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Original Paper

User Virtual Community: A New Frontier in Knowledge Sharing and Sustainable Entrepreneurship

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Abstract

As a cutting-edge field of knowledge sharing, user virtual communities are of great significance for understanding users' motivation for knowledge sharing in the community. This review article aims to analyze and model the mechanism of knowledge sharing motivation process in user virtual communities by applying the user entrepreneurship and MOA model (motivation, opportunity and ability), in order to reveal the trend of research about knowledge sharing in the user virtual community and the motivations behind user entrepreneurship decision-making in this environment. Through descriptive literature review, we first found that the research trends of knowledge sharing in user virtual communities include: knowledge sharing behavior and motivation direction, social networks and knowledge flow, knowledge quality and evaluation, community culture and knowledge sharing, etc. Second, we propose a theoretical framework to explain the mechanism of sustainable user entrepreneurship on knowledge sharing. In summary, this review provides in-depth theoretical analysis and modeling of knowledge sharing motivations in user virtual communities, providing important reference and guidance for researchers and practitioners, and also providing ideas and foundations for further exploring the mechanisms and influencing factors of knowledge sharing behavior in user virtual communities in the future.

Keywords

user virtual community, knowledge sharing, user entrepreneurship, MOA model, descriptive literature review

1. Introduction

The rise of user virtual communities stems from changes in the ways people access information and share knowledge (Hofacker, de Ruyter, Lurie et al., 2016). In the past, knowledge was primarily

disseminated through traditional media, educational institutions, and social circles, with relatively high barriers to access. However, with the rapid advancement of internet technology, user virtual communities have emerged swiftly, attracting a large number of users. These communities transcend the limitations of time and space, allowing people to access and share knowledge anytime and anywhere. Knowledge sharing is one of the core activities in user virtual communities, not only fostering individual growth and learning but also enhancing the community's cohesion and vitality. Whether in the fields of technology, academia, or hobbies, user virtual communities bring together a large number of professionals and enthusiasts who are eager to share their expertise and experiences (Hienerth & Lettl, 2011). Therefore, as times continue to change and digital technology evolves, knowledge sharing plays an increasingly important role in user virtual communities.

Firstly, it broadens the scope and accelerates the speed of knowledge dissemination (Ayatollahi & Zeraatkar, 2020). Through user virtual communities, knowledge can be rapidly disseminated to a wider audience, creating a multi-level knowledge dissemination network. Secondly, knowledge sharing promotes user engagement and interaction (Yan, Zha, & Yan, 2014). Users can ask questions, provide answers, and engage in discussions and exchanges with others within the community, thereby fostering deeper understanding and knowledge exchange. Additionally, knowledge sharing enhances the cohesion of user virtual communities and strengthens the community culture (Chiu, Hsu, & Wang, 2006). Through knowledge sharing, users build relationships based on mutual trust and cooperation, fostering a positive and uplifting community atmosphere. The forms of knowledge sharing in user virtual communities are diverse. Users can share their knowledge through posting, writing articles, publishing tutorials, creating videos, and more. Different forms of knowledge sharing are suited to various contexts and audiences. For instance, posts and articles are ideal for conveying in-depth knowledge and opinions, while tutorials and videos are more intuitive and engaging, making them suitable for demonstrating practical skills and operations.

However, while knowledge sharing in user virtual communities can facilitate the diffusion of innovation, the proportion of users actively sharing knowledge remains low in most online communities. The majority of users contribute minimally to the community, as reflected in the 90-9-1 Principle or Participation Inequality Theory. Specifically, 90% of users primarily browse content without contributing, 9% engage in knowledge exchange based on their browsing, and only 1% actively create content and share original knowledge (Nielsen & Loranger, 2006). Although virtual user communities maintain an open platform philosophy and attitude, the level of participation among most groups affects the quantity of effective knowledge within the platform. Not all individual members are willing or proactive in contributing their knowledge, making the quantity and quality of user knowledge sharing a significant challenge for the sustainable development of virtual communities (Yan, Zha, & Yan, 2014). Additionally, due to the openness of user virtual communities, the abundance of information and opinions often includes inaccurate, incomplete, or even false content (Wasko & Faraj, (2005). Intellectual property issues also arise, as people in virtual communities are accustomed to freely

sharing and accessing knowledge, which can be problematic for knowledge creators (Choi & Lee, 2002). Furthermore, issues related to trust, driven by anonymity, as well as challenges in community governance and norms, are other concerns that need to be addressed in user virtual communities (Ridings & Gefen, 2004).

As participants in user communities, user entrepreneurs frequently engage in the process of knowledge sharing and contribute to its enhancement (Franke & Shah, 2003), actively addressing challenges encountered in the knowledge-sharing process. However, current research on knowledge sharing in virtual communities rarely addresses the impact of user entrepreneurship, with a predominant focus on the effects of knowledge sharing on the user entrepreneurship process. Given this context, this paper aims to explore the following questions:

- What are the trends and current state of research on knowledge sharing in user virtual communities?
- How do user entrepreneurial activities influence knowledge sharing behaviors in user virtual communities to generate sustainable entrepreneurship?
- What are the future research directions for knowledge sharing studies in user virtual communities?

By thoroughly analyzing the characteristics of user virtual communities, the role of knowledge sharing, and the motivational factors influencing user entrepreneurship, this paper aims to present user virtual communities as a new frontier for knowledge sharing. It also explores how user entrepreneurs can effectively leverage these communities for sustainable entrepreneurship and address the associated challenges. In the digital age, it is crucial to emphasize knowledge sharing within user virtual communities. Platform participants should fully utilize these communities to acquire and share knowledge, thereby enhancing their innovative and entrepreneurial capacities. By understanding the features of user virtual communities and the significance of knowledge sharing, readers can better engage in community activities, expand their knowledge base, build beneficial interpersonal relationships, and gain more opportunities for personal growth and career development. For members of virtual communities, this paper aids in understanding community dynamics and knowledge sharing practices, broadening their perspectives and learning scope. For entrepreneurs, it highlights the importance of resource support and proactive knowledge sharing within user virtual communities to foster sustainable entrepreneurship. For senior management in enterprises, it is equally important to recognize the role of virtual communities and integrate this opportunity into the company's development strategy to enhance dynamic competitive capability.

In Chapter 2, we will present a theoretical analysis, including basic definitions and characteristics of user virtual communities and user entrepreneurship. Chapter 3 will introduce the research methods used in the descriptive literature review. Chapter 4 will discuss the results and findings of the literature review. In Chapter 5, we will analyze how knowledge sharing behavior in user virtual communities promotes user entrepreneurship motivation through the MOA model and further examine how user

entrepreneurs engage in sustainable knowledge sharing behavior in this context. Finally, the paper will propose our own solutions and provide guidance for future research.

2. **Theoretical Analysis**

2.1 User Virtual Community

A community is essentially a group of individuals who come together with shared characteristics or objectives, and can be considered synonymous with the concept of a group. According to (Robbins, Judge, Millett et al., 2013), a group is defined as two or more individuals interacting and interdependent, who have come together to achieve specific goals. From this perspective, a virtual community is defined as a group of people who interact either essentially or effectually based on shared characteristics (Balasubramanian & Mahajan, 2001). Some scholars, taking an internet-centric view, define virtual communities as social aggregates mediated by the internet, representing a virtualization of real-world societies. In virtual communities, numerous participants continuously share knowledge and engage in discussions about related topics, functioning as informal organizational forms that contribute to the ongoing development of the community's region.

Balasubramanian and Mahajan (2001) defines virtual communities from a utility-maximization perspective (Robbins, Judge, Millett et al., 2013), specifying that (a) the community must have a certain size, (b) utility maximization motivates members' behaviors, with members being relatively rational economic actors, (c) basic communication among members is conducted via the internet, and members are not required to speak, (d) members typically engage in social exchanges covering various types of knowledge, and (e) members are purposeful, coming together based on shared interests, goals, etc.

User virtual communities facilitate the dissemination of innovation and the occurrence of entrepreneurship. Members of these communities often come from diverse backgrounds (Hienerth & Lettl, 2011), frequently gathering around a common interest (Cuomo, Tortora, Festa, et al., 2017; Nambisan, 2002). Knowledge sharing within such communities heavily relies on the technological availability provided by the internet (Brinks & Ibert, 2015). These communities generally emphasize teamwork and openness, allowing members to freely express and exchange ideas, collaboratively explore and solve problems. In some user communities, connections are predominantly made with leading users, who share knowledge and innovations with other members (Cuomo, Tortora, Festa et al., 2017). Regardless of the community type, leading users can continuously refine innovations through knowledge exchange and decide whether to commercialize them based on community evaluations of innovation (Cuomo, Tortora, Festa et al., 2017). User entrepreneurship often results in more efficient innovations compared to traditional entrepreneurship (Hienerth, von Hippel, & Berg, 2014), and can enhance user satisfaction with products or services (Jeppesen & Frederiksen, 2006). Overall, user virtual communities are virtual spaces composed of individuals motivated by sharing and learning from common interests, where they freely exchange knowledge and promote the spread of innovation and

entrepreneurship.

Regardless of the type of user community, leading users within these communities can continuously improve innovations through knowledge exchange and decide on commercialization based on the community's evaluation of innovation. User entrepreneurship often results in more efficient innovations compared to traditional entrepreneurship and enhances user satisfaction with products or services. Overall, user virtual communities are virtual spaces composed of individuals motivated by sharing and learning from common interests, where they can freely exchange relevant knowledge and promote the dissemination of innovation and the occurrence of entrepreneurship.

Regarding the characteristics of user virtual communities, we identify the following features:

(1) Openness and Inclusivity: User virtual communities are renowned for their open environments and inclusive attitudes (Kaplan & Haenlein, 2010). Anyone can join and participate in community activities regardless of background, location, or identity. This openness and inclusivity foster the sharing of diverse perspectives and experiences, providing members with extensive learning and interaction opportunities (Preece, 2000). Whether professionals, enthusiasts, or casual users, everyone can find their place and value within user virtual communities.

(2) High Interaction and Engagement: User virtual communities emphasize interaction and engagement among members (Wasko & Faraj, 2005). Members can express opinions and viewpoints through posts, comments, and likes, engaging in discussions with others (Hienerth, von Hippel, & Berg Jensen, 2014). This high level of interaction and engagement makes user virtual communities vibrant and innovative knowledge-sharing platforms. Members not only acquire knowledge but also expand their thinking and capabilities through interaction, which further stimulates innovation (Hienerth & Lettl, 2011).

(3) Specialization: User virtual communities cover a wide range of fields and topics, from technology and academia to hobbies and professional development, encompassing various aspects of human interests (Kozinets, 2002). Each community has its unique characteristics and specialized areas, making these platforms gathering places for professionals and enthusiasts alike. They provide a collaborative environment that supports professional growth and development (Jensen & Scacchi, 2005). For example, user virtual communities foster a passionate, joyful, and interest-driven atmosphere, serving as a fertile ground for the emergence of user entrepreneurship motivations (Guercini & Ranfagni, 2016). Whether seeking professional advice, sharing experiences, or expanding interests, user virtual communities offer diverse resources and expertise, allowing members to showcase their knowledge and skills through contributions and activities, thereby earning recognition and respect from others (Wang & Fesenmaier, 2004).

(4) Integration of Network and Practice: User virtual communities exemplify the integration of network and practice. They are not merely online communication platforms but also encourage members to translate knowledge sharing into practical actions and practices. Knowledge sharing within these communities is often closely tied to real-world issues and situations, enabling members to refine and enhance their knowledge and skills through practice and feedback (Jensen & Scacchi, 2005). This

integration of network and practice enhances the practical applicability and effectiveness of knowledge sharing.

2.2 User Entrepreneurship and User Community

User entrepreneurship refers to the process where users, through their experience with a product or service, identify potential improvements or expansions and develop new products, services, or even business models based on these insights (Shah & Tripsas, 2007). This type of entrepreneurship often arises when users have deep knowledge of a product or face unmet market needs. By enhancing existing products or services, users create value for themselves and others with similar needs, thereby initiating their entrepreneurial ventures.

The distinctive aspect of user entrepreneurship is that it originates from users' knowledge—derived from their practical experience and needs regarding a product or service (Agarwal & Shah, 2014). This demand-driven innovation is typically closer to the market, enabling quicker identification of target customers and obtaining early market feedback. Since users themselves are the source of the demand, their understanding of market needs is often more precise than that of traditional entrepreneurs. Additionally, user entrepreneurs generally possess significant technical or product knowledge, which helps them play a crucial role in product development and improvement, reducing both entrepreneurial risk and costs (Shah & Tripsas, 2016).

The knowledge-sharing behaviors in user offline communities are closely related to user entrepreneurship. In these communities, users can freely express opinions about products or services, share experiences, offer improvement suggestions, and even collaborate on new product development. This interaction provides valuable resources and opportunities for user entrepreneurship. Firstly, users in offline communities often have a deep understanding and expertise regarding products, whose feedback can offer significant inspiration and guidance for user entrepreneurs (Hienerth, von Hippel, & Berg, 2017). Secondly, offline communities serve as a low-cost market testing platform, where entrepreneurs can quickly gather product feedback, validate business models, and adjust product or service positioning to mitigate market risks (Haefliger, Jäger, & von Krogh, 2010). Moreover, these communities can help expand the product's influence and user base through word-of-mouth among community members in the early stages (Füller, Schroll, & von Hippel, 2013). Offline communities are not only a resource pool for user entrepreneurs but also a platform for collaboration. On this platform, users can co-create and advance product or service development. Collaboration can range from informal exchanges of opinions and discussions to more structured involvement in product development or improvement. Products or services developed through this co-creation model are often better aligned with user needs and achieve greater market success (Franke & Shah, 2003).

3. Research Methodology

To achieve our research objectives, this study employs a descriptive literature review as the primary research method. A descriptive literature review systematically summarizes and describes the content

of existing literature. Its main goal is to provide a comprehensive overview of a research field or topic, helping readers understand the current state of research, key viewpoints, and findings in that area. Unlike a critical literature review, which assesses and critiques the quality and rigor of the literature, a descriptive literature review focuses on presenting an overall picture of the literature (Snyder, 2019).

In a descriptive literature review, the process begins with defining the research objectives and content. Next, relevant literature is searched for in databases, followed by reading, organizing, and synthesizing the obtained literature to form an effective analytical narrative. Although a descriptive literature review is a method for organizing and summarizing existing literature to outline the current state of a research field, it differs from systematic reviews or meta-analyses in that it does not typically involve rigorous systematic processes or quantitative analysis. Descriptive literature reviews have unique advantages in academic research (Yang & Tate, 2012).

First, a descriptive literature review can cover a wide range of topics and research outcomes, providing a panoramic view of a field. Because it does not adhere to strict systematic selection criteria, researchers can include various types of studies, such as quantitative, qualitative, theoretical articles, and review papers. This breadth makes descriptive literature reviews particularly suited for exploratory research, offering comprehensive background information and helping to identify research gaps and emerging trends.

Second, the process of writing a descriptive literature review is relatively flexible, allowing researchers to adjust the structure and content according to their needs. Researchers can freely select and organize relevant literature based on specific research questions. This flexibility allows for the comparison and analysis of different theories, methods, and results, providing a multidimensional understanding of the research topic.

Third, descriptive literature reviews typically present the main findings and development trends in a more intuitive manner, making them appealing to both academic and non-academic audiences. They help novice researchers quickly grasp field knowledge and provide valuable information for decision-makers and practitioners.

4. Findings

4.1 Descriptive Analysis

In this study, papers related to "User Virtual Community" and "Knowledge Sharing" were retrieved from the Web of Science database using topic keywords. A total of 442 articles were identified, with a total citation count of 12,473, spanning from 1998 to 2024. Figure 1 illustrates the development trend of these publications over time.

It is evident that around 2009, there was a significant surge in the number of publications and citations related to user virtual communities and knowledge sharing. From 2021 to 2024, both the number of publications and citations reached their peaks, with 118 articles and 6,149 citations, respectively. Overall, the research on knowledge sharing within user virtual communities is extensive, highlighting

the substantial research value and potential in this field.

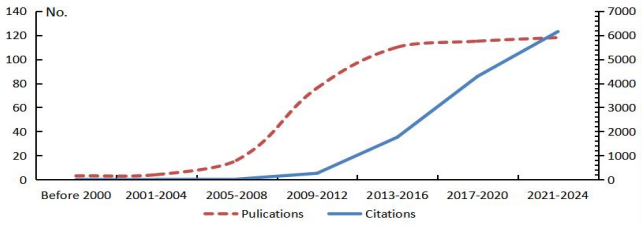

Figure 1. Descriptive Analysis of Selected Articles

Table 1 presents the top ten most cited papers in the sample, including their authors, publication years, and research topics. These highly cited papers not only hold significant influence in the field but also cover a broad range of research themes, such as user entrepreneurship, knowledge sharing behaviors and motivations, social networks, and knowledge flow. These frequently cited papers help us understand the current cutting-edge developments in the research area and lay the groundwork for further exploration of related issues.

Table 1. Overview of the top 10 Articles with the Highest Number of Citations

Author	Year	Research topic	Citation
Faraj et al.	2011	Knowledge collaboration mechanism in online communities	726
de Valck et al.	2009	The role of virtual communities in brand management and consumer interaction	420
Tsai & Bagozzi	2014	The influencing factors of user contribution behavior in virtual communities	384
He & Wei	2009	The Influence of knowledge contribution and knowledge seeking beliefs in virtual community	355
Zheng et al.	2013	The impact of information quality on users' intention to using information exchange virtual communities	323
Romero & Molina	2011	Collaborative networked organizations and value co creation and co-innovation in customer communities	297
Zhao et al.	2012	The cultivation of a sense of belonging and user participation incentives in virtual communities	283
Chai et al.	2011	Knowledge sharing behavior of bloggers and its influencing factors	279
Zhang et al.	2017	The motivation for knowledge sharing in online health communities between health users	240

Bilgihan et al.	2016	Consumer perception of knowledge sharing in online social networks related to tourism	240

4.2 Major Research Trends

In the research field of user virtual communities, several key directions have emerged, including knowledge sharing behaviors and motivations, social networks and knowledge flow, knowledge quality and evaluation, and community culture and knowledge sharing.

(1) Knowledge Sharing Behaviors and Motivations: This research direction focuses on users' knowledge sharing behaviors and motivations within virtual communities. Researchers investigate why users are willing to share knowledge, the content and methods of their sharing, and how the community environment influences these behaviors (Lin, 2007). Related studies reveal the driving factors behind users' knowledge sharing and provide theoretical and practical guidance for promoting such behaviors. From the perspective of Self-Determination Theory, perceived competence, perceived autonomy, and perceived relatedness are directly related to knowledge sharing behavior (Yoon & Rolland, 2012). Other scholars have applied the Technology Acceptance Model to study users' motivations, suggesting that improving technology acceptance can enhance individuals' intention to share knowledge (Hung & Cheng, 2013). Additionally, based on Social Cognitive Theory, research has shown that social interaction factors and individual factors impact sharing behavior, with sharing motivation serving as a mediating factor between member trust and sharing behavior (Bandura, 2001). From the perspective of leading users, motivations for participating in user virtual communities are generally categorized into intrinsic and extrinsic motivations. Intrinsic motivations include a passion for changing existing products or services, a willingness to help others, and the satisfaction of meeting one's own innovation needs by identifying and solving specific problems (Hamdi-Kidar & Vellera, 2018; Hienerth, 2006; Sonali, Smith, & Reedy, 2012). Extrinsic motivations include gaining social recognition, economic rewards, and reputation (Chiu, Hsu, & Wang, 2006). Furthermore, social capital—such as trust, social networks, and reciprocity norms—plays a crucial role in facilitating knowledge sharing within virtual communities (Wasko & Faraj, 2005). Some scholars argue that users' psychological ownership of shared knowledge (i.e., the sense of ownership users feel towards their shared knowledge) affects their sharing behavior. Higher psychological ownership may increase users' willingness to share but could also lead to knowledge "protection" behaviors (Jarvenpaa & Staples, 2000).

(2) Social Networks and Knowledge Flow: This research direction primarily examines the impact of social networks on the flow and dissemination of knowledge within virtual communities. Researchers focus on the relationship networks among community members, information dissemination paths, and the influence of social network structures on knowledge flow (Zhang, Fang, Wei et al., 2010). These studies help reveal the role and mechanisms of social networks in knowledge sharing and provide theoretical and practical support for optimizing knowledge flow. From the perspectives of Social Capital Theory and Social Cognitive Theory, scholars have studied users' sharing motivations,

suggesting that trust, reciprocity norms, shared language, personal outcome expectations, and social relationship outcome expectations on the structural, relational, and cognitive levels of social capital impact the quantity and quality of knowledge sharing within communities (Chiu, Hsu, & Wang, 2006). For example, Tasi (2001) posits that an individual's position in the network (such as central or peripheral) affects their ability to acquire and transmit knowledge (Tsai, 2001). Reagans (2003) proposes that heterogeneous networks, which include diverse members, contribute to knowledge innovation (Reagans & McEvily, 2003). In virtual communities, members with different backgrounds, expertise, and viewpoints can generate new ideas and solutions through knowledge sharing and collaboration. Regarding knowledge flow, Faraj (2011) argues that diverse and redundant communication pathways within a community facilitate knowledge spillover, thereby enhancing the overall knowledge level of the community (Faraj & Johnson, 2011).

(3) Knowledge Quality and Evaluation: Research in this direction focuses on the quality and evaluation methods of shared knowledge within virtual communities. Key areas of interest include how to assess the accuracy, reliability, and practicality of shared knowledge, as well as understanding users' perceptions and evaluation criteria for knowledge quality (Chiu, Hsu, & Wang, 2006). These studies aim to provide metrics and methods for evaluating the quality of shared knowledge, thereby enhancing users' trust and acceptance of the knowledge. Several scholars have explored the role of virtual communities as practice communities and analyzed how community members assess the quality of shared knowledge, with a particular focus on accuracy and reliability, and how these factors influence the application of knowledge (Zhang & Watts, 2008). Others have developed specific quality assessment criteria based on information systems success models, highlighting standards such as accuracy, completeness, timeliness, and relevance (WH DeLone & ER McLean, 2003). Additionally, research has examined consumer trust in knowledge and information within e-commerce environments, and how they evaluate the reliability and practicality of knowledge. This research provides insights into knowledge quality assessment in virtual communities, particularly concerning how users perceive and evaluate the standards of shared knowledge (Gefen & Straub, 2004).

(4) Community Culture and Knowledge Sharing: Research in this area focuses on the influence of community values, trust, and mutual support culture on knowledge sharing behaviors (Alavi & Leidner, 2001). These studies aim to reveal how community culture shapes and promotes knowledge sharing, providing theoretical and practical recommendations for building supportive community cultures. For example, Ardichvili et al. (2006) conducted qualitative research and found that in Asian cultures, values such as humility and face-saving significantly hinder active participation in online knowledge-sharing communities (Ardichvili, Maurer, Li et al., 2006). In cultures that emphasize humility, community members may avoid being overly active in online and public forums due to concerns about appearing boastful. In more hierarchical and "vertical" cultures, senior managers may control information flow and restrict access to critical information for lower-level employees, leading to significant organizational barriers to knowledge sharing. In collectivist cultures, while members actively share

knowledge within the group, they may strongly oppose the inclusion of outsiders in knowledge sharing activities (Siau, Erickson, & Nah, 2010). Research comparing knowledge sharing behaviors across cultures has shown that in cultures with lower uncertainty avoidance, higher individualism, and smaller power distance, knowledge sharing is more easily triggered.

5. Discussion

5.1 Sustainable User Entrepreneurship with User Virtual Community

Based on the descriptive literature review, it is evident that while there is extensive research on the motivations for knowledge spillover within user virtual communities, there has been insufficient exploration of the relationship between knowledge spillover and user entrepreneurial motivations. As analyzed above, user entrepreneurship is closely related to knowledge sharing within user communities. Therefore, based on the integration of these two areas of research, this paper argues that user entrepreneurial behavior not only benefits from knowledge sharing but also contributes to the further advancement of knowledge sharing, thereby sustaining entrepreneurial endeavors.

The research on entrepreneurial intention in user entrepreneurship has long been a subject of attention. However, these studies have emerged from various perspectives, leading to a complex and somewhat chaotic landscape. Therefore, this paper provides a unitary summary of research on entrepreneurial intention in user entrepreneurship based on the Motivation-Opportunity-Ability (MOA) model. The MOA model enables a scientific and comprehensive analysis of individual behavior from psychological and situational perspectives (MacInnis, Moorman, & Jaworski, 1991), assisting in a detailed examination of the constituent factors influencing entrepreneurial intention in user entrepreneurship. Afterwards, we will explore the relationship between knowledge sharing and entrepreneurial intention, and explain how the sustainability of user entrepreneurship is made more transparent through user virtual community as Figure 2.

5.1.1 Motivation

With the support of user virtual communities, the motivating factors for knowledge sharing become more pronounced, which drives the emergence and actions of user entrepreneurs focused on sustainability goals. User entrepreneurship represents knowledge-driven innovation, and advancements in digital technologies and related innovations contribute to environmental sustainability changes. For example, user virtual communities are a manifestation of digital technology development, flourishing and growing due to the continuous advancement of the internet.

From a risk management perspective, user entrepreneurs are more influenced by intrinsic motivations centered on achieving innovation diffusion, rather than external motivations such as profit and reputation, compared to other entrepreneurs (Hamdi-Kidar & Vellera, 2018). However, profitability is crucial for ensuring the continued operation of a business. Knowledge sharing within user virtual communities contributes to sustainable entrepreneurship by enhancing the financial feasibility of new ventures (Symon & Whiting, 2019), leveraging their potential for venture capital acquisition, securing

alternative funding, and increasing the credibility of non-profit initiatives (Shane & Venkataraman, 2000).

Therefore, in subsequent entrepreneurial activities, although the initial motivation for user entrepreneurship may not be geared towards sustainability goals, user entrepreneurs who have benefited from knowledge sharing might adopt sustainability in knowledge sharing as a secondary or primary motivation. This shift is due to public scrutiny within user virtual communities, where innovators in user entrepreneurship need to actively engage in knowledge sharing after iterative updates to enhance their reputation and meet user feedback needs. In this context, the motivations for innovation diffusion and sustainability simultaneously strengthen the entrepreneurial intentions of user entrepreneurs.

5.1.2 Opportunity

Additionally, digital technologies have provided users with numerous entrepreneurial opportunities (Giones & Brem, 2017).

Specifically, entrepreneurial opportunities are greatly supported by digital platforms, which facilitate the establishment of new companies by users (Nambisan, 2017). On the level of digital platforms, which are not constrained by time and space, online user communities have become accessible to user entrepreneurs. Digital infrastructure ensures the smooth development of digital platforms, especially in regions where the development of digital technologies is limited and user entrepreneurship is significantly constrained (Schiavone, Tutore, & Cucari, 2020).

For example, the establishment of digital infrastructure and platforms significantly impacts the efficiency of information exchange and communication among members of online user virtual communities. The inability to attract a sufficient number of high-quality users greatly diminishes the quality of innovative products, thereby increasing the difficulty of user entrepreneurship. Online user communities bring together professionals and non-professionals from diverse backgrounds, who often assist user innovators by freely providing resources needed for product iteration out of interest. This collaboration can form informal organizations within user communities (Franke & Shah, 2003), facilitating the knowledge collection process for user entrepreneurs and creating a favorable environment for enhancing the effectiveness of innovation activities through a comprehensive understanding of needs and collaboration with other users in the community.

Furthermore, through digital platforms, user entrepreneurs can access crowdfunding venues and have the opportunity to gain substantial online attention. Overall, digital platforms create a communication space among users, user entrepreneurs, and relevant stakeholders, fostering mutual interaction. It can be asserted that digital platforms provide user entrepreneurs with opportunities to seek resources and discover entrepreneurial prospects.

5.1.3 Ability

From ability perspective, Dynamic Capability Theory (DCT) posits that the key to maintaining a competitive advantage in the face of complex environmental changes lies in the continuous ability of

an enterprise to learn, adapt, and innovate (Teece, Pisano, & Shuen, 1997). While user entrepreneurship has been demonstrated to possess unique advantages in perceiving environmental changes, rapid responsiveness, and adaptability, representing its robust dynamic capabilities, we suppose that, in addition to knowledge-driven factors, the substantial development of digital technologies, leading to a significant enhancement of users' digital literacy, is also a key reason for sustaining the competitive advantage of user entrepreneurship. Digital literacy involves knowledge and skills related to digital technologies, primarily encompassing the collection and integration of digital resources, rational use of digital tools, and innovative thinking (Cetindamar & Abedin, 2021). For user entrepreneurs, the possession of digital literacy reduces barriers to leveraging digital infrastructure, strengthens the connections between consumers with digital literacy and online user communities for better capability assessment, and facilitates the acquisition of essential prior knowledge needed for the development of digital artifacts.

Based on the MOA model, we synthesized existing research on entrepreneurial intentions and proposed a theoretical framework to guide how the impact of user virtual community on entrepreneurial intentions can emphasize sustainability of knowledge sharing. In future research, we hope researchers will explore novel mechanisms related to user virtual community and entrepreneurial intentions in user entrepreneurship from our theoretical framework. Further exploration of potential moderating or mediating factors is encouraged. For example, entrepreneurial improvisation has been shown to have a significant relationship with the occurrence of entrepreneurial intentions (Cetindamar & Abedin, 2021). The distinctive characteristic of user entrepreneurship lies in its unexpected and random innovative behavior, aligning with the description of entrepreneurial improvisation. Additionally, empirical validation of mechanisms such as digital literacy promoting entrepreneurial intentions for sustainable knowledge sharing process development is suggested. In terms of research methods, we propose conducting interviews with user entrepreneurs through case analysis to provide evidence for further investigating the relationship between user virtual community, entrepreneurial intentions, and sustainability of knowledge sharing.

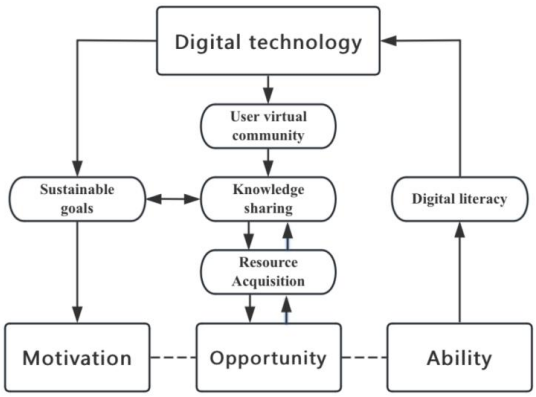

Figure 2. The Entrepreneurial Intention Improved by User Virtual Community under MOA

Model

Proposition: *Research should investigate new mechanisms of how user virtual community affects user entrepreneurship to make knowledge sharing more sustainable from the perspective of entrepreneurial intention under the MOA model.*

5.2 Implication for Practice

The research findings significantly contribute to understanding the unique characteristics of user virtual community and offer valuable insights for promoting user entrepreneurship and feedback on knowledge sharing practices with the support of user virtual communities. Additionally, while the theoretical framework established in this paper guides research on sustainable knowledge sharing of user entrepreneurship process in user virtual communities, it also provides direction and recommendations for government agencies in formulating practical management measures.

According to the theoretic framework, the factors comprising entrepreneurial intention in user entrepreneurship consist of motivation, opportunity, and ability. Moreover, digital literacy ensures a key factor in enabling user virtual communities to foster sustainable knowledge sharing in user entrepreneurship. The capability of possessing digital literacy provides users with more opportunities to explore entrepreneurial prospects through the knowledge sharing in user virtual communities. This, in turn, offers material assurance for the survival of non-profit motives in user entrepreneurship and forms the foundation for achieving sustainable knowledge sharing. The government plays a crucial role in promoting individual behaviors to leverage user virtual community for knowledge sharing. Therefore, governments should emphasize digital literacy education to cultivate proficiency in the use of user virtual communities among their citizens. Government agencies need to exert policy influence in user virtual communities to effectively incentivize entrepreneurial improvisation behavior in user entrepreneurship. For example, fostering a culture of innovation that permeates society for motivation, flexibly adjusting the control measures of intellectual property rights at the opportunity level, and enhancing research and development as well as construction of digital technologies such as digital platforms at the ability level, especially in rural areas, user entrepreneurship activities may be a key factor to achieve powerful knowledge sharing to make sustainable entrepreneurship activities in achieving rural revitalization (Fortunato, 2014).

5.3 Limitations and Future Research

The research limitations of this study include: Firstly, potential Subjectivity in Trend Analysis: The study may exhibit some degree of subjective bias in analyzing trends related to knowledge sharing in user virtual communities. Future research could employ systematic literature review methods, utilizing content from a broader range of databases and adhering to more systematic and standardized approaches to ensure the results are reproducible and scientifically robust. Secondly, possible Negative Effects of User Entrepreneurship: While this study posits that user entrepreneurship positively impacts knowledge sharing in user virtual communities, it does not rule out potential negative effects. For

instance, user entrepreneurs who only seek knowledge without contributing content could disrupt community norms and negatively affect knowledge sharing effectiveness. Finally, Proposed Mechanism for Knowledge Sharing's Impact on User Entrepreneurship: The study proposes a mechanism by which knowledge sharing behavior influences user entrepreneurship motivation. Future researchers can validate this proposed mechanism using methods such as surveys and panel data to further explore and confirm the impact pathways.

6. Conclusion

This study provides an overview of the research on knowledge spillover phenomena within user virtual communities and draws several conclusions: the research predominantly focuses on areas such as knowledge sharing behavior and motivations, social networks and knowledge flow, knowledge quality and evaluation, and community culture and knowledge sharing. However, there is a notable gap in examining the sustainable impact of user entrepreneurship on knowledge sharing behavior. Moreover, to address this gap, the study employs the MOA (Motivation, Opportunity, Ability) model as a theoretical framework, integrating perspectives from social cognitive theory, social identity theory, value-control theory, the technology acceptance model, self-determination theory, and social capital theory. This model facilitates the construction of a process model for user entrepreneurship motivation**.**

To be specifically:

Firstly, user virtual communities provide individuals with extensive platforms for knowledge sharing. Within these virtual communities, individuals can communicate and share through online forums, social media, blogs, and other channels. This open environment fosters the dissemination and exchange of knowledge, allowing users to benefit from others' experiences and knowledge while sharing their own. Knowledge sharing not only aids individual learning and growth but also contributes to the collective advancement of the community. Various factors influence knowledge sharing behaviors, including social identity, reciprocity principles, and personal values. To encourage users to share knowledge, virtual communities need to establish mechanisms such as reward systems and reputation evaluations to recognize and commend user contributions. Additionally, providing convenient tools and technologies for knowledge sharing is crucial as it reduces the costs and barriers associated with sharing.

Secondly, the MOA model provides robust theoretical support for explaining user entrepreneurship motivation within user virtual communities. The MOA model emphasizes the interaction between motivation, opportunity, and ability, focusing on the practical and behavioral aspects of user engagement. This approach allows a comprehensive understanding of the complexity and diversity of user motivations. The research indicates that sustainable knowledge sharing mechanisms within virtual communities require effective support and incentives from user entrepreneurship activities. Future studies could expand the application of related models and theories to explore the specific mechanisms through which user entrepreneurship affects diverse knowledge sharing behaviors and their evolution,

thereby fostering continuous user engagement and community prosperity.

Finally, to achieve the maximum benefits of knowledge sharing in user virtual communities, certain challenges and limitations must be addressed. For example, information overload and quality control are significant issues faced by user virtual communities [7,59]. The vast amount of information in these communities can lead to user confusion and decision-making difficulties, along with concerns regarding the authenticity and credibility of the information. Therefore, establishing effective information filtering and evaluation mechanisms to enhance the quality and reliability of knowledge sharing is essential. Additionally, protecting user privacy and intellectual property is crucial, requiring appropriate policies and measures to safeguard individual rights.

In summary, user virtual communities, as a cutting-edge area for knowledge sharing, provide a broad platform for communication and learning. Through effective mechanisms and incentives, users can actively engage in knowledge sharing, gaining opportunities for learning and development. Concurrently, knowledge sharing has a bidirectional impact on both individuals and communities, promoting entrepreneurial activities and enhancing individual capabilities and community competitiveness. However, to realize the maximum benefits, challenges such as information overload, quality control, and privacy protection must be addressed, and comprehensive systems and measures need to be established. With ongoing technological innovation and continuous improvement in community management, user virtual communities are expected to maintain their significant role in the field of knowledge sharing, providing users and sustainable entrepreneurial activities with richer and more diverse learning and interaction experiences.

References

Hofacker, C. F., de Ruyter, K., Lurie, N. H. et al. (2016). Gamification and Mobile Marketing Effectiveness. *Journal of Interactive Marketing*, *34*(1), 25-36.

Hienerth, C., & Lettl, C. (2011). Exploring How Peer Communities Enable Lead User Innovations to Become Standard Equipment in the Industry: Community Pull Effects. *Journal of Product Innovation Management*, *28*(s1), 175-195.

Ayatollahi, H., & Zeraatkar, K. (2020). Factors influencing the success of knowledge management process in health care organisations: a literature review. *Health Information & Libraries Journal*, *37*(2), 98-117.

Yan, Y., Zha, X., & Yan, M. (2014). Exploring employee perceptions of Web 2.0 virtual communities from the perspective of knowledge sharing. *Aslib Journal of Information Management*, *66*(4), 381-400.

Chiu, C.-M., Hsu, M.-H., & Wang, E. T. G. (2006). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems*, *42*(3), 1872-1888.

Nielsen, J., & Loranger, H. (2006). *Prioritizing Web Usability*. Pearson Education.

Wasko & Faraj. (2005). Why Should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice. *MIS Quarterly*, *29*(1), 35.

Choi, B., & Lee, H. (2002). Knowledge management strategy and its link to knowledge creation process. *Expert Systems with Applications*, *23*(3), 173-187.

Ridings, C. M., & Gefen, D. (2004). Virtual Community Attraction: Why People Hang out Online. *Journal of Computer-Mediated Communication*, *10*(1), JCMC10110.

Franke, N., & Shah, S. (2003). How communities support innovative activities: An exploration of assistance and sharing among end-users. *Research Policy*, *32*(1), 157-178.

Robbins, S., Judge, T. A., Millett, B. et al. (2013). *Organisational behaviour*. Pearson Higher Education AU.

Hill, will, Stead, L., Rosenstein, M. et al. (1995). RECOMiVIENDING AND EVALUATING CHOICES IN A VIRTUAL COMMUNITY OF USE. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. Proceedings of the SIGCHI conference on Human factors in computing systems.

Balasubramanian, S., & Mahajan, V. (2001). The Economic Leverage of the Virtual Community. *International Journal of Electronic Commerce*, *5*(3), 103-138.

Cuomo, M. T., Tortora, D., Festa, G. et al. (2017). Enablers for end-user entrepreneurship: An investigation on Italian food bloggers. *Psychology & Marketing*, *34*(12), 1109-1118.

Nambisan, S. (2002). Designing Virtual Customer Environments for New Product Development: Toward a Theory. *Academy of Management Review*, *27*(3), 392-413.

Brinks, V., & Ibert, O. (2015). Mushrooming entrepreneurship: The dynamic geography of enthusiast-driven innovation. *Geoforum*, *65*, 363-373.

Hienerth, C., von Hippel, E., & Berg Jensen, M. (2014). User community vs. producer innovation development efficiency: A first empirical study. *Research Policy*, *43*(1), 190-201.

Jeppesen, L. B., & Frederiksen, L. (2006). Why Do Users Contribute to Firm-Hosted User Communities? The Case of Computer-Controlled Music Instruments. *Organization Science*, *17*(1), 45-63.

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, *53*(1), 59-68.

Kozinets, R. V. (2002). The Field behind the Screen: Using Netnography for Marketing Research in Online Communities. *Journal of Marketing Research*, *39*(1), 61-72.

Jensen, C., & Scacchi, W. (2005). Process modeling across the web information infrastructure. *Software Process: Improvement and Practice*, *10*(3), 255-272.

Guercini, S., & Ranfagni, S. (2016). Conviviality behavior in entrepreneurial communities and business networks. *Journal of Business Research*, *69*(2), 770-776.

Wang, Y., & Fesenmaier, D. R. (2004). Towards understanding members' general participation in and active contribution to an online travel community. *Tourism Management*, *25*(6), 709-722.

Shah, S., & Tripsas, M. (2007). The accidental entrepreneur: The emergent and collective process of user entrepreneurship. *Strategic Entrepreneurship Journal*, *1*(1-2), 123-140.

Agarwal, R., & Shah, S. K. (2014). Knowledge sources of entrepreneurship: Firm formation by academic, user and employee innovators. *Research Policy*, *43*(7), 1109-1133.

Shah, S., & Tripsas, M. (2016). When Do User-Innovators Start Firms? A Theory of User Entrepreneurship. *Revolutionizing Innovation: Users, Communities and Open Innovation*, 285-307.

Haefliger, S., Jäger, P., & von Krogh, G. (2010). Under the radar: Industry entry by user entrepreneurs. *Research Policy*, *39*(9), 1198-1213.

Füller, J., Schroll, R., & von Hippel, E. (2013). User generated brands and their contribution to the diffusion of user innovations. *Research Policy*, *42*(6-7), 1197-1209.

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, *104*, 333-339.

Yang, H., & Tate, M. (2012). A Descriptive Literature Review and Classification of Cloud Computing Research. *Communications of the Association for Information Systems*, *31*(1).

Lin, H. (2007). Knowledge sharing and firm innovation capability: an empirical study. *International Journal of Manpower*, *28*(3/4), 315-332.

Yoon, C., & Rolland, E. (2012). Knowledge-sharing in virtual communities: Familiarity, anonymity and self-determination theory. *Behaviour & Information Technology*, *31*(11), 1133-1143.

Hung, S.-W., & Cheng, M.-J. (2013). Are you ready for knowledge sharing? An empirical study of virtual communities. *Computers & Education*, *62*, 8-17.

Bandura, A. (2001). Social Cognitive Theory: An Agentic Perspective. *Annual Review of Psychology*, *52*(Volume 52, 2001), 1-26.

Hamdi-Kidar, L., & Vellera, C. (2018). Triggers entrepreneurship among creative consumers. *Journal of Business Research*, *92*, 465-473.

Hienerth, C. (2006). The commercialization of user innovations: The development of the rodeo kayak industry. *R&D Management*, *36*(3), 273-294.

Sonali K.Shah, Smith, S. W., & Reedy, E. J. (2012). *Who are user entrepreneurs ? Findings on innovation, founder characteristics, and firm characteristics,* 1-30.

Jarvenpaa, S. L., & Staples, D. S. (2000). The use of collaborative electronic media for information sharing: An exploratory study of determinants. *The Journal of Strategic Information Systems*, *9*(2-3), 129-154.

Zhang, Y., Fang, Y., Wei, K.-K., et al. (2010). Exploring the role of psychological safety in promoting the intention to continue sharing knowledge in virtual communities. *International Journal of Information Management*, *30*(5), 425-436.

Tsai, W. (2001). Knowledge Transfer in Intraorganizational Networks: Effects of Network Position and Absorptive Capacity on Business Unit Innovation and Performance. *Academy of Management*

Journal, *44*(5), 996-1004.

Reagans, R., & McEvily, B. (2003). Network Structure and Knowledge Transfer: The Effects of Cohesion and Range. *Administrative Science Quarterly*, *48*(2), 240-267.

Faraj, S., & Johnson, S. L. (2011). Network Exchange Patterns in Online Communities. *Organization Science*, *22*(6), 1464-1480.

Zhang, W., & Watts, S. (2008). Online communities as communities of practice: A case study. *Journal of Knowledge Management*, *12*(4), 55-71.

WH DeLone & ER McLean. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, *19*(4), 9-30.

Gefen, D., & Straub, D. W. (2004). Consumer trust in B2C e-Commerce and the importance of social presence: experiments in e-Products and e-Services. *Omega*, *32*(6), 407-424.

Alavi, M., & Leidner, D. E. (2001). Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues. *MIS Quarterly*, *25*(1), 107.

Ardichvili, A., Maurer, M., Li, W. et al. (2006). Cultural influences on knowledge sharing through online communities of practice. *Journal of Knowledge Management*, *10*(1), 94-107.

Siau, K., Erickson, J., & Nah, F. F.-H. (2010). Effects of National Culture on Types of Knowledge Sharing in Virtual Communities. *IEEE Transactions on Professional Communication*, *53*(3), 278-292.

MacInnis, D. J., Moorman, C., & Jaworski, B. J. (1991). Enhancing and Measuring Consumers' Motivation, Opportunity, and Ability to Process Brand Information from Ads. *Journal of Marketing*, *55*(4), 32.

Symon, G., & Whiting, R. (2019). The Sociomaterial Negotiation of Social Entrepreneurs' Meaningful Work. *Journal of Management Studies*, *56*(3), 655-684.

Shane, S., & Venkataraman, S. (2000). The Promise of Entrepreneurship as a Field of Research. *Academy of Management Review*, *25*(1), 217-226.

Giones, F., & Brem, A. (2017). Digital Technology Entrepreneurship: A Definition and Research Agenda. *Technology Innovation Management Review*, *7*(5).

Nambisan, S. (2017). Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship. *Entrepreneurship Theory and Practice*, *41*(6), 1029-1055.

Schiavone, F., Tutore, I., & Cucari, N. (2020). How digital user innovators become entrepreneurs: a sociomaterial analysis. *Technology Analysis & Strategic Management*, *32*(6), 683-696.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509-533.

Cetindamar Kozanoglu, D., & Abedin, B. (2021). Understanding the role of employees in digital transformation: conceptualization of digital literacy of employees as a multi-dimensional organizational affordance. *Journal of Enterprise Information Management*, *34*(6), 1649-1672.

Hmieleski, K. M., & Corbett, A. C. (2006). Proclivity for Improvisation as a Predictor of

Entrepreneurial Intentions. *Journal of Small Business Management*, *44*(1), 45-63.

Fortunato, M. W.-P. (2014). Supporting rural entrepreneurship: A review of conceptual developments from research to practice. *Community Development*, *45*(4), 387-408.

Yuan, X., Yang, S., & Wang, C. (2017). Lead user identification in online user innovation communities: A method based on random forest classification. *2017 7th IEEE International Conference on Electronics Information and Emergency Communication (ICEIEC)*, 157-160.