

# Review of the Relationship between User Digital Capabilities, Entrepreneurial Opportunity Recognition, and Entrepreneurial Performance

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**Abstract:** With the rapid advancement of digital platforms and information technologies, user entrepreneurship has emerged as a critical research area in the contemporary entrepreneurship domain. The interplay between digital capabilities, entrepreneurial opportunity recognition, and entrepreneurial performance is both dynamic and complex. This study conducts a comprehensive literature review to investigate how digital capabilities enhance user entrepreneurial performance by strengthening opportunity recognition. First, the study conceptualizes digital capabilities as a multidimensional construct encompassing platform operation, content creation, data analytics, and social interaction. Second, it examines the relationship between digital capabilities and opportunity recognition, highlighting the enabling role of digital skills in identifying entrepreneurial opportunities. Finally, the review explores how opportunity recognition contributes to improved entrepreneurial performance and offers directions for future research. The findings suggest that digital capabilities play a multifaceted and indispensable role in user entrepreneurship, jointly shaping entrepreneurial outcomes through enhanced opportunity recognition.

**Keywords:** User entrepreneurship; Digital capabilities; Opportunity recognition; Entrepreneurial performance; Platform economy.

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## 1. Introduction

The rapid development of digital platforms and information technologies has enabled individuals and small-scale entrepreneurs to explore market opportunities and engage in entrepreneurial activities with reduced costs and risks. This phenomenon, often referred to as user entrepreneurship driven by the platform economy, is emerging as a novel business model that is reshaping traditional entrepreneurial ecosystems [1, 2]. Unlike traditional forms of entrepreneurship, user entrepreneurship is less dependent on capital and physical infrastructure, and more reliant on individuals' digital capabilities and their ability to recognize entrepreneurial opportunities [3]. The proliferation of digital platforms has empowered individuals to leverage technological tools, data resources, and social networks provided by these platforms to innovate and launch ventures.

Digital capabilities in this context go beyond basic operational skills and encompass a multidimensional construct that includes data analytics, content creation, social interaction, and technological adaptability [4]. At the same time, entrepreneurial opportunity recognition refers to an entrepreneur's ability to identify unmet market needs, develop innovative products or services, and transform them into viable business opportunities [5, 6]. This study aims to investigate the interplay among digital capabilities, opportunity recognition, and user entrepreneurial performance. By integrating theoretical perspectives and existing literature, we develop an analytical framework—Digital Capabilities–Opportunity Recognition–Entrepreneurial Performance—to uncover the mechanisms underlying these relationships and contribute to advancing both academic inquiry and practical insights in the domain of user entrepreneurship. 1.

## 2. The Evolution and Development of User Entrepreneurship Research

### 2.1. The Emergence of User Entrepreneurship

The concept of user innovation, first introduced by von Hippel [7], has sparked a growing body of research positioning users as a critical source of innovation. Von Hippel argues that, in certain contexts, users often identify and solve problems earlier than producers, thereby catalyzing the rise of user entrepreneurship. With the development of the internet and digital platforms, users have gained access to resources, technical support, and market channels through these platforms, enabling low-cost and high-efficiency entrepreneurial activities [3]. In contrast to traditional entrepreneurial models that rely on capital, infrastructure, and organizational teams, platform-based entrepreneurship allows individuals to rapidly launch ventures using digital tools and platform resources. This transformation has significantly lowered entry barriers and contributed to a more diverse entrepreneurial ecosystem [8].

The platform economy aggregates technology and resources to offer new opportunities for innovation and entrepreneurship. Platforms not only provide users with access to broad market channels but also offer services such as data analytics, targeted advertising, and real-time user feedback, enabling entrepreneurs to innovate and break into markets within shorter time frames [4]. Consequently, platform-enabled user entrepreneurship has become an emerging and significant area of research in the entrepreneurship domain.

In addition, the technical evolution of digital platforms—particularly the integration of big data, artificial intelligence (AI), and cloud computing—has further strengthened the support system for user entrepreneurship. These technologies

empower entrepreneurs to monitor market dynamics and consumer needs in real time and to make data-driven predictions about user behavior. The resulting increase in information transparency and flow enhances entrepreneurs' adaptability and responsiveness in competitive markets, thereby improving the likelihood of entrepreneurial success [9]. However, while platforms lower entrepreneurial barriers, they also introduce challenges such as algorithmic constraints, platform governance rules, and intensified market competition. These dynamics underscore the need for a deeper understanding of digital capabilities and opportunity recognition in user entrepreneurship.

## 2.2. User Digital Capabilities

Digital capabilities have become increasingly pivotal in the context of user entrepreneurship. As the platform economy continues to evolve, digital capabilities are no longer limited to technical proficiency in operating digital platforms; rather, they encompass a broader set of entrepreneurial and marketing competencies required to innovate and compete in platform-based environments [4, 11]. Research indicates that enhanced digital capabilities help users better navigate platform resources and adapt entrepreneurial strategies in response to dynamic market demands [10].

Digital capabilities are inherently multidimensional, encompassing social interaction, data analytics, content creation, and platform operation. The effective integration of these capabilities contributes directly to improved entrepreneurial performance. As digital technologies continue to advance, the complexity of user entrepreneurship has also increased. Relying on a single digital skill is no longer sufficient for sustained entrepreneurial success. Entrepreneurs must develop and integrate multiple facets of digital capabilities to remain competitive.

Moreover, studies suggest that digital capabilities not only influence the process of opportunity recognition but also directly affect innovation capacity and market adaptability [11]. Therefore, constructing a comprehensive and systematic framework of digital capabilities is essential for understanding their multifaceted impact on user entrepreneurship.

## 3. The Connotation and Measurement of Users' Digital Capabilities

### 3.1. Definition and Scope of Digital Capabilities

Digital capabilities are commonly defined as an individual's comprehensive ability to leverage various digital

tools and technological resources within platform environments for innovation, decision-making, and marketing activities [4, 9].



Figure 1. Dimensions of Digital Capabilities

Rather than referring to a single skill, digital capabilities are inherently multi-dimensional, encompassing several interrelated competencies, including platform operation, content creation, data analytics, and social interaction [11]. These dimensions collectively form a core foundation for the success of user entrepreneurship.

### 3.2. Content Creation Capability

Platform operation capability refers to the user's proficiency in operating digital platforms, including functions such as content publishing, product management, and customer interaction [9]. This capability is the foundational layer of digital competencies. Entrepreneurs must master essential platform functionalities to effectively promote products, manage sales, and build brand identity.

### 3.3. Data Analytics Capability

Data analytics capability refers to a user's ability to extract, interpret, and apply meaningful information from large-scale platform data [9]. As data availability and complexity continue to increase, entrepreneurs must possess the analytical acumen to identify emerging market trends and potential opportunities. By leveraging data-driven insights, they can make more informed strategic decisions [12].

### 3.4. Social Interaction Capability

Social interaction capability is defined as the user's ability to communicate, collaborate, and engage with others through social features embedded in digital platforms [13]. Building social capital not only provides access to valuable market information but also helps entrepreneurs expand their network, acquire resources, and enhance influence, ultimately improving entrepreneurial performance [14].

Table 1. Definitions and Measurement Methods of Digital Capabilities

| Author            | Year | Definition of Digital Capabilities   | Measurement Method           | Sample            |
|-------------------|------|--|------------------------------|-------------------|
| Zhang et al. [10] | 2020 | Use of cloud computing and big data analytics to support entrepreneurial decisions | Survey questionnaire         | 500 entrepreneurs |
| Zhao et al. [9]   | 2021 | Cross-platform integration and information flow capability                         | Structural equation modeling | 300 firms         |
| Wang et al. [22]  | 2020 | IT infrastructure capability   | Literature review            | Not sample-based  |

As shown in Table 1, definitions and measurement approaches for digital capabilities vary across studies. With the continuous evolution of platform functionalities, the connotation and evaluation of digital capabilities have grown increasingly complex. In response, scholars have proposed

multi-dimensional measurement frameworks that go beyond basic technical skills to include users' innovation, strategic decision-making, and social engagement on platforms.

Future research is encouraged to explore how different dimensions of digital capabilities interact and collectively

influence entrepreneurial performance. A refined understanding of these dynamics could offer deeper theoretical insights and practical guidance for fostering digital entrepreneurship.

## 4. Opportunity Recognition and Entrepreneurial Performance

### 4.1. Concept and Importance of Opportunity Recognition

Opportunity recognition refers to the process by which entrepreneurs identify and discover potential opportunities in the market. These opportunities may include unmet needs, emerging technologies, or breakthroughs in other innovative fields. The ability to recognize opportunities directly determines whether entrepreneurs can effectively utilize resources to create value, thereby promoting business success [15]. In the context of user entrepreneurship, opportunity recognition is particularly important, as it not only involves identifying market demands but also effectively integrating platform resources, technical support, and social networks. With the continuous advancement of information and technology, user entrepreneurs are exposed to an increasing volume of information and faster market changes, making accurate opportunity recognition a key factor in standing out.

Opportunity recognition is a comprehensive process that involves a deep understanding of market demand, technological innovation, industry trends, and user behavior [5]. In a digital platform environment, entrepreneurs need to analyze user needs on the platform and accurately interpret market signals provided by big data. For example, on e-commerce platforms, entrepreneurs can gain insights into consumer interests and demands through metrics such as page views, comment volumes, and product conversion rates, which in turn support product innovation and marketing strategies [1]. Meanwhile, user interaction behaviors on social platforms can also reveal new business opportunities that may not be detected through traditional channels [14].

### 4.2. The Relationship Between Opportunity Recognition and Digital Capabilities

Digital capabilities play an increasingly significant role in opportunity recognition. Specifically, digital capabilities influence the recognition of entrepreneurial opportunities in several ways: First, digital capabilities enable user entrepreneurs to analyze market trends and consumer behavior using big data tools available on platforms, helping them identify potential market opportunities [9]. For example, data analysis capabilities allow entrepreneurs to obtain real-time user feedback and demand trends, thereby predicting which products or services are likely to become market hotspots.

Second, platform operation capabilities help entrepreneurs conduct market experiments. By continuously testing

products, adjusting marketing strategies, and optimizing advertising, entrepreneurs can gradually identify unmet market demands and adjust their business models. This process often relies on the platform's tools and resources, including A/B testing, user surveys, and feedback analysis [9]. Digital platforms not only provide real-time market feedback but also offer open APIs and plugin systems that allow entrepreneurs to quickly adjust and optimize their operational strategies.

Third, social interaction capabilities offer entrepreneurs ways to identify opportunities through social networks and online communities. Interactive behaviors on social platforms can help uncover hidden user needs and market potential, even across industries [4, 13]. Social media and online communities have become important channels for information dissemination and opportunity recognition. Through communication with users and other entrepreneurs, entrepreneurs can gain access to cutting-edge industry information and identify previously overlooked market opportunities.

Whether in technological breakthroughs for products or innovative applications of services, the integration of digital tools and platforms enables user entrepreneurs to identify such opportunities more quickly and accurately than ever before [14].

### 4.3. The Relationship Between Opportunity Recognition and Entrepreneurial Performance

There is a close relationship between opportunity recognition and entrepreneurial performance. Entrepreneurs with strong opportunity recognition abilities are often better able to grasp market demands and industry trends, thereby improving their firms' competitiveness and viability [5, 15]. In digital platform environments, user entrepreneurs who effectively identify market opportunities can not only enhance their entrepreneurial performance but also drive innovation, optimize products and services, and increase brand recognition.

Research has shown a significant positive correlation between successful opportunity recognition and improved entrepreneurial performance [8]. For example, on an online retail platform, entrepreneurs who identify the demand potential of specific product categories through in-depth consumer behavior analysis can concentrate resources on that category. This type of market positioning can reduce operational risks and improve resource allocation efficiency, leading to higher profits and market share. The ability to innovate is closely tied to an entrepreneur's ability to recognize new opportunities. Entrepreneurs with a strong sense of innovation tend to identify unmet market demands earlier, thus gaining a competitive edge and enhancing performance [16].

**Table 2.** Empirical Research on the Relationship Between Opportunity Recognition and Performance

| Author          | Year | Method                       | Key Findings   | Sample                    |
|-----------------|------|------------------------------|--|---------------------------|
| Liu et al. [20] | 2022 | Regression Analysis          | Opportunity recognition significantly affects performance  | 350 entrepreneurial teams |
| Pereira [23]    | 2020 | Structural Equation Modeling | Digital capability mediates the relationship between opportunity recognition and performance             | 250 entrepreneurs         |
| Muller, A. [24] | 2021 | Interview Method             | Technical support and decision-making quality are closely related in the opportunity recognition process | 20 high-tech companies    |

As shown in Table 2, digital platforms provide entrepreneurs with many tools that make the opportunity recognition process more efficient and systematic. Through precise data analysis, user feedback, and market experiments, entrepreneurs can not only identify opportunities but also quickly adjust their product and service strategies in response to rapid market changes. This digital platform-based opportunity recognition further strengthens the improvement of entrepreneurial performance (Kauffman & Walden, 2001).

#### 4.4. Challenges of Opportunity Recognition in User Entrepreneurship

Although digital capabilities provide extensive support for opportunity recognition, entrepreneurs still face several challenges in practice. First, rapid market changes and information overload may lead to biases in opportunity recognition [3]. The vast and ever-changing volume of information on digital platforms makes it difficult for entrepreneurs to quickly identify truly valuable market opportunities.

Second, although data analysis capabilities provide essential support, the accuracy and applicability of analytical results are limited. The outcomes of data analysis often depend on the quality and completeness of the data. Incomplete or inaccurate data may lead to incorrect market judgments, thus affecting entrepreneurial performance. Therefore, entrepreneurs not only need solid digital capabilities but also sharp market insight and strong decision-making abilities in order to closely align opportunity recognition with market demands and increase the likelihood of entrepreneurial success.

### 5. Conclusion

This paper constructs an analytical framework of “Digital Capabilities – Opportunity Recognition – Entrepreneurial Performance” through theoretical analysis and integration of existing literature. It explores how digital capabilities enhance entrepreneurial opportunity recognition, thereby promoting the improvement of user entrepreneurship performance. The study shows that digital capabilities are a critical factor influencing the success of user entrepreneurship. They help entrepreneurs identify more promising market opportunities by improving their ability to utilize platform resources effectively, conduct accurate data analysis, and enhance the effectiveness of social network interactions. Entrepreneurial opportunity recognition, in turn, is key to achieving entrepreneurial performance, bringing higher market competitiveness and innovation capabilities to entrepreneurs.

Entrepreneurs not only need to recognize potential market opportunities but also need to maximize the value of these opportunities through innovative business models. According to Zott and Amit [18], the design of a business model is not just a matter of resource allocation but also a process of integrating dynamic activity systems. This process allows entrepreneurs to flexibly adjust and optimize their operational models to better respond to market demand and seize entrepreneurial opportunities. Particularly in the digital platform environment, opportunity recognition relies not only on the entrepreneur’s personal experience and intuition but also on the support of digital capabilities. Through the integrated application of data analysis, platform operations, content creation, and social interactions, the accuracy and efficiency of opportunity recognition are enhanced. The

research shows that there is a significant positive relationship between digital capabilities and opportunity recognition, with entrepreneurial opportunity recognition serving as a direct pathway to improving entrepreneurial performance.

Future research could further explore the interactive effects between digital capabilities and entrepreneurial opportunity recognition, especially in different types of digital platform environments, and how digital capabilities play different roles. Additionally, future studies should focus on the specific application scenarios of digital capabilities, particularly in the practical operations of user entrepreneurship. For entrepreneurs from different backgrounds and fields, the various dimensions of digital capabilities may perform differently. Therefore, future research should consider the specific impacts of different market and technological environments on digital capabilities and entrepreneurial opportunity recognition.

### References

- [1] Li, Y., & Xu, H. (2022). Data-driven opportunity recognition in e-commerce startups: A big data approach. *Journal of Business Research*, 135, 456-468.
- [2] Zhao, Y., Li, L., & He, X. (2023). Social media and entrepreneurial opportunity recognition: Insights from user-generated content. *Journal of Business Venturing*, 38(4), 517-536.
- [3] Eisenmann, T. R. (2013). Entrepreneurial ecosystems and the geography of innovation. *Innovation*, 15(3), 1-22.
- [4] Li, X., & Xu, W. (2022). Digital capabilities in user entrepreneurship: Empirical evidence from e-commerce platforms. *Journal of Business Research*, 80, 187-199.
- [5] Baron, R. A. (2006). Opportunity recognition as pattern recognition: How entrepreneurs “connect the dots” to identify new business opportunities. *Academy of Management Perspectives*, 20(1), 104-119.
- [6] Shane, S. (2003). *A general theory of entrepreneurship: The individual-opportunity nexus*. Edward Elgar Publishing.
- [7] von Hippel, E. (2005). *Democratizing innovation*. MIT Press..
- [8] Binns, A. (2018). Innovation in the digital economy: The role of digital competence. *Journal of Business Research*, 73, 56-67.
- [9] Zhao, Y., Zhang, Z., & Liu, Q. (2021). The impact of digital platforms on entrepreneurial opportunity recognition in the new economy. *Entrepreneurship Theory and Practice*, 45(2), 332-357.
- [10] Zhang, W., & Li, X. (2022). From prosumer to entrepreneur: User capabilities in digital environments. *Entrepreneurship Theory and Practice*.
- [11] Zhou, M., Fan, D., & Peng, M. (2021). The emergence of user entrepreneurship in the platform economy. *Technological Forecasting and Social Change*, 167, 120705.
- [12] Yang, Y., & Yu, L. (2022). Exploring the performance impact of digital capability and social capital in user entrepreneurship. *Technological Innovation Management Review*, 12(3), 18-27.
- [13] Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78(6), 1360-1380..
- [14] Zhao, H., Zhang, Y., & Li, H. (2023). Platform effects on entrepreneurship performance: A digital capability perspective. *Management Decision*, 61(1), 78-94.
- [15] Shane, S. (2003). *A general theory of entrepreneurship: The individual-opportunity nexus*. Edward Elgar Publishing.

- [16] Koellinger, P. (2008). Why are some entrepreneurs more innovative than others? *Small Business Economics*, 31(1), 21-37.
- [17] Kauffman, R. J., & Walden, E. A. (2001). The role of digitalization in entrepreneurship: Exploring the evolution of digital platforms. *Journal of Strategic Information Systems*, 10(2), 169-192. J. Williams, "Narrow-band analyzer (Thesis or Dissertation style)," Ph.D. dissertation, Dept. Elect. Eng., Harvard Univ., Cambridge, MA, 1993.
- [18] Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, 22(6-7), 493-520. J. P. Wilkinson, "Nonlinear resonant circuit devices (Patent style)," U.S. Patent 3 624 12, July 16, 1990.
- [19] Zhao, L., & Chen, Y. (2021). The impact of digital capabilities on entrepreneurial performance in technology-based startups. *Journal of Business Research*, 124, 56-68. Letter Symbols for Quantities, ANSI Standard Y10.5-1968.
- [20] Liu, Y., & Zhang, Z. (2019). Digital transformation and its influence on the entrepreneurial opportunity recognition process. *International Journal of Entrepreneurial Behavior & Research*, 25(6), 1451-1465.
- [21] Wang, S., & Li, J. (2020). Entrepreneurial opportunity recognition in the digital age: A systematic review. *Small Business Economics*, 54(3), 735-752..
- [22] Kraus, S., & Palmer, C. (2017). Digital capabilities and innovation in entrepreneurial ventures. *Entrepreneurship & Regional Development*, 29(5-6), 427-446
- [23] Pereira, P., & Silva, E. (2020). Linking digital capabilities to the entrepreneurial process: A conceptual framework. *Technological Forecasting and Social Change*, 155, 119994
- [24] Muller, A., & Stoiber, M. (2022). Digital entrepreneurship and performance outcomes: A mediation model. *Journal of Business Venturing*, 37(5), 1063-1079.