, S. D., & Sim, S. "Reputation and status: Expanding the role of social evaluations in management research," Academy of Management Journal, Vol.59, Issue 1, 2016, pp.1 -13. https://doi.org/10.5465/amj.2016.4001

[15] Hallen, B. L. & Eisenhardt, K. M. "Catalyzing strategies and efficient tie formation: How entrepreneurial firms obtain investment ties," Academy of Management Journal, Vol. 55, Issue 1, 2012, pp.35-70. https://doi.org/10.5465/amj.2009.0620

[16] Hayter, C. S. "Constraining entrepreneurial development: A knowledge-based view of social networks among academic entrepreneurs," Research Policy, Vol.45, Issue2, 2016a, pp.475-490. https://doi.org/10.1016/j.respol.2015.11.003

[17] Hayter, C. S. "A trajectory of early-stage spinoff success: the role of knowledge intermediaries within an entrepreneurial university ecosystem," Small Business Economics, Vol.47, Issue 3: 2016b, pp. 633-656. https://doi.org/10.1007/s11187-016-9756-3

[18] Keating, A. & Geiger, S. & McLoughlin, D. "Riding the practice waves: Social re sourcing practices during new venture development," Entrepreneurship Theory and Practice, Vol. 38, Issue 5, 2014, pp. 1-29. https://doi.org/10.1111/etap.12038

[19] Livingston, J. A. "How valuable is a good reputation? A sample selection model of internet auctions," Review of Economics and Statistics, Vol. 87, Issue 3, 2005, pp.453-465. https://doi.org/10.1162/0034653054638391

[20] Lundqvist, M. A. "The importance of surrogate entrepreneurship for incubated Swedish technology ventures," Technovation, Vol. 34, Issue 2, 2014, pp. 93-100. https://doi.org/10.1016/j.technovation.2013.08.005

[21] le Duc, N., Lindeque, J. "Proximity and multinational enterprise co-location in clusters: a multiple case study of Dutch science parks," Industry and Innovation, Vol.25 Issue 3, 2018, pp.282–307. https://doi.org/10.1080/13662716.2017.1355230

[22] Townsend D. M., Hunt R.A., McMullen J.S., Sarasvathy S.D. "Uncertainty, Knowledge Problems, and Entrepreneurial Action," Academy of Management Annals, Vol.12 Issue 2, 2018, pp. 659-687. https://doi.org/10.5465/annals.2016.0109

[23] Meyer, B. & Scholl, W. "Complex problem solving after unstructured discussion: Effects of information distribution and experience," Group Processes & Intergroup Relations, Vol.12 Issue 4, 2009, pp. 495-515. https://doi.org/10.1177/1368430209105045

[24] Nebus, J. "Building collegial information networks: A theory of advice network generation," Academy of Management Review, Vol.31, Issue 3, 2006, pp. 615-637. https://doi.org/10.5465/AMR.2006.21318921

[25] O'Brien, J., & Sasson, A. "A contingency theory of entrepreneurial debt governance," Journal of Business Research, Vol.81, Dec., 2017, pp.118–129. https://doi.org/10.1016/j. jbusres. 2017.08.011

[26] O Shea, R. P. & Chugh, H. & Allen, T. J. "Determinants and consequences of university spinoff activity: a conceptual framework," The Journal of Technology Transfer, Vol.33, Issue

6, 2008, pp. 653-666. https://doi.org/10.1007/s10961-007-9060-0

[27] Packard, M. D. & Clark, B. B. & Klein, P. G. "Uncertainty types and transitions in the entrepreneurial process," Organization Science, Vol. 28, Issue 5, 2017, pp. 840-856. https://doi.org/10.1287/orsc.2017.1143

[28] Powell, E. E. & Baker, T. "In the beginning: Identity processes and organizing in multi-founder nascent ventures," Academy of Management Journal, Vol. 60, Issue 6, 2017 pp2381-2414. https://doi.org/10.5465/amj.2015.0175

[29] Sarasvathy, S. D. "Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency," Academy of management Review, Vol. 26, Issue 2, 2001, pp. 243-263. https://doi.org/10.2307/259121

[30] Secundo, G. & Elia, G. "A performance measurement system for academic entrepreneurship: a case study," Measuring Business Excellence, Vol.18, Issue 3, 2014, pp.23-37. https://doi.org/10.1108/MBE-11-2013-0061

[31] Shane, S. & Cable, D. "Network ties, reputation, and the financing of new ventures," Management science, Vol.48, Issue 3, 2002, pp.364-381. https://doi.org/10.1287/mnsc.48.3364.7731

[32] Shaw, A. T. & Gilly, J. "On the analytical dimension of proximity dynamics," Regional studies, Vol.34. Issue 2, 2000, pp.169-180. https://doi.org/ /10.1080/00343400050006087

[33] Sullivan, A., Parsons, S., Green, F., Wiggins, R. D., & Ploubidis, G. "Elite universities, fields of study and top salaries: Which degree will make you rich?" British Educational Research Journal, Vol.44, Issue 4, 2018, pp.663-680. https://doi.org/10.1002/berj.3453

[34] Villani, E. & Rasmussen, E. & Grimaldi, R. "How intermediary organizations facilitate university-industry technology transfer: A proximity approach," Technological Forecasting and Social Change, Vol.114, 2017, pp. 86-102. https://doi.org/ 10.1016/j.techfore.2016.06.004

[35] Visintin, F. & Pittino, D. "Founding team composition and early performance of university–Based spin-off companies," Technovation, Vol.34, Issue 1, 2014, pp.31-43. https://doi.org/10.1016/j.technovation.2013.09.004

[36] Weng, P. & Chen, W. "Doing good or choosing well? Corporate reputation, CEO reputation, and corporate financial performance," The North American Journal of Economics and Finance, Vol.39 pp.223-240. https://doi.org/ 10.1016/j.najef.2016.10.008

[37] Wood, M. S. & McKinley, W. "The production of entrepreneurial opportunity: a constructivist perspective," Strategic Entrepreneurship Journal, Vol.4, Issue 1, 2010, pp.66-84. https://doi.org/10.1002/sej.83

[38] Würmseher, M. "To each his own: Matching different entrepreneurial models to the academic scientist's individual needs," Technovation, Vol.59, Jan. 2017, pp.1-17. https://doi.org/10.1016/j.technovation.2016.10.002