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Research on the Improvisational Behavior Paths of New Ventures in the Context of Entrepreneurial Ecosystems

-- Based on the Fuzzy-Set Qualitative Comparative Analysis Method

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Abstract

The current global economy has entered the VUCA era, posing significant challenges to the growth of new ventures. Existing research has found that the resource characteristics of entrepreneurial ecosystems can effectively enhance the improvisational capabilities of ventures. However, most studies focus solely on the ecosystem level and neglect the influence of the organizational level. This study focuses on the improvisational behavior paths of new ventures within the context of entrepreneurial ecosystems. It employs the Fuzzy-Set Qualitative Comparative Analysis (fsQCA) method to conduct a qualitative comparative analysis of 130 enterprises in domestic entrepreneurial parks, exploring the impact paths of factors such as the resource characteristics of entrepreneurial ecosystems, knowledge transfer, and organizational capabilities on venture improvisational behavior. The study identifies four configurations leading to high improvisational behavior: "Organizational Capability Support Type," "Organizational Capability Support under Resource Diversity Type," "Resource-Capability Mutual Support Type," and "Explicit Knowledge Transfer under Resource Diversity Type." The findings reveal the complex causal relationships underlying entrepreneurial improvisational behavior and provide guidance and reference for the development of new ventures and the construction of entrepreneurial ecosystems.

Keywords

Entrepreneurial Ecosystem; Knowledge Transfer; fsQCA; Improvisational Behavior.

1. Introduction

In the current global economic landscape, entrepreneurial ventures, as key drivers of economic growth, have garnered unprecedented attention for their survival and development. The report of the 20th National Congress of the Communist Party of China explicitly emphasized the importance of optimizing the development environment for private enterprises and proposed legally protecting the property rights of private enterprises and the legitimate rights and interests of entrepreneurs. This indicates that China's private economy is facing new historical opportunities and is expected to enter a new stage of development, further promoting its growth and expansion. Currently, the global economy has entered the so-called VUCA era, characterized by volatility, uncertainty, complexity, and ambiguity [1]. Faced with this challenging environment, if enterprises cannot take timely action to prevent and control risks, they may not only miss development opportunities but could even be eliminated in the new wave of transformation. This is particularly critical for new ventures [2].

As a venture's ability to cope with uncertainty directly affects its survival, enhancing this capability becomes particularly important. Existing research shows that improvisational

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behavior is an effective strategy for responding to rapid changes and seizing unexpected opportunities[3], significantly improving a firm's ability to handle uncertainty. Entrepreneurial improvisation refers to the decisions and actions spontaneously initiated by the top management team of a new venture in response to emergent situations during its growth process; it involves the immediate utilization of readily available resources and purposefully combines the processes of creating and executing new solutions.

In recent years, as the external environment has changed, the entrepreneurial landscape has also evolved. Market competition has gradually shifted from competition between individual firms to competition between ecosystems. Many large enterprises have constructed their own ecosystems, such as Haier's COSMOPlat and Xiaomi's IoT Developer Platform. Entrepreneurial ecosystems, characterized by diversity, network effects, and symbiosis, are increasingly becoming the new focus of market competition[4]. Research has found that entrepreneurial ecosystems can significantly reduce the cost for ventures to discover and utilize opportunistic resources, facilitating the conduct of improvisational behavior. However, it remains unclear which specific factors within the ecosystem might influence entrepreneurial improvisation and the pathways through which they operate.

In summary, while entrepreneurial ecosystems help ventures break resource constraints, achieve knowledge transfer, and enhance organizational capabilities, thereby improving improvisational behavior, it is still unclear in practice which aspects of ecosystem construction can be strengthened to enhance the system's ability to help firms cope with uncertainty. Scholars at home and abroad have studied how entrepreneurial ecosystems affect venture improvisation from various perspectives, but most focus on the net effect of single elements, overlooking the synergistic effects produced by the combination of multiple elements. Existing research indicates that venture improvisation is caused by the synergistic effect of multiple factors and should be analyzed from a configurational perspective. In view of this, based on Resource Orchestration Theory and Absorptive Capacity theory, this paper constructs a research framework for venture improvisational behavior. It conducts a qualitative comparative analysis of 130 enterprises in domestic entrepreneurial parks to explore the impact paths of multiple factors on venture improvisation. The aim is to break through the limitations of traditional single-factor analysis methods, further reveal the complex causal relationships of entrepreneurial improvisation, and provide guidance and reference for the development of new ventures and the construction of entrepreneurial ecosystems.

2. Literature Review and Model Construction

2.1. Resource Characteristics in the Context of Entrepreneurial Ecosystems

The study of entrepreneurial ecosystems originated from the intersection of natural ecosystems and entrepreneurship. Moore first introduced it into the field of management in 1993. He proposed that firms do not develop in isolation but maintain close interactions with partners such as suppliers, customers, and financial institutions, growing and developing together within an interdependent system. Cohen[5] defined an entrepreneurial ecosystem as a community formed by the interaction of various entities within a specific region, with the purpose of supporting and promoting the creation and growth of new firms to achieve sustainable development. Lin Song defined the entrepreneurial ecosystem as "a dynamic balanced system composed of new ventures and the entrepreneurial ecological environment on which they depend for existence and development, which are interdependent, mutually influential, and co-developing"[6]. From these definitions, it is evident that the participation of multiple entities is the foundation of an ecosystem, and interactions and cooperation among entities lead to the complementarity of resources and capabilities. Current research indicates that entrepreneurial ecosystems possess diversity, suggesting that the diversity of entities

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within the ecosystem provides a basis for resource diversity and complementarity[7]. Therefore, from a resource perspective, resource diversity and resource complementarity are characteristics of entrepreneurial ecosystems.

Research shows that the immediate availability of resources is an important foundation for venture improvisation[8]. Entrepreneurial ecosystems can help firms obtain needed resources at lower costs, meeting the resource requirements for conducting improvisational behavior. However, some scholars hold the opposite view, suggesting that resource diversity might lead firms into a resource utilization dilemma – having too many resources at hand but not knowing which ones to use[9] – thereby reducing entrepreneurial improvisation. In fact, both views have their merits. Based on this, this paper incorporates resource diversity and resource complementarity as factors related to entrepreneurial ecosystem resources to explore their impact on venture improvisational behavior.

2.2. Knowledge Transfer in Entrepreneurial Ecosystems

Knowledge is regarded as one of the most important strategic resources possessed by an organization and a primary source of value creation. The firm is defined as an institution that integrates knowledge; comparatively, the application of knowledge is more common than knowledge creation[10]. In the field of knowledge management, a widely accepted classification method divides knowledge into explicit and tacit based on its expressibility. Explicit knowledge refers to information that is easily expressed and codified, which can be encoded through text, sound, etc., and widely disseminated. In contrast, tacit knowledge is often highly personalized and difficult to articulate and encode accurately. This type of knowledge is usually closely related to specific contexts, including personal experience, intuition, and inspiration, and often needs to be acquired and understood through practical operation and personal experience.

In recent years, many scholars have focused on the important role of knowledge transfer in entrepreneurial ecosystems. Research has found that establishing efficient knowledge transfer mechanisms is conducive to building mutually beneficial and symbiotic relationships among entities within the ecosystem, thereby promoting the innovation and development of the entrepreneurial ecosystem. From the perspective of the firm, knowledge transfer creates opportunities to maximize the organization's ability to meet development needs and generate corresponding solutions and work efficiency, helping to cultivate competitive advantages [11]. Entrepreneurial ecosystems provide a platform for knowledge transfer between firms. A stable ecosystem environment facilitates high-frequency interactions among partners, thereby promoting the transfer of both explicit and tacit knowledge between firms. Firms within the system, in order to acquire more knowledge conducive to innovation activities, are willing to share their own valuable information with partners, thereby increasing the inflow of heterogeneous knowledge and enhancing the firm's ability to cope with uncertainty.

2.3. Research on Venture Capabilities

Ye Zhuxin and Mai Yiyuan[8] pointed out that resources are an important foundation for firms to conduct improvisational behavior. On this basis, Ma Hongjia[12] suggested that organizational resource factors include both internal and external resources and organizational capabilities. Among them, Lyles emphasized the important role of the absorptive capacity of new ventures, believing that firms identify new knowledge, absorb existing knowledge, and effectively utilize new knowledge, thereby helping the firm learn from external sources. Furthermore, the development of improvisational capability also relies on the organization's ability to manage and deploy resources, as further pointed out by Li Xiaoxiang and Li Jing. Therefore, this paper incorporates the firm's resource orchestration capability and absorptive capacity into the dimension of organizational capabilities.

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Resource Orchestration Theory posits that firms need to be able to orchestrate resources, achieving the synergistic effects of interconnected resources rather than the independent effects of single resources, to sustain performance and competitive advantage. Resource scarcity is a dilemma faced by the vast majority of new ventures. In traditional entrepreneurship research, new ventures had limited access to external resources and typically resorted to resource bricolage to obtain needed resources, i.e., piecing together available resources. Entrepreneurial ecosystems can provide new ventures with abundant resources, prompting their resource actions to shift from simple bricolage to complex resource orchestration, focusing on how firms utilize orchestration or combination to gain competitive advantage when resources are ample. Sirmon divided the sub-processes of resource orchestration into three stages: structuring, bundling, and leveraging, as follows: Resource structuring emphasizes the integration of resources, which helps new ventures improve resource identification efficiency in diverse resource contexts, integrating internal and external resources into new combinations with new functions and utility to meet new market demands; Resource bundling refers to the process of transforming integrated resources into organizational capabilities, helping new ventures cultivate their core competitiveness; Resource leveraging is the process of matching existing resources with firm strategy, creating value based on resources to achieve growth goals. Existing research on entrepreneurial improvisation suggests that a firm's improvisational behavior is also related to organizational capabilities, and resource orchestration capability can significantly improve the effectiveness and efficiency of resource utilization. However, a firm's capabilities are inseparable from resources. Existing research mostly explores the impact of a single capability on entrepreneurial improvisation, neglecting the role of resources therein. Therefore, it is necessary to conduct integrated research on this aspect.

Absorptive capacity is the firm's ability to identify, assimilate, and apply valuable external information based on the perception of its value. Cohen[13] first proposed the concept of absorptive capacity, defining it as the firm's ability to recognize the value of new external information, assimilate it, and apply it to commercial ends. Existing research shows that organizational absorptive capacity can effectively enhance instant coordination and resource integration capabilities, as well as the ability to adapt and match the environment, thereby prompting the emergence of improvisational behavior. Improvisational behavior relies on the organization's absorption of knowledge and experience; differences in the level of absorptive capacity may affect the likelihood and effectiveness of improvisational behavior. It can be seen that knowledge is an important aspect of organizational absorptive capacity. However, most studies only consider the impact of improvisational behavior on firm performance, neglecting how improvisation itself is influenced by factors such as knowledge. Therefore, it is necessary to incorporate it into the organizational capability dimension for integrated research.

2.4. Model Construction

By reviewing relevant literature in the field of venture research, it is found that in the context of entrepreneurial ecosystems, the characteristics of resource diversity and complementarity, knowledge transfer among entities, and organizational capabilities all have important influences on venture improvisational behavior. However, current research on firm improvisation mostly focuses on the impact of single factors, lacking exploration of the synergistic driving effects among various elements from a configurational perspective. Secondly, current research on entrepreneurial ecosystems pays more attention to a single system level, with relatively scarce cross-level interactive integration research. There is insufficient research on how ventures within entrepreneurial ecosystems combine system resources and their own organizational capabilities to enhance their ability to cope with uncertainty. Additionally, some studies suggest that the abundant resources of entrepreneurial

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ecosystems have a positive impact on firm improvisation, while others argue that excessive resources may reduce improvisation. Yet, existing research has paid little attention to this contradiction. Furthermore, competition between firms has gradually shifted from traditional "single combat" to "collective competition." Clarifying the influence paths of venture improvisational behavior within entrepreneurial ecosystems can not only provide guidance for the construction of entrepreneurial ecosystems but also help improve the improvisational capabilities of new ventures.

Therefore, based on the analysis of the impact mechanisms of single factors on firm improvisation in existing literature, this study shifts from examining the effect of single elements on an outcome variable. Combining environmental and organizational levels, it uses a configurational perspective to further explore the synergistic driving paths of venture improvisational behavior. Combining the main indicators of entrepreneurial ecosystem characteristics, knowledge dimension, and organizational capabilities, a configurational model of venture improvisational behavior is constructed, as shown in Figure 1. Among them, entrepreneurial ecosystem characteristics are divided into resource diversity and resource complementarity according to Cai Li et al.'s research on entrepreneurial ecosystem diversity; the knowledge dimension adopts Becerra & Lunnan's division of knowledge transfer into explicit and tacit; organizational capabilities are defined by resource orchestration capability and absorptive capacity, where resource orchestration capability is measured using the scale developed by Wang Guohong and Huang Hao, and absorptive capacity is measured using the mature scale of Qian Xihong and Yang Yongfu. Using the fsQCA method, configurations that lead to high and non-high venture improvisational behavior are identified.

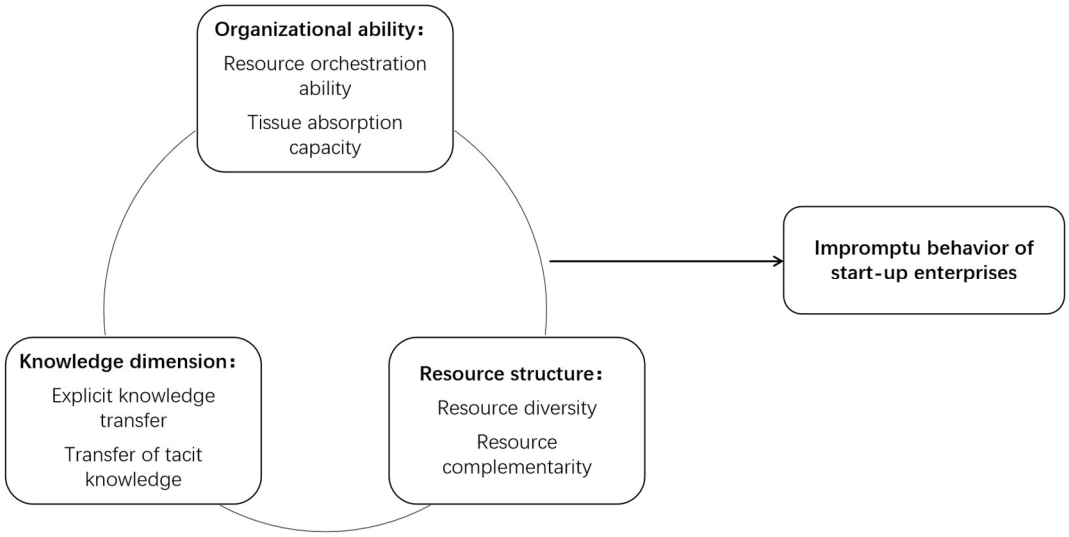

Figure 1. Venture Improvisational Behavior Path Diagram

3. Research Method and Data Collection

3.1. Method Selection

This paper adopts the Qualitative Comparative Analysis (QCA) method because QCA can break through the traditional empirical research methods that analyze the impact of single factors on a variable. It can synthesize the impact of multiple factors on the outcome variable, which is consistent with this study's aim to analyze the paths of multi-dimensional variables affecting venture improvisational behavior. It helps clarify the configurational effects of entrepreneurial ecosystem characteristics, knowledge transfer, and organizational capabilities on venture

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growth paths. QCA is mainly divided into three types: csQCA (crisp-set QCA), mvQCA (multi-value QCA), and fsQCA (fuzzy-set QCA). csQCA focuses on handling binary categorical variables, where the values of cause and outcome variables are limited to 0 or 1. Both mvQCA and csQCA are methodologies based on crisp sets and truth tables, so they are mainly suitable for handling categorical problems and have difficulty dealing with degree changes and partial membership issues[14]; fsQCA can calibrate variable values between 0 and 1, allowing fsQCA to analyze situations involving degree changes and partial membership of variables. The variables involved in this paper are all measured using a five-point Likert scale, with scores from 1 to 5 indicating "strongly disagree" to "strongly agree" respectively. Because it is necessary to consider the partial membership of variables, the variables need to be calibrated. Therefore, this paper adopts the fsQCA research method.

3.2. Data Collection

Since the QCA research method is suitable for both small and medium-sized case numbers (10 to 50 cases) and large samples exceeding 100 cases[15], this study distributed a total of 167 questionnaires, recovered 143, and after excluding invalid questionnaires, retained 130 valid responses. Furthermore, as the research object includes entrepreneurial firms, including new ventures, this study did not impose special restrictions on the length of time firms had been established in the park.

3.3. Variable Measurement

This study used mature scales from domestic and international research, making partial refinements to the relevant questionnaire statements for easier understanding by respondents. Resource diversity, resource complementarity, explicit knowledge transfer, tacit knowledge transfer, resource orchestration capability, absorptive capacity, and firm improvisational behavior were all measured using a five-point Likert scale. Since this paper selects 130 samples as cases, the antecedent variables can be controlled within seven or fewer [16]. The outcome variable is venture improvisational behavior. The antecedent variables are resource diversity, resource complementarity, tacit knowledge transfer, explicit knowledge transfer, resource orchestration capability, and absorptive capacity. Among them, for the measurement of resource diversity, this study refers to the research of Spigel et al.[17], dividing resources into infrastructure, intermediary agent services, management consulting services, network resources, human capital, financial resources, technological resources, market resources, and government support. The level of resource diversity is calculated using the Blau index, with the calculation formula as follows:

$$D = 1 - \sum p_i^2$$

Where D is the degree of diversity, p is the proportion of a given resource type, and i represents the number of different categories. The variable ranges from 0 (complete homogeneity) to 1 (complete heterogeneity).

3.4. Reliability and Validity Analysis

Before data analysis, reliability and validity tests of the measurement indicators are needed. Questionnaire reliability reflects the consistency of the measurement results, while validity reflects the effectiveness of the results. This study used SPSS 25 and AMOS 24 software to conduct reliability and validity analysis on the seven variables: resource diversity, resource complementarity, explicit knowledge transfer, tacit knowledge transfer, resource orchestration

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capability, absorptive capacity, and firm improvisational behavior. As shown in Table 2, the Cronbach's alpha coefficients for all variables are greater than 0.8, indicating that the scale used in this study has high reliability. Meanwhile, the minimum standardized factor loading is 0.546, the minimum Average Variance Extracted (AVE) is 0.617, and the minimum Composite Reliability (CR) is 0.823, all meeting the general requirements for questionnaire reliability and validity analysis, indicating that the scale used in this study has good convergent validity.

Table 1. Reliability and Validity Analysis

Variable	Min. Standardized Factor Loading	Cronbach's α	AVE	CR
Resource Diversity	0.741	0.958	0.726	0.959
Resource Complementarity	0.81	0.924	0.764	0.928
Explicit Know. Transfer	0.899	0.946	0.874	0.954
Tacit Know. Transfer	0.875	0.933	0.833	0.937
Resource Orchestration	0.826	0.931	0.779	0.934
Absorptive Capacity	0.546	0.804	0.617	0.823
Venture Improvisation	0.569	0.917	0.728	0.929

3.5. Variable Calibration

The data obtained through the questionnaire survey needed to be converted into qualitative comparative analysis raw values using the fsQCA variable calibration method[18]. This paper used the direct calibration method to transform variables into fuzzy sets. For the setting of the three thresholds for full membership, crossover point, and full non-membership, the 75th, 50th, and 25th percentiles of the sample data were used. Simultaneously, to avoid cases being eliminated in subsequent analysis due to the maximum fuzzy point of 0.5 for antecedent conditions, the value corresponding to 0.50 was changed to 0.501[19]. The calibration was performed using fsQCA 3.0 software. Specific calibration information is shown in the table below.

Table 2. Variable Calibration

Variable Name	Full Membership	Crossover Point	Full Non-Membership
Resource Diversity	4.22	3.89	3.67
Resource Complementarity	4.25	4.00	3.50
Explicit Know. Transfer	4.00	3.75	3.38
Tacit Know. Transfer	4.00	3.67	3.00
Resource Orchestration	4.20	3.80	3.60
Absorptive Capacity	4.05	3.80	3.40
Venture Improvisation	4.20	3.90	3.60

4. Analysis Results

4.1. Sufficiency Analysis of Condition Configurations

In the sufficiency analysis, we need to follow the corresponding analysis steps, set variable values and thresholds to obtain the configurational analysis results. Existing literature suggests that the frequency threshold for small and medium samples should be set to 1, and the sufficiency consistency threshold should be set to 0.8. Based on these criteria, this paper sets the case frequency threshold to 1 and adopts 0.8 as the sufficiency consistency threshold. Furthermore, this paper screens based on the standard of PRI consistency greater than 0.6

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(Greckhamer, 2018)[20]. The software results show the complex solution, intermediate solution, and parsimonious solution. This paper uses the intermediate solution to display the paths and uses the parsimonious solution to distinguish core conditions from peripheral conditions. The data results are shown in Table 5. The overall consistency for the high improvisational behavior paths is 0.852, greater than 0.8, indicating strong explanatory power for the configurational result paths.

Table 3. Configurations for High Venture Improvisational Behavior

Condition Configurations	High Venture Improvisational Behavior					
	H1	**H2**		**H3**	**H4**	
		H2a	**H2b**		**H4a**	**H4b**
Resource Diversity		●	●	●	●	●
Resource Complementarity	⊗	●		●	⊗	⊗
Explicit Know. Transfer	●	⊗	⊗		●	●
Tacit Know. Transfer	⊗		●	●	⊗	●
Resource Orchestration	●	●	●	●	⊗	●
Absorptive Capacity	●	●	●	●	⊗	⊗
Consistency	0.880	0.785	0.818	0.866	0.901	0.805
Coverage	0.108	0.128	0.112	0.347	0.050	0.059
Unique Coverage	0.061	0.022	0.010	0.226	0.016	0.013
Solution Consistency	0.852					
Solution Coverage	0.475					

Note: ● indicates the presence of a core condition, ⊗ indicates the absence of a core condition, ● indicates the presence of a peripheral condition, ⊗ indicates the absence of a peripheral condition.

According to the data in Table 5, there are six antecedent configurations leading to high venture improvisational behavior. Configurations with the same core conditions are considered equivalent and can be classified into the same path, resulting in a total of four paths. Based on the factors supporting venture improvisation, this paper categorizes these four paths as: Organizational Capability Support Type, Organizational Capability Support under Resource Diversity Type, Resource-Capability Mutual Support Type, and Explicit Knowledge Transfer under Resource Diversity Type.

(1) Organizational Capability Support Type. In configuration H1, resource complementarity, tacit knowledge transfer, resource orchestration capability, and absorptive capacity act as core conditions, while explicit knowledge transfer acts as a peripheral condition. This indicates that in contexts where the entrepreneurial ecosystem lacks complementary resources and deep cooperation among entities within the park, ventures need to enhance their own organizational capabilities to improve their improvisational behavior and cope with external environmental uncertainty. Firms should actively absorb external information, assimilate and apply it for commercial purposes, while also improving their ability to orchestrate complex resources, leveraging the interconnected effects between resources, thereby enhancing their improvisational capability.

(2) Organizational Capability Support under Resource Diversity Type. In configuration H2, resource diversity, explicit knowledge transfer, resource orchestration capability, and absorptive capacity act as core conditions. The difference between H2a and H2b is that one has resource complementarity as a peripheral condition, while the other has tacit knowledge

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transfer as a peripheral condition. This indicates that when the entrepreneurial park provides diverse resources but there is a lack of cooperation among ventures, firms need to enhance their organizational capabilities to cope with external environmental uncertainty. Firms can actively absorb external effective information to promote continuous innovation and enhance environmental adaptability, while simultaneously improving their own resource orchestration capability, integrating the diverse resources within the park, fully leveraging the synergistic effects between resources, thereby enhancing their improvisational behavior and better coping with external environmental uncertainty.

(3) Resource-Capability Mutual Support Type. In configuration H3, all conditions except explicit knowledge transfer act as core conditions. This indicates that regardless of whether there is communication about products and industries within the park, as long as the park has sufficient resources and the firm possesses strong organizational capabilities, it can enhance its ability to cope with external environmental uncertainty. Entrepreneurial parks can enhance resource supply capacity while regularly organizing communication and interaction among ventures within the park to promote the dissemination of tacit knowledge. When resources are sufficient, firms need to perform complex orchestration of resources, leveraging the interactive effects between resources, while also actively learning new knowledge through interaction and communication to promote continuous innovation within the firm.

(4) Explicit Knowledge Transfer under Resource Diversity Type. In configuration H4, resource diversity, resource complementarity, explicit knowledge transfer, and absorptive capacity act as core conditions, while tacit knowledge transfer and resource orchestration capability act as peripheral conditions. This indicates that when the entrepreneurial park provides a wide variety of resources but these resources have low fit with the firm and the firm itself lacks absorptive capacity, the firm needs to engage in communication about products and services with other firms in the park to enhance its improvisational behavior. The park can first try to enrich the resources it provides, establish communication mechanisms among firms, encourage exchanges on products and services, and promote the upgrading and innovation of firms' products and services, enabling them to better cope with external environmental uncertainty.

5. Conclusion and Implications

5.1. Research Conclusion

Based on Resource Orchestration Theory and Absorptive Capacity theory, taking 130 exemplary new ventures in entrepreneurial parks as the research object, and using the fuzzy-set qualitative comparative analysis method, this paper explores the impact and driving paths of entrepreneurial ecosystem resource characteristics, knowledge transfer, and organizational capabilities on new venture improvisational behavior. The main research conclusions are as follows:

First, current research on venture improvisational behavior mostly analyzes the mechanisms affecting firm improvisation from a single perspective and single factor, neglecting the impact of cross-level and multi-factor combination effects on the venture improvisation mechanism. This study spans both environmental and organizational levels to explore how resource characteristics, knowledge transfer, and firm capabilities in the context of entrepreneurial ecosystems synergistically drive venture improvisational behavior. The study finds that no single antecedent factor is a necessary condition for generating high improvisational behavior. Resource diversity plays an important role in the process of generating high improvisational behavior. High improvisational behavior is the result of the effective matching between resource context characteristics and resource management behaviors.

Secondly, there are multiple pathways to achieve high improvisational behavior in new ventures. Specifically, when a firm possesses good organizational capabilities, the importance

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of resources decreases. Conversely, when a firm lacks strong organizational capabilities, the importance of resources and cooperation becomes evident. This shows the compensatory role of resources and cooperation for a firm's organizational capabilities.

Finally, under specific conditions, a substitution relationship exists between resource complementarity and tacit knowledge transfer. When resource diversity and organizational capabilities are present, and explicit knowledge transfer is absent, a substitution relationship exists between low resource complementarity and low tacit knowledge transfer.

5.2. Management Implications

Based on the above research conclusions, this paper proposes the following practical implications for the construction of entrepreneurial ecosystems in China and for improving the improvisational behavior of ventures:

(1) Construction of Entrepreneurial Ecosystems

First, entrepreneurial parks should balance resource diversity and complementarity. Managers should recognize the importance of resource diversity and complementarity in entrepreneurial ecosystems. Although resource diversity provides firms with numerous choices, excessive resources may lead to low resource utilization efficiency. Therefore, the construction of entrepreneurial ecosystems needs to find a balance between resource diversity and complementarity to promote the effective use of resources and the improvement of improvisational behavior. Secondly, entrepreneurial parks should strengthen knowledge transfer mechanisms. Entrepreneurial ecosystems should establish efficient knowledge transfer mechanisms to promote the flow of both explicit and tacit knowledge among firms. Managers can enhance interaction and knowledge sharing among firms by organizing regular exchange meetings, seminars, and workshops, thereby improving the innovation capability of the entire ecosystem and the improvisational responsiveness of firms.

(2) Venture Improvisational Capability

First, new ventures need to enhance their organizational capabilities to achieve optimal allocation and utilization of resources. Firms should transform resources into core competitive advantages through the processes of structuring, bundling, and leveraging to cope with rapid market changes. Firms need to cultivate the ability to identify, absorb, and apply new knowledge to improve the efficiency and effectiveness of improvisational behavior. Secondly, new ventures should fully utilize the support and services provided by the entrepreneurial ecosystem, such as entrepreneurship training, technical consulting, and market analysis, to enhance their own improvisational capabilities. Simultaneously, firms can encourage employees to adopt innovative and flexible actions when facing uncertainty, enhance employees' improvisational skills, and respond quickly to market changes and unexpected events.

5.3. Limitations and Future Research Directions

During the research process, this paper has some limitations. First, due to the impact of the pandemic, there were certain limitations in sample data acquisition, and the sample size is relatively small. Therefore, future research could consider further expanding the sample size and obtaining valid samples through large-scale interviews. Secondly, this paper refers to Le's research, dividing the knowledge of ventures in entrepreneurial ecosystems into tacit and explicit knowledge. However, knowledge can also be divided according to other dimensions, such as exploitative and exploratory based on the purpose of knowledge transfer and diffusion. Future research could conduct further studies using other dimensional division methods for knowledge. Finally, the antecedent variables in this paper's configurational analysis are entrepreneurial ecosystem resource characteristics, firm knowledge transfer, organizational absorptive capacity, and resource orchestration capability. Future research could consider

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selecting other antecedent variables to study the influence mechanism of venture improvisational behavior in the context of entrepreneurial ecosystems.

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References

[1] Chen Chunhua, Yin Jun, Mei Liang, et al. How do entrepreneurs deal with environmental uncertainties? Analysis Based on the Interview Record of Ren Zhengfei [J]. Journal of Management,2020,17(08):1107-1116.

[2] Prashantham S, Floyd S W. Navigating liminality in new venture internationalization[J]. Journal of Business Venturing, 2019, 34(3): 513-527.

[3] Hu, L, Gu, J, Wu, J, et al., 2018, "Regulatory Focus, Environmental Turbulence, and Entrepreneur Improvisation" International Entrepreneurship and Management Journal, Vol.14, pp. 1-20

[4] Ren Hao, Ouyang Juan, Tang Kaiyi, Zhen Jie, Ye Jiangfeng. The Sustainable Development Path for Industrial Parks to Achieve High Economic Performance and High Innovation Performance: A Qualitative Comparative Analysis of Fuzzy Sets [J] Science & Technology Progress and Policy,2023,40(05):44-54.

[5] Cohen B. Sustainable valley entrepreneurial ecosystems[J]. Business strategy and the Environment, 2006, 15(1): 1-14.

[6] Lin Song. Entrepreneurial Ecosystem: Concept Development and Operating Mechanism [J]. Journal of Central University of Finance and Economics,2011(04):58-62.

[7] CAI Li, Yu Haijing, Yang Yaqian, Lu Shan. Review and Prospect of Entrepreneurship Theory [J]. Foreign Economics & Management,2019,41(12):94-111.

[8] Ye Zhuxin, Mai Yiyuan. Exploratory Improvisation and Open Improvisation: A Study on Improvisational Behavior of Entrepreneurial Enterprises from a Dualistic Perspective [J] Nankai Business Review,2018,21(04):15-25.

[9] Xiong Li, Yang Yong, Jia Jianfeng. "Able to Do" and "Want to Do" : A Study on the Impact of Improvisation in Dual Entrepreneurship Based on Intrinsic Motivation on the Performance of Mass Entrepreneurship and Innovation [J]. Management World,2019,35(12):137-151.

[10] Grant R M. Prospering in dynamically-competitive environments: Organizational capability as knowledge integration[J]. Organization science, 1996, 7(4): 375-387.

[11] Huang Li, Xu Shenghua. Research on Influencing Factors of Knowledge Transfer in Ecological Industry Clusters [J]. Library Science Research,2015,(13):2-9.

[12] Ma Hongjia, Wu Juan, Guo Hai, et al. Research on Improvisational Behavior in Entrepreneurship: Antecedents, Outcomes and Boundary Conditions [J]. Management World,2021,37(05):211-229+15.

[13] Cohen W M, Levinthal D A. Absorptive capacity: A new perspective on learning and innovation[J]. Administrative science quarterly, 1990: 128-152.

[14] Du Yunzhou, Jia Liangding. Configuration Perspective and Qualitative Comparative Analysis (QCA): A New Path for Management Research [J] Management World,2017(06):155-167.

[15] Crilly D, Zollo M, Hansen M T. Faking It or Muddling Through? Understanding Decoupling in Response to Stakeholder Pressures[J]. Academy of Management Journal, 2012, 55 (6): 1429-1448.

[16] Wang Yingwei. Authoritative Support, Resource Integration and External Pressure Neutralization: The Logic of Policy Tool Selection in NimBY Resistance Governance - A Qualitative Comparative Analysis Based on (fsQCA) Fuzzy Sets [J]. Journal of Public Administration,2020,17(02):27-39+166.

[17] Spigel B. The relational organization of entrepreneurial ecosystems[J]. Entrepreneurship theory and practice, 2017, 41(1): 49-72.

ISSN: 2688-9323

[18] Xiang Guopeng, Lou Shuzhen, Wang Jiexiang. Who is More Favored: A Qualitative Comparative Analysis of the Availability of Financing for Start-up Enterprises [J]. Studies in Science of Science,2019,37(09):1642-1650

[19] Greckhamer T. CEO compensation in relation to worker compensation across countries: The configurational impact of country-level institutions[J]. Strategic Management Journal, 2016, 37(4): 793-815.

[20] Greckhamer T, Furnari S, Fiss P C, et al. Studying configurations with qualitative comparative analysis: Best practices in strategy and organization research[J]. Strategic Organization, 2018, 16(4): 482-495.