▪ Journal of Competitiveness

Integration of Entrepreneurial Opportunity Theories in Uncertain Scenarios

Chengbin Wang, Minju Chen, Xiaoyin Zhang

Abstract

Entrepreneurial opportunities serve as the foundational element of entrepreneurial endeavors and a potent stimulus for innovative action. The origins of entrepreneurial opportunities have long been debated between creation and discovery perspectives. Through a rigorous combination of participatory research, literature analysis, and deductive reasoning, this study refines the formulas for opportunity creation and discovery, revealing the underlying mechanisms of opportunity generation. By integrating theories of uncertainty and entrepreneurship, we propose a nuanced theoretical framework that bridges the gap between the two dominant perspectives. This framework reveals the mechanism of entrepreneurial opportunity generation and offers a nuanced understanding of the interplay between innovation and entrepreneurship, providing valuable insights for both researchers and practitioners.

Keywords: *Uncertainty, Entrepreneurial Opportunity Theory, Innovation, Entrepreneurship*

JEL Classification: M13

Article history: Received: November 2024; Accepted: March 2025; Published: March 2025

1 INTRODUCTION

Entrepreneurial opportunities are seen as the starting point and core element of entrepreneurial activities (Shane 2012). In the field of entrepreneurial research, there has been long-standing controversy regarding the source of entrepreneurial opportunities—whether they are created or discovered (Berglund et al. 2020). The compromise view suggests that entrepreneurial opportunities can be both created and discovered (Venkataraman et al. 2012; McBride & Wuebker 2022). Scholars have called for transcending this "binary opposition" perspective and striving to build a more integrated and comprehensive research framework to explore this issue in depth (Davidsson 2023). Therefore, understanding the intrinsic mechanisms of entrepreneurial opportunity generation through the controversy over the sources of entrepreneurial opportunities and building a comprehensive entrepreneurial opportunity theory (Alvarez & Barney 2020) is an important topic worth in-depth exploration.

The discovery view posits that entrepreneurial opportunities are exogenous, independent of the environment, and often hidden in market information asymmetries and distributions (Shane 2003). In contrast, the creation view advocates that entrepreneurial opportunities are endogenous, with entrepreneurs reshaping the environment to respond to uncertainties (Alvarez & Barney 2007). Hence, exploring the behaviors and interactions of entrepreneurs and their stakeholders is essential to reveal the nature of entrepreneurial opportunities (Venkataraman et al. 2012; McBride & Wuebker 2022).

In environments of absolute uncertainty, entrepreneurs face greater challenges in uncovering opportunities. This study utilizes participatory research to refine the formulas for opportunity discovery and creation, and based on the foundational theoretical framework of entrepreneurship, constructs a comprehensive entrepreneurial opportunity theory framework.

This framework organically integrates the creation and discovery views, elucidating the internal logic of the sources of entrepreneurial opportunities. It clarifies the mechanism of entrepreneurial opportunity generation under uncertainty, connects entrepreneurial theory with opportunity, and reveals the logic of the mutual promotion of innovation and entrepreneurship.

The structure of this paper is as follows: First, a systematic review of the evolution and development of uncertainty theory, entrepreneurship theory, and opportunity theory is conducted to reveal existing research gaps and opportunities. Second, the research methods and design of this paper are discussed; third, the formulas for opportunity creation and discovery are refined, and an entrepreneurial opportunity theory framework is constructed; then, the internal mechanisms by which this framework promotes the integration of uncertainty, entrepreneurship theory, and opportunity theory are discussed in depth. Finally, the research conclusions are summarized, the limitations are analyzed, and future research directions are proposed.

2 LITERATURE REVIEW

This section systematically reviews the theories of uncertainty and entrepreneurship, as well as the theories of opportunity creation and discovery. It critically analyzes existing research gaps and opportunities and demonstrates the academic and practical value of this study.

2.1 EVOLUTION AND DEVELOPMENT OF UNCERTAINTY THEORY

The real world is full of uncertainty, which profoundly affects the choice and decision-making of entrepreneurial strategies (Kahneman & Tversky, 1979; McGrath, 1999).

Knight distinguished between risk and uncertainty from a measurement perspective (Knight, 1921), noting that entrepreneurship must seek opportunities in uncertainty and ambiguity (York & Venkataraman, 2010). The ambiguity and complexity of uncertainty bring great challenges to entrepreneurs, making it a core issue in entrepreneurial research (Townsend et al., 2018). Following Knight's classification of uncertainty, Dosi and Egidi divided it into substantive and procedural uncertainty (Dosi & Egidi, 1991). Dequech further subdivided it into weak uncertainty and strong uncertainty (including ambiguity and fundamental uncertainty) (Dequech, 1997), with the latter further divided into environmental uncertainty, creative uncertainty, and absolute uncertainty (Dequech, 2000, 2011). Environmental uncertainty arises from changes in demand, and creative uncertainty comes from innovative activities. Absolute uncertainty is the complex overlay of creative uncertainty and environmental uncertainty (Dequech, 2011). This classification provides a solid foundation for the methodology to cope with uncertainty.

The Packard team, using potential surprise theory, constructed the famous Packard model, providing a clear path for understanding and solving uncertainty issues (Packard et al., 2017). This model proposes two methods to mitigate absolute uncertainty: one is through causal reasoning, closing the set of outcomes, and transforming absolute uncertainty into creative uncertainty (Sarasvathy, 2001; Packard et al., 2017); the other is through effectual reasoning, closing the set of options, and transforming absolute uncertainty into environmental uncertainty (Sarasvathy, 2001, 2009; Dew et al., 2009; Packard et al., 2017).

In summary, scholars' research on uncertainty has gradually deepened from the nature, sources, and impact to coping strategies, expanding from ontology and epistemology to methodology, constructing a complete theoretical system, and being widely applied in multiple academic fields (Berglund et al., 2020). However, the existing literature on uncertainty theory, particularly in the practical application of opportunity discovery and creation, remains highly

debated. Further exploration is needed, especially concerning entrepreneurs across different industries and backgrounds.

2.2 EVOLUTION AND DEVELOPMENT OF ENTREPRENEURSHIP THEORY

In the face of uncertainty, entrepreneurship theory has continued to develop in recent years (Mansoori & Lackeus, 2020), encompassing Resource Push Methods (RPM) and Demand Pull Methods (DPM) (Priem et al., 2012; Santamaria et al., 2024).

RPM emphasizes the role of resources, encouraging entrepreneurs to create value by optimizing key resources (Barney, 1991; Wuebker et al., 2023). RPM includes classic theories such as business planning (Ackoff, 1981; Karlsson & Honig, 2009), the entrepreneurial process model (Timmons, 1999), and product development methods (Shane, 2003). However, in uncertain environments, RPM may lead to a disconnection between entrepreneurs and the market (Blank, 2003; Bae et al., 2014).

In contrast, DPM emphasizes demand-driven approaches, advocating that entrepreneurs should first understand user needs before seeking resources (Bennett & Chatterji, 2023). The core idea is to transform resource advantages into market competitiveness, emphasizing deep interaction with customers (Sirmon et al., 2007; Furr & Eisenhardt, 2021). The customer development model (Blank, 2003), user innovation theory (Von Hippel, 1986; Baldwin & Von Hippel, 2011), and design thinking methods (Rowe, 1987; Elsbach & Stigliani, 2018) all reflect the DPM's user-centric innovation concept, effectively addressing environmental uncertainty (Blank & Eckhardt, 2023).

However, while these two theories provide strong theoretical support for entrepreneurs, their applicability to specific industry contexts and market environments—particularly in cross-industry applications—still requires further validation and refinement.

2.3 OPPORTUNITY CREATION AND DISCOVERY VIEWS

Entrepreneurs' precise grasp and efficient utilization of opportunities are central to entrepreneurial activities (McMullen & Shepherd, 2006; Alvarez & Barney, 2007). In the entrepreneurship literature, there are at least two fundamentally different views on the sources of entrepreneurial opportunities: whether they are created or discovered. This division has led to what is known in academia as the "opportunity debate" (Wright & Phan, 2020; Berglund et al., 2020).

The discovery view is rooted in the Austrian School's market arbitrage theory. This theory posits that opportunities arise from pre-existing market or industry flaws exposed by external shocks, which exist independently of the entrepreneur's subjective perception, waiting for alert entrepreneurs to discover them (Kirzner, 1973; Shane, 2003). Entrepreneurs need not only the ability to identify these potential opportunities but also the capacity to effectively manage entrepreneurial risks, ensuring the growth and success of new ventures (Miller, 2007).

In contrast, the creation view emphasizes the creativity and agency of entrepreneurs in the process of generating opportunities. They create new market opportunities through innovative thinking and resource integration (Alvarez et al., 2013; Alvarez & Barney, 2020). The creation view considers entrepreneurship as an "artificial science" activity, revealing how entrepreneurs provide novel products or services and incorporating co-evolutionary mechanisms (Weick, 1979; Garud & Karnøe, 2003), contributing to new value creation and social progress (McGrath & MacMillan, 2009; Venkataraman et al., 2012).

However, existing literature mostly limits discussions to the binary opposition of "discovery" and "creation." This simplified framework may overlook other important factors, such as policy environments and cultural differences, that influence entrepreneurial opportunities. Therefore, future research should expand this framework by further considering the impact of external environments, particularly how entrepreneurial opportunities are identified and created under different policy and cultural contexts.

2.4 RESEARCH REVIEW

In environments of absolute uncertainty, the focus of entrepreneurship theory research is shifting from resource-oriented to demand-driven, and opportunity theory continues to deepen within the discovery and resource views. However, the integration of entrepreneurial opportunity theory with uncertainty and the overall entrepreneurship literature remains shallow.

The primary obstacle is the lack of incorporation of uncertainty theory into opportunity theory, with the two not yet effectively intertwined (Foss & Klein, 2020), limiting insights into complex realities.

Secondly, there is a lack of a comprehensive framework that transcends the "binary opposition." Although scholars have proposed concepts like vision and entrepreneurial creation to avoid the "opportunity debate" (Dimov, 2020; Davidsson, 2023), comprehensive integration has yet to be achieved.

Moreover, there is a lack of organic connection between opportunity and entrepreneurship theory, with the compatibility of opportunity sources and entrepreneurship theory being ambiguous, resulting in an incoherent entrepreneurial knowledge system (Shepherd et al., 2021).

Future research should go beyond this binary framework and explore how factors such as industry differences, policy environments, and cultural variations influence the identification and creation of entrepreneurial opportunities. By conducting cross-industry and cross-regional case studies, researchers can further refine existing theories and provide entrepreneurs with more practical and detailed insights.

3 METHODOLOGY AND RESEARCH DESIGN

This study utilizes a combination of participatory research, literature analysis, and deductive reasoning methods. The aim is to gain deep academic insights through in-depth interaction and communication with entrepreneurs, while enhancing academic understanding of the entrepreneurial field through literature research. On this basis, the study further employs deductive reasoning to construct a theory of entrepreneurial opportunities.

To bridge the gap between theory and practice, this study places special emphasis on and extensively applies a participatory research approach. The researchers engaged in a variety of practical activities, including but not limited to software development and scenario experiments (see Appendix 1 for details).

3.1 PARTICIPATORY RESEARCH PROCESS

To bridge the gap between theory and practice, this study places special emphasis on and deeply implements participatory research methods. The researchers conducted a variety of practical activities, including but not limited to software development and scenario experiments (see Table 1). Each activity followed distinct implementation steps to ensure both scientific rigor and practicality, further advancing knowledge innovation in the field of entrepreneurship

(Aguinis et al., 2022). To enhance the transparency and reliability of this research, the following section provides a detailed explanation of the implementation steps for each method.

Lean Business Canvas Software Development: The research team first analyzed existing business model tools and identified their limitations. Using an agile development approach, they then progressively developed the "Lean Business Canvas" software. Through continuous communication and feedback from startup teams, the software was iteratively optimized. After each iteration, researchers collected feedback from participating businesses to ensure the software genuinely met the needs of entrepreneurs.

Scenario Experiments: To explore various entrepreneurial contexts, researchers designed scenario experiments covering areas such as social selling, customer insights, and startup incubation. Data were collected using observation and interviews, with key information recorded through audio and written documentation. These experiments not only validated the applicability of the theoretical framework but also provided practical tools for startup teams.

The findings demonstrate that participatory research effectively drives innovation and iteration in entrepreneurial knowledge. However, its strengths and limitations must be carefully considered. While this approach provides rich, real-world feedback, the generalizability of results should be interpreted with caution, particularly for startups with limited resources or those in early development stages.

No	Form	Duration	Number of Enterprises	Intensity	Materials or Outcomes
1	Lean Business Canvas Software Development	2019.09-2024.04	2	Deep	Software Copyright
2	Canvas Software Social Trial	2022.04-2024.04	18	Deep	Iterated Usability
3	Scenario Experiment: Social Sales	2021.08-2022.07	4	Deep	Recordings, Notes
4	Scenario Experiment: Customer Insights	2022.08-2023.07	4	Deep	Recordings, Notes
5	Scenario Experiment: Entrepreneur Incubation	2023.05-2024.04	5	Deep	Recordings, Notes
6	"Good Project" Empowerment	2021.03-2024.04	68	Medium	Records, Reports

Tab. 1 – Participant Activities Log. Source: own research

3.2 OVERALL RESEARCH LAYOUT AND DESIGN

In in-depth exchanges with entrepreneurs, the researchers accurately identified the challenges that uncertainty poses to entrepreneurial opportunities. To address this challenge, the researchers constructed a comprehensive entrepreneurial opportunity theory framework that

integrates uncertainty (see Figure 1). This framework fully incorporates the latest research findings and has received positive feedback and recognition from entrepreneurs.

Through thorough literature research and deductive reasoning, this paper refines the opportunity creation formula and the opportunity discovery formula, deepening the understanding of the creation and discovery views. Furthermore, to enhance the practicality of the entrepreneurial opportunity theory, the author used the trial process of the Lean Business Canvas software to deeply investigate the sources of entrepreneurial opportunities, further validating the effectiveness and practicality of the entrepreneurial opportunity theory.

In summary, this study systematically explores and studies entrepreneurial opportunity theory through the comprehensive application of multiple research methods. Although these methods have been validated through multiple rounds of experimentation and feedback, future research should further expand the sample scope, particularly to assess their applicability in resource-constrained and early-stage startup environments.

4 RESEARCH RESULTS

This section will synthesize insights from participatory research, combined with literature research and deductive reasoning, to reassess the discovery and creation views, thereby constructing a comprehensive framework for entrepreneurial opportunity theory.

4.1 REASSESSING DISCOVERY THEORY

By integrating uncertainty theory, this paper reassesses discovery theory. Traditional discovery theory focuses on uncertainty under external shocks (Kirzner, 1973; Shane, 2003) but does not detail the types of uncertainty.

4.1.1 MULTIDIMENSIONAL IMPACT OF ENVIRONMENTAL UNCERTAINTY

The Packard model uses "locking in results, opening options" to deal with environmental uncertainty. Entrepreneurs clarify their goals and seek the best strategies among multiple options (Packard et al., 2017).

(1) Layered Analysis of the Entrepreneurial Environment: This paper constructs a three-layer analysis framework—macro, meso, and micro—from an ontological perspective, covering various dimensions such as nature, politics, economy, proprietary technology, and customers (see Table 2). This approach captures the diversity of the environment accurately. Technology is subdivided into general and proprietary, placed in macro and micro levels respectively, to reflect its impact on opportunities precisely.

Tab. 2 – Categories of Entrepreneurial Environment Factors. Source: own research

No	Form	Duration
1	Lean Business Canvas Software Development	2019.09-2024.04
2	Canvas Software Social Trial	2022.04-2024.04
3	Scenario Experiment: Social Sales	2021.08-2022.07
4	Scenario Experiment: Customer Insights	2022.08-2023.07
5	Scenario Experiment: Entrepreneur Incubation	2023.05-2024.04
6	"Good Project" Empowerment	2021.03-2024.04

(2) Macro Environment: Opportunities and Challenges Coexist: Drastic changes in macro factors create opportunities. For instance, the COVID-19 pandemic spurred demand for masks. However, with transparent information, the first-mover advantage quickly fades, attracting many followers (Barney, 1986; Alvarez et al., 2013; McMullen et al., 2024).

(3) Meso Environment: Subtle Changes Breed Business Opportunities: Subtle changes in the industry and market hide opportunities. Entrepreneurs need to accurately grasp these to determine their entrepreneurial direction and strategy (Boeker, 1989; Blank, 2003).

(4) Micro Environment: Precise Demand Insight: By segmenting users, entrepreneurs identify potential needs. For example, Google developed its search engine to address the problem of information filtering. This requires keen market insights and innovation capabilities (Hsieh et al., 2007；Khodor et al., 2024).

In summary, entrepreneurs use causal reasoning to deeply understand market needs and formulate efficient solutions to cope with environmental uncertainty (Sarasvathy, 2001).

4.1.2 IDENTIFYING UNMET NEEDS

Entrepreneurs must keenly capture unmet market needs, evaluate them, and transform them into entrepreneurial actions (Shane, 2000). Olsen's "Lean Product Playbook" provides guidance as follows:

(1) Target Core User Groups: Use fine market segmentation to clarify targets (Olsen, 2015).

(2) Deep Dive into User Scenarios: Understand the pain points and expected benefits, assess market fit, and pinpoint unmet market needs (Osterwalder et al., 2014; Olsen, 2015).

4.1.3 DESIGNING INNOVATIVE SOLUTIONS

The essence of discovery theory lies in identifying and exploiting market opportunities. After recognizing unmet needs, entrepreneurs creatively reorganize resources to provide efficient solutions (Shane, 2012).

Establish Unique Value Propositions: Highlight the advantages and differentiation of products or services, solving user pain points and delivering superior experiences (Osterwalder et al., 2014; Olsen, 2015).

Efficient Resource Integration: Under limited resources, integrate resources effectively, iterate products and services quickly, and launch innovative solutions (Delmar & Shane, 2003; Alvarez & Barney, 2007；Salehe et al., 2024).

In summary, the core of discovery theory can be summarized as the formula: Opportunity = Needs × Solutions. In other words, opportunity equals the product of unmet needs and innovative solutions. Entrepreneurs' capabilities in need insight and solution innovation jointly determine the value of entrepreneurial opportunities and their feasibility.

4.2 REASSESSING CREATION THEORY

Traditional creation theory often focuses on integrating resources and capabilities, exploring technological innovation and breakthroughs through effectual reasoning to create new opportunities. However, the role and value of this theory in addressing creative uncertainty need further and clearer analysis.

4.2.1 MULTIDIMENSIONAL ANALYSIS OF CREATIVE UNCERTAINTY

The Packard model uses the "closed set of options + open set of results" framework to explain the nature of creative uncertainty. In this framework, entrepreneurs first lock in a specific innovation path (i.e., a closed set of options), such as developing a unique feature, and then match it with precise users in the open result space (Packard et al., 2017). Notably, this process's uncertainty is not only limited by the scarcity of available resources (Fisher, 2012) but also driven by industry changes caused by external technological shocks.

(1) Value of Disruptive Innovation: Under technological path dependence, disruptive innovation (e.g., Schumpeter, 1934; Christensen, 1997) builds technological barriers and transforms opportunity costs (Barney, 1986, 1991; Arthur, 1989; Alvarez & Barney, 2007), as exemplified by SpaceX's Starlink program leading to transformations in multiple fields.

(2) Knowledge Spillover Effects: Knowledge sharing in technological innovation promotes industry dynamics (Di Stefano et al., 2014; Flammer & Kacperczyk, 2019), such as the entrepreneurial wave in information management spurred by ChatGPT (Wiredu, 2023). However, its potential is relatively limited compared to disruptive innovation.

In summary, the creative process can lead to vastly different outcomes, and the formation of innovative opportunities is not an easy "wealth creation formula" for entrepreneurs (Alvarez et al., 2013；Chen & Wang, 2024).

4.2.2 DISCOVERING AND SHAPING UNIQUE FEATURES

After achieving significant innovation results, entrepreneurs should refine core capabilities and technical elements to discover unique features creatively (Gruber & Tal, 2017；Teng et al., 2023).

(1) Refining Core Capabilities: Technological entrepreneurs need to translate technological enthusiasm into commercial practice by breaking down technology into core capability units (Gruber & Tal, 2017；Wang et al., 2024).

(2) Innovative Combination of Features: Referring to the ABC theory of opportunities (Ramoglou & McMullen, 2024), entrepreneurs expand the set of conditions through core capabilities, flexibly combine features, and stimulate new opportunities (McGrath & MacMillan, 2009; Gruber & Tal, 2017).

4.2.3 IDENTIFYING AND TARGETING POTENTIAL USERS

Technological innovation aims to create unique features, and entrepreneurs need to precisely identify target users and co-create value with stakeholders (Venkataraman et al., 2012).

(1) Identifying Potential Users: Based on the user perspective, identify the precise user groups corresponding to the features and target those with rigid demands (Gruber & Tal, 2017；Wang et al., 2025).

(2) Building Value Propositions: Match features with user needs and design unique value propositions (Sarasvathy, 2001; Hsieh et al., 2007；Wang et al., 2022). For example, designing a unique solution for fire prevention and control devices to address significant fire safety hazards in ancient buildings and dwellings.

In summary, the core formula of creation theory is: Opportunity = Features × Users. Entrepreneurs need to possess both feature innovation and user matching capabilities to maximize opportunity value and feasibility.

4.3 CONSTRUCTING THE ENTREPRENEURIAL OPPORTUNITY MODEL

Referring to the foundational framework of entrepreneurial theory (Wang & Chen, 2024), this paper incorporates the opportunity discovery formula and the creation formula to construct a comprehensive entrepreneurial opportunity model (see Figure 1). This model provides entrepreneurs with a practical and comprehensive reference framework to better identify entrepreneurial opportunities.

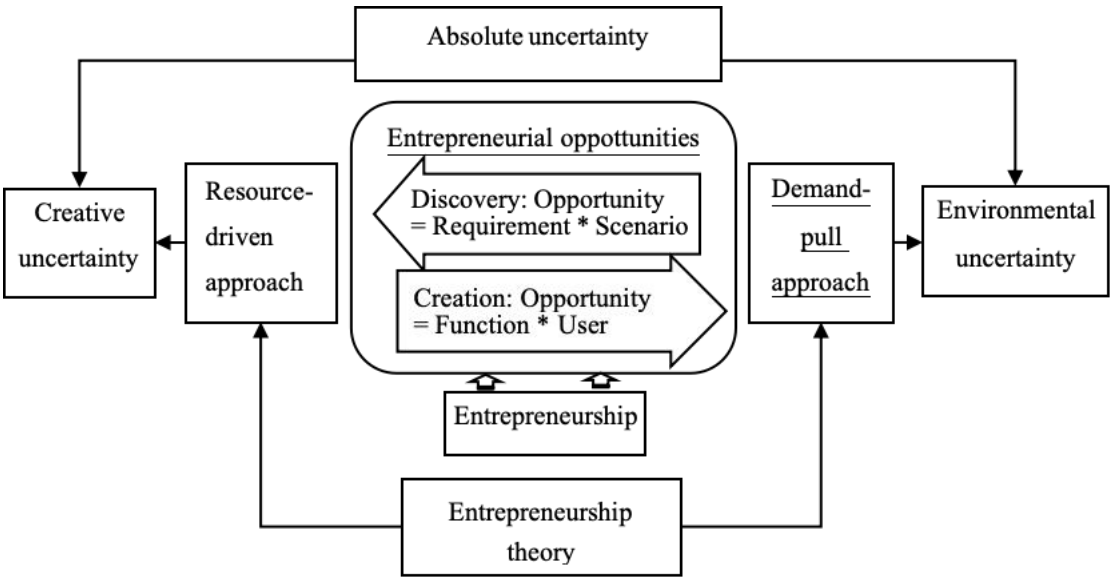

Fig. 1 – Entrepreneurial Opportunity Model. Source: own research

4.3.1 INTERPRETATION OF DISCOVERY THEORY

In Figure 1, discovery theory is depicted as a "reverse exploration" path. Entrepreneurs first use causal reasoning to identify "unmet needs" in the market and then apply effectual reasoning to integrate resources and launch "effective solutions" to meet those potential needs.

For example, the founders of Airbnb identified the accommodation challenges during peak conference seasons, accurately targeting travelers' desire for affordable and unique lodging (unmet needs). They then built a platform connecting hosts and travelers, providing travelers with more diverse lodging options (effective solutions).

4.3.2 EXPLANATION OF CREATION THEORY

In contrast, creation theory is illustrated in Figure 1 as a "forward exploration" journey. Entrepreneurs first rely on effectual reasoning, using technological innovation to develop "unique features." They then use causal reasoning to lock onto "precise users" based on demand, co-creating new market value.

The SpaceX Starlink project exemplifies this. They used aerospace technology resources to create a global satellite internet offering high-speed, low-latency services (unique features),

precisely targeting users in remote and underdeveloped areas (precise users), reshaping the internet service landscape.

In an environment of absolute uncertainty, entrepreneurs face not only the uncertainty of ideas and the environment but also multiple challenges such as securing funding, building teams, and responding to market changes. To better navigate these complex real-world situations, the entrepreneurial opportunity model proposed in this paper should be further expanded in terms of its applicability.

Specifically, the discovery and creation of entrepreneurial opportunities is not a linear process but a cyclical one, continuously adjusted and optimized over multiple stages. During this process, entrepreneurs need to adapt their strategies based on external environmental and market feedback. Regarding team building, entrepreneurs may need to continuously optimize the team structure and roles as the business develops. Additionally, changes in the market environment encourage entrepreneurs to reflect on and adjust their strategies within the existing framework, making the capture of entrepreneurial opportunities more flexible and responsive to shifts in market demand. Therefore, the model framework in this paper not only aids entrepreneurs in discovering opportunities but also guides them in integrating resources and adapting to challenges in complex environments.

5 RESEARCH DISCUSSION

To deepen the understanding of the entrepreneurial opportunity model, this paper will analyze the model's effectiveness and applicability from the perspectives of opportunity theory, uncertainty, and the integration of entrepreneurial theory. Additionally, it will explore how this model promotes the fusion of the discovery and creation views, and how it realizes the deep integration of innovation and entrepreneurship. The aim is to provide entrepreneurs with new insights to better explore and seize entrepreneurial opportunities, enriching and perfecting the research outcomes of entrepreneurial opportunity theory.

5.1 DEEP INTEGRATION WITH UNCERTAINTY THEORY

Folta (2007) emphasized in the inaugural issue of the Strategic Entrepreneurship Journal that "uncertainty governs everything," highlighting the central role of uncertainty in entrepreneurial theory. The entrepreneurial opportunity model constructed in this study aims to elucidate the intrinsic logic of entrepreneurial opportunity generation under conditions of absolute uncertainty. Uncertainty theory provides a novel perspective for studying entrepreneurial opportunities, where entrepreneurs face a combination of creative uncertainty and environmental uncertainty, forming absolute uncertainty (as indicated by the outer frame of Figure 1). In this context, entrepreneurs need to find ways to manage uncertainty, thereby creating unprecedented entrepreneurial opportunities.

(1) Harnessing Creative Uncertainty to Create Opportunities:

Entrepreneurs achieve technological innovation and breakthroughs in proprietary technology fields, endowing products or services with unique features and functionalities. By creatively combining and reconstructing these features, entrepreneurs can generate entirely new product or service forms, opening up new market spaces. Effectual reasoning plays a crucial role in managing uncertainty; entrepreneurs need to continuously accumulate and deepen their technological resources to maintain a leading position in proprietary technology fields.

(2) Managing Environmental Uncertainty to Discover Opportunities:

Compared to the opportunity creation model, entrepreneurs in the opportunity discovery model exhibit a different operational philosophy and strategic thinking. They quickly capture unmet potential needs in rapidly changing market environments through keen market intuition and deep insight. Detailed segmentation and in-depth understanding of the entrepreneurial environment are particularly important in this context. Here, causal reasoning is especially prominent; entrepreneurs need to deeply understand user psychology and the essence of needs to uncover more commercially valuable potential needs and use causal reasoning to manage environmental uncertainty.

In summary, entrepreneurial opportunities can be understood as the phased progress achieved by entrepreneurs in managing uncertainty. The paths they choose determine the source and mode of opportunities. Within the framework of uncertainty theory, this model deeply reveals the intrinsic logic of opportunity generation.

5.2 ORGANIC INTEGRATION WITH ENTREPRENEURIAL THEORY

Wang & Chen (2024) deeply explored the effective strategies of resource-driven approaches for addressing creative uncertainty and demand-driven approaches for dealing with environmental uncertainty within their foundational framework of entrepreneurial theory. The entrepreneurial opportunity model constructed in this study profoundly reveals the intrinsic logic of the integration of entrepreneurial opportunities and entrepreneurial theory.

(1) Discovery Model: Timely Shift to Resource-Driven Approaches

Entrepreneurs following the "reverse exploration" path first address environmental uncertainty and then creative uncertainty. Therefore, during the opportunity generation phase, entrepreneurs should use demand-driven approaches to gain market insights; during the opportunity evaluation phase, they should use resource-driven approaches to integrate resources; and during the opportunity exploitation phase, resource-driven approaches should dominate (see Table 3).

Tab. 3 – Entrepreneurial Methods at Different Opportunity Stages. Source: own research

Opportunity Stage	Opportunity Generation	Opportunity Evaluation	Opportunity Exploitation
Discovery Theory	Demand-driven Method	Demand-driven + Resource-driven	Resource-driven Method Dominant
Creation Theory	Resource-driven Method	Resource-driven + Demand-driven	Demand-driven Method Dominant

(2) Creation Model: Timely Shift to Demand-Driven Approaches:

Entrepreneurs following the "forward exploration" path first address creative uncertainty and then environmental uncertainty. Therefore, during the opportunity generation phase, entrepreneurs should use resource-driven approaches to seek technological innovation; during the opportunity evaluation phase, they should use demand-driven approaches to assess market value; and during the opportunity exploitation phase, demand-driven approaches should dominate (see Table 3).

In summary, the entrepreneurial opportunity model provides the best timing for switching entrepreneurial methods. Entrepreneurs need to flexibly use these two entrepreneurial methods to effectively deal with absolute uncertainty.

5.3 FUSION TREND OF DISCOVERY AND CREATION VIEWS

Although the discovery and creation views seem to be at odds, their differences are gradually narrowing and showing a trend of fusion in the context of absolute uncertainty.

（1）Differences Arise from the Order of Addressing Absolute Uncertainty:

From the perspective of uncertainty theory, the difference between the discovery and creation views mainly lies in the order of addressing absolute uncertainty. Entrepreneurs must deal with both types of uncertainty to achieve entrepreneurial success, meaning that during the opportunity evaluation and exploitation stages, another strategy is needed to address the corresponding uncertainty.

（2）Differences Arise from the Order of Applying Entrepreneurial Methods:

From the perspective of entrepreneurial theory, the differences also lie in the order of using entrepreneurial methods. Entrepreneurs need to flexibly switch and even simultaneously master both methods to effectively drive entrepreneurial activities. During the opportunity exploitation stage, entrepreneurs need to switch to another entrepreneurial method to achieve a fit between products or services and user needs.

（3）Practice Shows: Pre-Intervention is More Effective:

From the perspective of entrepreneurial practice, pre-intervention with different entrepreneurial methods often brings unexpected results. In the discovery view, entrepreneurs who are good at capturing market opportunities will cooperate with experts in advance to address creative uncertainty (Alvarez & Barney, 2007); in the creation view, entrepreneurs are also encouraged to actively understand market needs to create products or services that better meet market demands (Blank, 2003).

In summary, the entrepreneurial opportunity model fundamentally reveals the intrinsic generation mechanism of the discovery and creation views, and the two are moving from opposition to fusion, jointly driving entrepreneurial activities.

5.4 PROMOTING THE DEEP INTEGRATION OF INNOVATION AND ENTREPRENEURSHIP

This paper will explore in depth the mechanism by which entrepreneurial opportunity theory promotes the integration of innovation and entrepreneurship to deepen the understanding of innovative entrepreneurship. Combined with uncertainty theory, "innovation" is the process of addressing creative uncertainty through technological breakthroughs; "entrepreneurship" is the practical action of starting a business in an environment of absolute uncertainty (Wang & Chen, 2024).

（1）Innovation: Enhancing the Quality of Entrepreneurial Activities:

In the creation model, opportunity = function × user, innovation is crucial for initiating entrepreneurial activities. In the discovery model, opportunity = need × solution, innovative activities help build competitive barriers, preventing imitation by competitors. Therefore, in either model, innovation plays a crucial role in achieving high-quality entrepreneurial activities.

（2）Entrepreneurship: Ensuring the Sustainability of Innovation:

In the creation model, entrepreneurship plays a prominent role in promoting and supporting innovative activities. For technology entrepreneurs, successful entrepreneurship = technology × market. This means entrepreneurs also need to address environmental uncertainty caused by market fluctuations. Therefore, only successful entrepreneurship can provide continuous resource support for innovation and ensure its sustainability.

In summary, the entrepreneurial opportunity model fundamentally reveals the intrinsic logic between innovation and entrepreneurship. Innovation is a key element driving entrepreneurial activities, and entrepreneurship is the institutional guarantee ensuring the sustainability of innovation.

6 RESEARCH CONCLUSIONS AND PROSPECTS

6.1 RESEARCH SUMMARY

This study successfully achieves the organic integration of uncertainty theory, entrepreneurial theory, and opportunity theory, constructing a theoretical framework for entrepreneurial opportunities under conditions of absolute uncertainty.

Firstly, through systematic literature research, this study comprehensively reviews uncertainty, entrepreneurial theory, and opportunity theory. From the ontological and epistemological perspectives, it deeply understands the nature of uncertainty, and on this basis, clearly distinguishes entrepreneurial theory and opportunity theory from a methodological perspective.

Secondly, this study deeply inducts and compares discovery theory and creation theory, further deepening the understanding of opportunity theory by formulating entrepreneurial opportunities. Additionally, under the guidance of the foundational framework of entrepreneurial theory, the study successfully constructs an entrepreneurial opportunity model.

Lastly, this study discusses in detail the theoretical and practical values of the entrepreneurial opportunity model. The model not only promotes the deep integration of uncertainty and entrepreneurial opportunities but also strengthens the close connection between entrepreneurial theory and entrepreneurial opportunities, promotes the organic fusion of discovery and creation views, and reveals the intrinsic mechanism of mutual promotion between innovation and entrepreneurship.

6.2 ACADEMIC CONTRIBUTIONS

The academic contributions of this study are mainly reflected in the following three aspects:

Through in-depth literature research, this study promotes academic understanding between uncertainty, entrepreneurial theory, and opportunity theory. For example, when addressing creative uncertainty, this study finds consistency among effectual reasoning (from uncertainty theory), resource-driven methods (from entrepreneurial theory), and creation theory (from opportunity theory).

This study deeply understands entrepreneurial opportunity theory within the framework of uncertainty and reveals that the essence of opportunities lies in managing uncertainty. By addressing the order of resolving absolute uncertainty, it promotes the integration of creation and discovery views.

From a theoretical level, this study deeply argues and clarifies the complementary and closely connected logical relationship between innovation and entrepreneurship.

6.3 PRACTICAL VALUE

From a practical perspective, this study is also of great significance.

It provides two basic logics for entrepreneurs to explore opportunities in absolute uncertainty scenarios. For instance, if entrepreneurs start from technological innovation, they enter the creation model; if they start from demand insights, they enter the discovery model.

It offers methodological support for entrepreneurial practice. During different stages of opportunity generation, opportunity evaluation, and opportunity exploitation, entrepreneurs need to appropriately use corresponding entrepreneurial methods.

6.4 RESEARCH LIMITATIONS

This study has certain limitations:

First, the entrepreneurial opportunity framework constructed in this study is based on theoretical deductions and needs extensive validation from entrepreneurs in different industries and fields.

Secondly, this study only promotes the integration of uncertainty, entrepreneurial theory, and opportunity theory at a conceptual level. From a practical perspective, the mutual integration still needs to be refined and supplemented through entrepreneurial practice.

Finally, in practice, entrepreneurs often face rapidly changing and unpredictable markets and external environments.

6.5 RESEARCH OUTLOOK

In terms of future research directions, in-depth exploration can be carried out from the following key aspects:

First, it is necessary to further study the inherent mechanism between uncertainty theory and entrepreneurial opportunity theory, and to verify the effectiveness and applicability of this mechanism through real cases.

Secondly, we can further explore the relationship between entrepreneurial theory and opportunity theory, especially to understand how entrepreneurial theory supports the generation and subsequent evolution of opportunities. Also it is important to consider more practical factors, such as team decision-making, policy changes, and technological innovations, and how they influence the identification and creation of entrepreneurial opportunities.

Thirdly, it is worth further studying the interactive relationship between innovation and opportunity, in order to more deeply reveal the inherent mechanism and interconnection between innovation and entrepreneurship.

Finally, it is suggested to compare the research on the uniqueness and applicability of entrepreneurial opportunity theory in different scenarios under different industry and regional backgrounds, so as to provide entrepreneurs with richer and more specific theoretical support.

Acknowledgements

The research of this paper was funded by the project titled *Soft Science Research Program of Zhejiang Province* [Grant No. 2025C25020].

References

1. Ackoff, R. L. (1981). *Creating the corporate future: Plan or be planned for*. Austin, TX: University of Texas Press.
2. Aguinis, H., Audretsch, D. B., Flammer, C., Meyer, K. E., Peng, M. W., & Teece, D. J. (2022). Bringing the manager back into management scholarship. *Journal of Management*, 48(7), 1849-1857.https://doi.org/10.1177/01492063221082555
3. Alvarez, S. A., & Barney, J. B. (2007). Discovery and creation: Alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal*, 1(1-2), 11-26. https://doi.org/10.1002/sej.4
4. Alvarez, S. A., Barney, J. B., & Anderson, P. (2013). Forming and exploiting opportunities: The implications of discovery and creation processes for entrepreneurial and organizational research. *Organization Science*, 24(1), 301-317. https://doi.org/10.1287/orsc.1110.0727
5. Alvarez, S., & Barney, J. B. (2020). Has the concept of opportunities been fruitful in the field of entrepreneurship?. *Academy of Management Perspectives*, 34(3), 300-310. https://doi.org/10.5465/amp.2018.0014
6. Bae,T. J., Qian, S., Miao, C., & Fiet, J. O. (2014). The relationship between entrepreneurship education and entrepreneurial intentions: A meta--analytic review. *Entrepreneurship Theory and Practice*, 38(2), 217-254. https://doi.org/10.1111/etap.12095
7. Baldwin, C., &Von Hippel, E. (2011). Modeling a paradigm shift: From producer innovation to user and open collaborative innovation. *Organization Science*, 22(6), 1399-1417. https://doi.org/10.1287/orsc.1100.0618
8. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120. https://doi.org/10.1177/014920639101700108
9. Barney, J. B. (1986). Strategic factor markets: Expectations, luck, and business strategy. *Management Science*, 32(10), 1231-1241. https://doi.org/10.1287/mnsc.32.10.1231
10. Bennett,V. M., & Chatterji, A. K. (2023). The entrepreneurial process: Evidence from a nationally representative survey. *Strategic Management Journal*, 44(1), 86-116. https://doi.org/10.1002/smj.3077
11. Berglund, H., Bousfiha, M., & Mansoori,Y. (2020). Opportunities as artifacts and entrepreneurship as design. *Academy of Management Review*, 45(4), 825-846. https://doi.org/10.5465/amr.2018.0285
12. Blank, S. (2003). *The four steps to the epiphany*. Morrisville: Lulu Enterprises Incorporated.
13. Blank, S., & Eckhardt, J. T. (2023). The lean startup as an actionable theory of entrepreneurship. *Journal of Management*, 1-23. https://doi.org/10.1177/01492063231168095
14. Boeker, W. (1989). Strategic change: The effects of founding and history. *Academy of Management Journal*, 32(3), 489- 515. https://doi.org/10.5465/256432
15. Chen, M., & Wang, C. (2024). How business model innovation facilitates microcredit in balancing social mission with commercial performance-evidence from

local commercial banks. *Technological Forecasting and Social Change*, 202, 123287.https://doi.org/10.1016/j.techfore.2024.123287

16. Christensen, C. M. (1997). *The innovator's dilemma: When new technologies cause great firms to fail*. Boston, MA: Harvard Business Review Press.
17. Davidsson, P. (2023). Ditching discovery-creation for unified venture creation research. *Entrepreneurship Theory and Practice*, 47(2), 594-612. https://doi.org/10.1177/10422587211030870
18. Dequech, D. (1997). Uncertainty in a strong sense: Meaning and sources. *Economic*, 2(2), 21-43.
19. Dequech, D. (2000). Fundamental uncertainty and ambiguity. *Eastern Economic Journal*, 26(1), 41-60. https://www.jstor.org/stable/40325967
20. Dequech, D. (2011). Uncertainty: A typology and refinements of existing concepts. *Journal of Economic Issues*, 45(3), 621-640. https://doi.org/10.2753/JEI0021-3624450306
21. Dew, N., Read, S., Sarasvathy, S. D., & Wiltbank, R. (2009). Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices. *Journal of Business Venturing*, 24(4), 287-309. https://doi.org/10.1016/j.jbusvent.2008.02.002
22. Di Stefano, G., King, A. A., &Verona, G. (2014). Kitchen confidential? Norms for the use of transferred knowledge in gourmet cuisine. *Strategic Management Journal*, 35(11), 1645-1670. https://doi.org/10.1002/smj.2179
23. Dimov, D. (2020). Opportunities, language, and time. *Academy of Management Perspectives*, 34(3), 333-351. https://doi.org/10.5465/amp.2017.0135
24. Dosi, G., & Egidi, M. (1991). Substantive and procedural uncertainty: An exploration of economic behaviours in changing environments. *Journal of Evolutionary Economics*, 1, 145-168. https://doi.org/10.1007/BF01224917
25. Elsbach, K. D., & Stigliani, I. (2018). Design thinking and organizational culture:A review and framework for future research. *Journal of Management*, 44(6), 2274-2306. https://doi.org/10.1177/0149206317744252
26. Fisher, G. (2012). Effectuation, causation, and bricolage: A behavioral comparison of emerging theories in entrepreneurship research. *Entrepreneurship Theory and Practice*, 36(5), 1019-1051. https://doi.org/10.1111/j.1540-6520.2012.00537.x
27. Flammer, C., & Kacperczyk, A. (2019). Corporate social responsibility as a defense against knowledge spillovers: Evidence from the inevitable disclosure doctrine. *Strategic Management Journal*, 40(8), 1243-1267. https://doi.org/10.1002/smj.3025
28. Folta, T. B. (2007). Uncertainty rules the day. *Strategic Entrepreneurship Journal*, 1(1-2), 97-99. https://doi.org/10.1002/sej.7
29. Foss, N. J., & Klein, P. G. (2020). Entrepreneurial opportunities: Who needs them?. *Academy of Management Perspectives*, 34(3), 366-377. https://doi.org/10.5465/amp.2017.0181
30. Furr, N. R., & Eisenhardt, K. M. (2021). Strategy and uncertainty: Resource-based view, strategy-creation view, and the hybrid between them. *Journal of Management*, 47(7), 1915-1935. https://doi.org/10.1177/01492063211011760

31. Garud, R., & Karnøe, P. (2003). Bricolage versus breakthrough: Distributed and embedded agency in technology entrepreneurship. *Research Policy*, 32(2), 277-300. https://doi.org/10.1016/S0048-7333(02)00100-2

32. Gruber, M., & Tal, S. (2017). *Where to play: 3 steps for discovering your most valuable market opportunities*. Pearson UK.

33. Hsieh, C., Nickerson, J. A., & Zenger,T. R. (2007). Opportunity discovery, problem solving and a theory of the entrepreneurial firm. *Journal of Management Studies*, 44(7), 1255-1277. https://doi.org/10.1111/j.1467-6486.2007.00725.x

34. Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47, 263-291.

35. Karlsson,T., & Honig, B. (2009). Judging a business by its cover: An institutional perspective on new ventures and the business plan. *Journal of Business Venturing*, 24(1), 27-45. https://doi.org/10.1016/j.jbusvent.2007.10.003

36. Khodor, S., Aránega, A. Y., & Ramadani, V. (2024). Impact of digitalization and innovation in women's entrepreneurial orientation on sustainable start-up intention. *Sustainable Technology and Entrepreneurship*, 3(3), 100078.https://doi.org/10.1016/j.stae.2024.100078

37. Kirzner, I. (1973). *Competition and entrepreneurship*. Chicago: The University of Chicago Press.

38. Knight, F. H. (1921). *Risk, uncertainty and profit*. Boston and New York: Houghton Mifflin Company.

39. Mansoori,Y., & Lackeus, M. (2020). Comparing effectuation to discovery-driven planning, prescriptive entrepreneurship, business planning, lean startup, and design thinking. *Small Business Economics*, 54(3), 791-818. https://doi.org/10.1007/s11187-019-00153-w

40. McBride, R., & Wuebker, R. (2022). Social objectivity and entrepreneurial opportunities. *Academy of Management Review*, 47(1), 75-92. https://doi.org/10.5465/amr.2017.0451

41. McGrath, R. G. (1999). Falling forward: Real options reasoning and entrepreneurial failure. *Academy of Management Review*, 24(1), 13-30. https://doi.org/10.5465/amr.1999.1580438

42. McGrath, R. G., & MacMillan, I. C. (2009). *Discovery-driven growth: A breakthrough process to reduce risk and seize opportunity*. Boston, MA: Harvard Business Press.

43. McMullen, J. S., & Shepherd, D. A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review*, 31(1), 132-152. https://doi.org/10.5465/amr.2006.19379628

44. McMullen, J. S., Fitzsimmons, J. R., Shetty, K., & Ramoglou, S. (2024).A temporal typology of entrepreneurial opportunities: Implications for the optimal timing of entrepreneurial action. *Journal of Business Venturing*, 39(1), 106356. https://doi.org/10.1016/j.jbusvent.2023.106356

45. Miller, K. D. (2007). Risk and rationality in entrepreneurial processes. *Strategic Entrepreneurship Journal*, 1(1-2), 57- 74. https://doi.org/10.1002/sej.2

46. Olsen, D. (2015). *The lean product playbook: How to innovate with minimum viable products and rapid customer feedback*. Hoboken, NJ: John Wiley & Sons.

47. Osterwalder, A., Pigneur, Y., Bernarda, G., Smith, A., & Papadakos, T. (2014). *Value proposition design: How to create products and services customers want*. Hoboken, NJ: Wiley.

48. Packard, M. D., Clark, B. B., & Klein, P. G. (2017). Uncertainty types and transitions in the entrepreneurial process. *Organization Science*, 28(5), 840-856. https://doi.org/10.1287/orsc.2017.1143

49. Priem, R. L., Li, S., & Carr, J. C. (2012). Insights and new directions from demand-side approaches to technology innovation, entrepreneurship, and strategic management research. *Journal of Management*, 38(1), 346-374. https://doi.org/10.1177/0149206311429614

50. Ramoglou, S., & McMullen, J. S. (2024). "What is an opportunity?": From theoretical mystification to everyday understanding. *Academy of Management Review*, 49(2), 1-26. https://doi.org/10.5465/amr.2020.0335

51. Rowe, P. G. (1987). *Design thinking*. Cambridge, MA: The MIT Press.

52. Salehe, M. A., Sesabo, J. K., Isaga, N., & Mkuna, E. (2024). Individual entrepreneurial orientation and firm performance: The mediating role of sustainable entrepreneurship practices. *Sustainable Technology and Entrepreneurship*, 3(3), 100079.https://doi.org/10.1016/j.stae.2024.100079

53. Santamaria, S., Abolfathi, N., & Mahmood, I. P. (2024). Demand pull versus resource push training approaches to entrepreneurship: A field experiment. *Strategic Management Journal*, 45(3), 564-587. https://doi.org/10.1002/smj.3560

54. Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243-263. https://doi.org/10.5465/amr.2001.4378020

55. Sarasvathy, S. D. (2009). *Effectuation: Elements of entrepreneurial expertise*. Cheltenham, UK: Edward Elgar Publishing.

56. Schumpeter, J. A. (1934). *The theory of economic development*. Cambridge, MA: Harvard University Press.

57. Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization Science*, 11(4), 448- 469. https://doi.org/10.1287/orsc.11.4.448.14602

58. Shane, S. (2012). Reflections on the 2010 AMR decade award: Delivering on the promise of entrepreneurship as a field of research. *Academy of Management Review*, 37(1), 10-20. https://doi.org/10.5465/amr.2011.0078

59. Shane, S. A. (2003). *A general theory of entrepreneurship: The individual-opportunity nexus*. Cheltenham, UK: Edward Elgar Publishing.

60. Shepherd, D. A., & Gruber, M. (2021). The lean startup framework: Closing the academic--practitioner divide. *Entrepreneurship Theory and Practice*, 45(5), 967-998. https://doi.org/10.1177/1042258719899415

61. Sirmon, D. G., Hitt, M. A., & Ireland, R. D. (2007). Managing firm resources in dynamic environments to create value: Looking inside the black box. *Academy of Management Review*, 32(1), 273-292. https://doi.org/10.5465/amr.2007.23466005

62. Teng, D., Hao, B., Sun, X., Cai, Z., & Chen, J. (2023). Entrepreneurial founder's social ties, institutions, and firm's productivity: Evidences from China's newly listed firms. *Sustainable Technology and Entrepreneurship*, 2(3), 100042.https://doi.org/10.1016/j.stae.2023.100042

63. Timmons, J. A. (1999). *New venture creation: Entrepreneurship for the 21st century* (5th ed.). Homewood, IL: McGraw- Hill.

64. Townsend, D. M., Hunt, R. A., McMullen, J. S., & Sarasvathy, S. D. (2018). Uncertainty, knowledge problems, and entrepreneurial action. *Academy of Management Annals*, 12(2), 659-687. https://doi.org/10.5465/annals.2016.0109

65. Venkataraman, S., Sarasvathy, S. D., Dew, N., & Forster, W. R. (2012). Reflections on the 2010 AMR decade award: Whither the promise? Moving forward with entrepreneurship as a science of the artificial. *Academy of Management Review*, 37(1), 21-33. https://doi.org/10.5465/amr.2011.0079

66. Von Hippel, E. (1986). Lead users: A source of novel product concepts. *Management Science*, 32(7), 791-805. https://doi.org/10.1287/mnsc.32.7.791

67. Wang, C., Chen, M., Wang, Q., Fang, Y., & Qiu, L. (2024). New product development paradigm from the perspective of consumer innovation: A case study of Huawei's integrated product development. *Journal of Innovation & Knowledge*, 9(2), 100482.https://doi.org/10.1016/j.jik.2024.100482

68. Wang, C., & Chen, M. (2024). Research on expanding the theoretical framework of entrepreneurship under uncertainty (Forthcoming).

69. Wang C, Wang H, Dai M, & Fang Y. (2022). Lean startup approaches (LSas): convergence, integration and improvement. *Technological Forecasting and Social Change*, 179, 121640. https://doi.org/10.1016/j.techfore.2022.121640

70. Wang, C., Zhu, Y., & Wang, Q. (2025). Exploration of the social selling of family-owned B2B enterprises and perceptual barriers. *International Entrepreneurship and Management Journal*, 21(1), 1-23.https://doi.org/10.1007/s11365-024-01031-y

71. Weick, K. E. (1979). *The social psychology of organizing*. Reading, MA: Addison-Wesley

72. Wiredu, J. (2023). An investigation on the characteristics, abilities, constraints, and functions of artificial intelligence (ai): The age of chatgpt as an essential. *Information & Management*, 108(3), 62614-62620. https://doi.org/10.37118/ijdr.26689.05.2023

73. Wright, M., & Phan, P. (2020). Opportunity: Is there a future in the construct?. *Academy of Management Perspectives*, 34(3), 297-299. https://doi.org/10.5465/amp.2018.0162

74. Wuebker, R., Zenger, T., & Felin, T. (2023). The theory-based view: Entrepreneurial microfoundations, resources, and choices. *Strategic Management Journal*, 44(12), 2922-2949. https://doi.org/10.1002/smj.3535

75. York, J. G., & Venkataraman, S. (2010). The entrepreneur–environment nexus: Uncertainty, innovation, and allocation. *Journal of Business Venturing*, 25(5), 449-463. https://doi.org/10.1016/j.jbusvent.2009.07.007

Contact information

Prof. Chengbin Wang
Taizhou University
Business School
Zhejiang, China
chambion@tzc.edu.cn
https://orcid.org/0000-0003-2810-5405

Prof. Minju Chen
Taizhou Open University
Open University of China
Zhejiang, China
894927220@qq.com
https://orcid.org/0000-0001-8654-1956

Xiaoyin Zhang
Peking University
Zhejiang, China
shailenezhang17@gmail.com
https://orcid.org/0009-0007-5801-6821