

THE INFLUENCE OF SOCIAL INTERACTION STRATEGY AND PLATFORM AFFORDANCE ON USERS' VALUE CO-CREATION BEHAVIOR IN AN ENTERPRISE-LED ONLINE COMMUNITY: THE MEDIAYING ROLE OF SOCIAL CAPITAL

Biqing Li

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
Program in Management
Rattanakosin International College of Creative Entrepreneurship
Rajamangala University of Technology Rattanakosin
Academic Year 2026
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Biqing Li

2026



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Degree Sought	Doctor of Philosophy Program in Management (International Program)
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Title of Thesis The Influence of Social Interaction Strategy and Platform Affordance on Users' Value Co-Creation Behavior in an Enterprise-Led Online Community: The Mediating Role of Social Capital

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ABSTRACT

The objectives of this study were (1) to examine the path of social interaction strategy and platform affordances influencing users' value co-creation behavior in an enterprise-led online community, (2) to investigate the path of social interaction strategy and platform affordances affecting the development of users' social capital across structural, cognitive, and relational dimensions, and (3) to explore how social capital mediates the effects of social interaction strategy and platform affordances on users' value co-creation behavior.

This study adopted a quantitative research design. Data were gathered via a structured questionnaire administered to 594 active members of Xiaomi's online brand community. Structural equation modeling (SEM) was used to evaluate the measurement model and to test the hypothesized structural relationships, incorporating both direct and indirect paths.

Major findings: (1) On the issue of social interaction strategy and platform affordances, social interaction strategy and platform affordances exerted a significant effect on users' value co-creation behavior; (2) On the issue of social interaction strategy and platform affordances they significantly strengthened structural, cognitive, and relational capital; and (3) On the issue of the mediating role of social capital, social interaction strategy exhibited a slightly stronger indirect effect through relational capital, while platform affordance demonstrated a relatively stronger mediating role through cognitive capital. Structural capital mediates both antecedents, though with a comparatively smaller effect size.

Keywords: Social interaction strategy, Social capital, Value co-creation behavior, Enterprise-led online community, Digital engagement

Advisor's Signature .....

Acknowledgments

During this period of Ph.D study, I learned the basic paradigms, research methods and data processing techniques of social science research, and established a relatively stable research system. The road to my studies was full of thorns, and under the guidance of my advisor, I struggled forward step by step, and although I experienced many setbacks, I also gained a lot. Therefore, I would like to express my heartfelt thanks to my teachers, friends and family for their help and care during my Ph.D study, which enabled me to complete my study successfully!

First of all, I am deeply grateful to my advisor, Prof. Dr. Hongxia Li. It was her encouragement that gave me the motivation to persevere on the path of my study. She gave me meticulous guidance in research topic selection, literature review, research methodology and thesis writing. She is not only my academic mentor, but also my life mentor, guiding me to complete my study.

Once again, I would like to thank all the teachers who taught me. Also I would like to express my deep respect and gratitude to them from the bottom of my heart. My teachers' lectures in class enabled me to master the basic methods and ways of thinking of scientific research in a short time, in addition, they also gave me good advice and help in my study. I would like to thank my classmates for their support and encouragement, which gave me the confidence to continue my journey.

Last but not least, I would like to thank my family, whose understanding and support are the strong backing for my study, and for their silent contribution.

Biqing Li

November 2025

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List of Abbreviation and Glossary

Abbreviation / Glossary	Explanation
AGFI	Adjusted Goodness-of-Fit Index
AVE	Average Variance Extracted
CC	Cognitive capital
CFA	Confirmatory factor analysis
CFI	Comparative Fit Index
χ^2/df	Chi-square to degrees of freedom ratio
CR	Composite Reliability
C.R.	Critical ratio
GFI	Goodness-of-Fit Index
IN	Intimacy
KMO	Kaiser-Meyer-Olkin
NFI	Normed Fit Index
P	P-value
PR	Perceived risk
RC	Relational capital
RMSEA	Root Mean Square Error of Approximation
SC	Structural capital
S.E.	Standard Error
SEM	Structural Equation Modeling
SI	Social interaction strategy
P	Significance level
β	Standardized regression coefficients
TLI	Tucker-Lewis Index
TR	Trust
VC	Users' value co-creation behavior

CHAPTER 1
INTRODUCTION

This chapter introduces the foundational elements of the study, encompassing the research background, theoretical and practical significance, research questions and objectives, methodological overview, key term definitions, and scope delimitations. It articulates the rationale for investigating value co-creation within enterprise-led online communities and situates the research within its conceptual and empirical context. The chapter concludes with an outline of the thesis structure, thereby providing a coherent framework that guides the subsequent literature review and empirical analysis.

1.1 Background of the Study

In the context of digital economy expansion and the rise of participatory consumer culture, enterprise-led online communities have become crucial arenas for interactive engagement between firms and users. Unlike traditional brand-consumer relationships which are largely unidirectional and transaction-oriented, these digital platforms enable multidirectional interactions where users can contribute insights, share experiences, and collaboratively shape brand narratives (Catarci et al., 2020). This shift reflects a deeper transformation in value co-creation logic, from a firm-centric, product-driven paradigm to a service-dominant logic in which value is co-created through interactions among multiple stakeholders embedded in a technologically mediated environment.

1.1.1 Practical Context

The notion of value co-creation encapsulates a profound transformation in the architecture of economic and social exchange in the twenty-first century. It refers to the process through which organizations and users collaboratively construct value via continuous interaction, shared interpretation, and collective participation, rather than through unilateral provision and passive consumption (Saha et al., 2022). Under this paradigm, value becomes relational and emergent, generated through the intertwining of enterprise design, user engagement, and technological mediation. In the global digital.

economy, this interactive conception of value has evolved into a dominant logic that transcends national boundaries, reshaping how firms innovate, compete, and relate to their stakeholders

The expansion of digital connectivity has made participatory interaction a defining feature of contemporary markets (Wang, 2021). As of 2024, Statista reported that more than 4.7 billion individuals globally engage in brand-related online communities, while 62 percent of OECD firms employ digital platforms for customer collaboration and innovation (Celestin, 2024). This transformation signifies that markets now operate as collaborative ecosystems, where consumers are not external to production but are internal contributors to the innovation process (Aksoy, 2023). Leading global enterprises such as Lego, Starbucks, and Samsung have institutionalized participatory design channels, open feedback systems, and online innovation contests that invite users to co-shape products and experiences. These initiatives illustrate how firms reconfigure user relationships, from transactional encounters to enduring partnerships founded on interaction, shared purpose, and technological transparency.

At the heart of this shift lies the recognition that innovation and competitiveness increasingly depend on relational participation, the depth and quality of communication between firms and their communities (Li & Gao, 2021). Enterprises seeking to cultivate sustainable engagement have moved beyond promotional tactics toward the design of interaction environments that encourage dialogue, reciprocity, and trust. Engagement no longer rests solely on material rewards but on the perception of inclusiveness, responsiveness, and authenticity in communication (LaGree et al., 2021). When users sense that their contributions are recognized and that participation yields influence, interaction becomes more meaningful and durable (Mustafa et al., 2023). This relational process forms the connective tissue of value co-creation, transforming communication into collaboration and audiences into active communities.

The infrastructure that enables such collaboration is inseparable from technology. Digital platforms, in both their visible architecture and invisible algorithmic logic, determine how users connect, what they can contribute, and how their participation is sustained. The design and affordance of these systems, how easily users can navigate interfaces, perceive feedback, and identify others, fundamentally shape engagement behavior. According to Accenture's 2023 global engagement report, 68% of users cited

"platform design clarity and transparency of contribution" as decisive factors influencing participation (Zeng et al., 2022). A platform that visibly acknowledges user input, facilitates meaningful connection, and makes collective outcomes traceable not only lowers participation barriers but also strengthens the sense of agency and belonging that underpins collaborative behavior (Bui & Jeng, 2022). In this sense, the technological layer of co-creation is not neutral; it acts as a medium through which social interaction acquires structure and continuity.

Across diverse industries, enterprises have discovered that sustained collaboration emerges not merely from technological access but from the web of relationships and shared understandings that develop through repeated engagement. Users who interact frequently, encounter consistent recognition, and internalize community goals tend to form dense communication networks and durable associations (Wong, 2025). Such connections constitute the invisible infrastructure through which ideas circulate, norms stabilize, and collective intelligence grows. In communities where shared meaning and mutual trust flourish, participation becomes self-reinforcing; the system evolves from coordinated activity to co-created culture. Deloitte's 2024 Global Digital Community Report reveals that platforms exhibiting higher relational cohesion recorded 43 percent greater user contribution rates and 37 percent faster feedback-to-innovation cycles, illustrating that the accumulation of interpersonal connectivity and collective cognition constitutes the foundation of effective value co-creation (Chen et al., 2022).

As enterprises integrate these relational processes into strategic planning, the line between management and community increasingly blurs. Firms design communicative frameworks that orchestrate participation, yet users reinterpret and personalize these frameworks according to their motivations and experiences (Mihale-Wilson & Carl, 2024). The interplay between structured engagement strategy and emergent user practices defines the evolving equilibrium of digital ecosystems. Effective design balances managerial coordination with user autonomy, providing a social architecture that encourages initiative while maintaining coherence (Händler, 2023). This delicate balance explains why some participatory systems flourish as innovation incubators while others stagnate despite abundant technical resources.

Globally, participation inequalities persist as one of the most persistent structural features of digital communities. Studies show that in most platforms, fewer than 20 percent

of registered users actively generate content, while a small minority produce the majority of collective value (Tafesse & Dayan, 2023). This unevenness exposes a deeper challenge: cultivating not just presence but participation, not just scale but connection. Users who feel structurally integrated into community networks and cognitively aligned with shared objectives exhibit higher resilience and creativity. Hence, the capacity to foster inclusion and collective identification becomes more critical than merely expanding community size (Anthony, 2024). The quality of social connectedness determines the sustainability of co-creation outcomes.

Cross-cultural perspectives further highlight that participatory engagement is mediated by distinct normative expectations. In Western contexts, open collaboration and individual expression are typically privileged, emphasizing horizontal communication and peer recognition. In East Asian economies, engagement often reflects collectivist orientations that value harmony, long-term trust, and coordinated action. Yet global platforms increasingly operate across these boundaries, creating hybrid participation models that blend openness with structure, autonomy with affiliation. The diffusion of these hybrid models signifies a new phase in the globalization of co-creation, where digital platforms must reconcile cultural diversity with universal participation principles.

At the same time, the scope of value co-creation has expanded beyond commercial innovation to encompass sustainability and social transformation (Meister Broekema et al., 2022). According to the World Economic Forum (2024), 45 percent of global enterprises now use participatory mechanisms to co-develop environmental or social solutions. Collaborative platforms for renewable energy innovation, community-based waste management, and circular economy design demonstrate how co-creation has become an integral part of global sustainability governance (Anthony, 2024; De Toni & Morello, 2025). Within these initiatives, participation is sustained not only by shared environmental goals but also by mutual confidence, transparent technological mediation, and continuous interpersonal reinforcement, conditions that parallel those underpinning corporate innovation ecosystems. Thus, whether in business or in social development, the capacity to align human interaction, digital infrastructure, and collective trust remains the universal foundation of effective co-creation.

Despite its diffusion and recognition, the academic discourse on value co-creation continues to confront theoretical fragmentation. Much of the literature isolates either

motivational or technological determinants of engagement (Bulut & Delialioğlu, 2024; Calvo-Porral & Pesqueira-Sanchez, 2022; David & Weinstein, 2024), overlooking the interdependence between enterprise strategy, digital affordances, and the social fabric of participation (Guo et al., 2021). Yet empirical observation increasingly reveals that co-creation arises precisely from their intersection. When firms design interaction systems that are transparent and inclusive, when users perceive the technological environment as supportive and empowering, and when communication gives rise to relational cohesion and shared interpretation, participation evolves into genuine collaboration (Magliocca et al., 2025). It is within this triadic relationship, strategic design, technological mediation, and emergent social connectedness, that the contemporary logic of value co-creation materializes.

Enterprise-led online communities embody these dynamics with particular clarity. They represent managed yet participatory spaces where firms coordinate engagement through deliberate strategy, while users contribute to innovation and meaning-making through their own initiative. These environments provide a controlled yet socially rich context for examining how structured interventions interact with user experience to generate collective outcomes. They also expose the inherent tensions of digital collaboration, the coexistence of hierarchy and community, control and creativity, that define modern organizational ecosystems (Gawer, 2022). Studying these communities thus offers insights not only into firm-level engagement mechanisms but also into the broader socio-technical processes shaping participation in the digital economy.

Within this global landscape, the Xiaomi online brand community provides a representative illustration of these processes in practice. With more than 20 million registered members and approximately 1.5 million active monthly contributors as of 2023, Xiaomi has developed one of the world's largest enterprise-managed innovation platforms (Yang et al., 2024). Its success stems not merely from technological design or incentive structures but from the sustained cultivation of dialogic relationships, transparent feedback mechanisms, and user empowerment within a corporate framework. Xiaomi's participatory model mirrors global trends in enterprise-led co-creation, exemplifying how structured interaction, accessible technology, and social connectedness converge to support collaborative innovation. While subsequent chapters examine this case in detail,

its relevance here lies in representing the organizational and behavioral mechanisms that characterize value co-creation across the world's digital ecosystems.

In sum, value co-creation has evolved into a universal logic of innovation, integrating strategic interaction, technological mediation, and socially embedded collaboration. Its sustainability depends not on any single factor but on the coherence among them, on the ability of firms to design inclusive engagement structures, of platforms to afford meaningful participation, and of communities to cultivate durable trust and shared understanding. As the digital economy becomes increasingly interconnected and participatory, these interdependencies will continue to define how value is collectively imagined, produced, and sustained. The present study situates itself within this global transformation, seeking to illuminate how enterprise-orchestrated engagement environments translate interaction and technology into the social conditions that make value co-creation both possible and enduring.

1.1.2 Research Gaps

While the practical importance of community-based user engagement has attracted increasing scholarly attention, several theoretical and empirical limitations continue to constrain the maturity of existing research. First, prior studies have predominantly emphasized user motivations or generic technological affordances as the principal drivers of community participation, while insufficiently examining the structured interaction mechanisms intentionally designed and implemented by enterprises (Guo et al., 2021; Meurer et al., 2022). The strategic role of social interaction strategy, that is, firm-initiated practices for stimulating participation, encouraging reciprocity, and sustaining user engagement, has yet to be systematically theorized or empirically verified. Consequently, current research provides an incomplete understanding of how enterprise agency actively shapes participatory outcomes beyond spontaneous user behavior.

Second, although social capital theory has been widely recognized in organizational and digital communication research, its systematic application to enterprise-led online communities remains underdeveloped (Heeks et al., 2024; Lekan et al., 2021). Existing models have rarely explored how the distinct dimensions of social capital, including structural, cognitive, and relational capital, are cultivated or transformed through enterprise-initiated interaction strategy and platform governance mechanisms (Chen & Lee, 2024; Kusuma et al., 2024). This gap constrains the field's capacity to

explain the socio-structural processes that mediate between firm actions and user value contribution. Without investigating these embedded mechanisms, research risks reducing participation to individual intention or technical access while overlooking the collective social foundations that sustain co-creation.

Third, while prior literature acknowledges that user interaction can generate collaborative value within online communities, the empirical linkages among enterprise-led interaction strategy, the formation of social capital, and user participation behaviors remain insufficiently tested (Zhang & Zheng, 2021). Much of the existing work treats value co-creation as a static outcome rather than as a socially contingent process shaped by structural connections, cognitive alignment, and relational cohesion (Knox et al., 2021). Consequently, there is a lack of rigorous evidence explaining the pathways through which structured enterprise strategy contribute to users' sustained co-creative behavior. Furthermore, few studies have examined how users' perceived platform affordance, referring to the subjective interpretation of communicative, collaborative, and visibility opportunities provided by technology, functions as a technological prerequisite that enables or constrains social and behavioral dynamics. In enterprise-governed settings, this perception becomes decisive, as users must interpret not only what to contribute but also how and through what means participation can occur.

Fourth, existing studies often generalize across heterogeneous community types without adequately considering the organizational and cultural specificities of enterprise-dominated platforms (Priharsari et al., 2020). Such platforms differ markedly from open or user-governed networks in their authority structures, strategic intentions, and user expectations. Yet little attention has been paid to how interaction strategy operate in contexts where firms maintain both infrastructural control and normative influence over community engagement (Gatignon & Capron, 2023). This lack of contextual sensitivity weakens the explanatory precision and limits the applicability of current models to brand-centric innovation ecosystems.

Taken together, these limitations highlight the need for a contextually grounded and theoretically integrated framework that explains how enterprise-initiated social interaction strategy shape the development of social capital, including its structural, cognitive, and relational dimensions, and how these social foundations mediate user participation and value co-creation within platform-mediated environments. This inquiry

must also incorporate users' perceived platform affordance as a critical enabling condition for activating co-creative engagement. Addressing these interconnections, the present study seeks to construct and empirically test a conceptual model linking structured enterprise strategy, embedded social resources, and user behavioral outcomes within the broader context of enterprise-led online communities.

1.2 Significance of the Study

1.2.1 Theoretical Significance

This study makes a substantive theoretical contribution by generating new knowledge on how value co-creation is structurally enabled, socially mediated, and technologically conditioned within enterprise-led online communities. Rather than merely reaffirming established relationships among interaction, social capital, and user participation, the study advances an integrative explanation that clarifies the hierarchical logic, causal mechanisms, and contextual boundaries through which value co-creation emerges in firm-governed digital environments.

First, the study contributes new theoretical insight to social capital theory by demonstrating that social capital in online communities is not only an emergent by-product of repeated interaction, but can be intentionally constructed through enterprise-led interaction strategy. Existing studies have largely examined social capital formation in self-organizing or user-governed communities, implicitly assuming organic relational development (Nyamari, 2024). In contrast, this study provides new knowledge by empirically showing that firms can actively shape the accumulation of structural, cognitive, and relational capital through strategically designed interaction mechanisms. By modeling these three dimensions as interlinked mediators rather than isolated relational assets, the study reveals how social capital operates as a dynamic transmission mechanism that converts enterprise-designed interaction conditions into sustained user value co-creation behavior. This mechanism-oriented perspective extends social capital theory from a descriptive relational resource to an actionable and strategically conditionable construct within enterprise-governed digital systems.

Second, the study generates new knowledge for value co-creation research by repositioning value co-creation as a theoretically primary organizing framework rather than as a descriptive outcome or behavioral label. While prior research grounded in

service-dominant logic emphasizes that value emerges through interaction (Saviano et al., 2025), it often leaves unspecified how interaction environments are structured and how participation is socially sustained over time. This study advances the literature by explicitly theorizing value co-creation as a hierarchically organized process in which enterprise-led interaction strategy and platform affordances function as enabling conditions, social capital operates as the mediating mechanism, and user co-creation behavior represents the realized outcome. Through this analytical hierarchy, the study clarifies that value co-creation is neither spontaneous nor purely user-driven, but is socially embedded and strategically conditioned. This reconceptualization contributes new theoretical clarity by explaining not only that co-creation occurs, but through what structured pathways it is made durable and scalable in enterprise-led contexts.

Third, the study offers new insight to affordance theory by demonstrating how perceived platform affordances serve as a critical technological precondition for social capital formation, rather than merely influencing individual engagement behavior. Existing affordance research has predominantly focused on direct effects of technological features on user action (Ronzhyn et al., 2022; Vidolov, 2022). This study extends that perspective by showing that platform affordances such as visibility, navigability, and interaction persistence indirectly shape value co-creation by enabling the development of structural social capital. In doing so, the study introduces a mechanism-based interpretation of affordance effects, revealing how technology influences collective outcomes through its impact on network accessibility and relational configuration. This contribution advances affordance theory from an individual-level action lens to a socio-structural explanatory framework.

Moreover, by situating these theoretical contributions within the specific context of enterprise-led online communities, the study introduces a novel contextual perspective that challenges dominant assumptions of user autonomy and community self-governance. The findings demonstrate that hierarchical governance, incentive design, and organizational intervention do not necessarily suppress participation, but can, when aligned with appropriate social and technological conditions, foster sustained co-creation. This context-sensitive insight constitutes new knowledge by specifying the boundary conditions under which value co-creation theories operate, thereby enhancing their applicability to firm-dominated digital ecosystems.

Taken together, the study contributes new knowledge by articulating an integrative socio-technical framework that explains how enterprise-led interaction strategy and platform affordances are translated into value co-creation through the mediating role of social capital. This framework moves beyond relationship confirmation to mechanism explanation, offering a refined theoretical understanding of how value is collectively generated, stabilized, and reproduced in digitally mediated, enterprise-governed communities.

1.2.2 Practical Significance

Beyond its theoretical implications, this study offers several practical contributions to key stakeholders involved in the design, management, and participation of enterprise-led online communities. By empirically examining how strategically structured social interaction mechanisms influence user behavior through the formation of embedded social resources, the findings provide actionable insights into how value co-creation can be effectively cultivated in firm-curated digital ecosystems.

For enterprise managers, particularly those overseeing digital transformation and user-centered innovation strategy, the study highlights the importance of moving beyond transactional incentives toward socially grounded engagement mechanisms. By demonstrating that the development of interaction networks, shared cognitive frameworks, and trust-based relationships are central to sustained user participation, the findings offer a strategic roadmap for enhancing customer lifetime value through community empowerment. Enterprises can use these insights to design more relationally oriented platform policies that emphasize collaboration, mutual recognition, and emotional resonance, thereby reinforcing long-term brand loyalty and reducing customer churn.

For community operation teams and digital platform administrators, the study provides a structural logic for community governance and user engagement design. Rather than relying solely on gamification or content circulation algorithms, the results suggest that cultivating internal social capital among users is essential for deepening engagement and sustaining authentic engagement. Practically, this means investing in peer-to-peer communication channels, facilitating cognitive alignment through onboarding content and shared language, and fostering a culture of reciprocity and respect. These findings support the development of more resilient and self-reinforcing community structures that can withstand participation fatigue or platform competition.

For users themselves, particularly those engaged in co-creation activities such as product feedback, user testing, or idea generation, the study enhances their understanding of how participation not only benefits the enterprise but also contributes to personal social capital accumulation. As users integrate more deeply into interactional networks, they gain recognition, influence, and social embeddedness, reinforcing their agency within the community. By identifying the mechanisms that facilitate this embeddedness, the study indirectly supports users in leveraging their contributions for greater visibility, satisfaction, and sense of belonging within the platform.

For digital marketing practitioners and brand strategists, the study underscores the shift from content-centric to relationship-centric engagement models. In competitive platform environments, cultivating meaningful interactions and long-term user relationships increasingly outweighs short-term metrics such as click-through rates or impressions. The findings guide practitioners in designing campaigns and community strategy that are not only data-informed but also socially attuned, grounded in the understanding that value emerges from networks of trust, shared meaning, and user initiative.

Furthermore, in the context of China's rapidly evolving platform economy, where regulatory scrutiny, user expectations, and competitive dynamics are simultaneously intensifying, the study offers timely and context-specific insights for firms seeking to sustain participatory innovation at scale. By embedding strategic thinking into community structure and user relations, enterprises can better align technological investments with social outcomes, thereby reinforcing both platform vitality and organizational agility.

In summary, this study supports a paradigm shift in enterprise-community interaction, advocating for a socially embedded, user-centric, and strategically structured approach to value co-creation. It offers evidence-based guidance that can inform policy, practice, and platform design across multiple stakeholder domains.

1.3 Statement of Research Questions

RQ1. How do social interaction strategy and platform affordances affect users' value co-creation behavior in enterprise-led online communities?

RQ2. How do social interaction strategy and platform affordances shape users' social capital in terms of structural, cognitive, and relational dimensions?

RQ3. How does social capital mediate the effects of social interaction strategy and platform affordances on users' value co-creation behavior?

1.4 Statement of Research Objectives

RO1. To examine the path of social interaction strategy and platform affordances influence users' value co-creation behavior in enterprise-led online communities.

RO2. To investigate the path of social interaction strategy and platform affordances affect the development of users' social capital across structural, cognitive, and relational dimensions.

RO3. To explore how social capital mediates the effects of social interaction strategy and platform affordances on users' value co-creation behavior.

1.5 Methodology

To examine the structural relationships among social interaction strategy, platform affordances, social capital, and users' value co-creation behavior in enterprise-led online communities, this study adopted a quantitative design under the positivist paradigm. This approach enabled the development and empirical validation of a theory-driven structural model through a systematic and replicable procedure that emphasizes measurement precision, generalizability, and analytical rigor.

The conceptual framework was operationalized using a structured questionnaire, with measurement items adapted from validated scales in the existing literature and refined to fit the context of enterprise-led online communities. Social interaction strategy were captured through three perceptual dimensions, perceived risk, trust, and intimacy, reflecting users' evaluation of the firm-curated interaction environment. Platform affordances were assessed across ideation, collaboration, and communication dimensions to capture the functional possibilities perceived by users. Social capital was measured through its structural, cognitive, and relational dimensions, while value co-creation behavior was evaluated using indicators that reflect voluntary, participatory contributions within the community. All items were measured using a seven-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (7), enabling nuanced interval-level analysis and comparability across constructs.

The Xiaomi online brand community was selected as the empirical setting due to its representative characteristics as a large-scale, enterprise-led digital platform with active

user participation. The platform combines brand-driven governance with user-generated content and interaction, making it an appropriate context for analyzing how firm-led strategy interact with users engagement. Data were collected using purposive sampling, targeting active members with at least one year of participation experience to ensure adequate familiarity with community culture and platform mechanisms. In total, 594 valid responses were obtained from Xiaomi community users. A pre-test with 32 participants further confirmed the reliability and validity of the questionnaire, with Cronbach's α values exceeding 0.85 and factor analysis results indicating sound construct validity, thereby ensuring the robustness of the measurement tool for the full survey.

Data analysis followed a two-step approach. First, the measurement model was assessed through confirmatory factor analysis (CFA) to evaluate reliability and validity. Psychometric quality was verified using composite reliability, Cronbach's alpha, and average variance extracted (AVE), with all constructs meeting recommended thresholds. Model fit was examined through indices including RMSEA, CFI, TLI, and χ^2/df. Second, the hypothesized structural relationships were tested using structural equation modeling (SEM), which enabled simultaneous estimation of direct, indirect, and mediating effects among the latent variables.

This methodological framework ensured statistical robustness and theoretical alignment, facilitating a comprehensive empirical examination of how enterprise-governed interaction environments and perceived affordances shape value-generating user behavior through the mediating role of social capital.

1.6 Definitions of Terms

This section defines the key constructs used in the study to ensure conceptual clarity and measurement consistency. All definitions are based on established literature and are adapted to the empirical context of enterprise-led online brand communities.

1.6.1 Social Interaction Strategy

In the context of enterprise-led online communities, social interaction strategy refer to the systematic approaches employed by firms to cultivate meaningful user engagement, enhance peer communication, and stimulate participatory behaviors that align with organizational objectives (Ghasemzadeh et al., 2022). Social interaction strategy are operationalized through three core dimensions: perceived risk, trust, and intimacy (Yin et

al., 2019). These dimensions reflect users' psychological responses to platform-mediated interactions and jointly determine their willingness to engage and contribute within the community space.

Perceived risk refers to the degree to which users believe that participation in an online community may expose them to potential negative consequences. These risks may include the misuse of personal data, content plagiarism, exposure to verbal hostility, or reputational damage (Cabeza-Ramírez et al., 2022; Dreker, 2024). In enterprise-led digital environments, perceived risk also includes fears related to power asymmetry between users and the platform, such as biased moderation, commercial exploitation of user-generated content, or sudden changes in governance policies. This perception, often shaped by prior experiences and platform transparency, can discourage open communication and limit users' willingness to actively contribute (Reuber & Fischer, 2022; Zeng et al., 2022).

Trust is defined as the belief that other users and the platform provider will behave in a reliable, fair, and benevolent manner (Akhmedova et al., 2021). Trust plays a foundational role in reducing uncertainty and enabling users to share knowledge, express opinions, and participate in collaborative actions. It develops over time through repeated positive interactions, transparency of platform operations, and consistency in rule enforcement (Masood et al., 2023; Tamò-Larrieux et al., 2024).

1.6.2 Platform Affordance

Platform affordance refers to users' perceived possibilities for action enabled by the technological features of an online platform, shaped by the interaction between system design and user intent (Abhari et al., 2017). It reflects how users interpret and actualize platform functionalities, such as visibility of content, persistence of interactions, navigability of discussion spaces, and mechanisms for social connection, as opportunities or constraints for engagement (Lehrer et al., 2023; Scharlach & Hallinan, 2023). In the context of enterprise-led online communities, platform affordances are not merely technical tools but socio-technical cues that condition users' ability to connect, contribute, and co-create (Herterich et al., 2023). For example, a clearly structured interface, seamless user experience, and transparent feedback loops may foster perceived ease of participation and enhance social engagement. Conversely, ambiguous design or limited interactivity may suppress users' willingness to engage. As such, platform affordance plays a

foundational role in shaping how users navigate and activate social capital and value co-creation opportunities (Chen et al., 2024; Guo et al., 2021).

In this study, platform affordance is conceptualized as a multidimensional construct comprising three core perceptual dimensions, ideation affordance, collaboration affordance, and communication affordance (Abhari et al., 2017). Ideation affordance refers to users' perception that the platform enables them to express, elaborate, revise, and monitor ideas related to product or service improvement, thereby supporting creative input within the community (Bharati et al., 2021). Collaboration affordance captures the extent to which users perceive the platform as allowing them to review others' ideas, participate in design related discussions, and contribute to co development activities that reflect joint problem solving (Abhari et al., 2022). Communication affordance denotes users' perception of the platform's capacity to facilitate knowledge sharing, interactive dialogue, peer assistance, and social connection building, which together sustain engagement continuity and support coordinated participation (Tan, 2024).

1.6.3 Structural Capital

Structural capital refers to the observable patterns of connection and the accessibility of relational ties within a community. It includes the frequency and diversity of user interactions, the visibility of collaborative opportunities, and the overall density of the social network (Singh et al., 2024). In an enterprise-led platform, structural capital is reflected in features that enable users to discover peers, navigate discussion threads, and participate in collective activities. High structural capital allows users to locate resources, identify credible contributors, and integrate into the community's activity system more effectively (Asiaei et al., 2022; Wu et al., 2024).

1.6.4 Cognitive Capital

Cognitive capital captures the degree of shared understanding, mutual knowledge, and common interpretive frameworks that exist among users in a community. It reflects whether users speak the same "language," share common goals, and comprehend the platform's values and purpose in similar ways (Kim & Yoon, 2021; Santa et al., 2025). Cognitive capital supports smooth communication and mutual interpretation, particularly in collaborative tasks. In the context of brand communities, it also facilitates alignment with the brand's identity, narrative, and co-creation expectations (Cao et al., 2022).

Without sufficient cognitive capital, misunderstanding and misalignment are likely to hinder user cooperation.

1.6.5 Relational Capital

Relational capital refers to the quality of the interpersonal relationships that users build over time, characterized by trust, reciprocity, mutual respect, and emotional investment. It goes beyond structural connections and captures the strength and affective depth of social ties (Rodríguez-Aceves et al., 2023). High relational capital signals strong identification with the community and a commitment to collective well-being. It encourages users to offer support, respond constructively to feedback, and sustain engagement even in the face of platform shortcomings or interpersonal tensions (Ma et al., 2021; Wolff & Shen, 2024).

1.6.6 Value Co-creation Behavior

Value co-creation behavior encompasses users' voluntary, proactive contributions that generate benefits not only for themselves but also for other users and the platform as a whole (Alqayed et al., 2022). These behaviors may include sharing product experiences, offering technical advice, proposing innovations, engaging in peer-to-peer support, and promoting the brand externally. Value co-creation reflects a shift from passive consumption to active collaboration, where users participate in shaping product meaning, service improvement, and brand narrative (Merhabi et al., 2021). In enterprise-led contexts, such behaviors are shaped by both user motivations and the social-relational affordances of the community.

1.6.7 Enterprise-led Online Community

An enterprise-led online community refers to a digital interaction space created, governed, and maintained by a company, typically organized around its products, services, or brand identity (Lekan et al., 2021). Unlike organically formed user communities, enterprise-led communities have formal rules, content moderation systems, and strategic goals aligned with business objectives. While users are encouraged to participate freely, the boundaries of discourse and the structure of interaction are designed by the enterprise (Lissillour & Sahut, 2022). These platforms serve both as a channel for customer engagement and as a site for distributed innovation, knowledge exchange, and user-driven value co-creation.

1.7 Delimitation of the Thesis

This thesis is delimited in several ways to maintain conceptual clarity and methodological focus. First, the study is confined to enterprise-led online brand communities, with Xiaomi's user community selected as the sole empirical setting. This excludes informal, user-initiated, or decentralized communities, thereby limiting the generalizability of the findings to platforms governed by corporate entities.

Second, the research focuses exclusively on users' self-reported perceptions and behaviors collected through a structured survey. It does not incorporate behavioral trace data or platform analytics, nor does it examine managerial or technical perspectives within the same model.

Third, the theoretical framework is restricted to examining the relationships among social interaction strategy, platform affordance, social capital, and value co-creation behavior. Other potential influencing factors, such as individual personality traits, prior brand loyalty, or cross-platform interactions, are deliberately excluded to preserve model parsimony.

Lastly, the study is geographically bounded within the Chinese context, and cultural variables are held constant. As such, the conclusions may not be directly transferrable to digital communities operating in other cultural or regulatory environments.

1.8 Outline of the Thesis

This thesis is structured into five chapters, each designed to progressively develop the research logic, from problem identification to theoretical interpretation and practical recommendations.

Chapter One introduces the research background, highlights the theoretical and practical motivations for the study, and articulates the research objectives, questions, and hypotheses. It also presents the methodological overview, defines key terms, delineates the scope of the study, and outlines the thesis structure.

Chapter Two provides a comprehensive literature review. It critically examines existing studies on enterprise-led online communities, social interaction perceptions, social capital formation, and value co-creation behavior. The chapter synthesizes relevant theoretical foundations, formulates the conceptual framework and hypothesis model that guide the empirical investigation.

Chapter Three details the research methodology. It outlines the research paradigm, explains the quantitative approach, describes the questionnaire design, sampling strategy, data collection procedures, and measurement scales. The chapter also elaborates on the data analysis techniques, including reliability testing, validity assessment, and structural equation modeling.

Chapter Four presents the empirical results of the study. It begins with a descriptive analysis of the sample, followed by the evaluation of measurement reliability and validity. It then proceeds to test the hypothesized model using structural equation modeling, including both direct and indirect effect analyses. The results confirm the mediating roles of structural, cognitive, and relational capital in the relationship between interaction perceptions and co-creation behavior.

Chapter Five offers a comprehensive discussion of the findings in relation to the three research objectives. It elaborates on the theoretical implications for social capital theory and concept of value co-creation, and outlines practical recommendations for enterprise platform managers, community operations teams, brand strategists, and government policymakers. The chapter concludes by acknowledging the study's limitations and proposing directions for future research.

Together, these chapters offer a theoretically grounded and empirically validated account of how users' perceptions of social interaction shape value co-creation in enterprise-led digital communities. To visually represent this logical flow, Figure 1.1 provides the organizational roadmap of the thesis, illustrating the sequential development from research background and theoretical foundations to methodological design, empirical analysis, and final conclusions.

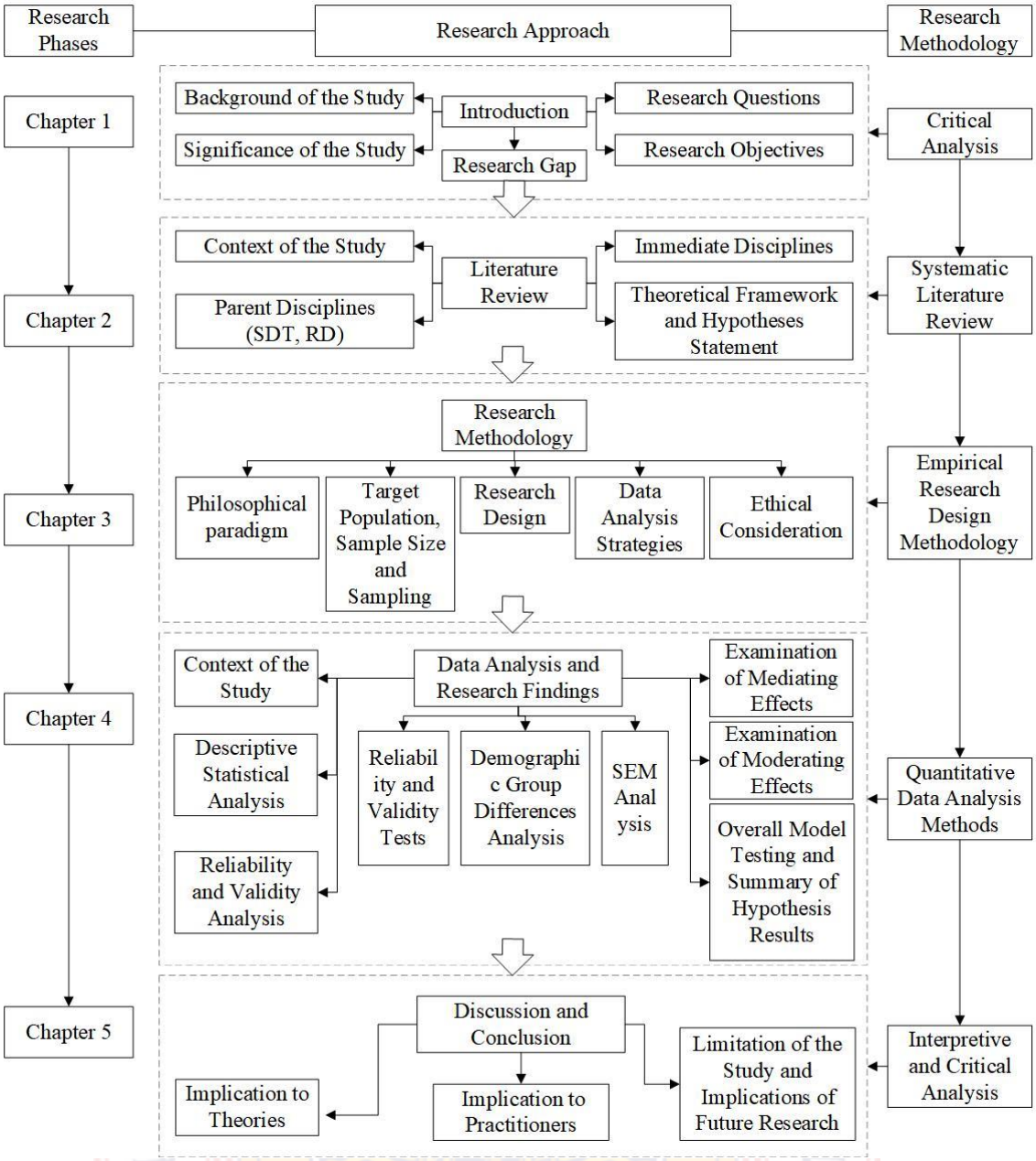


Figure 1.1 Organizational Roadmap of the Thesis

Source: Made by this study

1.9 Conclusion

In conclusion, this chapter has laid the conceptual and contextual groundwork for investigating how enterprise-initiated mechanisms, specifically social interaction strategy and platform affordances, shape user engagement and value co-creation in enterprise-led online communities. Situated within the broader evolution of the digital economy and the

rise of participatory consumer culture, the discussion has emphasized that sustained user contribution is contingent not only on the availability of functional platform features but also on the deliberate cultivation of embedded social resources such as trust, shared understanding, and relational connectedness.

The chapter identifies persistent theoretical gaps in current scholarship, particularly the limited integration of enterprise agency, socio-technical design, and social capital dynamics in explaining users' value co-creation behavior. Earlier studies often treated user motivations or technological affordances in isolation, overlooking the interaction between strategically structured engagement environments and the social relationships that develop within them. To address this, the present study proposes a conceptual framework integrating social capital theory, the concept of value co-creation, and affordance theory. Incorporating platform affordances as a core construct broadens the explanatory capacity of the framework by clarifying how users perceive and act upon the technological possibilities embedded in enterprise-curated online communities.

Guided by three research objectives and corresponding research questions, the study adopts a quantitative methodology and employs structural equation modeling to empirically validate the proposed framework. This approach enables the systematic testing of both direct and mediated relationships, offering insights that are theoretically grounded and practically actionable.

The next chapter presents a comprehensive literature review that critically examines prior research on online community engagement, social interaction strategy, platform affordances, social capital formation, and value co-creation behavior. It synthesizes relevant theoretical foundations, identifies empirical limitations, and provides the rationale for the conceptual model and hypotheses.

CHAPTER 2
LITERATURE REVIEW

This chapter reviewed the theoretical foundations and developed the conceptual model for the study, drawing on social capital theory and the concept of value co-creation. It defined key constructs, clarified their interrelationships, and proposed hypotheses to explain how social interaction strategy affect users' value co-creation behavior through the dimensions of social capital.

2.1 Context of the Study

The concept of value co-creation has gained increasing prominence in recent years as firms shift from traditional producer-consumer paradigms to collaborative, service-oriented models of value generation (Jin et al., 2022). Within the context of enterprise-led online communities, value co-creation refers to the dynamic and reciprocal processes by which users actively contribute to the development, refinement, and dissemination of products, services, or brand narratives through continuous interaction and participation (Priharsari & Abedin, 2022). Unlike passive forms of customer feedback, co-creation emphasizes a sustained and socially embedded form of engagement wherein consumers act as co-designers, co-producers, and co-promoters within a firm's innovation ecosystem (Leino & Puumala, 2021).

2.1.1 Value Co-creation in the Telecommunication Industry

Value co-creation has become a defining paradigm in the telecommunication industry, reflecting its shift from technology-driven operations toward user-centered innovation ecosystems (Rurianto et al., 2021). As markets become saturated and services increasingly commodified, telecommunication enterprises seek to differentiate themselves by integrating users into value-generating processes. Under this paradigm, value is not merely delivered by firms but collaboratively constructed through continuous interaction, feedback, and shared problem-solving between enterprises and users.

In this study, value co-creation is not treated merely as a descriptive label of user participation or as an outcome variable, but is positioned as a foundational theoretical lens that frames how value is generated, interpreted, and sustained within enterprise-led digital ecosystems. Drawing on the service-dominant logic tradition, value co-creation conceptualizes value as emergent from interactional processes rather than embedded in products or unilaterally delivered by firms. This perspective provides the overarching theoretical foundation for understanding why user engagement, interaction design, and relational embeddedness are central to contemporary innovation systems in the telecommunication industry.

Within this framework, value co-creation functions as a parent discipline that integrates multiple explanatory mechanisms operating at social, technological, and relational levels. Specifically, social interaction strategy and platform affordances are not viewed as independent drivers of user behavior, but as structural and technological conditions through which value co-creation is enabled and enacted (Tuan & Doan, 2025). Social capital, in turn, represents the relational infrastructure that translates these conditions into sustained user participation and collaborative contribution (Gao et al., 2025). By positioning value co-creation at this higher theoretical level, the study establishes a coherent analytical hierarchy in which social capital theory and affordance theory operate as complementary explanatory perspectives embedded within a broader value co-creation logic.

In this sector, digital connectivity and service innovation rely heavily on users' active engagement. Activities such as feedback provision, bug reporting, idea generation, and peer assistance contribute directly to improving product functionality and customer experience (Gremyr et al., 2022). These forms of engagement represent the operationalization of value co-creation, transforming users from passive consumers into co-innovators whose collective intelligence supports the firm's adaptability and innovation efficiency.

The mechanisms that sustain this process can be explained through the interaction of social interaction strategy and platform affordances. Enterprises design structured engagement mechanisms, such as gamified participation systems, peer recognition (De Toni & Morello, 2025), and community-based feedback channels, to stimulate sustained involvement (Ishola et al., 2024). Meanwhile, technological affordances, including

visibility, persistence, interactivity, and association, provide the functional means through which users perceive, express, and expand their participation (Ciuchita et al., 2022). When these social and technical elements are effectively aligned, users are more likely to engage in collaborative behaviors that enrich the service ecosystem and reinforce relational bonds with the firm.

At the same time, the success of value co-creation in the telecommunication industry depends on the accumulation of social capital within these communities. Frequent communication strengthens structural connections, shared knowledge fosters cognitive alignment, and trust-based relationships cultivate relational cohesion. Together, these dimensions form the social infrastructure that sustains participation and collective learning. As users internalize community norms and experience mutual recognition, they become more willing to contribute knowledge, evaluate new services, and co-develop innovative solutions (Laud et al., 2023).

From an organizational standpoint, telecommunication enterprises have increasingly institutionalized value co-creation as a deliberate strategic capability rather than a spontaneous by-product of user enthusiasm. By combining structured engagement strategy with enabling technological design, firms embed co-creation into their digital governance frameworks. This socio-technical integration transforms the innovation process from a closed managerial activity into an open and participatory system.

Value co-creation also redefines how value itself is conceptualized in the telecommunication context. Beyond functional performance or economic exchange, users derive symbolic and experiential benefits such as recognition, influence, and belonging, while firms gain insight, loyalty, and co-generated innovation. In this sense, value co-creation is inherently relational: it emerges from networks of trust, shared meaning, and sustained interaction rather than from isolated exchanges.

In summary, value co-creation in the telecommunication industry embodies the convergence of enterprise-initiated interaction strategy, platform affordances, and socially embedded collaboration. Through the formation of social capital, these mechanisms enhance users' value co-creation behavior and generate mutual benefits for both firms and users. This perspective highlights that future competitiveness in telecommunication will depend less on technical infrastructure and more on the capacity to co-create through socially and technologically integrated engagement environments.

2.1.2 Online Community

As participatory platforms become central to firms' innovation and customer engagement strategy, the role of online communities has expanded from auxiliary support systems to core strategic assets. In China's highly competitive consumer electronics sector, major technology brands have established dedicated online communities to facilitate real-time user interaction, technical support, feedback collection, and value co-creation (Chen et al., 2022). Among these, Xiaomi's online community has emerged as the most active and widely used, both in terms of registered user base and interaction frequency.

According to a 2023 industry analysis on brand-led digital communities, Xiaomi's official community platform holds the largest market share within the Chinese mobile technology sector. As illustrated in Figure 2.1, Xiaomi accounts for approximately 38% of the community user market, significantly ahead of its competitors such as Huawei (25%), Meizu (12%), and OPPO (10%). The remaining 15% is distributed among smaller or less interactive community platforms.

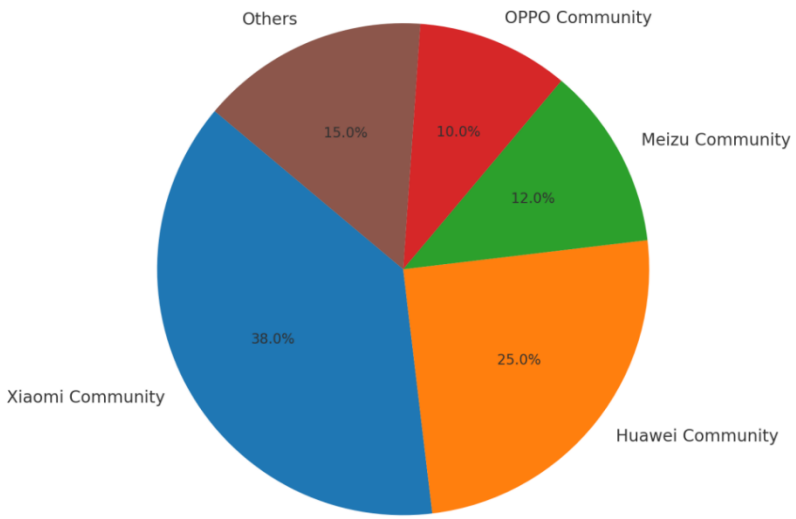


Figure 2.1 Market Share of Major Online Communities in China's Technology Industry
Source: Annual Report on China's Mobile Phone Market, 2024

Xiaomi's dominant position can be attributed to its early adoption of a "community-driven innovation" philosophy, where the community is not simply a space for brand communication, but a structured environment for co-creation and collective problem-solving. The community platform integrates user forums, beta testing programs, feedback channels, and localized discussion boards, offering multi-layered interaction opportunities across both product and service domains.

Unlike traditional user support forums, Xiaomi's community emphasizes active contribution and layered recognition. High-contribution users are ranked, awarded, and even invited to co-develop features in partnership with product managers. This gamified and inclusive model not only increases user engagement but also reinforces user-brand relational depth. In contrast, other brand communities, such as Huawei or OPPO, tend to function more as post-sales support platforms, with limited strategic integration into product development pipelines.

These distinctions underline the empirical relevance of Xiaomi's community in studying structured social interaction and value co-creation. Its advanced level of user integration, market dominance, and innovation-oriented design make it a suitable case for examining how firm-led engagement strategy foster social capital and enable participatory behaviors within digitally mediated ecosystems.

2.1.3 Role of Consumers in Value Co-creation Within Online Communities

Within enterprise-led online communities, consumers are no longer positioned as passive end users but as active participants who co-construct value through ongoing interaction, contribution, and collaboration. The digital transformation of customer engagement has redefined consumers as co-designers, co-producers, and co-evaluators of innovation, whose experiential knowledge and creative input directly influence firms' strategic and operational outcomes. In this context, consumers' value co-creation behavior constitutes a dynamic and iterative process in which individual motivation, social interaction strategy, and technological affordances jointly determine the depth and sustainability of participation.

The consumer's role in value co-creation within online communities manifests across multiple layers of engagement. At the most basic level, consumers provide feedback, share product experiences, and respond to peer inquiries, activities that collectively enhance the informational richness and problem-solving capacity of the community (Nohutlu et al., 2023; Rodríguez-López, 2021; Yang et al., 2021). Beyond these transactional interactions, consumers also engage in more advanced behaviors such as co-developing product features, participating in prototype testing, or moderating sub-communities (Priharsari & Abedin, 2022). These activities not only extend the firm's innovation capacity but also enable consumers to gain symbolic and social value in the form of recognition, influence, and belonging. Such reciprocity forms the foundation of a

participatory culture in which consumers contribute voluntarily yet meaningfully to collective outcomes.

The extent to which consumers assume these co-creative roles depends heavily on the enterprise's social interaction strategy and platform affordances. Firms design structured mechanisms, such as contribution rankings, digital badges, interactive challenges, and peer recognition systems, to elicit and reward proactive behavior. These mechanisms cultivate a sense of achievement and identity among consumers, reinforcing their attachment to the community. Simultaneously, technological affordances, such as visibility, persistence, and association, shape how consumers perceive their capacity to act. When the platform makes contributions visible, enables sustained communication, and supports associative interactions, consumers are more likely to translate intrinsic motivation into concrete co-creative behavior. Thus, the interplay between social and technological design determines how effectively consumers internalize their participatory role.

Consumers also contribute to the formation and maintenance of social capital within online communities, which serves as the social infrastructure of co-creation. Through frequent communication and shared experiences, consumers build structural capital, forming dense and interconnected networks that facilitate information exchange and collaboration (Sashi, 2021). As they engage in collective sense-making and adopt shared terminologies, cognitive capital emerges, enabling alignment of goals and mutual understanding. Meanwhile, repeated positive interactions nurture relational capital, fostering trust, reciprocity, and emotional identification with both the community and the brand (Wong, 2025). These three dimensions of social capital reinforce each other, enabling consumers to co-create value not only through direct contribution but also through sustaining the relational environment that supports long-term participation.

Moreover, the participatory roles of consumers evolve over time. Initial engagement often begins with observational participation or low-effort contributions such as browsing or liking posts. As users become more socially embedded, they transition toward higher levels of engagement, including advising, collaborating, and leading innovation-oriented initiatives. This progression reflects both individual learning and socialization processes, where exposure to community norms and peer recognition strengthens commitment and self-efficacy. From the firm's perspective, enabling these

transitions is critical, as it transforms community members into co-creators who collectively enhance innovation performance and brand loyalty.

Importantly, consumers' value co-creation behavior in online communities also generates mutual dependence between firms and users (Nohutlu et al., 2023). Enterprises rely on consumer insights to refine products, identify emerging needs, and maintain competitiveness in rapidly evolving markets. Conversely, consumers benefit from increased personalization, community identity, and influence over the products they use. This reciprocal relationship underscores that value co-creation is not a unidirectional process of firm empowerment but a co-evolutionary mechanism in which both parties derive complementary benefits (da Silva & Cardoso, 2025).

In summary, consumers in online communities act as catalysts of innovation and social cohesion, bridging the technological infrastructure of platforms with the relational dynamics of collective participation. Their active involvement transforms digital communities into living ecosystems where knowledge, trust, and creativity circulate continuously. Understanding consumers' multifaceted roles, ranging from feedback providers to collaborative innovators, is therefore essential for explaining how enterprise-led online communities generate and sustain value co-creation through the intertwined forces of social interaction, technological affordance, and social capital.

2.2 Parent Disciplines

2.2.1 Social Capital Theory

Social capital theory provides a comprehensive and multidimensional lens for understanding how social structures and interpersonal relationships facilitate collective action, knowledge sharing, and behavioral participation across both organizational and digital contexts. First introduced by Bourdieu (2011) and further developed by Coleman (1988) and Putnam (1993), the concept of social capital has evolved from a sociological construct explaining embedded resource access into a widely adopted analytical framework across disciplines such as management, education, public health, and information systems. At its core, social capital refers to the actual and potential resources that reside in the structure and quality of social relationships, enabling individuals or groups to achieve outcomes that would be difficult to attain in isolation.

In the context of digital environments, particularly enterprise-led online communities, social capital theory is particularly relevant because user participation, contribution, and co-creation are not simply the result of technological affordances or incentive structures, but are deeply conditioned by social connectivity, shared meanings, and interpersonal trust. Nahapiet and Ghoshal (1998)'s seminal framework operationalizes social capital into three analytically distinct but interrelated dimensions, structural capital (network ties), cognitive capital (shared understanding), and relational capital (trust and emotional bonding). These dimensions serve as the theoretical core for this study's proposed mediating mechanism, linking social interaction strategy initiated by the enterprise to users' value co-creation behavior within the community.

From the perspective of this study's conceptual model, social capital theory plays a bridging role in explaining how and why strategic interventions lead to high-quality user engagement outcomes. Traditional models of online participation often assume a direct effect between engagement tactics, such as incentives or interface design and user contribution. However, this linear logic overlooks the socially embedded processes through which participation is cultivated, legitimized, and sustained. Social capital theory offers a corrective by highlighting the mediating role of interpersonal and collective resources in the transformation of strategy into sustained user behavior.

Structural capital, the first dimension, refers to the configuration of connections between actors, such as the extent, strength, and accessibility of interaction channels (Alan & Köker, 2021). In the setting of an enterprise-led community such as Xiaomi community, structural capital is observable in how frequently users interact with one another, how central they are in discussion networks, and how easily information flows through the community. Social interaction strategy, such as gamified tasks, topic prompts, or visibility-enhancing algorithms, serve to activate structural capital by stimulating users to connect with peers, initiate conversations, and expand their presence within the digital network (Tessaro et al., 2021). A user with strong structural capital is more likely to access diverse opinions, receive timely feedback, and participate in multi-directional value co-creation processes.

Cognitive capital reflects the shared representations, mental models, values, and narratives that enable mutual understanding and meaning alignment among community members (Cheung et al., 2025). In practice, this might take the form of shared

terminologies, collective memory (e.g., knowledge of past product iterations), or brand-aligned values that guide how users interpret interaction norms. When the enterprise implements interaction strategy such as instructional content, themed discussions, or co-creation templates, it facilitates the emergence of cognitive capital. This dimension is crucial because co-creation is not merely about contribution volume, but also about alignment, users need to speak the same language and share a common vision to produce complementary, synergistic contributions.

Relational capital refers to the trust, norms of reciprocity, emotional bonds, and identity-based connections that sustain cooperation over time (Tian et al., 2025). While structural and cognitive capital explain how users connect and communicate, relational capital explains why they remain committed, exhibit loyalty, and invest effort in community-building. Enterprise-led strategy that emphasize fairness, user recognition, transparent reward systems, and ongoing responsiveness can significantly enhance users' sense of belonging and psychological safety. When relational capital is strong, users are more likely to provide voluntary feedback, collaborate with others, and invest in the long-term value of the community, even in the absence of immediate personal gains (Gibson, 2022).

These three forms of social capital do not operate in isolation but interact dynamically. Structural connections can serve as conduits for building trust (relational capital) and spreading shared understanding (cognitive capital), while relational bonds may reinforce structural ties and deepen interpretive alignment. Within this study, these three dimensions are modeled as parallel mediators, each playing a unique yet interdependent role in transforming enterprise-designed social interaction strategy into concrete user behaviors that contribute to community vitality and firm innovation.

By embedding these mediators into the theoretical framework, this study extends social capital theory in three significant ways. First, it applies the theory to a firm-curated digital environment, rather than user-governed or naturally emergent communities, addressing a key gap in literature where social capital formation is assumed to be organic rather than strategically stimulated. Second, the study models social capital as a deliberate outcome of enterprise action, thereby shifting the emphasis from passive accumulation to dynamic construction. This reflects an important theoretical shift: in enterprise-led communities, social capital is not merely found but made through strategy. Third, the study

empirically disaggregates the three dimensions, allowing for a more fine-grained analysis of which types of social capital are most salient in facilitating co-creation behaviors. For example, structural capital may be more important for initial engagement, while relational capital may be more predictive of sustained participation.

Moreover, this approach aligns with emerging literature on platform governance and organizational embeddedness, where firms are seen not merely as technical hosts but as social architects. In such environments, the firm's role extends from interface design to the cultivation of network structure, community norms, and relational infrastructure. Social capital theory thus provides a robust conceptual apparatus to evaluate both the outcomes of user engagement and the processes through which such engagement is cultivated within firm-controlled ecosystems.

In conclusion, social capital theory is indispensable for understanding the behavioral dynamics at the heart of this study. By conceptualizing user co-creation not as a function of isolated motivation but as a socially mediated outcome of strategic interaction, the theory enriches the explanatory power of the research framework. It situates the mediating role of social capital within a clear causal logic, linking firm action (social interaction strategy) with user outcomes (value co-creation behavior), and thereby offers both theoretical rigor and empirical applicability for analyzing participation in enterprise-led online communities.

2.2.2 Concept of Value Co-creation

The concept of value co-creation has evolved profoundly over the past two decades, marking a paradigmatic shift from firm-centric value delivery to participatory and network-based value generation. Early economic models conceived value as something produced by firms and consumed by passive customers at the point of exchange (Prahalad & Ramaswamy, 2004). This unidirectional understanding has been fundamentally challenged by the service-dominant logic, which views value as emerging from interactive processes of resource integration, experiential use, and relational engagement among multiple actors within a service ecosystem. In this view, value is not embedded in products or services per se but co-constructed through continuous dialogue and mutual adjustment between firms, users, and other stakeholders.

Within digital environments, particularly enterprise-led online communities, value co-creation represents a dynamic and reciprocal process through which users actively

participate in content creation, feedback provision, and collaborative innovation. These activities extend beyond transactional engagement to encompass shared learning, problem-solving, and the collective enhancement of product or service quality. Co-creation thus reflects an ongoing cycle of interaction in which both firms and users integrate tangible and intangible resources to generate mutual benefit. The rise of participatory platforms has enabled organizations to formalize and scale these processes, embedding co-creation within strategic innovation and customer relationship management frameworks (Chapman & Dilmperi, 2022).

In this study, the concept of value co-creation provides the theoretical basis for understanding the dependent construct, users' value co-creation behavior, as a set of observable actions that reflect users' active participation in firm-curated digital ecosystems. Such behaviors include generating user content, suggesting product features, offering peer support, engaging in collaborative testing, and contributing experiential insights. Unlike general participation or entertainment-driven engagement, value co-creation behavior is characterized by intentionality and reciprocity; users contribute in ways that enhance both individual and organizational outcomes (Rubio et al., 2021). This relational perspective underscores that value is not delivered to users but emerges with them through socially mediated and technologically enabled interaction.

The emergence of value co-creation behavior is closely linked to two critical antecedents: social interaction strategy and platform affordances (Guo et al., 2021). Firms orchestrate structured engagement mechanisms, such as gamification systems, recognition schemes, and collaborative feedback loops, that encourage users to participate meaningfully. At the same time, users' perceptions of platform affordances, including visibility, interactivity, and persistence, shape their understanding of how, when, and to what extent participation is possible. The intersection of these social and technological elements determines the quality and sustainability of co-creative engagement, reinforcing the socio-technical nature of value formation in digital contexts.

Equally important, co-creation behavior is mediated by the development of social capital, which provides the social infrastructure through which participation becomes viable. Structural connections facilitate information flow and coordination; cognitive alignment promotes shared meaning and goal congruence; and relational bonds nurture trust and emotional commitment. When these forms of social capital are present, users

experience a sense of belonging and confidence that encourages sustained collaboration. Consequently, value co-creation is not a spontaneous or purely motivational act but a socially embedded outcome that arises from collective interaction within networked communities.

By situating value co-creation within enterprise-led online communities, this study extends existing scholarship beyond user-driven or peer-to-peer settings. In firm-curated ecosystems, co-creation unfolds within structured boundaries characterized by organizational oversight, goal alignment, and managerial coordination. While such environments may constrain spontaneity, they also provide stability, legitimacy, and scalability, conditions that enable sustained collaboration when underpinned by strong social capital. This perspective highlights that the enterprise functions not merely as a facilitator but as an active orchestrator that designs, enables, and sustains co-creation through deliberate social and technical interventions.

In summary, the concept of value co-creation serves as the conceptual foundation for defining and analyzing users' value co-creation behavior in this study. It conceptualizes value as an emergent and relational construct, arising through the interplay of enterprise-initiated interaction strategy, platform affordances, and socially embedded collaboration. By integrating social capital as a mediating mechanism, this study advances a holistic understanding of how structured engagement and technological affordance translate into participatory behaviors. This integrative framework provides a socially grounded and enterprise-sensitive account of value formation in contemporary digital environments, reinforcing the view that sustainable innovation and competitiveness depend on a firm's capacity to co-create meaningfully with its users.

2.2.3 Affordance Theory

Affordance theory offers a socio-technical perspective to conceptualize how technological environments provide users with perceived opportunities for goal-oriented action. Originally proposed by Gibson (2014) in ecological psychology, the notion of affordance refers to the action possibilities latent in an environment, contingent on the actor's capabilities and intentions. In the domain of information systems, this concept has been extended to explain how users interpret and actualize the functionalities of digital platforms, giving rise to behavior that is not simply determined by technological features

but by the perceived usability of those features in achieving user-specific goals (Bonina et al., 2021; Lin et al., 2025).

Affordance, in this sense, is relational: it is neither a fixed property of technology nor a purely subjective interpretation, but a dynamic interaction between technological capabilities and users' intentions (Glover, 2022). This theoretical positioning has been particularly influential in understanding user engagement within digital innovation platforms and co-creation environments. Affordances emerge when users recognize and act upon the potential actions enabled by the platform's design, such as communicating with peers, participating in ideation, or contributing feedback (Abhari et al., 2022). These affordances may vary based on the user's goals, prior experience, and situational context.

Within enterprise-led online communities, affordance theory has been applied to explain how platform functionalities, such as visibility of user activities, persistence of content, and navigational convenience, shape user participation and collaboration (Ciuchita et al., 2022; Jiao et al., 2022). In this study, platform affordance is conceptualized as a multidimensional construct representing users' perceptions of the platform's ability to support co-creation behavior through four key affordance dimensions, visibility, convenience, association, and persistence. These dimensions reflect the extent to which users perceive the platform as enabling them to discover, connect, and contribute meaningfully to the community.

Visibility refers to the extent to which user actions and contributions are observable to others, enhancing social presence and recognition (Yang et al., 2021). Convenience denotes the perceived ease of navigating, accessing, and interacting with platform features (Shankar, 2021). Association captures the platform's capacity to link users with relevant peers, content, or topics, thereby fostering relational networks (Chiu et al., 2024). Persistence reflects the durability and retrievability of user-generated content, which supports knowledge accumulation and long-term engagement (Pathak et al., 2024). Together, these dimensions define a user's functional perception of the platform as a co-creation enabler.

The inclusion of affordance theory in this study serves three critical purposes. First, it complements social capital theory by addressing the technological substrate upon which social interaction occurs. While social capital emphasizes relational embeddedness, affordance theory focuses on the functional environment that scaffolds such relationships.

Second, it extends the concept of value co-creation by identifying how co-creation is conditioned not only by social motivation or organizational strategy, but also by the user's perceived ability to act within the digital system. Third, it establishes platform affordance as a parallel explanatory mechanism to social interaction strategy, thereby enriching the theoretical model with a socio-technical pathway that connects platform design with co-creative user behavior.

Empirical studies have shown that affordances directly influence users' willingness to participate in innovation and knowledge-sharing activities by lowering interactional barriers and enhancing user agency (Abhari et al., 2022; Jiao et al., 2022). In the context of Xiaomi's enterprise-led community, affordance theory explains how platform functionalities, such as threaded discussions, ranking systems, and feature suggestion tools, are not merely technical options but perceived action possibilities that facilitate ideation, collaboration, and communication. When users perceive the platform as offering high affordance, they are more likely to generate and sustain co-creation behavior, thereby contributing to the platform's innovation ecosystem.

In conclusion, affordance theory provides a robust conceptual foundation for understanding how perceived technological capabilities influence users' participatory behavior in digital communities. By integrating this perspective into the research model, the study captures the dual influence of social interaction and platform design on value co-creation. This addition strengthens the explanatory power of the overall framework and underscores the necessity of considering both social and technical determinants in analyzing user engagement within enterprise-led online ecosystems.

Table 2.1 Theoretical Foundations

Theory	Variables	Key References
Social Capital Theory	Structural Capital	Häuberer (2011); Kreuter and Lezin (2002); Schmid and Robison (1995)
	Cognitive Capital	
	Relational Capital	
Concept of Value Co-creation	Social Interaction strategy	Amit and Zott (2001); Miller (2016); Windsor (2017)
	Users' Value Co-creation Behavior	
Affordance Theory	Platform Affordances	Bucher and Helmond (2018); Gibson (2014); McCarthy et al. (2022)

2.3 Immediate Disciplines

2.3.1 Social Interaction Strategy

In the context of enterprise-led online communities, social interaction strategy refer to the systematic approaches employed by firms to cultivate meaningful user engagement, enhance peer communication, and stimulate participatory behaviors that align with Bourdieu (2011). As the independent variarategies are operationalized through three core dimensions: perceived risk, trust, and intimacy (Putnam, 1993). These dimensions reflect users' psychological responses to platform-mediated interactions and jointly determine their willingness to engage and contribute within the community space.

Perceived risk denotes users' concerns regarding the potential negative consequences of engaging in firm-hosted interactions, such as the exposure of personal information, the dissemination of unreliable content, or the misuse of user feedback (Alam et al., 2023). In community environments curated by the enterprise, users are particularly sensitive to asymmetric power relations and data control mechanisms, which may lead to skepticism or reluctance to participate. High levels of perceived risk can inhibit open communication, limit content generation, and undermine the legitimacy of value co-creation processes (Nadeem et al., 2021). Therefore, effective social interaction strategy must reduce ambiguity and perceived vulnerability through transparent governance, credible moderation, and secure participation protocols.

Trust, as a second dimension, captures the extent to which users believe that both the enterprise and fellow community members will act in reliable, fair, and mutually respectful ways. Trust is foundational to the development of positive relational dynamics and long-term community engagement (Cao et al., 2025; Lansing et al., 2023). Enterprise strategy that ensure consistency in feedback mechanisms, responsiveness in user support, and fairness in recognition systems can significantly strengthen user trust. This, in turn, fosters a cooperative climate that enables sustained interaction and collaborative behaviors essential for co-creation.

Intimacy reflects the perceived closeness and emotional resonance users experience in their interactions within the community. It encompasses feelings of social belonging, empathy, and affective identification with other users and the brand itself (Ahuvia et al., 2022; Liu et al., 2024). Intimacy is fostered through interaction designs that humanize participation, such as peer storytelling, personalized communication, shared

rituals signal care, reciprocity, and social acknowledgment. Communities that evoke strong intimacy among users are more likely to see the emergence of voluntary support behaviors, collective content production, and emotionally invested value co-creation (Bozdağ, 2024; Liao et al., 2023).

Together, these three dimensions provide a multidimensional framework for analyzing how users interpret and respond to social interaction strategy within enterprise-led digital environments. By integrating risk perceptions, relational trust, and emotional closeness into the conceptualization of interaction strategy, the study advances a more psychologically grounded understanding of how structured engagement mechanisms influence user behavior. Furthermore, this framework lays the foundation for examining how these perceptual and relational factors interface with social capital formation and ultimately shape users' co-creative participation.

2.3.2 Platform Affordance

Platform affordance refers to users' perceived possibilities for action that are enabled by the functional design of a digital platform. Rooted in affordance theory (Gibson, 2014), the concept has been widely adopted in information systems and organizational studies to describe the dynamic interplay between technological features and users' intentions, capabilities, and contextual goals (Mesgari et al., 2023; Strauss et al., 2024). In the context of enterprise-led online communities, platform affordance denotes the extent to which users recognize the platform's functionalities as supportive of their participation in co-creation activities, such as knowledge exchange, collaboration, and innovation (Voros Fregolente & Carvalho, 2023).

Unlike technical features, which are static design properties, affordances are relational and perceived (Tolino & Mariani, 2024). They do not exist independently of user interpretation but are actualized when users perceive that platform functionalities align with their goals. Therefore, the same platform feature may afford different actions to different users depending on their experience, motivation, and interaction context (Chen & Peng, 2023). In enterprise-curated co-innovation environments, users' perceived affordance of the platform critically influences their willingness and ability to engage in meaningful participatory behavior.

In this study, platform affordance is conceptualized as a multidimensional construct comprising three core perceptual dimensions, ideation affordance, collaboration

affordance, and communication affordance (Abhari et al., 2017). Ideation affordance refers to users' perception that the platform enables them to express, elaborate, revise, and monitor ideas related to product or service improvement, thereby supporting creative input within the community (Bharati et al., 2021). Collaboration affordance captures the extent to which users perceive the platform as allowing them to review others' ideas, participate in design related discussions, and contribute to co development activities that reflect joint problem solving (Abhari et al., 2022). Communication affordance denotes users' perception of the platform's capacity to facilitate knowledge sharing, interactive dialogue, peer assistance, and social connection building, which together sustain engagement continuity and support coordinated participation (Tan, 2024). These three perceptual dimensions reflect how users interpret the platform's functional environment as conducive to co creation, emphasizing that platform affordance emerges from users' recognition of actionable possibilities rather than from technical features alone.

As an independent variable, platform affordance functions as a technological enabler that shapes users' behavioral orientation toward co-creation. It provides the technical conditions under which social interaction, trust-building, and value alignment can unfold. In contrast to social interaction strategy, which emphasize psychological safety and emotional engagement, platform affordance underscores the functional usability of the platform environment as perceived by the user (Wu et al., 2024). A platform with high affordance lowers participation barriers, enhances interaction fluency, and signals opportunities for constructive contribution, thereby promoting more frequent and sustained co-creation behaviors (Guo et al., 2021).

Moreover, platform affordance is theorized to have both direct and indirect effects on users' value co-creation behavior. On one hand, users who perceive the platform as intuitive, supportive, and action-oriented are more likely to voluntarily engage in collaborative tasks. On the other hand, such perceptions also foster the formation of social capital by enabling users to build structural ties (through easier discovery and contact), share cognitive frameworks (through standardized interaction norms), and cultivate relational bonds (through persistent communication spaces). Therefore, platform affordance is not only a technological determinant of engagement, but also a facilitator of the social infrastructure required for value co-creation (Cheung et al., 2021).

In the empirical context of Xiaomi's online community, platform affordance is reflected in features such as hierarchical discussion threads, content curation algorithms, feedback loops, and participatory toolkits (e.g., bug reporting systems, beta testing modules) (Pee et al., 2020). Users who find these features visible, convenient, associative, and persistent are more likely to develop habitual engagement patterns and contribute to the brand's innovation and service ecosystem. As such, platform affordance serves as a critical mechanism through which digital environments are translated into participatory experiences.

In sum, platform affordance provides a socio-technical explanation for how perceived system capabilities shape user behavior in enterprise-led digital communities. By foregrounding users' interpretations of platform functionality, it highlights the role of perceived technological enablement in facilitating collaborative value co-creation. Its inclusion in the present model expands the explanatory scope beyond interpersonal and social-relational mechanisms, offering a more comprehensive understanding of the drivers behind user engagement and digital co-creation.

2.3.3 Structural Capital

Structural capital refers to the overall pattern and frequency of connections among individuals within a social system. In the context of enterprise-led online communities, it denotes the degree to which users are embedded in the interaction network, reflected through the breadth of their relationships, the volume of their engagements, and the accessibility of information and peer support. As defined by Nahapiet and Ghoshal (1998), structural capital provides the formal linkages that enable individuals to exchange resources, build presence, and coordinate actions within a shared environment.

In this study, structural capital functions as one of the key mediating mechanisms through which social interaction strategy exert their influence on users' value co-creation behavior. When enterprises introduce community tasks, gamified interaction systems, or visibility-based incentives, they are not only stimulating activity, but also encouraging the formation of user-user and user-platform ties. These interaction patterns shape the user's position within the network and determine their access to community-based knowledge and collaborative opportunities.

High levels of structural capital enhance the user's ability to respond to others, receive feedback, and participate in ongoing conversations, which are essential conditions

for meaningful co-creation (Cao et al., 2022). Conversely, users with low structural embeddedness may lack both the motivation and the means to contribute effectively. Therefore, structural capital serves as the foundational layer of social integration that enables enterprise-designed interaction mechanisms to translate into sustained participatory behaviors.

By conceptualizing structural capital as an intermediary resource, this study highlights the importance of social connectivity in digitally mediated co-creation processes. Rather than treating engagement as an individual decision, the framework recognizes that user behavior emerges from the networked context shaped by enterprise strategy and embedded relational patterns.

2.3.4 Cognitive Capital

Cognitive capital refers to the extent of shared representations, interpretations, and systems of meaning among actors within a social context. It encapsulates the degree to which community members possess a common language, aligned values, and mutual understanding, which collectively facilitate communication and reduce interpretive ambiguity (Nahapiet & Ghoshal, 1998). In enterprise-led online communities, cognitive capital manifests through users' familiarity with platform norms, internalization of brand values, and shared expectations regarding acceptable behaviors and interaction styles.

The formation of cognitive capital is not incidental; it is often shaped and reinforced by enterprise-initiated strategy such as themed discussion prompts, standardized content formats, knowledge-sharing mechanisms, and co-creation guidelines. These strategy provide users with interpretive frames that help structure their engagement. When users comprehend the brand's innovation logic, understand the technical discourse of the community, and align with its collective purpose, they are more likely to contribute constructively and interpret peer content through a collaborative lens.

In this study, cognitive capital serves as the interpretive infrastructure through which enterprise strategy are internalized by users. Rather than functioning merely as individual motivation, it enables a shared vision of what constitutes valuable participation and how such participation should be enacted. By fostering this collective interpretive capacity, cognitive capital ensures that co-creation behaviors are not fragmented but oriented toward coherent and mutually reinforcing outcomes.

Moreover, strong cognitive alignment enhances the community's capacity for coordinated action and innovation (Lim & Young, 2023). When users operate within a coherent interpretive system, they are more likely to engage in knowledge integration, collaborative problem-solving, and mutual support, key components of meaningful value co-creation. Therefore, cognitive capital not only enables smoother communication but also elevates the quality and direction of participatory behavior within enterprise-controlled ecosystems.

2.3.5 Relational Capital

Relational capital represents the affective and trust-based dimension of social capital, encompassing interpersonal trust, norms of reciprocity, social obligation, and emotional attachment among users. It reflects the perceived quality of relationships and the degree to which users believe that others, including both peers and the enterprise, will act in consistent, fair, and supportive ways (Tsai & Ghoshal, 1998). In online community settings, relational capital is built over time through repeated interactions, consistent recognition, and shared emotional experiences.

In enterprise-led digital communities, relational capital is particularly salient because users often face asymmetries in authority, information, and visibility. Enterprise strategy that foster transparency, fairness in reward systems, responsive communication, and peer recognition mechanisms are instrumental in building relational capital (Badraoui et al., 2025). These strategy signal that user contributions are valued and that the platform is a safe, trustworthy space for open engagement.

Within the framework of this study, relational capital operates as the social glue that transforms isolated acts of participation into sustained collective behavior. Trust reduces defensive barriers and facilitates open exchange, reciprocity builds long-term commitment to the community, and emotional attachment nurtures a sense of identity that transcends individual interaction. These relational dynamics not only lower the perceived risks of participation but also anchor user loyalty, ensuring that co-creation is both durable and socially embedded.

Importantly, relational capital extends beyond the dyadic firm-user relationship to include horizontal user-user ties. When users feel connected to one another, through shared achievements, mutual support, or even informal dialogue, they are more likely to engage in collective knowledge production and problem-solving. These behaviors are central to

value co-creation, as they reflect not just contribution but collaboration. Hence, relational capital enriches the participatory fabric of the community and strengthens the link between strategic engagement design and emergent co-creative behavior.

2.3.6 Users' Value Co-creation Behavior

Users' value co-creation behavior refers to the set of voluntary, interactive, and participatory actions through which users actively contribute to the mutual generation of value within a firm-hosted digital ecosystem. Rooted in the service-dominant logic of marketing (Vargo & Lusch, 2008), the concept redefines consumers not as passive recipients of value but as collaborative actors who, through engagement, knowledge sharing, and relational investment, help co-produce products, services, and experiences. In enterprise-led online communities, value co-creation behavior typically extends beyond transactional activity to include behaviors such as problem-solving, feedback provision, peer support, idea generation, and content contribution.

More specifically, value co-creation behaviors can be observed in multiple forms, (1) Knowledge-sharing behaviors, such as posting tutorials, usage tips, or comparative product analyses. (2) Feedback behaviors, including reporting bugs, suggesting feature improvements, and participating in survey-based evaluations. (3) Support behaviors, such as answering peers' questions, providing troubleshooting guidance, or offering product recommendations. (4) Co-design and innovation behaviors, exemplified by participation in beta testing, ROM customization, or ideation contests organized by the enterprise. (5) Community-building behaviors, including moderating discussions, organizing user-driven events, and creating multimedia content (e.g., reviews, vlogs, or product showcases) that enrich the community's collective knowledge base (Abhari et al., 2022; Hur & Beverley, 2023; Thomas et al., 2020).

Unlike general forms of user engagement, value co-creation implies a deeper alignment with community goals and a willingness to contribute to collective outcomes. It is characterized by intentionality, continuity, and mutual benefit (Marques et al., 2024). For example, users may offer detailed product reviews, suggest feature improvements, assist other users with technical issues, or participate in co-design activities initiated by the brand. These contributions not only generate utility for the enterprise in the form of innovation, loyalty, and community vitality, but also deliver intrinsic and extrinsic rewards to users, such as identity affirmation, social recognition, and psychological ownership.

Within the context of this study, value co-creation behavior serves as the dependent variable, shaped by both enterprise-initiated interaction strategy and the social resources users acquire through participation. Specifically, this behavior is hypothesized to be indirectly influenced by social interaction strategy via the mediating mechanisms of structural, cognitive, and relational capital. When users are well-connected (structural capital), share aligned interpretations (cognitive capital), and trust both the firm and their peers (relational capital), they are more likely to engage in behaviors that reflect cooperative orientation and long-term commitment.

In enterprise-led communities such as Xiaomi's, value co-creation behaviors are not only encouraged but strategically integrated into product development and brand evolution. Xiaomi's official forums, for instance, regularly invite users to participate in software testing, suggest ROM optimizations, and report bugs, actions that directly shape product iterations (Liu et al., 2022). In addition, Xiaomi users frequently generate product comparison reviews, produce instructional videos, and engage in peer-to-peer technical support (Zhang & Chun, 2023). High-contribution members are often elevated through community rankings and given opportunities to collaborate with engineers, further embedding their behaviors into the company's innovation pipeline. The company has institutionalized such contributions by offering community rankings, public recognition, and sometimes even material rewards. These mechanisms reinforce users' motivation to contribute while positioning the community as an integral part of the innovation system.

Importantly, this study conceptualizes value co-creation behavior as a socially enabled outcome, that is, not merely driven by individual motivation or platform features, but contingent upon the social structures and relationships formed within the community. Users contribute not just because they are incentivized, but because they feel connected, aligned, and trusted. This theoretical framing advances existing literature by embedding value co-creation within a broader relational and organizational context, recognizing that collaborative behavior is cultivated, not assumed.

In summary, users' value co-creation behavior represents a dynamic manifestation of collaborative participation in digital communities. It is the culmination of strategic design, social capital formation, and psychological readiness, serving as a key performance indicator of a platform's ability to mobilize user talent, knowledge, and affect toward shared value outcomes.

2.4 Conceptual Model and Hypothesis Statement

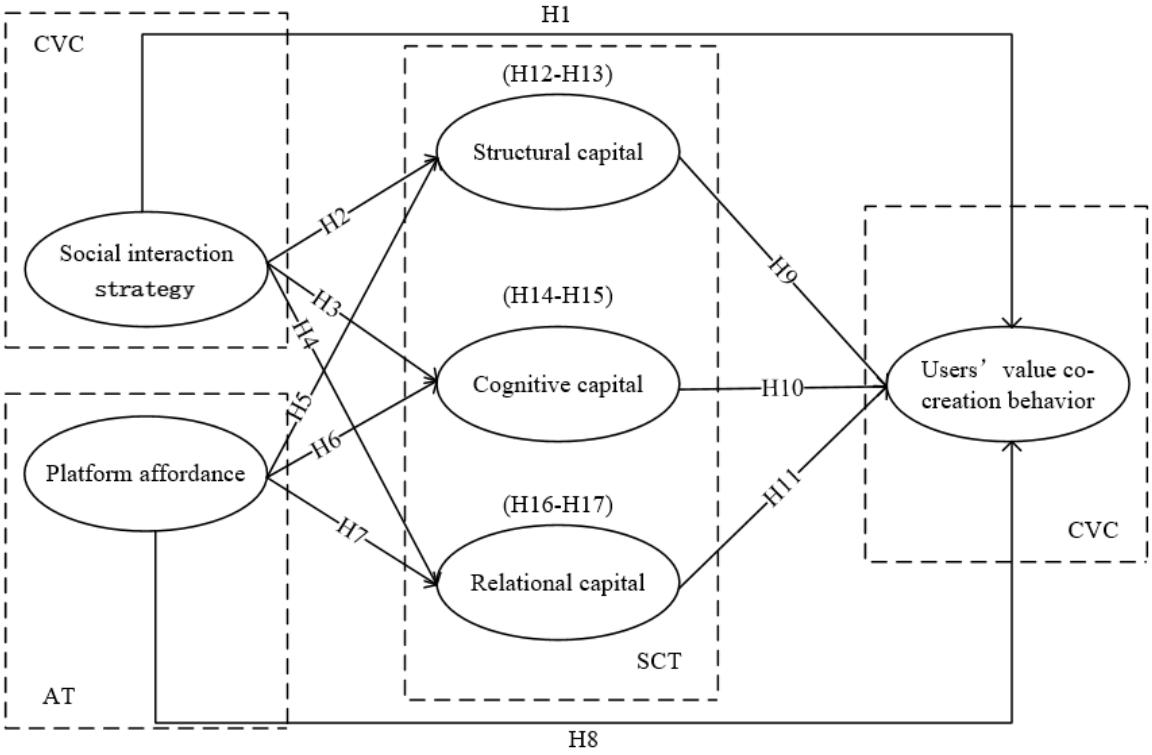
2.4.1 Conceptual Model

This study develops a conceptual model to examine how enterprise-led social interaction strategy and platform affordances influence users' value co-creation behavior through the mediating role of social capital. As illustrated in Figure 2.3, the model is grounded in social capital theory, the concept of value co-creation, and affordance theory, and adopts a three-tiered structure comprising independent, mediating, and dependent variables.

Social interaction strategy are conceptualized through three user-perceived dimensions, perceived risk, trust, and intimacy, which capture users' psychological evaluations of the interactional environment structured by the enterprise. In parallel, platform affordances reflect users' perceived possibilities for action derived from technological features such as visibility, persistence, and navigability. Together, these two enterprise-initiated mechanisms define how users interpret, access, and engage with the social and technological affordances of the online community.

The model identifies three forms of social capital, structural, cognitive, and relational, as mediating variables. These dimensions represent distinct but interconnected forms of embedded social resources that are activated through interaction and platform participation. Structural capital captures users' network connections and information exchange pathways; cognitive capital denotes shared understanding and goal alignment; and relational capital encompasses trust, reciprocity, and emotional commitment. Collectively, these resources facilitate participatory behavior and explain how enterprise-led strategy and platform affordances translate into user contributions.

The outcome variable, users' value co-creation behavior, refers to voluntary and sustained participation in co-creative activities such as content sharing, collaborative problem-solving, peer support, and feedback provision. The model posits that value co-creation does not arise directly from social interaction or platform design alone but through socially mediated and technologically enabled processes that reinforce one another. By integrating both social and technical dimensions, this framework provides a comprehensive explanation of how firm-curated community environments activate and sustain users' co-creative engagement.



Note: SCT: Social Capital Theory; CVC: Concept of Value Co-creation; AT: Affordance Theory.

Figure 2.2 Conceptual Model

2.4.2 Hypothesis Statement

Within the value co-creation framework, value is not produced unilaterally by firms but emerges through continuous interaction among multiple actors. From this perspective, user participation is a constitutive element of value generation rather than a secondary behavioral outcome (Saha et al., 2024). Enterprise-led online communities therefore function as organized interaction arenas in which firms deliberately design social interaction strategy to shape the conditions of co-creation (Lin, 2022). These strategy structure how users communicate, exchange resources, and interpret their roles within the community, thereby influencing whether interaction evolves into meaningful collaborative engagement. Social interaction strategy reduce psychological distance between the enterprise and users by enhancing perceived transparency, relational safety, and responsiveness (Alsaedi et al., 2022). When interaction environments foster trust, reciprocity, and emotional connection, users are more likely to perceive their participation as both legitimate and impactful. Such perceptions align with the core logic of value co-creation, which emphasizes active resource integration, mutual engagement, and shared purpose among participants (Amit & Zott, 2001; Miller, 2016; Windsor, 2017). As users

experience lower perceived risk and higher relational assurance, their willingness to contribute knowledge, feedback, and problem-solving efforts increases, supporting sustained co-creation activities that benefit both the community and the enterprise. Accordingly, grounded in the value co-creation framework, this study hypothesizes that:

H1: Social interaction strategy positively influence the users' value co-creation behavior.

Enterprise-led social interaction strategy, such as peer-invitation mechanisms, community-based reward systems, and interactive content challenges, embed users within structured relational networks that enhance the visibility and accessibility of social ties (Zeng Skovhøj, 2021). By increasing interaction frequency, cross-user exposure, and participation diversity, these strategy strengthen users' opportunities for network formation and collaborative exchange. As structural capital reflects the configuration and density of user connections, it is particularly responsive to platform-induced affordances that promote reciprocal visibility and sustained interaction. When firms design goal-aligned environments where users repeatedly encounter one another in cooperative activities, they facilitate the emergence of dense, multiplex relational structures that form the foundation of participatory engagement. Accordingly, this study hypothesizes that:

H2: Social interaction strategy positively influence the structural capital.

Social interaction strategy curated by the enterprise, such as brand storytelling, co-creation missions, or guided discussion topics, facilitate a convergence of values, language, and shared understandings among community members (Mars, 2022; Sorensen et al., 2017). These forms of directed interaction promote the emergence of mutual knowledge systems and interpretive alignment, both of which are central to the construct of cognitive capital. When users repeatedly encounter consistent messages, normative cues, and platform-anchored discourses, they are more likely to internalize a coherent cognitive schema that aligns individual goals with collective community narratives. This shared mental model not only streamlines communication but also reinforces participatory behavior by reducing ambiguity and enhancing relevance. Accordingly, this study hypothesizes that,

H3: Social interaction strategy positively influence the cognitive capital.

Relational capital refers to the trust, emotional bonds, and sense of reciprocity cultivated among users through sustained social interaction. In enterprise-led

communities, social interaction strategy, such as moderated discussions, personalized recognition, and feedback loops, create emotionally resonant touchpoints that encourage users to develop affective ties (Go, 2025; Murthy et al., 2025). These strategy foster familiarity and interpersonal trust by enabling consistent, constructive interactions among members, reinforcing the perception that others are dependable, responsive, and aligned with communal norms (Brown et al., 2004). Over time, such experiences form the basis for long-term emotional investment and mutual support, which are essential for building relational capital. Accordingly, this study hypothesizes that,

H4: Social interaction strategy positively influence the relational capital.

Affordance theory posits that technological features influence user behavior only when they are perceived as actionable possibilities (Bucher & Helmond, 2018; Gibson, 2014; McCarthy et al., 2022). In digital communities, platform affordance does not reside solely in technical design but in users' recognition of how platform functionalities enable interaction, connection, and coordination (Lee et al., 2024). These perceived affordances shape users' ability to locate others, maintain contact, and participate in collective activities within the platform environment. From the perspective of social capital theory, structural capital refers to the overall pattern of network connections that facilitate access to information and interaction opportunities (Ghahtarani et al., 2020). The formation of structural capital depends on the visibility, accessibility, and navigability of relational ties within a community. When platform affordances support functions such as interaction visibility, communication persistence, and ease of navigation, users are more likely to discover potential collaborators, sustain interaction flows, and expand their network reach. In this sense, platform affordance serves as a technological precondition for the development of structural capital by enabling users to activate and maintain network connections within enterprise-led online communities. Accordingly, integrating affordance theory with social capital theory, this study hypothesizes that:

H5: Platform affordance positively influence the structural capital.

Cognitive capital refers to the degree of shared understanding and interpretive alignment among community members. Platform affordances, such as semantic tagging, structured content templates, visual categorization, and consistent interaction patterns, help reduce communication ambiguity and enable users to interpret messages within a unified cognitive framework (Evans et al., 2017; Falahatpisheh & Khajeheian, 2020).

When users perceive the platform as offering tools that standardize meaning-making, such as pinned rules, labeled workflows, or featured user guides, they are more likely to develop shared terminologies, brand comprehension, and goal alignment. These perceptual and functional cues facilitate common interpretive ground, allowing for more effective cooperation and deeper engagement. Accordingly, this study hypothesizes that,

H6: Platform affordance positively influence the cognitive capital.

Platform affordances, reflecting users' perceptions of the platform's functional possibilities for interaction, play a pivotal role in expanding and maintaining social connectivity. Affordance elements such as visibility, real-time messaging, recommendation systems, and gamified features facilitate the discovery and reinforcement of social ties within digital communities (Ronzhyn et al., 2023; Wang et al., 2021). When these affordances are perceived as intuitive, seamless, and conducive to interaction, users are more likely to engage with diverse peers, thereby increasing the density and reach of their social networks. Enterprise-led platforms that embed such affordances effectively lower participation barriers and enable the formation of robust, multi-directional relational structures. Accordingly, this study hypothesizes that:

H7: Platform affordance positively influence the relational capital.

Platform affordances reflect users' perception of the system's functionalities that enable or constrain participation. When users perceive a platform as affording visibility (e.g., discoverability of content), convenience (e.g., seamless navigation), interactivity (e.g., comment and response features), and continuity (e.g., historical traceability of discussions), they are more inclined to contribute meaningfully (Ciuchita et al., 2022; Sah, 2024). These affordances reduce the cognitive and operational costs of engagement, while simultaneously amplifying users' sense of empowerment and participation efficacy. In enterprise-led communities, where user contributions often require motivation and clarity, well-designed affordances can transform passive browsing into active co-creation, enabling behaviors such as problem-solving, idea sharing, and peer feedback. Accordingly, this study hypothesizes that,

H8: Platform affordance positively influence the users' value co-creation behavior.

Structural capital, which captures the frequency, diversity, and accessibility of user connections, provides the relational infrastructure necessary for collaborative engagement

(Bracke, 2016). When users are embedded in dense and well-connected networks, they are more exposed to peer activities, more likely to discover ongoing collaborative opportunities, and more confident in initiating contributions (Dahlander & McFarland, 2013; Wang et al., 2020). High structural capital enhances the flow of information and facilitates trust-building through repeated interaction, thus lowering barriers to participation (Chen et al., 2011). In enterprise-led communities, this network embeddedness enables users to coordinate ideas, co-develop content, and engage in reciprocal feedback, thereby reinforcing sustained value co-creation behavior. Accordingly, this study hypothesizes that,

H9: Structural capital positively influence the users' value co-creation behavior.

Cognitive capital reflects the extent to which users share common interpretive frameworks, values, and goals within a community. When cognitive alignment is high, users are more likely to understand each other's intentions, interpret content similarly, and collaborate efficiently toward shared objectives (Cai & Shi, 2022; Hadwin et al., 2017). In an enterprise-led community, the presence of brand-aligned discourses, structured narratives, and coherent task instructions enhances this interpretive alignment, allowing users to engage in value-generating activities with minimal confusion. Shared cognitive frameworks reduce the coordination cost of co-creation and increase the perceived relevance and legitimacy of user contributions (Bidar et al., 2022; Torfing et al., 2021). Therefore, cognitive capital serves as a key enabler of trustful collaboration, innovation, and user participation in digital value co-creation. Accordingly, this study hypothesizes that,

H10: Cognitive capital positively influence the users' value co-creation behavior.

Relational capital embodies the emotional quality of relationships, including trust, mutual respect, and affective commitment. These relational bonds lower psychological resistance to collaboration and create a sense of obligation and willingness to support others in the community (Nowell & Boyd, 2014). In enterprise-led platforms, relational capital manifests through the sustained emotional investment users make when they repeatedly interact in trusted and supportive environments. When users feel connected to others on an interpersonal level, they are more likely to contribute ideas, co-create content,

and engage in feedback exchange with sincerity and openness (Chen et al., 2018). These actions collectively underpin long-term value co-creation. Accordingly, this study hypothesizes that,

H11: Relational capital positively influence the users' value co-creation behavior.

Social interaction strategy, when effectively designed, foster greater connectivity and interaction among users, thereby enhancing structural capital (Ellison et al., 2011; Filieri & Alguezaui, 2014). These strategy, such as incentive-based participation, peer-matching mechanisms, or moderated dialogue, stimulate users to build and maintain broad networks. As structural capital increases, users gain better access to information and social support, which in turn encourages more active and sustained value co-creation behavior (Liu et al., 2020; Tajvidi et al., 2021). Prior studies suggest that social ties facilitate opportunity discovery and trust-building, acting as a conduit through which strategic interaction translates into contribution behavior (Antoldi & Cerrato, 2020; Oparaocha, 2016). Thus, the mechanism linking enterprise strategy to user behavior operates through the embedding of users in resource-rich social structures. Accordingly, this study hypothesizes that,

H12: Structural capital mediates the relationship between social interaction strategy and the users' value co-creation behavior.

Perceived platform affordances, such as visibility, navigability, and continuity, enable users to efficiently identify and connect with others, thereby fostering the development of structural capital (Chen et al., 2024; Divon & Eriksson Krutrök, 2025; Shao & Pan, 2019). These affordances reduce search costs and make network formation more intuitive. In turn, a well-developed interaction network increases users' confidence in participation and provides the social infrastructure necessary for co-creation activities (Jones, 2019). Through the enhancement of structural capital, platform affordances indirectly support collaborative behaviors such as idea generation, mutual feedback, and joint problem-solving. This mediating mechanism explains how technical and functional design influences behavioral outcomes in digital communities. Accordingly, this study hypothesizes that,

H13: Structural capital mediates the relationship between platform affordance and the users' value co-creation behavior.

Social interaction strategy designed by enterprises, such as personalized communication prompts, value-aligned messaging, and guided community discussions, can foster shared interpretive frameworks among users (Semenda et al., 2024). These strategy help cultivate a sense of cognitive unity, wherein users understand platform norms, brand values, and peer expectations more clearly (Hwang & Seo, 2025; Yunus et al., 2024). As this cognitive capital strengthens, users are better positioned to engage in coordinated actions, mutual interpretation, and aligned co-creation efforts. Therefore, cognitive capital serves as a pivotal mediator by translating interpersonal strategy into actionable user engagement. Without a common interpretive ground, even well-structured interactions may fail to yield meaningful contribution. Accordingly, this study hypothesizes that,

H14: Cognitive capital mediates the relationship between social interaction strategy and the users' value co-creation behavior.

Platform affordances that promote conceptual clarity, such as visual taxonomies, thematic templates, onboarding explanations, and standardized interaction paths, support the development of cognitive capital by aligning user expectations and interpretive schemas (Zhu & Kohls, 2025). These affordances guide users to comprehend platform logic, brand identity, and participation norms (Bucher & Helmond, 2018; Fang et al., 2021). Once cognitive capital is established, users become more capable of participating in joint meaning-making processes and collaborative value co-creation. Thus, the influence of perceived affordance on user behavior is not merely functional, but also mediated by the degree to which users share a common understanding of platform purpose and social expectations (Chen et al., 2021; Jiao et al., 2022). Accordingly, this study hypothesizes that,

H15: Cognitive capital mediates the relationship between platform affordance and the users' value co-creation behavior.

Enterprise-initiated social interaction strategy such as encouragement of peer acknowledgment, personalized feedback mechanisms, and community recognition systems play a crucial role in shaping affective bonds among users. These strategy foster trust, reciprocity, and emotional closeness, core components of relational capital (Badraoui et al., 2025; Falcone & Castelfranchi, 2011). Once established, relational capital motivates users to contribute voluntarily, offer mutual support, and collaborate in co-creation

processes due to their emotional attachment to the community. In this regard, relational capital acts as an emotional and moral conduit, converting strategic interaction into active engagement and sustained contribution. Accordingly, this study hypothesizes that,

H16: Relational capital mediates the relationship between social interaction strategy and the users' value co-creation behavior.

Platform affordances, such as interactive feedback tools, private messaging functions, and emotionally expressive design elements, can nurture relational capital by facilitating empathetic and personalized exchanges (Tang et al., 2025; Wu et al., 2024). These affordances reduce emotional distance and enhance users' ability to build authentic connections with peers. As users experience stronger relational ties, their willingness to invest time, energy, and creativity into community co-creation increases (Chen et al., 2018). Hence, the presence of relational capital explains how functional design elements of the platform translate into emotionally meaningful and socially motivated value co-creation behaviors. Accordingly, this study hypothesizes that,

H17: Relational capital mediates the relationship between platform affordance and the users' value co-creation behavior.

2.5 Conclusion

This chapter has established the theoretical framework and conceptual foundations for examining how both social interaction strategy and perceived platform affordance influence users' value co-creation behavior in enterprise-led online communities. Anchored in social capital theory, concept of value co-creation, and affordance theory, the chapter conceptualized user behavior as a socially embedded and technologically situated outcome, shaped by firm-initiated strategy, user-perceived platform features, and the internalized social resources that emerge through interaction.

Three dimensions of social interaction strategy, perceived risk, trust, and intimacy, were introduced as key psychological antecedents, while platform affordance was incorporated to capture users' perception of technological enablement in terms of visibility, interactivity, and continuity. Both sets of antecedents are theorized to affect value co-creation behavior directly and indirectly through the mediating roles of structural capital, cognitive capital, and relational capital. The dependent variable, users' value co-

creation behavior, reflects proactive, voluntary contributions that generate mutual benefit and reinforce the community's participatory dynamics.

A comprehensive research model was presented, accompanied by seventeen hypotheses designed to test the relational and mediational pathways between strategic inputs, social capital dimensions, and behavioral outcomes. Collectively, this framework provides a theoretically integrative and empirically testable foundation for the investigation that follows in the next chapter.

CHAPTER 3
METHODOLOGY

This chapter presented the research paradigm, sampling strategy, questionnaire design, data collection procedures, and analysis techniques, including reliability, validity, and structural equation modeling, thereby establishing a methodological foundation for the empirical investigation.

3.1 Overview and Justification of Research Paradigm

This study adopts a positivist research paradigm, which aligns with the objective of empirically testing the causal relationships among social interaction strategy, social capital dimensions, and users' value co-creation behavior within enterprise-led online communities. Positivism is grounded in the belief that social reality is external, stable, and measurable, and that valid knowledge can be obtained through systematic observation and statistical analysis (Park et al., 2020).

From an ontological perspective, positivism assumes a realist view of reality, positing those social phenomena, such as user behavior, interaction strategy, and capital formation, exist independently of the researcher's perception and can be objectively measured. In this study, constructs such as perceived trust, intimacy, and value co-creation are treated as observable and quantifiable variables whose interrelationships can be examined through empirical data.

In terms of epistemology, the positivist stance emphasizes value-free, objective knowledge acquisition. The researcher is considered a neutral observer, and the study aims to uncover generalizable patterns through deductive reasoning. This aligns with the current research, which is designed to test hypotheses derived from established theoretical frameworks, using standardized instruments and structured data collection procedures.

From a methodological standpoint, positivism supports the use of quantitative methods to test theory-driven hypotheses. This study employs a structured survey design and statistical techniques such as Structural Equation Modeling (SEM) to validate the proposed research model and examine the mediating effects of social capital. The use of

numerical data, replicable instruments, and inferential analysis ensures internal consistency and empirical rigor.

Lastly, in terms of axiology, this study follows a neutral and objective value orientation, minimizing the researcher's subjective influence throughout the data collection and analysis process. The aim is not to interpret users' subjective experiences, but to identify statistically significant relationships that hold across respondents in a generalizable manner.

In summary, the adoption of a positivist paradigm provides a coherent philosophical foundation for this study, enabling the systematic examination of hypothesized relationships through objective measurement and quantitative validation. This paradigm is particularly appropriate given the study's focus on model testing, theory extension, and the pursuit of generalizable insights into user behavior in firm-curated digital environments.

3.2 Data Collection Administration

3.2.1 Target Population

The target population of this study comprises registered users of the Xiaomi Community. These individuals actively participate in an enterprise-managed digital platform operated by Xiaomi Corporation.

Xiaomi Community users were selected as the target population because they represent a diverse and engaged user base within a structured enterprise-led ecosystem. As of the time of data collection, the Xiaomi Community had more than 9.59 million registered members, covering a broad range of demographic backgrounds, including different age groups, regions, and professional experiences. This community is characterized by high levels of interaction, user-generated content, and collaborative activities related to product development, feedback provision, and peer support. Importantly, Xiaomi has strategically integrated its community into its product innovation and brand management processes, making its users ideal subjects for examining value co-creation behaviors. Their sustained participation in forums, feedback channels, and co-design initiatives provides a rich empirical basis for analyzing how enterprise-driven interaction strategy influence user contributions. Therefore, Xiaomi Community users

constitute an appropriate and representative population for investigating the relational and structural dynamics that underpin value co-creation in enterprise-led online environments.

3.2.2 Sample Size

Determining an appropriate sample size is critical to ensuring the reliability and generalizability of statistical results in quantitative research. In line with established methodological recommendations, this study adopts the guideline proposed by Memon et al. (2020), which suggests that the minimum required sample size should be 15- 20 times the total number of observed measurement items in the study.

The current research includes a total of 39 observed items across all constructs, including social interaction strategy, structural capital, cognitive capital, relational capital, and users' value co-creation behavior. Applying the 15-times rule, the minimum required sample size is 585 respondents (39 × 15 = 585). This threshold ensures adequate statistical power for structural equation modeling (SEM) and provides sufficient variance to assess the hypothesized relationships between constructs. Ultimately, 594 completed questionnaires were successfully collected. This final valid sample size slightly exceeds the minimum requirement because questionnaire distribution was intentionally set above the threshold to account for potential invalid or incomplete responses commonly observed in survey-based research. After data screening and quality control procedures, including the exclusion of incomplete submissions and responses that did not meet basic consistency checks, 594 usable cases remained for analysis. Exceeding the minimum recommended sample size enhances estimation stability and increases confidence in the robustness of the structural equation modeling results.

3.2.3 Sampling Methods

To ensure the representativeness and validity of the empirical findings, this study employed a random sampling approach to select respondents from the active user population of Xiaomi’s official online community. Random sampling was chosen because it provides each eligible community member an equal and independent probability of selection, thereby minimizing potential sampling bias and ensuring that the collected data accurately represent the behavioral and perceptual diversity of the user base. This approach is particularly suitable for a large-scale enterprise-led platform like the Xiaomi Community, which comprises millions of registered users with heterogeneous participation levels and demographic profiles. By avoiding internal platform

classifications or engagement tiers, random sampling allows the study to capture authentic user heterogeneity while maintaining methodological transparency and international comparability.

The sampling process was conducted as follows. The sampling frame consisted of verified community accounts that had demonstrated active participation within the previous twelve months through activities such as posting, commenting, or providing feedback. The community management team provided an anonymized list of active user identifiers, from which participants were randomly selected using a computer-generated random number algorithm. Selected users were invited to participate in the online questionnaire through Xiaomi's internal messaging and email notification systems, accompanied by an informed consent statement describing the study's purpose, confidentiality assurances, and voluntary nature. No stratification, quota control, or manual adjustment was introduced during sampling to preserve the randomness of selection. If an invited user declined participation or failed to respond within the specified period, the next identifier on the pre-randomized list was contacted to maintain sampling integrity (Noor et al., 2022).

This random sampling procedure ensured that participants were selected objectively, without bias toward any specific user subgroup or content domain. The method not only aligns with international research standards for digital platform studies but also reflects the real structure and user dynamics of the Xiaomi Community. Consequently, the resulting dataset provides a robust empirical foundation for analyzing the relationships among social interaction strategy, platform affordances, social capital, and users' value co-creation behavior within an enterprise-led online ecosystem.

3.2.4 Data Collection Technique

This study employed a structured questionnaire as the primary data collection instrument. The questionnaire was designed and administered using Wenjuanxing, one of the most widely used online survey platforms in China. Wenjuanxing offers flexible questionnaire design, logic control, and automated data export functions, making it suitable for large-scale academic surveys with multi-dimensional constructs. To effectively reach the target population, registered users of the Xiaomi Community, the survey link was distributed via WeChat, which is the most widely adopted social communication tool among Chinese internet users. Given that a significant proportion of

Xiaomi Community users are also active WeChat users, this distribution method ensured high accessibility and convenience for respondents.

The decision to use Wenjuanxing and WeChat for data collection was based on several practical considerations. First, it allowed for cost-effective and efficient access to a geographically dispersed online community. Second, the digital format matched the technological literacy and behavioral habits of the target population, who are familiar with both platforms. Third, it enabled real-time response monitoring, improved data accuracy, and minimized manual entry errors. Furthermore, by leveraging social sharing features in WeChat, the survey link could be disseminated within user circles organically, enhancing response rates.

In summary, the use of Wenjuanxing and WeChat provided a technically appropriate and contextually relevant solution for collecting high-quality data from Xiaomi Community users in a scalable and reliable manner.

3.3 Variables and Measurement Seales

3.3.1 Operational Definition of Variables

Table 3.1 provides the operational definitions of key constructs employed in this study, each grounded in prior empirical research. These definitions clarify how the variables are conceptualized and measured within the context of enterprise-led online communities.

Table 3.1 Operational Definitions of Related Variables

Variable Name	Operational Definition	Source
Social interaction strategy	Users' subjective evaluation of the enterprise-curated interactive environment, encompassing perceived risk, trust, and intimacy that collectively shape user engagement within the online community.	Yin et al. (2019)
Platform affordance	Users' perceived ability to engage with the technological and functional features of the enterprise-led platform that support ideation, collaboration, and communication.	Abhari et al. (2017)

Table 3.1 (continued)

Variable Name	Operational Definition	Source
Structural capital	The frequency, intensity, and breadth of users' interaction ties within the online community network.	Singh et al. (2024)
Cognitive capital	The extent to which users share goals, values, and interpretations that support mutual understanding in the community.	Singh et al. (2024)
Relational capital	The perceived quality of interpersonal relationships, including trust, reciprocity, and affective attachment among users.	Singh et al. (2024)
Users' value co-creation behavior	Voluntary, sustained actions through which users contribute to the mutual creation of value in enterprise-led communities.	Tian et al. (2023)

3.3.2 Variable Measurements

(1) Social Interaction strategy

Social interaction strategy refer to users' perceptions of the interactional environment fostered by the enterprise, encompassing concerns about risk, trust in the platform and community members, and intimacy within the community Yin et al. (2019). This study measures the construct across three dimensions, perceived risk, trust, and intimacy, each capturing a specific psychological facet of user experience in Xiaomi's official online community. Specifically, items SI1–SI4 correspond to perceived risk, SI5–SI9 to trust, and SI10–SI12 to intimacy. Measurement items were adapted from validated scales and revised to suit the Xiaomi context. All items were assessed using a 7-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Detailed item statements are presented in Table 3.2.

Table 3.2 Measurement Items of Social Interaction Strategy

Original items	Measurement items	Source
1.I'm worried about the quality of the product and the situation that I might buy fake goods.	SI1. I believe the information shared in the Xiaomi official online community is generally reliable and of good quality.	Yin et al. (2019)
2.Commodities may be damaged in transit.	SI2. I feel confident that suggestions or feedback from other users in the Xiaomi community can support sound decision-making.	
3.My personal information may be leaked.	SI3. I trust that my personal information is well protected when engaging in the Xiaomi online community.	
4.After-sales service may not be guaranteed.	SI4. I am confident that Xiaomi responds effectively to feedback or concerns raised in the online community.	
5.I think most of the businesses in social e-commerce have good reputation.	SI5. I believe Xiaomi, as the enterprise behind the community, has a good reputation.	
6.Existing laws and systems can effectively guarantee the security of online transactions.	SI6. I trust that Xiaomi's platform follows proper rules and policies to ensure safe interactions within the community.	
7.I think the website and payment system are reliable and can guarantee the success of the transaction.	SI7. I believe the technical systems of Xiaomi's online community (e.g., data handling, comment management) are reliable.	
8.Business credit rating is the main criterion for judging their credibility.	SI8. I consider Xiaomi's response record and engagement level in the community as important indicators of its trustworthiness.	

Table 3.2 (continued)

Original items	Measurement items	Source
9.I think the friends on this website are trustworthy.	SI9. I believe most members of the Xiaomi community are honest and trustworthy.	
10.On this website, my friends and I have a very cordial feeling.	SI10. I feel a strong sense of connection with other users in the Xiaomi online community.	
11.On this website, I feel very close to my friends.	SI11. I feel emotionally close to other members when interacting in the Xiaomi community.	
12.On this website, I interact with my friends frequently.	SI12. I frequently engage in discussions or share ideas with other users in the Xiaomi official online community.	

(2) Platform Affordance

Table 3.3 Measurement Items of Platform Affordance

Original items	Measurement items	Source
1.The platform enables me to submit new product ideas.	PA1.The Xiaomi community enables me to propose new ideas or suggestions related to the brand or its products.	Abhari et al. (2017)
2.The platform enables me to describe/present my product ideas.	PA2.The Xiaomi community allows me to present and elaborate on my creative ideas for product or service improvement.	
3.The platform enables me to monitor my idea evaluation process.	PA3.The Xiaomi community enables me to track how my proposed ideas are received and evaluated by others.	
4.The platform enables me to revise/resubmit my product ideas.	PA4.The Xiaomi community allows me to revise or update my previously submitted ideas based on community or platform feedback.	

Table 3.3 (continued)

Original items	Measurement items	Source
5.The platform enables me to review different product ideas.	PA5.The Xiaomi community enables me to browse and evaluate ideas contributed by other users.	
6.The platform enables me to vote for different product ideas.	PA6.The Xiaomi community allows me to express support for others' ideas through voting or other interactive tools.	
7.The platform enables me to contribute to product design/development.	PA7.The Xiaomi community gives me opportunities to participate in co-creating or improving products and services.	
8.The platform enables me to contribute to product commercialization.	PA8.The Xiaomi community enables me to take part in discussions or actions related to product launch and commercialization.	
9.The platform enables me to share my knowledge.	PA9.The Xiaomi community facilitates sharing my experiences, knowledge, or suggestions with other users.	
10.The platform enables me to solicit votes/support.	PA10.The Xiaomi community allows me to gather support or feedback from peers for my contributions.	
11.The platform enables me to discuss new ideas with community.	PA11.The Xiaomi community supports real-time dialogue and collaborative discussion of new ideas.	
12.The platform enables me to network with community.	PA12.The Xiaomi community helps me build social connections and maintain interactions with other community members.	

Platform affordance refers to users' perceptions of the functional possibilities offered by the enterprise-led digital environment, specifically those that enable ideation,

collaboration, and communication within the community (Abhari et al., 2017). This study conceptualizes the construct across three dimensions, ideation affordances, collaboration affordances, and communication affordances, each capturing a different aspect of user-platform interaction in Xiaomi's official online community. The ideation affordance items assess users' ability to submit, present, monitor, and revise their ideas related to product or service improvement, reflecting the platform's capacity to support creative expression and user-driven innovation. The collaboration affordance items measure the extent to which the community allows users to engage with others' ideas, contribute to design processes, and participate in commercialization, thereby enabling co-production and participatory development. The communication affordance items reflect the platform's role in facilitating knowledge exchange, peer support, dialogic interaction, and community networking. Measurement items were adapted from validated scales proposed by Abhari et al. (2017) and modified to suit the contextual characteristics of Xiaomi's community. All items were evaluated using a 7-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Detailed item statements are presented in Table 3.3.

(3) Structural Capital

Table 3.4 Measurement Items of Structural Capital

Original items	Measurement items	Source
1. The supplier's representative spends time getting to know our people	SC1. Xiaomi community users take time to get to know each other within the Xiaomi official online community.	Singh et al. (2024)
2. Our supplier's representative contacts us by phone, e-mails, letters, and/or fax frequently	SC2. Xiaomi community users frequently interact with each other through posts, comments, and private messages in the Xiaomi official online community.	
3. Our supplier's representative often talks about common interests besides work	SC3. Xiaomi community users often communicate about shared interests beyond Xiaomi products in the Xiaomi official online community.	

Structural capital refers to the overall pattern and frequency of connections among users within a digital community, reflecting the extent to which individuals are

socially embedded in the interaction network (Mashayekhi & Head, 2022). In this study, structural capital is assessed through users' perceptions of interpersonal interaction frequency, communication breadth, and engagement beyond transactional exchanges in Xiaomi's official online community. Items were adapted from Singh et al. (2024) to capture users' engagement with others, including their willingness to form relationships, the frequency of communication via community functions (e.g., posts, comments, private messages), and the tendency to discuss shared interests beyond Xiaomi products. Each item is measured using a 7-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Detailed item statements are listed in Table 3.4.

(4) Cognitive Capital

Table 3.5 Measurement Items of Cognitive Capital

Original items	Measurement items	Source
1. This supplier shares our goals for this business	CC1. Xiaomi community users share common goals related to improving Xiaomi products or services.	Singh et al. (2024)
2. Both firms share the same business values	CC2. Xiaomi community users share similar values regarding active participation and collaboration within the Xiaomi official online community.	
3. Both firms often agree on what is in the best interest of the relationship	CC3. Xiaomi community users generally agree on what actions best support the development and value of the Xiaomi official online community.	
4. Our company is enthusiastic about pursuing collective goals and missions with this supplier	CC4. Xiaomi community users are enthusiastic about pursuing shared goals and value co-creation initiatives within the Xiaomi official online community.	

Cognitive capital refers to the shared goals, values, and mutual understandings that facilitate coordinated interaction within a social network (Nahapiet & Ghoshal, 1998). In the context of Xiaomi's official online community, cognitive capital captures the degree to which users align in their expectations, collective intentions, and

interpretations of community participation. This study adapts items from Singh et al. (2024) to measure users' perceived alignment in terms of co-creation goals, value orientations, and community-building priorities. The items reflect whether users share a common purpose, agree on actions that benefit the community, and express enthusiasm for collaborative engagement. Each item is measured on a 7-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Detailed item statements are presented in Table 3.5.

(5) Relational Capital

Relational capital refers to the trust, mutual respect, and norms of reciprocity that emerge through sustained interpersonal relationships in a social network (Nahapiet & Ghoshal, 1998). In this study, relational capital is measured by users' perceptions of reliability, responsiveness, and mutual support within the Xiaomi official online community. Based on the scale developed by Singh et al. (2024), the measurement items reflect users' willingness to help others, keep promises, respond flexibly, and uphold trust-based norms in daily interactions. These items capture the emotional and ethical quality of user-to-user relationships, which are critical for sustaining long-term cooperative behavior. All items are measured on a 7-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). The detailed item statements are listed in Table 3.6.

Table 3.6 Measurement Items of Relational Capital

Original items	Measurement items	Source
1. This supplier is flexible in response to request we make	RC1. Xiaomi community users are willing to respond flexibly to others' requests within the Xiaomi official online community.	Singh et al. (2024)
2. This supplier makes an effort to help us during emergencies	RC2. Xiaomi community users make efforts to assist each other when difficulties arise in the Xiaomi official online community.	
3. This supplier keeps its word	RC3. Xiaomi community users generally keep their promises during interactions in the Xiaomi official online community.	

Table 3.6 (continued)

Original items	Measurement items	Source
4. This supplier is trustworthy	RC4. Xiaomi community users are trustworthy in their interactions within the Xiaomi official online community.	

(6) Users' value Co-creation Behavior

Users' value co-creation behavior refers to individuals' voluntary and sustained actions that contribute to the mutual creation of value within a brand-hosted digital community. In the context of this study, it captures users' engagement in Xiaomi's official online community through participation, content contribution, feedback provision, and involvement in platform-led initiatives. The measurement items were adapted from Tian et al. (2023) and reworded to reflect the behavioral manifestations of co-creation within Xiaomi's platform environment. The items assess different aspects of user participation, including general engagement, account personalization, interactive contributions, and involvement in structured co-creation activities such as product testing or community events. All items were rated on a 7-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Detailed measurement statements are provided in Table 3.7.

Table 3.7 Measurement Items of Users' value Co-creation Behavior

Original items	Measurement items	Source
1.I use Alipay.	VC1. I participate in the Xiaomi official online community.	Tian et al. (2023)
2.I use Alipay to manage my e-wallet accounts.	VC2. I manage my personal account and preferences within the Xiaomi official online community.	
3.I use Alipay to do transactions.	VC3. I contribute content, feedback, or suggestions related to Xiaomi products or services in the official online community.	

Table 3.7 (continued)

Original items	Measurement items	Source
4.I sign up for Alipay that are specially designed for digital payment systems.	VC4. I sign up for product testing, topic discussions, or official events specifically designed for Xiaomi community members.	

3.4 Data Analysis Methods

3.4.1 Descriptive Statistical Analysis Methods

Descriptive statistical analysis serves as a foundational step in quantitative research, aiming to summarize and examine the distributional characteristics of collected data (Kotronoulas et al., 2023). This process provides a preliminary understanding of respondent profiles and item-level responses, helping to detect potential outliers, abnormal patterns, or data entry errors before conducting advanced statistical modeling. Commonly used indicators include measures of central tendency (mean and median), dispersion (standard deviation), and distributional shape (skewness and kurtosis), which together offer insights into the normality and consistency of the data.

In this study, descriptive analysis was conducted on both demographic variables (e.g., gender, age, education level, and frequency of Xiaomi Community use) and measurement items across all constructs, including social interaction strategy, platform affordance, the three forms of social capital, and users' value co-creation behavior. The analysis was performed using SPSS 26.0, and results were used to assess item response variation, detect ceiling or floor effects, and verify data suitability for subsequent structural equation modeling. This step also helped validate the integrity and representativeness of the collected sample before entering the hypothesis testing stage.

3.4.2 Pilot Test

A pilot test serves as a preliminary stage of quantitative research conducted prior to the full-scale data collection. Its primary purpose is to assess the clarity, reliability, and structural validity of the questionnaire instrument, ensuring that all items are comprehensible, contextually relevant, and capable of accurately capturing the intended constructs (Hertzog, 2008). Conducting a pilot test allows the researcher to identify potential issues such as ambiguous wording, measurement redundancy, or response bias,

and to make necessary adjustments before distributing the finalized survey. This procedure enhances both the internal consistency and overall credibility of the measurement framework, thereby strengthening the validity of the subsequent empirical analysis.

In the context of this study, a pilot test was conducted within the Xiaomi official online community to verify the applicability of the questionnaire items measuring social interaction strategy, platform affordances, social capital, and users' value co-creation behavior. A total of 30 preliminary questionnaires were distributed to randomly selected community users who met the inclusion criteria (Lakens, 2022). Respondents were encouraged to provide feedback regarding the clarity, wording, and length of the questionnaire. Based on the responses and qualitative comments received, minor revisions were made to improve the phrasing of several items and the logical flow of sections, while the core constructs and measurement dimensions remained unchanged. The results of the pilot test indicated that the questionnaire possessed satisfactory clarity and reliability, thus confirming its suitability for the main data collection phase.

3.4.3 Reliability Analysis Methods

Reliability analysis assesses the internal consistency of a measurement scale, determining whether multiple items intended to measure the same construct yield consistent results. In social science research, Cronbach's alpha coefficient is the most widely used indicator for evaluating reliability, with a value above 0.70 generally considered acceptable, and values above 0.80 indicating good reliability (Kennedy, 2022).

In this study, reliability analysis was conducted for all latent constructs, including social interaction strategy (perceived risk, trust, intimacy), platform affordance, structural capital, cognitive capital, relational capital, and users' value co-creation behavior. Using SPSS 26.0, Cronbach's alpha was calculated for each construct based on the pilot study data and revalidated during the formal survey. This procedure ensured that the adapted items not only reflected the theoretical dimensions but also achieved satisfactory internal consistency within the empirical context of the Xiaomi Community. All constructs demonstrated acceptable reliability levels, confirming the suitability of the measurement instrument for further analysis.

3.4.4 Validity Analysis Methods

Validity analysis is conducted to evaluate the degree to which the measurement instrument accurately captures the theoretical constructs it is designed to assess (Rourke & Anderson, 2004). In quantitative research, validity ensures that observed indicators genuinely reflect the latent variables under investigation rather than extraneous or unintended factors. The analysis commonly involves both content validity, which examines whether items comprehensively represent the conceptual domain of each construct, and construct validity, which assesses the extent to which the measurement items exhibit appropriate convergent and discriminant properties. High construct validity indicates that items associated with a single factor correlate strongly with one another (convergent validity) while remaining distinct from items representing different constructs (discriminant validity). Establishing strong validity is essential for theoretical accuracy, measurement precision, and empirical generalizability of the study findings.

In this study, validity analysis was carried out to assess whether the questionnaire effectively measures the theoretical constructs of social interaction strategy, platform affordances, social capital (comprising structural, cognitive, and relational dimensions), and users' value co-creation behavior within the context of the Xiaomi online community. Content validity was established through expert review, wherein three academic specialists in digital economy and management were invited to evaluate the conceptual alignment and linguistic clarity of the measurement items. Subsequently, construct validity was assessed through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The EFA results confirmed that all items loaded appropriately on their corresponding factors with no significant cross-loadings, indicating clear construct separation.

3.4.5 Structural Equation Modeling Analysis Methods

To empirically test the proposed theoretical model and verify the hypothesized relationships among constructs, this study employed Structural Equation Modeling (SEM) using AMOS 26.0. SEM allows for the simultaneous estimation of multiple dependent relationships and latent constructs, incorporating both measurement models (via confirmatory factor analysis) and structural models (via path analysis). It is particularly well-suited for studies involving complex mediating mechanisms and multi-dimensional variables.

Prior to SEM, data suitability was assessed using Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity, based on pre-investigation data. As shown in Table 3.10, the KMO value was 0.840, exceeding the commonly recommended threshold of 0.80, indicating that the sample was adequate for factor analysis. Bartlett's Test of Sphericity yielded a Chi-Square value of 3659.596 with 1081 degrees of freedom and a significance level of 0.000, confirming that the correlation matrix was not an identity matrix and thus suitable for factor extraction.

Following this verification, a two-step SEM procedure was adopted. First, the measurement model was assessed to examine construct validity, including convergent and discriminant validity. Then, the structural model was tested to evaluate the direct and mediating effects among social interaction strategy, social capital dimensions, and users' value co-creation behavior. Fit indices, path coefficients, and explanatory power were analyzed to determine the adequacy of the model and the strength of hypothesized relationships.

3.5 Ethical Consideration

This study strictly adhered to established ethical standards for academic research involving human participants. Ethical considerations were addressed throughout the research process to ensure the rights, privacy, and well-being of all participants.

First, informed consent was obtained from all respondents prior to questionnaire completion. A consent statement was included on the cover page of the online survey, clearly stating the purpose of the study, the voluntary nature of participation, and the right to withdraw at any time without consequence. Participants were informed that their responses would be used exclusively for academic research.

Second, anonymity and confidentiality were strictly maintained. No personally identifiable information was collected, and all responses were stored in a secure, password-protected system accessible only to the researcher. Data were reported in aggregate form to prevent individual identification.

Third, voluntary participation was emphasized throughout the data collection process. Participants were not offered financial or material incentives, thereby minimizing coercion and ensuring authenticity of responses. The use of the Wenjuanxing platform and

WeChat for distribution complied with data privacy regulations and ensured accessibility while respecting user autonomy.

In sum, the study was conducted in accordance with ethical guidelines for research involving human subjects and took appropriate measures to safeguard participants' rights and data integrity.

3.6 Pre-test

In the preliminary phase of the study, a total of 30 valid questionnaires were collected exclusively from participants who had verifiably joined the Xiaomi online community. Responses that failed to meet the inclusion criteria were systematically excluded. Following data collection, a comprehensive assessment of the reliability and validity of the measurement items was conducted, laying a solid empirical foundation for the subsequent formal investigation. The analytical procedures and findings derived from this pilot exercise are presented in the sections that follow, underscoring the integrity and precision of the overall research design.

3.6.1 Reliability Analysis

As presented in Table 3.8, the reliability analysis of the pre-test data demonstrates a high level of internal consistency across all study variables. Cronbach's alpha coefficients for the constructs under investigation, including social interaction strategy, platform affordance, structural capital, cognitive capital, relational capital, and users' value co-creation behavior, range from 0.850 to 0.912. These values exceed the commonly accepted threshold of 0.70, affirming the internal coherence of the items designed to measure each construct (Wang et al., 2023). Specifically, the dimensions of platform affordance (α = 0.912) and users' value co-creation behavior (α = 0.892) exhibit particularly strong reliability, suggesting that the items within these scales are highly interrelated and conceptually aligned. The relatively high Cronbach's alpha scores for the remaining variables, social interaction strategy (0.885), structural capital (0.862), cognitive capital (0.850), and relational capital (0.887), further validate the measurement tool's robustness in capturing respondents' perceptions with consistency. The results indicate that the questionnaire is statistically sound for subsequent empirical testing and does not require major revisions in its current form.

Table 3.8 Pretest Reliability Statistics

Study variables	Number of questions	Cronbach's α
Social interaction strategy	12	0.885
Platform affordance	12	0.912
Structural capital	3	0.862
Cognitive capital	3	0.850
Relational capital	4	0.887
Users' value co-creation behavior	4	0.892

3.6.2 Validity Analysis

As shown in Table 3.9, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy yielded a value of 0.733, surpassing the conventional benchmark of 0.70. This result indicates that the sample data collected during the pre-test phase possess sufficient common variance to justify the application of factor analysis. The adequacy of the sample confirms that the inter-item correlations among the measured variables are moderately strong, supporting the construct validity of the instrument and affirming its suitability for subsequent multivariate analyses. A KMO value in this range reflects a statistically acceptable level of compactness in the partial correlations among indicators, which is essential for extracting reliable factor structures in the formal study. Additionally, Bartlett's Test of Sphericity produced a highly significant result ($\chi^2 = 1665.853$, df = 351, $p < .001$), further validating the appropriateness of factor analysis for this dataset. The significance level demonstrates that the correlation matrix is not an identity matrix, thereby confirming the existence of underlying relationships among the variables (Wang et al., 2023). Together, the KMO and Bartlett's test outcomes provide robust preliminary evidence for the construct validity of the survey instrument, reinforcing its structural integrity and measurement precision in the context of the pre-test.

Table 3.9 Pre-investigation KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.733
Bartlett's Test of Sphericity	Approx. Chi-Square	1665.853
	df	351
	Sig.	.000

As demonstrated in Table 3.10, the exploratory factor analysis (EFA) was conducted using varimax rotation and the criterion of eigenvalues greater than 1, resulting in the extraction of seven common factors. These extracted factors align precisely with the theoretical constructs outlined in the revised questionnaire, encompassing social interaction strategy, platform affordance, structural capital, cognitive capital, relational capital, and users' value co-creation behavior. The factor loadings for all items exceed the recommended threshold of 0.5, indicating strong correlations between the observed indicators and their respective latent constructs. Furthermore, the low cross-loadings each below 0.3 confirm the unidimensionality of the measurement items and demonstrate a clear factor structure without substantive overlap or multicollinearity across dimensions. The cumulative explained variance for the seven-factor solution reached 78.074%, substantially exceeding the acceptable benchmark of 60%, thereby suggesting that the extracted common factors effectively capture the majority of variance embedded in the original data structure. In particular, the first three components accounted for over 43% of the total variance, with individual contributions from the subsequent components maintaining statistical significance (Howard & Henderson, 2023). These findings provide compelling evidence for the construct validity of the instrument.

Table 3.10 Pretest Exploratory Factor Analysis Results

Study variables	**Items**	**Component**						
		1	**2**	**3**	**4**	**5**	**6**	**7**
Social	SI1	-0.029	-0.034	-0.093	-0.044	**0.823**	-0.147	-0.109
interaction	SI2	-0.068	-0.064	-0.113	0.112	**0.879**	0.062	-0.098
strategy	SI3	-0.095	-0.045	-0.093	0.069	**0.865**	-0.057	0.098
	SI4	-0.099	-0.031	-0.117	-0.044	**0.828**	0.001	-0.056
	SI5	**0.825**	0.125	0.078	0.040	-0.059	0.056	0.042
	SI6	**0.856**	0.007	0.013	-0.191	0.109	0.028	0.088
	SI7	**0.879**	0.006	-0.007	0.057	-0.157	0.044	0.008
	SI8	**0.841**	0.101	-0.032	-0.087	-0.118	0.089	0.053
	SI9	**0.851**	0.022	-0.015	-0.056	-0.086	0.122	0.083
	SI10	0.035	0.030	-0.032	-0.029	-0.066	**0.916**	0.032
	SI11	0.180	0.038	-0.016	-0.020	-0.115	**0.859**	0.079

Table 3.10 (continued)

Study variables	Items	Component						
		1	2	3	4	5	6	7
	SI12	0.091	-0.165	-0.039	0.042	0.046	**0.849**	-0.036
Platform affordance	PA1	0.043	0.007	-0.048	-0.099	-0.043	0.026	**0.878**
	PA2	0.145	0.062	-0.066	-0.053	-0.096	0.015	**0.861**
	PA3	0.046	-0.120	0.027	0.005	-0.013	0.029	**0.867**
	PA4	0.056	0.139	0.098	0.085	-0.048	0.018	**0.848**
	PA5	0.028	-0.022	-0.073	**0.883**	0.059	-0.043	0.028
	PA6	-0.147	0.034	0.259	**0.800**	-0.014	0.015	-0.079
	PA7	-0.044	-0.050	-0.010	**0.885**	-0.007	0.016	-0.078
	PA8	-0.055	0.078	0.048	**0.866**	0.040	0.007	-0.036
	PA9	0.058	**0.890**	0.129	0.057	-0.006	-0.066	0.035
	PA10	0.068	**0.889**	0.060	0.110	-0.050	0.087	-0.032
	PA11	0.119	**0.861**	0.181	-0.006	-0.036	-0.004	-0.087
	PA12	0.011	**0.913**	0.010	-0.130	-0.089	-0.122	0.023
Structural capital	SC1	0.242	0.109	0.253	0.161	0.157	**0.763**	0.189
	SC2	0.241	0.146	0.182	0.178	0.131	**0.801**	0.214
	SC3	0.197	0.193	0.209	0.222	0.13	**0.781**	0.184
Cognitive capital	CC1	0.028	-0.022	-0.073	**0.883**	0.059	-0.043	0.028
	CC2	-0.147	0.034	0.259	**0.800**	-0.014	0.015	-0.079
	CC3	-0.044	-0.050	-0.010	**0.885**	-0.007	0.016	-0.078
	CC4	-0.055	0.078	0.048	**0.866**	0.040	0.007	-0.036
Relational capital	RC1	0.056	0.139	**0.848**	0.085	-0.048	0.018	0.098
	RC2	0.031	0.103	**0.875**	-0.024	-0.108	-0.104	-0.052
	RC3	-0.080	0.037	**0.857**	0.069	-0.164	0.023	-0.082
	RC4	0.028	0.084	**0.841**	0.043	-0.100	-0.032	-0.054
Users' value co-creation behavior	VC1	0.058	**0.890**	0.129	0.057	-0.006	-0.066	0.035
	VC2	0.068	**0.889**	0.060	0.110	-0.050	0.087	-0.032
	VC3	0.119	**0.861**	0.181	-0.006	-0.036	-0.004	-0.087
	VC4	0.011	**0.913**	0.010	-0.130	-0.089	-0.122	0.023

Table 3.10 (continued)

Study variables / Items	Component						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Eigenvalues	4.845	4.091	2.943	2.857	2.223	2.158	1.963
Explained variance (%)	17.944	15.152	10.900	10.582	8.233	7.994	7.269
Cumulative explained variance (%)	17.944	33.096	43.996	54.578	62.811	70.805	78.074

3.7 Conclusion

This chapter outlined the methodological framework adopted to investigate the relationships among social interaction strategy, platform affordance, social capital dimensions, and users' value co-creation behavior in enterprise-led online communities. It justified the use of a positivist paradigm and detailed the research design, including the target population, sampling strategy, data collection procedure, and instrument development. A structured questionnaire was administered to Xiaomi Community users via Wenjuanxing and WeChat, with an appropriate sample size determined according to established methodological guidelines.

Descriptive statistical analysis, reliability and validity assessments, and structural equation modeling (SEM) were employed as the primary analytical techniques to test the hypothesized relationships. Pre-test results confirmed high internal consistency across all constructs, while exploratory factor analysis demonstrated a clear factor structure aligned with the theoretical model, encompassing seven latent variables. Ethical considerations, including informed consent, anonymity, and voluntary participation, were rigorously addressed to ensure the integrity and transparency of the research process.

The methodological procedures presented in this chapter provide a solid empirical foundation for the subsequent analysis. The next chapter will present the results of the data analysis, including model testing, hypothesis verification, and the interpretation of key findings.

CHAPTER 4
RESULTS

This chapter presents the empirical findings derived from the formal investigation, systematically addressing the research hypotheses formulated in preceding chapters. Initially, the chapter offers an overview of the respondents, detailing their demographic characteristics and the distribution of responses across key constructs to establish the context of the sampled population. Subsequently, the quality and adequacy of the data are thoroughly evaluated, providing assurances of reliability and validity essential for meaningful interpretation. Building upon this methodological foundation, the chapter proceeds to examine the structural relationships among core theoretical variables, verifying the proposed conceptual framework through rigorous assessments of both measurement integrity and hypothesized causal pathways.

4.1 Descriptive Analysis

4.1.1 Sample Characteristics

As presented in Table 4.1, the sample comprises 594 valid respondents drawn from members of the Xiaomi online brand community, with a gender distribution skewed toward male participants (68.1%), while female respondents account for 31.9%. The age composition is relatively youthful, with 36.6% aged between 18 and 25, followed by 27.0% aged 26–35, and 22.1% aged 36–45. Only 14.3% of the participants are aged 45 and above, suggesting that younger and early middle-aged users dominate the community demographic. Regarding educational attainment, a majority (55.9%) hold a college or bachelor's degree, while 35.4% have completed high school or lower levels of education. A smaller segment (8.7%) possess a master’s degree or higher. These figures reflect a predominantly young and moderately well-educated user base, which aligns with the digital-savvy consumer profile typically associated with technology-oriented brand communities.

In terms of community engagement, most respondents identified themselves as general members (72.1%), while a notable minority (27.9%) held administrative roles,

indicating a meaningful presence of core users with managerial or influential functions. Regarding duration of community membership, the largest proportion of respondents had participated for 2–3 years (31.2%), followed by those with 3–5 years of membership (27.0%) and those with less than one year (25.8%). Only 16.0% had been members for over five years, suggesting that the community maintains a dynamic user composition with ongoing inflows of new participants. In terms of interaction frequency, 34.5% reported occasional engagement (about once per month), while 29.4% engaged weekly and 11.5% participated on a daily basis. Notably, 24.6% indicated minimal engagement, posting no more than once per quarter. These patterns reflect a tiered participation structure typical of digital communities, with both core contributors and passive members coexisting.

Table 4.1 Sample Information

Information and options		**Frequency**	**Percent**
Gender	Male	405	68.1
	Female	189	31.9
Age	18-25 years old	218	36.6
	26-35 years old	160	27.0
	36-45 years old	131	22.1
	45 years old and over	85	14.3
Education level	High school and below	210	35.4
	College or Bachelor's Degree	332	55.9
	Master's Degree and above	52	8.7
Status in the community	General Member	428	72.1
	Administrator	166	27.9
How long have you been a member of this online brand community?	1 year and under	153	25.8
	2-3 years	185	31.2
	3-5 years	161	27.0
	5+ years	95	16.0

Table 4.1 (continued)

Information and options		Frequency	Percent
The frequency of your interactions in that virtual brand community	Very few (average of 1 reply or post per quarter)	146	24.6
	Sometimes (average of 1 reply or post per month)	205	34.5
	Frequent (average of 1 reply or post per week)	175	29.4
	Always (average of 1 reply or post per day)	68	11.5

4.1.2 Descriptive Statistics

Table 4.2 Descriptive Statistics Results

Study variables	Items	Mean	S.D.	Skewness		Kurtosis	
				Value	S.E.	Value	S.E.
Social interaction strategy	SI1	4.670	1.388	-1.001	0.102	0.084	0.204
	SI2	4.600	1.337	-0.938	0.102	0.268	0.204
	SI3	4.670	1.387	-1.010	0.102	0.033	0.204
	SI4	4.590	1.371	-0.976	0.102	0.182	0.204
	SI5	4.720	1.385	-0.954	0.102	0.375	0.204
	SI6	4.660	1.376	-0.998	0.102	0.293	0.204
	SI7	4.610	1.396	-0.911	0.102	0.028	0.204
	SI8	4.700	1.335	-1.053	0.102	0.476	0.204
	SI9	4.630	1.360	-1.132	0.102	0.540	0.204
	SI10	4.650	1.334	-1.055	0.102	0.301	0.204
	SI11	4.640	1.359	-0.918	0.102	-0.068	0.204
	SI12	4.670	1.403	-1.072	0.102	0.410	0.204
Platform affordance	PA1	4.660	1.361	-0.954	0.102	0.097	0.204
	PA2	4.600	1.378	-0.889	0.102	-0.055	0.204
	PA3	4.570	1.395	-1.037	0.102	0.343	0.204
	PA4	4.650	1.443	-1.027	0.102	0.095	0.204

Table 4.2 (continued)

Study variables	Items	Mean	S.D.	Skewness		Kurtosis	
				Value	S.E.	Value	S.E.
	PA5	4.670	1.360	-0.966	0.102	0.255	0.204
	PA6	4.540	1.413	-0.910	0.102	-0.260	0.204
	PA7	4.660	1.399	-0.881	0.102	-0.100	0.204
	PA8	4.630	1.372	-0.955	0.102	0.143	0.204
	PA9	4.610	1.377	-0.924	0.102	0.091	0.204
	PA10	4.610	1.366	-1.002	0.102	0.119	0.204
	PA11	4.590	1.427	-0.878	0.102	-0.001	0.204
	PA12	4.630	1.389	-0.958	0.102	-0.034	0.204
Structural capital	SC1	4.630	1.474	-0.949	0.102	0.045	0.204
	SC2	4.610	1.316	-0.936	0.102	0.138	0.204
	SC3	4.600	1.378	-0.965	0.102	0.035	0.204
Cognitive capital	CC1	4.610	1.436	-0.921	0.102	-0.018	0.204
	CC2	4.700	1.310	-0.983	0.102	0.340	0.204
	CC3	4.660	1.320	-0.991	0.102	0.279	0.204
	CC4	4.660	1.329	-0.916	0.102	-0.024	0.204
Relational capital	RC1	4.700	1.382	-0.999	0.102	0.356	0.204
	RC2	4.650	1.326	-1.048	0.102	0.482	0.204
	RC3	4.620	1.386	-0.836	0.102	-0.262	0.204
	RC4	4.580	1.393	-0.986	0.102	0.179	0.204
Users' value co-creation behavior	VC1	4.690	1.344	-0.915	0.102	0.081	0.204
	VC2	4.710	1.386	-0.887	0.102	-0.019	0.204
	VC3	4.620	1.352	-1.026	0.102	0.174	0.204
	VC4	4.690	1.351	-1.028	0.102	0.192	0.204

As illustrated in Table 4.2, the descriptive statistics provide a detailed overview of the distributional characteristics of each measurement item across the core constructs. The mean values for all items range between 4.540 and 4.720, indicating that, on average, respondents expressed moderately high levels of agreement with the items across all dimensions. This suggests a generally favorable perception of the latent variables,

including social interaction strategy, platform affordance, structural capital, cognitive capital, relational capital, and value co-creation behavior. The standard deviations (ranging approximately from 1.310 to 1.474) demonstrate a moderate degree of dispersion, reflecting a relatively diverse yet centered distribution of responses within the sample, without excessive variability. These patterns provide a stable basis for inferential analysis.

Further examination of the skewness and kurtosis coefficients reveals no substantial violations of univariate normality. Skewness measures the degree and direction of asymmetry in the distribution of responses, while kurtosis indicates the peakedness, or flatness of the distribution relative to a normal curve (West et al., 1995). The skewness values are uniformly negative (approximately between -1.132 and -0.836), indicating a slight leftward skew in response distributions, with participants tending to select higher-end values on the Likert scale. Kurtosis values, ranging from approximately -0.262 to 0.540, remain well within the acceptable range of ±1, suggesting a mesokurtic distribution where the shape of the data is close to normal. The combination of near-normal distribution and consistent response patterns across items confirms that the data are statistically sound for subsequent multivariate procedures such as confirmatory factor analysis and structural equation modeling. Overall, the descriptive indicators demonstrate a robust and normally distributed dataset, suitable for further empirical testing.

4.2 Confirmatory Factor Analysis

4.2.1 Measurement Model and Fit Metrics

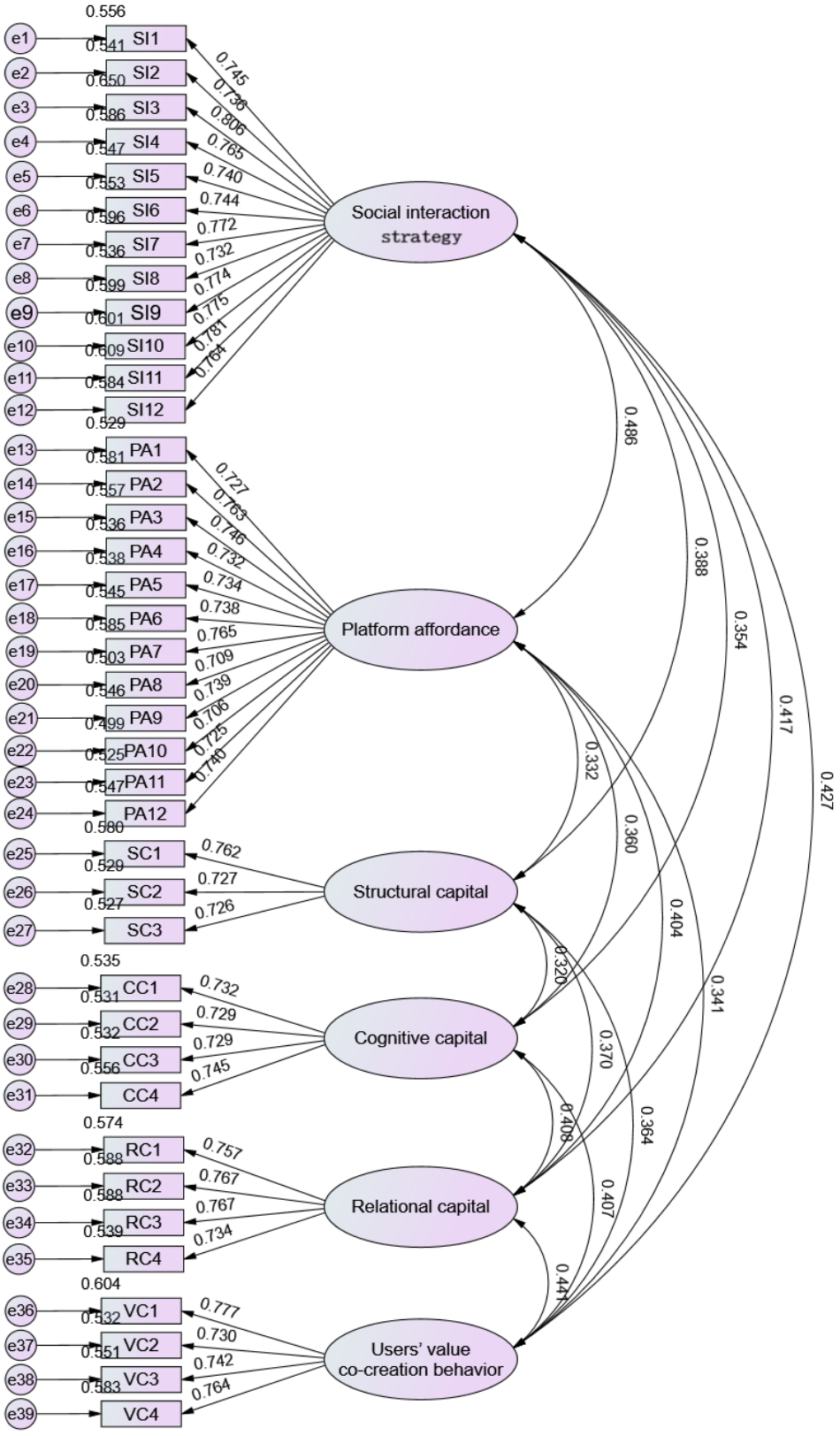


Figure 4.1 Measurement Model in AMOS

Figure 4.1 presents the measurement model, which is composed of three key structural components: latent variables (ellipses), observed variables (rectangles), and measurement error terms (small circles). Each latent variable represents a theoretical construct, such as social interaction strategy, platform affordance, structural capital, cognitive capital, relational capital, and users' value co-creation behavior, which is measured indirectly through a series of observed indicators. The model also includes covariances among the latent variables, depicted by double-headed arrows, which reflect the degree of association and conceptual distinctiveness among the constructs. The measurement errors (e1 to e39) account for unexplained variance in each observed indicator, thus improving the model's accuracy.

Table 4.3 Measure Model Fit Metrics

Fit index	χ2/df	RMSEA	GFI	AGFI	NFI	TLI	CFI
Reference standards	<3	<0.08	>0.9	>0.9	>0.9	>0.9	>0.9
Result	1.466	0.029	0.920	0.910	0.921	0.971	0.973

Note: χ2/df: The chi-square to degrees of freedom ratio; RMSEA: Root Mean Square Error of Approximation; GFI: Goodness-of-Fit Index; AGFI: Adjusted Goodness-of-Fit Index; NFI: Normed Fit Index; TLI: Tucker-Lewis Index; CFI: Comparative Fit Index.

As shown in Table 4.3, the overall model fit of the measurement model was assessed using multiple fit indices, all of which fall within the recommended thresholds, thus providing strong evidence of a well-fitting model. The chi-square to degrees of freedom ratio (χ^2/df) is 1.466, which is well below the threshold of 3.0, indicating a minimal discrepancy between the theoretical model and the sample data. The Root Mean Square Error of Approximation (RMSEA) is 0.029, significantly lower than the recommended maximum of 0.08, suggesting an excellent approximation of the model to the population covariance structure. These two indices together support the absolute fit of the model. In terms of incremental and comparative fit indices, the Goodness-of-Fit Index (GFI) and Adjusted Goodness-of-Fit Index (AGFI) are 0.920 and 0.910, respectively, both exceeding the minimum standard of 0.90, indicating strong model-data congruence. Furthermore, the Normed Fit Index (NFI), Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI) all surpass 0.9, with values of 0.921, 0.971, and 0.973, respectively,

signifying an exceptionally high level of fit relative to a null or baseline model (Fang et al., 2022). Collectively, these metrics confirm that the measurement model exhibits robust structural integrity.

4.2.2 Convergent Validity

As shown in Table 4.4, convergent validity was assessed using two key metrics, Composite Reliability (CR) and Average Variance Extracted (AVE). CR values reflect the internal consistency of each latent construct and indicate the extent to which the observed variables consistently represent the underlying factor. All six constructs report CR values ranging from 0.783 to 0.943, each exceeding the recommended threshold of 0.70. This confirms that the indicators within each construct share a high level of internal coherence, thus affirming the reliability of the measurement model beyond that provided by Cronbach's alpha alone. In parallel, factor loadings for all observed indicators fall between 0.706 and 0.806, demonstrating strong individual contributions to their respective constructs, with no item falling below the minimum acceptable loading of 0.70. The AVE values, which measure the average amount of variance captured by the construct relative to the variance due to measurement error, also exceed the 0.50 criterion for all constructs, ranging from 0.538 to 0.580. These values indicate that more than half of the variance in the observed variables is accounted for by the latent constructs they are intended to measure, thereby providing solid evidence of convergent validity (Cheung et al., 2024).

Table 4.4 Convergence Validity

Latent variables	Observation indicators	Factor loading	CR	AVE
Social interaction strategy	SI1	0.745	0.943	0.580
	SI2	0.736		
	SI3	0.806		
	SI4	0.765		
	SI5	0.740		
	SI6	0.744		
	SI7	0.772		
	SI8	0.732		

Table 4.4 (continued)

Latent variables	Observation indicators	Factor loading	CR	AVE
	SI9	0.774		
	SI10	0.775		
	SI11	0.781		
	SI12	0.764		
Platform affordance	PA1	0.727	0.934	0.541
	PA2	0.763		
	PA3	0.746		
	PA4	0.732		
	PA5	0.734		
	PA6	0.738		
	PA7	0.765		
	PA8	0.709		
	PA9	0.739		
	PA10	0.706		
	PA11	0.725		
	PA12	0.740		
Structural capital	SC1	0.762	0.783	0.546
	SC2	0.727		
	SC3	0.726		
Cognitive capital	CC1	0.732	0.823	0.538
	CC2	0.729		
	CC3	0.729		
	CC4	0.745		
Relational capital	RC1	0.757	0.842	0.572
	RC2	0.767		
	RC3	0.767		
	RC4	0.734		

Table 4.4 (continued)

Latent variables	Observation indicators	Factor loading	CR	AVE
Users' value co-creation behavior	VC1	0.777	0.840	0.568
	VC2	0.730		
	VC3	0.742		
	VC4	0.764		

4.2.3 Discriminant Validity

As presented in Table 4.5, discriminant validity was assessed by comparing the square roots of the Average Variance Extracted (AVE) for each construct (displayed on the diagonal) with the inter-construct correlation coefficients (off-diagonal values) (Rönkkö & Cho, 2022). Discriminant validity is established when the square root of each construct's AVE exceeds its correlations with all other constructs. The diagonal values range from 0.733 to 0.762, each greater than the corresponding inter-construct correlations, indicating that the constructs are empirically distinct. For instance, the square root of AVE for social interaction strategy (0.762) exceeds its correlations with platform affordance (0.486***), structural capital (0.388***), and other variables. Similarly, the square root of AVE for users' value co-creation behavior (0.754) is higher than its correlations with relational capital (0.441***), cognitive capital (0.407***), and platform affordance (0.341***). These consistent patterns across all constructs confirm that each latent variable shares more variance with its associated indicators than with any other construct.

Table 4.5 Discriminant Validity Test

Latent variables	SI	PA	SC	CC	RC	VC
Social interaction strategy	0.762***					
Platform affordance	0.486	0.736***				
Structural capital	0.388	0.332	0.739***			

Table 4.5 (continued)

Latent variables	SI	PA	SC	CC	RC	VC
Cognitive capital	0.354	0.360	0.320	0.733***		
Relational capital	0.417	0.404	0.370	0.408	0.756***	
Users' value co-creation behavior	0.427	0.341	0.364	0.407	0.441	0.754***

Note: The diagonal is the square root of the corresponding dimension AVE

SI: Social interaction strategy; PA: Platform affordance; SC: Structural capital; CC: Cognitive capital; RC: Relational capital; VC: Users' value co-creation behavior.

***: P<0.001.

In addition, all correlation coefficients are positive and moderate in magnitude, ranging from 0.320 to 0.486, and are statistically significant at the $p < 0.001$ level (as indicated by asterisks). This signifies that while the constructs are conceptually related and theoretically coherent, they remain empirically separable, thereby supporting the discriminant validity of the measurement model. The moderate correlations further demonstrate that multicollinearity is not a concern and that each construct contributes uniquely to the overall structural model. Collectively, these results confirm that the measurement model possesses satisfactory discriminant validity and provides a sound empirical foundation for subsequent structural equation modeling and hypothesis testing.

4.3 Structural Equation Model

Structural Equation Modeling (SEM) is a comprehensive multivariate statistical technique used to estimate and test the relationships among observed and latent variables within a hypothesized causal framework. Also referred to as covariance structure analysis, SEM operates on the covariance matrix of the variables, allowing for the simultaneous evaluation of measurement and structural models. Drawing on established theoretical foundations and prior empirical evidence, the model is constructed using a posteriori logic, wherein the proposed network of relationships is subjected to rigorous empirical validation. The measurement model assesses the reliability and validity of the latent constructs, while the structural model evaluates the causal paths among them. Through

examination of model fit indices and the statistical significance of individual paths, SEM enables a robust investigation of the direct and indirect effects among multiple variables, offering a precise and systematic approach for validating the proposed conceptual framework.

4.3.1 Model Fit Metrics for the Structural Model

As reported in Table 4.6, the structural model exhibits an excellent overall fit with the empirical data, as reflected by a series of standard model fit indices. The chi-square to degrees of freedom ratio (χ^2/df) is 1.528, which is substantially below the threshold of 3.0, indicating minimal discrepancy between the observed and model-implied covariance matrices. The Root Mean Square Error of Approximation (RMSEA) is 0.030, well below the recommended maximum of 0.08, signifying a close fit of the model in the population and confirming its parsimony. These absolute fit indices collectively suggest that the model is well-specified and captures the underlying data structure with high precision. In addition, all incremental and comparative fit indices exceed the conventional 0.90 benchmark, further reinforcing the robustness of the model. Specifically, the Goodness-of-Fit Index (GFI) and Adjusted Goodness-of-Fit Index (AGFI) are 0.917 and 0.906, respectively, reflecting strong consistency between the hypothesized model and the sample data. The Normed Fit Index (NFI), Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI) are reported at 0.918, 0.968, and 0.970, respectively, which indicate near-perfect fit relative to a null model (Fang et al., 2022).

Table 4.6 Model Fit Metrics

Fit index	χ2/df	RMSEA	GFI	AGFI	NFI	TLI	CFI
Reference standards	<3	<0.08	>0.9	>0.9	>0.9	>0.9	>0.9
Result	1.528	0.030	0.917	0.906	0.918	0.968	0.970

Note: χ2/df: The chi-square to degrees of freedom ratio; RMSEA: Root Mean Square Error of Approximation; GFI: Goodness-of-Fit Index; AGFI: Adjusted Goodness-of-Fit Index; NFI: Normed Fit Index; TLI: Tucker-Lewis Index; CFI: Comparative Fit Index.

4.3.2 Path Analysis for Direct Effects

As detailed in Table 4.7, the direct path effects within the structural equation model are evaluated through several key statistical indicators, each reflecting distinct aspects of the hypothesized relationships among variables.

The standardized regression coefficient (β) quantifies the strength and direction of each effect, with higher values signifying a more substantial influence of the independent variable on the dependent variable. For example, the effect of social interaction strategy on users' value co-creation behavior is notably strong (β = 0.300), while its influence on structural capital, cognitive capital, and relational capital is also substantial (β = 0.250, 0.293, and 0.238, respectively). Platform affordance exhibits direct positive effects on structural capital (β = 0.192), cognitive capital (β = 0.268), relational capital (β = 0.145), and value co-creation behavior (β = 0.205), further underlining its significance in shaping users' participatory outcomes.

The standard error (S.E.) is a measure of the variability associated with each path estimate, with lower values denoting greater precision and confidence in the parameter estimates. The critical ratio (C.R.), calculated by dividing the path coefficient by its standard error, serves as the primary test statistic for significance. A C.R. greater than 1.96 in absolute value signifies statistical significance at the 95% confidence level. In this analysis, all tested paths, except for the effect of relational capital on value co-creation (C.R. = 0.718), exceed this threshold, thereby confirming their statistical robustness.

The p-value (P) reflects the probability that the observed effect could be attributed to chance alone. Paths with a p-value less than 0.05 are considered statistically significant, while those denoted as "***" indicate highly significant effects at the $p < 0.001$ level. Notably, the path from relational capital to value co-creation behavior (p = 0.473) fails to reach significance, suggesting that while relational capital may play an important role in the overall network of influences, its direct contribution to value co-creation is less pronounced when other factors are accounted for (Ali et al., 2023).

Table 4.7 Direct Path Effects

Hypothesis	Path	β	S.E.	C.R.	P	Results
H1	SI→VC	0.300	0.060	5.461	***	Supported
H2	SI→SC	0.250	0.056	4.684	***	Supported
H3	SI→CC	0.293	0.052	5.682	***	Supported
H4	SI→RC	0.238	0.053	4.496	***	Supported
H5	PA→SC	0.192	0.061	3.573	***	Supported
H6	PA→CC	0.268	0.054	5.198	***	Supported
H7	PA→RC	0.145	0.047	2.798	0.005	Supported
H8	PA→VC	0.205	0.050	4.030	***	Supported
H9	SC→VC	0.229	0.052	4.362	***	Supported
H10	CC→VC	0.188	0.055	3.419	***	Supported
H11	RC→VC	0.038	0.055	0.718	0.473	Not-Supported

Note: SI: Social interaction strategy; PA: Platform affordance; SC: Structural capital; CC: Cognitive capital; RC: Relational capital; VC: Users' value co-creation behavior; β: Standardized regression coefficient; S.E.: Standard error; C.R.: Critical ratio.

***: $p<0.001$.

Figure 4.2 presents the structural model developed to examine the causal relationships among latent constructs within the proposed theoretical framework. The diagram includes six latent variables represented by ellipses, social interaction strategy, platform affordance, structural capital, cognitive capital, relational capital, and users' value co-creation behavior, each measured by multiple observed indicators shown as rectangles. Error terms, depicted as small circles adjacent to each observed variable, represent measurement inaccuracies and unexplained variance.

All hypothesized paths in the model were theoretically grounded in social capital theory, affordance theory, and the concept of value co-creation, ensuring that each directional link corresponds to an empirically and conceptually justified relationship. Unidirectional arrows indicate hypothesized causal effects, while standardized path coefficients denote the magnitude and direction of these relationships. Solid lines represent significant paths supported by both theoretical reasoning and empirical results, whereas the dashed line between platform affordance and users' value co-creation behavior indicates a statistically non-significant direct effect retained for completeness and

theoretical transparency. This pattern aligns with the theoretical premise that technological affordances exert an indirect influence on co-creation behavior primarily through the mediating mechanisms of structural, cognitive, and relational capital.

A covariance path between social interaction strategy and platform affordance is included to reflect their conceptual interdependence in enterprise-led community environments, where managerial design and platform functionality co-occur in shaping user experiences. Each path in the model was critically evaluated for its theoretical necessity and coherence with the overall socio-technical framework, ensuring that no data-driven modifications were introduced without prior justification. Collectively, the model illustrates how firm-initiated interaction strategy and perceived platform affordances jointly foster users' value co-creation behavior through the multidimensional formation of social capital, thereby achieving both theoretical consistency and empirical validity.

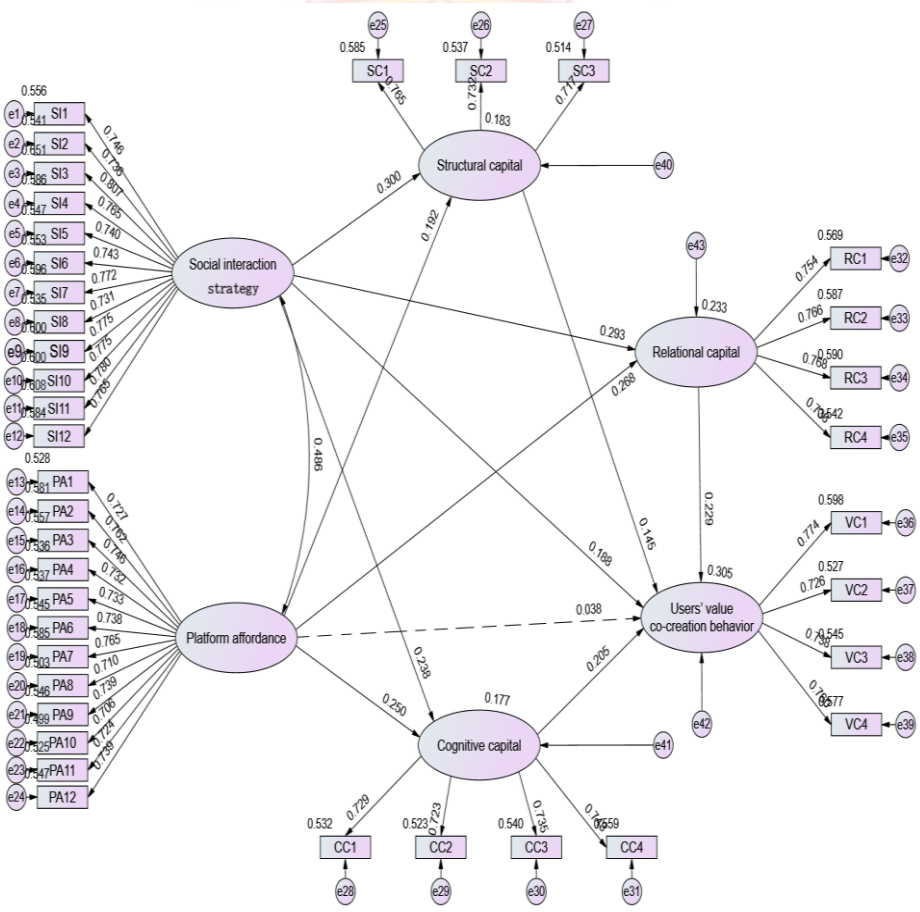


Figure 4.2 Structural Model Diagram in AMOS

4.3.3 Path Analysis for Indirect Effects

Before examining the indirect effects and mediation relationships in the structural model, multicollinearity diagnostics were conducted to ensure the stability and interpretability of the estimated path coefficients. Multicollinearity occurs when independent variables are highly correlated, which can inflate standard errors and distort parameter estimates. Following commonly accepted methodological guidelines, variance inflation factor values were used to assess the severity of multicollinearity among the latent constructs included in the model.As reported in Table 4.8, the variance inflation factor values for all predictor constructs are well below the recommended threshold of 5, indicating that multicollinearity is not a concern in this study (Kyriazos & Poga, 2023). These results suggest that each construct captures a distinct component of the theoretical model and that the estimated direct and indirect effects can be interpreted with confidence. Consequently, the data are deemed suitable for subsequent mediation analysis and hypothesis testing.

Table 4.8 Multicollinearity Diagnostics

Predictor Constructs	VIF
Social Interaction Strategy	2.47
Platform Affordance	2.32
Structural Capital	2.89
Cognitive Capital	3.11
Relational Capital	2.76

As reported in Table 4.9, the mediation effects in the structural model are evaluated using bootstrap analysis, which provides empirical estimates of the indirect effects and their confidence intervals. The effect value represents the magnitude of the mediated relationship between the independent and dependent variables through specified mediators. For example, the indirect effect of social interaction strategy on users' value co-creation behavior via structural capital is 0.043, while the indirect effect through cognitive capital is 0.049, and through relational capital is 0.067. Similarly, platform affordance demonstrates indirect effects on value co-creation behavior through the same three mediators, with values of 0.029, 0.053, and 0.064, respectively. These coefficients

indicate that both social interaction strategy and platform affordance exert their influence on value co-creation not only through direct paths but also through enhancing users' social capital resources.

Table 4.9 Indirect Effect Bootstrap Analysis

Hypothesis	Mediation path	Effect value	SE	Bias-Corrected 95%CI		Results
				Lower	Upper	
H12	SI→SC→VC	0.043	0.024	0.001	0.096	Supported
H13	PA→SC→VC	0.029	0.020	0.003	0.083	Supported
H14	SI→CC→VC	0.049	0.023	0.014	0.106	Supported
H15	PA→CC→VC	0.053	0.024	0.017	0.114	Supported
H16	SI→RC→VC	0.067	0.027	0.024	0.136	Supported
H17	PA→RC→VC	0.064	0.026	0.021	0.123	Supported

Note: SI: Social interaction strategy; PA: Platform affordance; SC: Structural capital; CC: Cognitive capital; RC: Relational capital; VC: Users' value co-creation behavior; SE: Standard error; CI: Confidence interva.

The standard error (SE) quantifies the variability of each indirect effect estimate, providing a measure of the precision with which these effects are identified in the sample. In this analysis, SE values are consistently low, indicating reliable estimation. The bias-corrected 95% confidence interval (CI) presents the lower and upper bounds of the indirect effect, adjusted for potential estimation bias. A mediation effect is considered statistically significant if the confidence interval does not contain zero. All the reported mediation paths satisfy this criterion, with lower and upper bounds well above or marginally above zero, thus substantiating the significance of each indirect pathway (Wang et al., 2020).

These results collectively affirm the theoretical expectation that both social interaction strategy and platform affordance foster value co-creation behavior primarily through the development and reinforcement of social capital dimensions within the online community. The presence of significant indirect effects, particularly through relational and cognitive capital, underscores the crucial role of these mediators as conduits for translating organizational strategy and platform features into sustained user participation and collaborative outcomes.

4.3.4 Total Effects

Table 4.10 presents the total effects of the hypothesized structural paths within the research model. The column labeled “Effect path” specifies the directional relationships tested between latent constructs, indicating the influence of one independent variable on a corresponding mediating or dependent variable. The column “Effect size” reports the standardized path coefficients, reflecting the magnitude and direction of the overall effect. The column “SE” denotes the standard error associated with each estimate, thereby providing an indication of the precision and statistical stability of the calculated coefficients. The final two columns, “Bias-Corrected 95% CI (Lower–Upper)”, display the lower and upper bounds of the bias-corrected bootstrap confidence intervals, which serve as robust indicators of the reliability and significance of the estimated effects. A confidence interval that does not include zero suggests that the effect is statistically significant at the 95% confidence level.

The results reveal that platform affordance exerts a significant positive effect on structural capital (PA → SC, β = 0.219, SE = 0.079, 95% CI [0.069, 0.381]). This finding indicates that users’ perceptions of platform functionality substantially enhance the breadth and strength of their structural connections within the community. Similarly, social interaction strategy also exert a stronger and statistically significant effect on structural capital (SI → SC, β = 0.327, SE = 0.074, 95% CI [0.183, 0.466]). This result suggests that well-designed interaction mechanisms, such as trust-building initiatives, risk-reducing governance, and intimacy-enhancing strategy, more powerfully stimulate users’ network ties and participation frequency.

Table 4.10 Total Effects

Effect path	Effect size	SE	Bias-Corrected 95%CI	
			Lower	Upper
PA→SC	0.219	0.079	0.069	0.381
SI→SC	0.327	0.074	0.183	0.466

Note: SI: Social interaction strategy; PA: Platform affordance; SC: Structural capital; CC: Cognitive capital; RC: Relational capital; VC: Users’ value co-creation behavior; SE: Standard error; CI: Confidence interva.

Taken together, the findings demonstrate that both technological affordances and social interaction strategy significantly contribute to the formation of structural capital, with the latter exerting a comparatively greater total effect. These results underscore the dual importance of platform design and socially oriented engagement mechanisms in shaping the structural foundation through which subsequent co-creation behaviors are enabled.

4.4 Restatement of Research Results

4.4.1 Research Questions

There are three research questions put forward in chapter one: (1) How do social interaction strategy and platform affordances affect users' value co-creation behavior in enterprise-led online communities? (2) How do social interaction strategy and platform affordances shape users' social capital in terms of structural, cognitive, and relational dimensions? (3) How does social capital mediate the relationship between these firm-initiated mechanisms and users' value co-creation behavior?

4.4.2 Summary of Research Results

By summarizing the analysis results, the test results of the model were derived comparing it with the research model presented in Chapter 2, as shown in Figure 4.3. The model shows the test results of all the previous hypotheses. The dotted line relationship in the figure indicates that the influence relationship is not valid, and the hypothesis has not been verified. The solid line relationship indicates that the influence relationship exists, and the hypothesis is supported. According to the resulting model, most of the hypotheses in this study have been supported, and a few hypotheses have not been confirmed. The results of hypothesis validation are shown in Table 4.11.

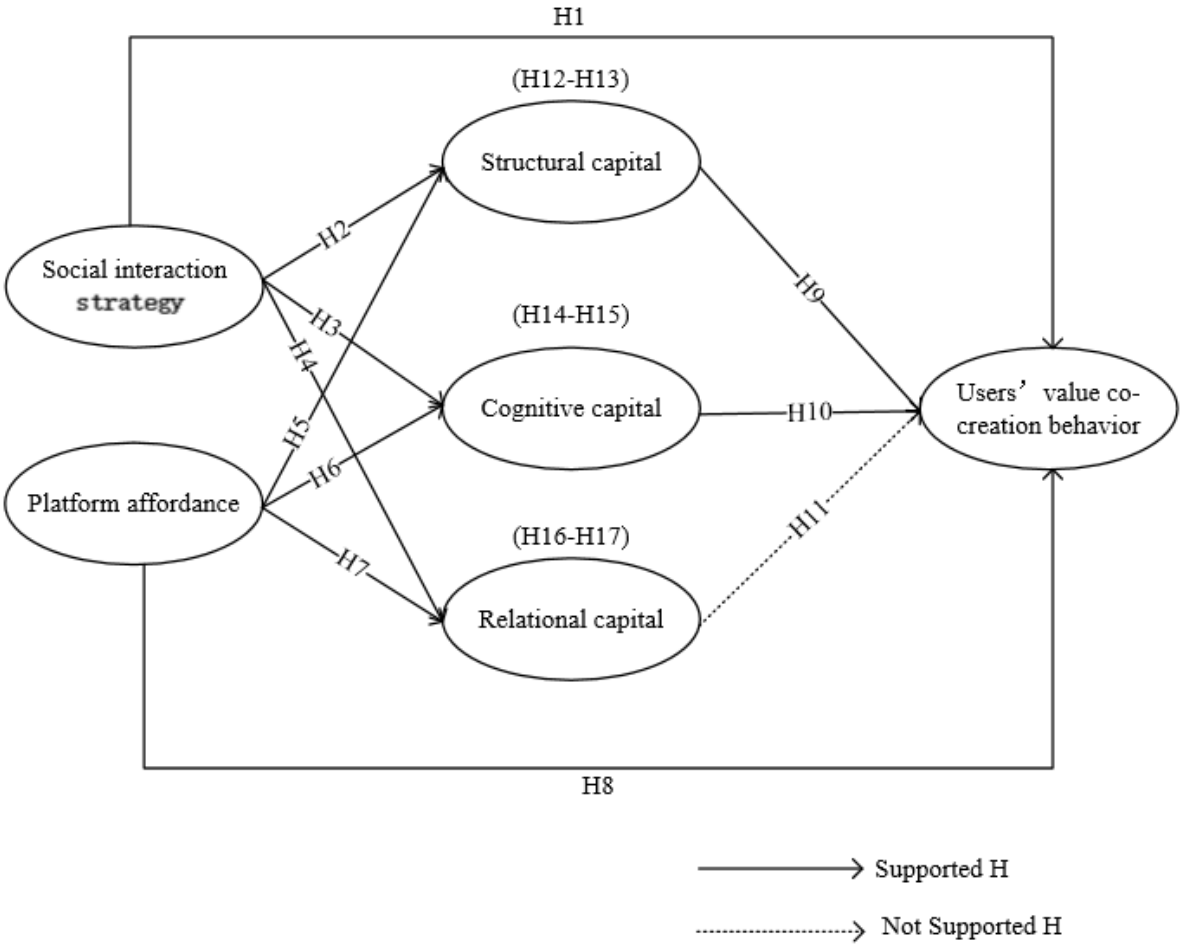


Figure 4.3 Research Framework Path Validation Results

Table 4.11 Summary of Hypothesis Test Results

Number	Research hypotheses	Results
H1	Social interaction strategy positively influence the users' value co-creation behavior.	Supported
H2	Social interaction strategy positively influence the structural capital.	Supported
H3	Social interaction strategy positively influence the cognitive capital.	Supported
H4	Social interaction strategy positively influence the relational capital.	Supported
H5	Platform affordance positively influence the structural capital.	Supported

Table 4.11 (continued)

Number	Research hypotheses	Results
H6	Platform affordance positively influence the cognitive capital.	Supported
H7	Platform affordance positively influence the relational capital.	Supported
H8	Platform affordance positively influence the users' value co-creation behavior.	Supported
H9	Structural capital positively influence the users' value co-creation behavior.	Supported
H10	Cognitive capital positively influence the users' value co-creation behavior.	Supported
H11	Relational capital positively influence the users' value co-creation behavior.	Not Supported
H12	Structural capital mediates the relationship between social interaction strategy and the users' value co-creation behavior.	Supported
H13	Structural capital mediates the relationship between platform affordance and the users' value co-creation behavior.	Supported
H14	Cognitive capital mediates the relationship between social interaction strategy and the users' value co-creation behavior.	Supported
H15	Cognitive capital mediates the relationship between platform affordance and the users' value co-creation behavior.	Supported
H16	Relational capital mediates the relationship between social interaction strategy and the users' value co-creation behavior.	Supported
H17	Relational capital mediates the relationship between platform affordance and the users' value co-creation behavior.	Supported

4.5 Conclusion

The results articulated in this chapter elucidate the complex interplay between strategic factors, structural factors and perceptual factors, underpinning value co-creation behavior in enterprise-led online communities. Empirical evidence consistently affirms that social interaction strategy and platform affordance are fundamental drivers that not only shape users' perceptions of the participatory environment but also facilitate the

development of structural capital, cognitive capital and relational capital. These forms of social capital, in turn, mediate the translation of organizational intent and platform design into meaningful user engagement and collaborative value production. The statistical robustness of the measurement and structural models further reinforces the validity of these pathways and supports the multidimensional framework advanced by this study.

Moreover, the analyses reveal that the influence of key antecedents on value co-creation behavior is both direct and indirect, operating through a network of social resources embedded within the community. Notably, relational and cognitive capital emerge as particularly influential mediators, amplifying the impact of both social interaction strategy and platform affordance. The evidence thus highlights the centrality of a carefully constructed social infrastructure in sustaining vibrant, collaborative communities. These findings not only advance theoretical understanding of co-creation mechanisms but also offer practical guidance for enterprises seeking to strategically cultivate and leverage online community ecosystems for enduring collaborative advantage.

CHAPTER 5
DISCUSSION AND CONCLUSION

This chapter synthesizes the principal findings of the study and articulates their broader theoretical and practical significance. Building upon the empirical results presented in Chapter Four, it offers a critical interpretation of how social interaction strategy and platform affordances shape users' value co-creation behavior through the mediating role of social capital within enterprise-led online communities. The discussion moves beyond the presentation of statistical outcomes to examine the underlying social mechanisms and their implications for theory, practice, and policy.

The chapter is organized into four interrelated components. First, it addresses each of the three research objectives in turn, interpreting the validated model in light of existing scholarship and identifying theoretical insights. This includes consideration of both the direct effects of user perceptions and platform features on value co-creation behavior and the indirect pathways mediated by structural, cognitive, and relational capital. Second, it elaborates the theoretical implications of the findings, with particular emphasis on the study's contributions to the refinement and contextual expansion of social capital theory, concept of value co-creation, and affordance theory. Third, it examines the practical implications for key stakeholder groups, including enterprise platform managers, community operations teams, brand strategists, and government policymakers, translating the research insights into actionable guidance for the design, governance, and sustainability of digital communities. Finally, the chapter reflects on the study's limitations and outlines promising avenues for future research before concluding with an integrated summary of the contributions made to both academic discourse and managerial practice.

RO1. To examine the path of social interaction strategy and platform affordances influence users' value co-creation behavior in enterprise-led online communities.

The findings addressing RO1 provide compelling empirical evidence that both social interaction strategy and platform affordances exert statistically significant and

positive effects on users' value co-creation behavior in enterprise-led online communities. The direct path from social interaction strategy to value co-creation behavior is strong and highly significant (SI→VC: $\beta = 0.300$, $p < 0.001$), while platform affordances also demonstrate a significant positive direct effect (PA→VC: $\beta = 0.205$, $p < 0.001$) (Ali et al., 2023). These results confirm the central proposition advanced in the theoretical framework that user participation in value co-creation is not driven by a single mechanism, but rather emerges from the joint influence of socially constructed interaction environments and technologically enabled action possibilities (Li & Tuunanen, 2022). In doing so, the findings provide empirical support for the hypothesized relationships articulated in H1 and H8 and respond directly to the first research objective of this study.

From a social-relational perspective, the confirmed effect of social interaction strategy on value co-creation behavior reflects the mechanism underlying Hypothesis H1, which emphasizes the role of firm-orchestrated interaction climates in shaping users' engagement decisions. Social interaction strategy capture users' perceptions of how interaction is structured, governed, and emotionally experienced within the community. In this study, these perceptions are operationalized through perceived risk, trust, and intimacy, which together define the psychological safety and relational assurance associated with participation. Perceived risk encompasses concerns related to information quality, privacy protection, and the responsiveness and accountability of the enterprise (Nicolaou et al., 2013). Trust reflects users' confidence in the enterprise's technical competence, governance credibility, and the reliability of other community members. Intimacy refers to the emotional closeness, sense of belonging, and mutual empathy that develop through repeated and meaningful interaction over time.

The empirical support for H1 suggests that when social interaction strategy effectively reduce perceived risk, cultivate trust, and foster intimacy, users are more likely to perceive participation as legitimate, worthwhile, and impactful. In the Xiaomi Community, intimacy is manifested when users openly share personal product experiences, provide peer-to-peer assistance, and develop enduring relationships grounded in shared brand identification. These affective bonds strengthen users' psychological ownership of the community and increase their emotional attachment to the platform. As a result, users become more willing to invest time, effort, and cognitive resources in value co-creation activities such as idea submission, beta testing, collaborative troubleshooting,

and co-design initiatives (Cui et al., 2021; Wang et al., 2025). Rather than viewing participation as a transactional exchange, users come to regard co-creation as a relationally embedded activity aligned with their identity and sense of belonging.

These findings extend existing value co-creation research by highlighting the importance of interaction quality rather than merely interaction frequency. While prior studies often focus on incentives, rewards, or individual motivations as drivers of engagement (Liu & Liu, 2021; Pajor & Szeberényi, 2025), the present results demonstrate that co-creation behavior is deeply contingent on users' evaluations of the relational environment curated by the enterprise. This supports the theoretical view that value co-creation is fundamentally a social process, emerging from mutual trust, emotional connection, and perceived fairness rather than from unilateral firm actions or isolated user efforts (Galvagno & Dalli, 2014). In enterprise-led communities, where interaction is strategically designed rather than organically emergent, the role of social interaction strategy becomes particularly salient in shaping users' readiness to co-create.

From a technological perspective, the significant positive effect of platform affordances on value co-creation behavior reflects the mechanism proposed in Hypothesis H8, which emphasizes the enabling role of perceived technological action possibilities. Platform affordances refer not simply to the existence of technical features, but to users' perceptions of how these features enable or constrain meaningful participation. In the Xiaomi Community, key affordances include ideation affordances that allow users to propose, revise, and track ideas; collaboration affordances that support joint evaluation, co-development, and product commercialization; and communication affordances that facilitate experience sharing, knowledge exchange, and social networking. These affordances reduce cognitive load and operational friction, making co-creation activities more accessible and manageable for users (Tian & Gao, 2023).

The support for H8 aligns with affordance theory, which posits that technological features influence behavior only when they are perceived as actionable and relevant within a given context (Galvagno & Dalli, 2014). The results indicate that platform design actively shapes the range of behaviors users consider possible and worthwhile. When affordances are intuitive, visible, and aligned with users' co-creation goals, they enhance perceived participation efficacy and lower barriers to engagement. In this sense, platform affordances function as structural enablers that transform latent willingness into

observable co-creative behavior. This finding reinforces the argument that technology is not a neutral backdrop for interaction, but a constitutive element that shapes how co-creation is enacted in practice.

A comparison of the two antecedents reveals an important asymmetry in their relative influence. Although both H1 and H8 are supported, social interaction strategy exert a stronger direct effect on value co-creation behavior than platform affordances, as indicated by both standardized coefficients and total effects analysis. This suggests that while technological affordances are necessary conditions for co-creation, they are not sufficient in the absence of a supportive relational environment. The interaction climate constructed through social interaction strategy thus acts as a conditioning context that amplifies or constrains the behavioral effectiveness of technical affordances. Without trust, emotional safety, and perceived fairness, even well-designed platform features may fail to elicit sustained user contribution. Conversely, a positive interaction climate without adequate functional affordances may limit the depth and complexity of co-creation, as users lack the tools required to operationalize collaborative intentions.

This asymmetry offers a nuanced contribution to the literature by reconciling debates between technology-centric and socially oriented explanations of user engagement. Rather than privileging one dimension over the other, the findings demonstrate that social and technical mechanisms play differentiated but complementary roles. Social interaction strategy primarily shape users' motivational readiness, psychological safety, and relational commitment, while platform affordances provide the procedural and structural means through which such readiness is translated into concrete action. This distinction refines the concept of value co-creation by situating it within a socio-technical system in which relational and technological elements must be aligned to generate sustained collaborative outcomes.

Theoretical implications of these findings are multifaceted. First, they extend value co-creation theory by empirically demonstrating that co-creation behavior in enterprise-led communities is jointly produced by social and technical antecedents, rather than being an emergent property of either dimension alone. Second, they enrich affordance theory by illustrating that the realization of technological action possibilities is embedded within relational contexts, thereby highlighting the socially situated nature of affordances. Third, the results challenge deterministic assumptions that technological sophistication alone can

drive engagement, emphasizing instead the centrality of interaction quality and relational governance in enterprise-led digital environments.

From a managerial perspective, the findings suggest that fostering value co-creation requires a coordinated and balanced approach to community design and governance. On the social side, enterprises should prioritize strategy that reduce perceived risk, build trust, and cultivate intimacy, such as transparent moderation policies, consistent and equitable responses to user feedback, and recognition systems that value diverse forms of contribution. On the technical side, platform design should emphasize affordances that make participation intuitive, visible, and rewarding, including features that support idea submission, collaborative problem-solving, and real-time interaction. Importantly, the stronger influence of social interaction strategy implies that relational foundations should be established before or alongside investments in advanced platform functionalities, ensuring that technological affordances are embedded in an environment conducive to active and sustained co-creation.

The interaction between social interaction strategy and platform affordances also has implications for community governance and resource allocation. Prioritizing relational trust-building can enhance the effectiveness of subsequent technological investments, as users are more likely to engage with and appropriate affordance-rich features in environments they perceive as fair, supportive, and emotionally safe. This sequencing logic offers practical guidance for enterprises seeking to optimize the design and management of online communities under resource constraints.

Overall, the findings related to RO1 demonstrate that users' value co-creation behavior in enterprise-led online communities is jointly shaped by social interaction strategy and platform affordances, with each mechanism contributing through distinct yet interconnected pathways. The empirical support for H1 and H8 confirms that effective co-creation depends not only on what platforms allow users to do, but also on how users feel about participating within the relational and institutional context constructed by the enterprise. By articulating the differentiated roles of social and technical antecedents, the study advances a more nuanced and integrated understanding of co-creation dynamics in enterprise-led digital communities.

RO2. To investigate the path of social interaction strategy and platform affordances affect the development of users' social capital across structural, cognitive, and relational dimensions.

The findings addressing RO2 provide systematic empirical evidence that both social interaction strategy and platform affordances play significant, though differentiated, roles in shaping the development of users' social capital across its structural, cognitive, and relational dimensions in enterprise-led online communities. The results demonstrate that social interaction strategy exert strong and positive effects on structural capital (SI→SC: $\beta = 0.250$, $p < 0.001$), cognitive capital (SI→CC: $\beta = 0.293$, $p < 0.001$), and relational capital (SI→RC: $\beta = 0.238$, $p < 0.001$), thereby supporting Hypotheses H2, H3, and H4. Similarly, platform affordances exhibit significant positive effects on structural capital (PA→SC: $\beta = 0.192$, $p < 0.001$), cognitive capital (PA→CC: $\beta = 0.268$, $p < 0.001$), and relational capital (PA→RC: $\beta = 0.145$, $p = 0.005$), providing empirical support for Hypotheses H5, H6, and H7 (Ali et al., 2023). Taken together, these results directly address RO2 by demonstrating that social capital formation in enterprise-led online communities is driven by a combination of socially constructed interaction climates and technologically mediated participation conditions.

From the perspective of social interaction strategy, the consistent support for H2, H3, and H4 highlights the central role of firm-orchestrated interaction environments in cultivating multiple forms of social capital. Social capital theory posits that social resources embedded in networks, shared understandings, and relationships emerge through repeated interaction and mutual engagement (Häuberer, 2011; Kreuter & Lezin, 2002; Schmid & Robison, 1995). In enterprise-led communities such as the Xiaomi Community, interaction is not purely self-organized but is actively shaped through managerial design, moderation practices, and incentive structures. As a result, users' perceptions of interaction quality become a critical determinant of whether and how social capital accumulates.

With respect to structural capital, the positive relationship between social interaction strategy and network formation, as formalized in H2, indicates that well-designed interaction mechanisms facilitate the frequency, density, and accessibility of user connections. By encouraging participation through peer-invitation mechanisms, discussion prompts, and community-based challenges, social interaction strategy increase opportunities for users to encounter one another repeatedly. These repeated encounters

foster familiarity and lower barriers to initiating contact, thereby promoting the formation of dense and multiplex network structures. In this sense, structural capital is not merely a by-product of user activity but a socially engineered outcome shaped by the interaction architecture designed by the enterprise.

In terms of cognitive capital, the strong effect of social interaction strategy reflected in H3 underscores the importance of shared meaning and interpretive alignment in enterprise-led communities. Cognitive capital emerges when users develop common frames of reference, shared language, and aligned understandings of community goals and norms. Social interaction strategy such as brand storytelling, guided discussions, and co-creation missions contribute to this process by repeatedly exposing users to consistent narratives and normative cues. Over time, these shared discourses reduce interpretive ambiguity and enable users to coordinate their actions more effectively. The empirical support for H3 suggests that cognitive capital is actively cultivated through interaction design rather than passively emerging from user co-presence.

Relational capital, captured in H4, reflects the trust, reciprocity, and emotional attachment that develop through sustained interpersonal interaction. The significant effect of social interaction strategy on relational capital indicates that trust and emotional bonds are strongly shaped by how enterprises manage interactional experiences. Moderated discussions, personalized feedback, and recognition of user contributions create emotionally resonant touchpoints that foster interpersonal warmth and mutual respect. In the Xiaomi Community, such strategy encourage users to perceive both the enterprise and fellow members as reliable and supportive partners, thereby strengthening relational cohesion. These findings align with social capital theory's emphasis on relational quality as a key social resource that facilitates cooperation and collective action.

Turning to platform affordances, the support for H5, H6, and H7 demonstrates that technological conditions also play a crucial role in shaping social capital formation, albeit through somewhat different mechanisms. Affordance theory emphasizes that technological features influence behavior only when users perceive them as enabling specific actions (Bucher & Helmond, 2018; Gibson, 2014; McCarthy et al., 2022). In enterprise-led online communities, platform affordances structure the visibility, accessibility, and persistence of interaction, thereby shaping how social connections, shared meanings, and relationships are formed and maintained.

With regard to structural capital, the positive effect captured in H5 suggests that platform affordances facilitate network formation by making social ties more visible and interaction more navigable. Features such as recommendation systems, searchable discussion threads, and persistent interaction histories reduce the cost of discovering potential collaborators and maintaining contact over time. By lowering these structural barriers, platform affordances enable users to expand their network reach and sustain interaction flows, thereby supporting the accumulation of structural capital.

Cognitive capital is particularly responsive to platform affordances, as evidenced by the relatively strong effect associated with H6. Affordances such as semantic tagging, content categorization, and standardized interaction templates help align users' interpretations by providing shared cognitive cues. These design elements guide users toward common understandings of platform norms, brand values, and co-creation objectives. The empirical strength of the PA→CC path suggests that technological design plays a critical role in facilitating joint sense-making and shared meaning construction, complementing the influence of social interaction strategy (Durall et al., 2019).

Relational capital, while also influenced by platform affordances as reflected in H7, exhibits a comparatively weaker effect relative to social interaction strategy. This pattern underscores the idea that emotional bonds and trust are more strongly rooted in interpersonal experience than in technical facilitation alone. Nevertheless, affordances such as private messaging, real-time feedback tools, and emotionally expressive design elements can support relational development by enabling more personalized and empathetic exchanges. These features help sustain interaction continuity and emotional engagement, thereby contributing to relational capital formation, albeit in a supportive rather than dominant role.

A comparative analysis of the path coefficients reveals nuanced distinctions between social and technological antecedents across the three dimensions of social capital. For structural capital, social interaction strategy exert a slightly stronger influence than platform affordances, suggesting that network density and participation frequency are more sensitive to the perceived quality of interpersonal engagement than to the mere presence of technical tools. For cognitive capital, the effects of social interaction strategy and platform affordances are more balanced, indicating that shared meanings and interpretive alignment are co-produced through both relational discourse and technological

scaffolding. For relational capital, the dominance of social interaction strategy highlights the primacy of trust, reciprocity, and emotional attachment as outcomes of sustained human interaction rather than primarily of technical design.

These findings contribute to a more refined theoretical understanding of social capital development in enterprise-led online communities. Rather than treating social capital as a homogeneous construct, the results demonstrate that its dimensions are shaped by different combinations of social and technical mechanisms. This challenges reductionist perspectives that privilege either human agency or technological determinism and instead supports a socio-technical synthesis in which relational environments motivate engagement while platform affordances structure participation opportunities.

From a managerial perspective, the differentiated effects observed across the three dimensions of social capital have important implications for community governance and design. To foster structural capital, enterprises should combine active facilitation of user-to-user interaction with affordances that make such interactions visible, accessible, and easy to initiate. For cognitive capital, strategy should focus on aligning community discourse with shared brand values and co-creation goals, supported by technological features that standardize meaning-making and reduce interpretive ambiguity. For relational capital, emphasis should be placed on trust-building practices such as transparent governance, consistent moderation, and recognition of user contributions, with platform affordances serving as complementary enablers rather than primary drivers.

The total effects analysis further reinforces these conclusions by showing that social interaction strategy exert a greater overall influence on structural and relational capital, whereas platform affordances contribute more strongly to cognitive capital development. This distribution suggests that network-based and emotional aspects of social capital are inherently more dependent on interpersonal dynamics, while shared cognitive frameworks can be effectively co-constructed through both relational and technical pathways. Such insights deepen the application of social capital theory in digital contexts by demonstrating how its dimensions respond differently to firm-led engagement mechanisms.

Overall, the findings for RO2 confirm that both social interaction strategy and platform affordances are significant antecedents of social capital development across structural, cognitive, and relational dimensions in enterprise-led online communities. The

empirical support for Hypotheses H2 through H7 highlights the multidimensional and socio-technical nature of social capital formation. By elucidating the differentiated roles of social and technological mechanisms, the study advances theoretical understanding of how social capital is constructed in firm-governed digital environments and provides actionable guidance for designing community strategy that strengthen the social foundations necessary for sustained value co-creation.

RO3. To explore how social capital mediates the effects of social interaction strategy and platform affordances on users' value co-creation behavior.

The findings related to RO3 provide strong and systematic evidence that social capital plays a critical mediating role in translating firm-led engagement mechanisms into users' value co-creation behavior in enterprise-led online communities. By examining the indirect effects of social interaction strategy and platform affordances through the three dimensions of social capital, structural, cognitive, and relational capital, this study moves beyond direct-effect explanations and addresses the underlying mechanisms through which co-creation behavior is generated and sustained. The bootstrapped mediation analysis confirms that all proposed indirect paths are statistically significant, thereby providing empirical support for Hypotheses H12 through H17 and directly addressing the third research objective of this study.

For social interaction strategy, the mediation results demonstrate that all three dimensions of social capital function as significant transmission channels linking firm-curated interaction environments to users' value co-creation behavior. Specifically, the indirect effects through structural capital (SI→SC→VC: $\beta = 0.043$, 95% CI [0.001, 0.096]), cognitive capital (SI→CC→VC: $\beta = 0.049$, 95% CI [0.014, 0.106]), and relational capital (SI→RC→VC: $\beta = 0.067$, 95% CI [0.024, 0.136]) are all significant, indicating that the influence of social interaction strategy is partially mediated by users' embeddedness in social networks, shared interpretive frameworks, and trust-based relationships. Among these pathways, the relational capital route exhibits the strongest indirect effect, highlighting the central role of trust, reciprocity, and emotional attachment in converting interaction climates into sustained co-creative engagement.

These findings are consistent with social capital theory, which emphasizes that cooperative behaviors do not arise solely from individual motivation or external incentives, but from the social structures and relational resources within which individuals

are embedded (Kreuter & Lezin, 2002). In enterprise-led online communities, social interaction strategy shape these structures by influencing how users connect with one another, how they interpret shared meanings, and how they evaluate the reliability and goodwill of others. The significant mediation effects associated with H12, H14, and H16 suggest that social interaction strategy do not exert their influence on value co-creation behavior in a direct or mechanical manner. Instead, they operate by gradually reshaping the social architecture of the community, enabling users to accumulate social capital that lowers participation barriers and increases the perceived benefits of collaboration.

The prominence of the relational capital pathway in the mediation of social interaction strategy deserves particular attention. While relational capital did not exert a significant direct effect on value co-creation behavior in the structural model, its role as a mediator is both statistically and theoretically salient. This pattern suggests that trust and emotional bonds function less as immediate behavioral triggers and more as foundational conditions that enable other forms of social capital to exert influence. In other words, relational capital may not directly compel users to engage in co-creation, but it creates an affective and moral context in which network ties and shared understandings become actionable. This finding refines existing assumptions in the literature by highlighting that the value of relational capital lies primarily in its enabling and stabilizing function rather than in direct behavioral activation.

For platform affordances, the mediation analysis reveals a similarly robust pattern, with all three dimensions of social capital serving as significant intermediaries. The indirect effects through structural capital (PA→SC→VC: $\beta = 0.029$, 95% CI [0.003, 0.083]), cognitive capital (PA→CC→VC: $\beta = 0.053$, 95% CI [0.017, 0.114]), and relational capital (PA→RC→VC: $\beta = 0.064$, 95% CI [0.021, 0.123]) confirm that technological design influences value co-creation behavior largely through its impact on the social resources available to users. Among these pathways, the cognitive and relational capital routes are comparatively stronger, suggesting that platform affordances are particularly effective in facilitating shared meaning formation and interpersonal connection, in addition to enabling network expansion.

This pattern aligns closely with affordance theory, which posits that technological features shape behavior by enabling certain actions and interpretations rather than directly determining outcomes (Gibson, 2014). In enterprise-led online communities, affordances

such as content categorization, interaction persistence, and collaborative templates provide cognitive scaffolding that helps users align their understanding of goals, norms, and participation rules. At the same time, affordances such as private messaging, feedback tools, and real-time interaction features support relational development by enabling personalized and emotionally expressive exchanges. The empirical support for H13, H15, and H17 thus illustrates that platform affordances contribute to co-creation not merely by facilitating interaction, but by shaping the social conditions under which interaction becomes meaningful and productive.

A comparative analysis of the two antecedents reveals important differences in how social interaction strategy and platform affordances activate the mediating dimensions of social capital. Social interaction strategy exhibit relatively stronger indirect effects through relational capital, reflecting their role in cultivating trust, reciprocity, and emotional affinity. These relational resources enhance users' sense of obligation, commitment, and moral motivation to contribute to collective endeavors. In contrast, platform affordances demonstrate comparatively stronger mediation through cognitive capital, highlighting the capacity of technological features to support shared goal formation, collective sense-making, and the articulation of co-creation norms. Structural capital serves as a mediating mechanism for both antecedents, but its effect sizes are smaller, suggesting that network formation alone is insufficient to sustain co-creation without accompanying cognitive alignment and relational assurance.

These findings deepen theoretical understanding of social capital as a multidimensional and functionally differentiated construct in digital environments. Rather than treating social capital as a uniform resource, the results demonstrate that its dimensions play distinct roles in mediating the effects of social and technical engagement mechanisms (Häuberer, 2011; Kreuter & Lezin, 2002; Schmid & Robison, 1995). Structural capital provides access and exposure, cognitive capital enables coordination and meaning alignment, and relational capital establishes trust and emotional commitment. Together, these dimensions form an interdependent system through which firm-led interventions are translated into user-level co-creation behavior.

From a broader theoretical perspective, the mediation results support a socio-technical systems view of enterprise-led online communities. Both social interaction strategy and platform affordances shape user behavior not only through direct motivational

or functional cues, but also by configuring the social infrastructure within which users operate. Social capital thus functions as the connective tissue that links environmental design to behavioral outcomes. This perspective refines the concept of value co-creation by framing it as the culmination of interlinked social processes rather than as an isolated behavioral outcome. Co-creation emerges when users are embedded in networks that provide access, share meanings, and foster trust, conditions that are actively shaped by both relational governance and technological design.

The partial nature of the mediation effects carries important implications for theory development. Because the direct effects of social interaction strategy and platform affordances on value co-creation behavior remain significant after accounting for mediation, the results point to a dual-channel mechanism of influence. Direct effects operate through immediate motivational, emotional, or functional triggers, while indirect effects operate through the gradual accumulation of social capital. Recognizing this duality helps reconcile divergent strands of the literature, one emphasizing immediate behavioral cues and another focusing on the enabling role of social structures. The findings suggest that sustainable co-creation requires both channels to operate in tandem.

From a managerial perspective, the mediation results highlight that fostering value co-creation requires more than isolated interventions such as incentive programs or feature upgrades. Enterprises must invest in cultivating the social infrastructure that supports long-term engagement. Trust-building practices, transparent governance, and recognition systems strengthen relational capital, while structured discussion spaces and collaborative ideation tools enhance cognitive capital. Network facilitation features contribute to structural capital, but their effectiveness depends on integration with relational and cognitive strategy. The relative strength of the relational capital pathway in the social interaction strategy model underscores the importance of trust as a foundational resource, while the prominence of cognitive capital in the platform affordances model emphasizes the role of design in shaping shared understanding.

Overall, the findings for RO3 confirm that social capital serves as a central mediating mechanism linking firm-led engagement mechanisms to users' value co-creation behavior in enterprise-led online communities. Structural, cognitive, and relational capital each play distinct yet complementary roles in this process, with relational capital emerging as particularly salient for socially oriented strategy and cognitive capital

for technologically oriented affordances. The empirical support for Hypotheses H12 through H17 advances an integrated understanding of co-creation as a socially mediated phenomenon and highlights the importance of aligning relational governance and technological design to fully leverage the co-creative potential of online communities.

Beyond the confirmation of the proposed hypotheses, the findings generate substantive new insights that advance theoretical understanding of enterprise-led online communities. Most fundamentally, the study develops a socio-technical explanation of value co-creation by demonstrating that neither social interaction strategy nor platform affordances alone are sufficient to account for users' co-creation behavior. Instead, value co-creation emerges through their joint operation, mediated by the multidimensional formation of social capital. By empirically modeling this mechanism, the study moves beyond fragmented treatments of social and technical drivers that dominate prior research and offers an integrated account of how relational environments and technological design co-evolve to shape co-creative engagement. This contribution reframes value co-creation as a structurally embedded and socially mediated process rather than a direct behavioral response to isolated stimuli.

In addition, the study advances social capital theory by revealing systematic differences in the functional roles played by its structural, cognitive, and relational dimensions. The results demonstrate that relational capital constitutes the most influential mediating pathway for socially oriented interaction strategy, whereas cognitive capital plays a more central role in mediating the effects of platform affordances. This differentiated pattern highlights that social capital is not a unitary resource but a set of functionally specialized mechanisms through which organizational interventions are translated into user behavior. By empirically disentangling these pathways, the study enriches existing theoretical accounts that often treat social capital as a homogeneous construct and provides a more precise explanation of how distinct forms of social capital operate within digitally mediated ecosystems.

Furthermore, by situating the analysis within the Xiaomi Community, the study contributes to the contextual expansion of value co-creation and affordance research beyond predominantly Western settings. Existing literature has largely been developed in cultural and institutional environments characterized by individualistic orientations and loosely governed communities. In contrast, the present context reflects a platform

environment shaped by stronger organizational involvement, collective identity, and long-term relational orientation. The findings therefore generate context-sensitive insights into how value co-creation unfolds in Chinese enterprise-led communities, where trust-building, shared meaning, and sustained affiliation play a particularly prominent role. This contextualization extends the applicability of value co-creation and affordance theory by demonstrating their relevance within governance-intensive and relationally embedded digital environments.

Finally, the study introduces a dual-channel model of influence through which firm-led engagement mechanisms affect user behavior. The results indicate that social interaction strategy and platform affordances exert both direct effects, operating through immediate motivational and functional cues, and indirect effects, operating through the gradual accumulation of social capital. This theoretical refinement clarifies why some platform interventions generate short-term participation without sustained engagement, whereas others foster enduring co-creative behavior. By distinguishing between these channels, the study provides a conceptual lens for understanding the temporal dynamics of user engagement and offers a foundation for future research examining how immediate behavioral activation and long-term social embedding jointly shape value co-creation trajectories in enterprise-led online communities.

5.1 Implication to Theories

5.1.1 Implication to Social Capital Theory

This study advances the theoretical understanding of social capital by extending its analytical boundaries into enterprise-led online communities, where both social interaction strategy and platform affordances jointly determine the formation, accumulation, and mobilization of social capital. Classical perspectives, such as Nahapiet and Ghoshal (1998)'s multidimensional model, conceptualize social capital as comprising structural, cognitive, and relational dimensions that collectively facilitate information sharing, trust, and coordinated action. However, the majority of existing studies have explored these mechanisms in user-governed or spontaneously formed digital communities, emphasizing voluntary participation and peer-generated norms as the key drivers of social resource exchange. The current research diverges from this tradition by positioning social capital formation within firm-controlled, strategically curated, and technologically mediated

ecosystems, thereby reinterpreting the theory through an institutional and managerial lens. This shift underscores that social capital in such contexts is not emergent but engineered, a designed outcome of deliberate organizational interventions aimed at stimulating participation, trust, and collaboration.

Empirically, the findings demonstrate that social interaction strategy, which encompass trust cultivation, risk mitigation, and the enhancement of intimacy among users, exert a strong positive influence on all three dimensions of social capital. This supports the argument of Guo et al. (2021) that corporate moderation and recognition systems can strengthen social bonds by establishing predictable and trustworthy communication environments. Likewise, platform affordances, including functional features such as transparency, real-time interaction, and information visibility, also significantly contribute to users' network building and cooperative engagement. These results are consistent with Hwang and Seo (2025), who emphasize that affordances are not neutral technical attributes but socio-technical enablers that configure the ways in which users perceive, interpret, and enact relational exchanges. Together, these findings extend social capital theory by illustrating how firm-designed interactional and technological mechanisms serve as complementary antecedents to social resource generation, thereby embedding social capital formation within the organizational architecture of digital platforms.

Moreover, this study provides empirical clarification of the interdependence among structural, cognitive, and relational capital, offering a more integrative understanding of how these dimensions jointly mediate user behavior. Structural capital provides the relational infrastructure that facilitates communication, visibility, and opportunity discovery; cognitive capital aligns interpretive schemas and shared goals, enhancing mutual comprehension and relevance; and relational capital cultivates trust, reciprocity, and affective commitment, sustaining long-term cooperation. These findings not only corroborate but also refine the insights of Peng (2024) and Radaelli et al. (2024), who examined specific dimensions of social capital in narrower organizational contexts such as knowledge-sharing networks and innovation clusters. The current results show that these dimensions are mutually reinforcing, functioning as a coordinated system that translates firm-led strategy into participatory behavior. In particular, the mediating role of cognitive and structural capital explains why well-designed platforms and transparent

governance structures enhance users' willingness to co-create, even when emotional factors alone are insufficient.

Importantly, the results challenge the prevailing assumption of direct emotional determinism in digital participation. Prior research often attributed user engagement to affective closeness or emotional identification with the community (Kim et al., 2023; Parsakia & Rostami, 2023). However, the present findings indicate that intimacy functions indirectly, influencing participation primarily through its contribution to relational trust and cognitive alignment. This insight refines the causal logic within social capital theory, suggesting that emotional bonds, while essential for social cohesion, do not independently translate into collaborative outcomes unless embedded within a robust structure of shared understanding and network connectivity. In this regard, the study resonates with emerging perspectives in digital community research, which argue that emotional engagement must be institutionally scaffolded by mechanisms of governance and communication design to achieve sustained behavioral participation.

Furthermore, the findings highlight the institutional embeddedness and technological mediation of social capital in enterprise-led ecosystems. Social capital here is not a spontaneous by-product of interpersonal interaction but a strategically constructed organizational asset. Interaction channels, rule systems, reward mechanisms, and algorithmic moderation collectively shape the opportunities and constraints under which relational resources evolve. This perspective aligns with Bakour and Chougui (2024) and Hwang and Seo (2025), who contend that digital architectures actively configure users' social networks and power dynamics through design logics embedded in affordances and data flows. Consequently, social capital theory must evolve to integrate these technological and institutional dimensions, recognizing that digital infrastructures are not peripheral but constitutive components of relational systems. The interpenetration of social and technical mechanisms thus calls for a reorientation of social capital theory toward a socio-technical paradigm, wherein the relational, cognitive, and structural dynamics are simultaneously human and algorithmic, voluntary and designed.

In summary, this study contributes to social capital theory by demonstrating that in enterprise-curated digital communities, social capital is simultaneously social, technical, and managerial. Theoretically, it extends the contextual relevance of the theory beyond informal networks to strategically governed ecosystems; empirically, it verifies

the differentiated yet interdependent mediating roles of the three core dimensions in translating organizational engagement mechanisms into user co-creation behavior; conceptually, it refines the causal pathway by revealing that emotional and cognitive influences are realized through structured, technology-enabled relational processes. Collectively, these contributions underscore that social capital in the platform economy is not merely an emergent property of user interaction but a designed capability, a form of organizational capital purposefully cultivated through the intertwined orchestration of technological affordances and social relational strategy. This redefinition deepens the explanatory power of social capital theory and provides a more comprehensive foundation for analyzing relational dynamics and participatory behaviors in contemporary enterprise-led digital ecosystems.

5.1.2 Implication to Concept of Value Co-creation

This study extends and refines the concept of value co-creation by embedding it within the socio-technical context of enterprise-led online communities. Early discussions of value co-creation, grounded in service-dominant logic, emphasized the transition from firm-centric production to interactive processes in which value emerges through use, dialogue, and experience (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2008)。 In such models, customers are viewed as active collaborators in shaping experiences, meanings, and outcomes. Subsequent research has expanded this logic across digital platforms, stressing that technological affordances enable greater interactivity, transparency, and participation. However, much of this literature assumes decentralized participation and voluntary user agency. The present study advances the concept by demonstrating that value co-creation can be strategically cultivated in enterprise-governed ecosystems, where both social interaction strategy and platform affordances are deliberately designed to channel and sustain user participation.

A key contribution lies in clarifying the antecedent conditions of co-creation. While prior studies often highlight psychological or motivational antecedents, such as enjoyment, identification, or perceived empowerment (Guo et al., 2020; Naqvi et al., 2021), these approaches treat value co-creation primarily as an individual-level phenomenon. The current findings reframe it as a socially and technologically embedded process, in which users' perceptions of trust, intimacy, and risk management interact with perceived affordances of visibility, navigability, and interactivity to shape engagement.

This aligns partially with Breidbach and Maglio (2016), who conceptualize digital platforms as "value facilitation infrastructures," but it goes further by showing empirically that co-creation is not simply facilitated but orchestrated through enterprise-led mechanisms. Thus, rather than arising spontaneously, co-creation behavior is an outcome of deliberate environmental design that merges social and technical levers to create conditions conducive to collaboration.

Another theoretical refinement concerns the mediating role of social capital in translating perceptions into behavioral outcomes. Previous works such as Pearce et al. (2022) and Bradley and Mahmoud (2024) note that trust and shared understanding are prerequisites for effective co-creation, yet they seldom explicate the mechanisms through which these relational conditions materialize. This study provides empirical clarity by operationalizing structural, cognitive, and relational capital as sequential mediators between interaction design and co-creation behavior. The results indicate that users do not co-create value merely because they perceive the platform as interactive or the community as trustworthy, but because these perceptions enable the formation of durable relational infrastructures that facilitate coordination and mutual understanding. This echoes and extends the relational logic articulated by Brozović et al. (2025), who argue that value is generated in the "joint sphere" of interaction, by demonstrating how enterprise governance systematically structures that sphere to sustain participation.

Furthermore, the findings contest technological determinism prevalent in some platform-based co-creation studies, which imply that increasing digital affordances automatically increases value outcomes (Hennig-Thurau et al., 2023). Consistent with Engås et al. (2023), the current research shows that technological capacity alone does not guarantee meaningful engagement. The conversion of affordances into co-creative acts depends on the relational density and cognitive coherence within the user network. Similarly, while emotional closeness and community intimacy have been cited as central to user engagement (Kim et al., 2023), this study finds that relational capital exerts no direct effect on co-creation once structural and cognitive dimensions are considered. This suggests that affective attachment serves a stabilizing rather than initiating function, complementing rather than replacing structural and cognitive foundations. In doing so, it nuances the traditional assumption, common in brand community literature, that emotional connection is the dominant driver of participation (Frankel & Mountford, 2021).

Another key insight lies in contextualizing value co-creation under hierarchical governance. Prior research has typically examined co-creation in open, user-driven contexts, such as crowdsourcing or innovation contests, where organizational oversight is minimal (Lima-Junior et al., 2024; Zaitsava, 2022). In contrast, this study investigates enterprise-led communities characterized by structured moderation, incentive systems, and technological standardization. Contrary to the assumption that firm control limits creativity, the findings reveal that managerial orchestration can enhance co-creation by reducing uncertainty, clarifying roles, and fostering trust in institutional processes. This aligns with recent work by Hwang and Seo (2025), who highlight the role of governance in shaping value co-creation outcomes within platform ecosystems. By empirically validating this relationship, the current study reframes governance not as a constraint but as an enabling condition for sustainable participation.

The study also introduces a temporal dimension to the concept of value co-creation. Co-creation is not an instantaneous event but an evolving process in which perceptions shape relationships, relationships foster collaboration, and collaboration reinforces trust and shared identity. This recursive loop supports the dynamic view of co-creation proposed by Lehrer et al. (2023), emphasizing that value is continuously renewed through iterative user engagement. The evidence from this study thus bridges micro-level user interaction and macro-level community evolution, illustrating how long-term engagement emerges from the cumulative layering of social capital.

In summary, this study advances the concept of value co-creation by embedding it in a firm-led, socio-technical framework where enterprise-initiated strategy and platform affordances jointly generate the relational and cognitive preconditions for sustained participation. It moves beyond individualistic or purely technological explanations by integrating governance, social capital, and temporality into a unified conceptual model. Theoretically, it redefines value co-creation as a strategically cultivated, socially mediated, and technologically enabled process, expanding the concept's applicability from user-governed networks to enterprise-curated digital ecosystems. Through this reconceptualization, the study provides a richer understanding of how value is collaboratively produced and institutionalized in managed online environments.

5.1.3 Implication to Affordance Theory

This study advances affordance theory by extending its empirical and conceptual application to enterprise-led online communities, demonstrating how users' perceptions of functional platform capabilities influence the development of social capital and, in turn, value co-creation behavior. Affordance theory emphasizes that the actionable possibilities of a technology emerge from the interplay between its properties and the user's capacity to perceive and actualize them (Gibson, 2014). While prior studies have predominantly examined affordances in open, user-driven environments such as social media platforms or collaborative innovation networks (Sajtos et al., 2023; Zourou, 2016), the present research shifts the focus to enterprise-governed ecosystems, where affordances are intentionally designed, moderated, and aligned with corporate objectives. This responds to calls to examine how organizational context shapes the emergence and enactment of technological affordances.

A distinctive contribution of this study lies in the disaggregation of platform affordance into ideation, collaboration, and communication affordances, adapted from previous work and refined for the Xiaomi community context. This multidimensional framing resonates with earlier conceptualizations of affordance dimensions such as visibility, persistence, and association (Evans et al., 2017; Nelson Jr, 2024), yet extends them by situating these affordances within a structured brand community where participation pathways are deliberately architected. Whereas previous studies have often treated affordances as unitary constructs (Nelson Jr, 2024; Shaw et al., 2019), the present findings demonstrate that different affordance types have distinct implications for social capital formation: ideation affordances primarily foster cognitive alignment, collaboration affordances reinforce structural connectivity, and communication affordances enhance relational bonding. This fine-grained mapping broadens affordance theory by clarifying the differentiated social functions of technological capabilities in managed online communities.

The results also refine the perception–action linkage central to affordance theory. While perceiving an affordance is a prerequisite for its actualization (Gibson, 2014), empirical studies have seldom explained why perception alone may not yield behavioral outcomes. The present findings show that the effect of perceived affordances on value co-creation is mediated by the social capital embedded in the community, which is consistent

with the view that affordance actualization often depends on relational and organizational enablers (Henningsson et al., 2021; Roy et al., 2024). For example, communication affordances may enable dialogue, but without trust, shared cognitive frames, and network cohesion, such dialogue may fail to translate into meaningful co-creative action. This finding reinforces the argument that affordances are socially contingent and must be embedded in supportive contexts to be realized (Pandey & Zheng, 2023; Salamoun et al., 2024).

The study further nuances the assumption that more or richer affordances will necessarily lead to higher engagement or greater value outcomes. While the analysis confirms that platform affordances exert significant direct effects on both social capital and value co-creation, these effects are amplified when combined with strong social interaction strategy. This complements the perspective that affordances must be embedded within meaningful activity systems to achieve impact and challenges purely technological determinist views that overlook the socio-relational infrastructure of engagement.

By empirically grounding these insights in the Xiaomi community, this study extends affordance theory into contexts where the firm actively governs interaction channels, moderates participation norms, and curates engagement incentives. This aligns with arguments that the governance structure of digital platforms significantly shapes both the perception and the actualization of affordances (Smorgunov, 2020). The findings suggest that in such enterprise-led environments, affordances should be understood not merely as emergent user–technology relations but as strategically designed opportunities for action embedded in a managed socio-technical architecture.

In sum, this study contributes to affordance theory by empirically validating a multidimensional operationalization of platform affordances, demonstrating that affordance effects are mediated by social capital rather than operating in isolation, challenging the assumption of a direct perception–behavior link by showing the necessity of socio-relational embedding, and extending the theory's contextual reach to enterprise-governed online communities where affordances are deliberately orchestrated to align with corporate strategy. These contributions enrich the theoretical toolkit for understanding how socio-technical design, user perception, and community structure intersect to shape participatory value co-creation in the platform economy.

5.2 Implication to Practitioners

5.2.1 Implication to Enterprise Platform Managers

For enterprise platform managers, the findings highlight that user engagement and value co-creation are shaped not only by the availability of functional features but also by how the interaction environment is socially and emotionally interpreted by participants. This means that effective platform management must go beyond technical optimization to deliberately construct interaction architectures that foster meaningful social relationships, align user goals, and embed trust into everyday exchanges.

A key managerial priority is the integration of risk-reduction mechanisms into the platform's operational design. While lowering perceived risk may not directly drive value co-creation, it provides the psychological stability users need to explore and engage in deeper forms of participation. This can be achieved by increasing transparency in platform governance, making moderation activities visible, providing clear dispute resolution processes, and ensuring consistent application of community rules. These steps reduce uncertainty, reassure participants, and create an environment in which trust can take root.

The cultivation of trust should be treated as a central strategic objective, given its direct impact on users' willingness to contribute meaningfully. Trust is strengthened when users perceive the platform as fair, consistent, and responsive. This requires visible and predictable governance practices, such as timely responses from official accounts, acknowledgment of user contributions, and clear enforcement of behavioral standards. Building trust at both the institutional and interpersonal levels establishes a stable foundation for cooperative engagement and sustained participation.

Although emotional intimacy does not independently trigger co-creative activity, it plays a vital enabling role in strengthening the social bonds that underpin collaborative behavior. Facilitating opportunities for users to form personal connections, through thematic discussion spaces, profile personalization, storytelling initiatives, and recognition of peer contributions, can help cultivate a sense of belonging. These social ties deepen the relational fabric of the community and indirectly support structural and cognitive capital development.

Enhancing structural capital requires tools and design elements that make network connections and collaboration opportunities visible and accessible. Features such as user tagging, interaction histories, visual network maps, and intelligent task-matching systems

can help users identify potential partners, discover relevant conversations, and integrate more deeply into the community's interaction network. The more effectively these connections are surfaced, the easier it becomes for users to initiate and sustain productive collaboration.

To support the growth of cognitive capital, platform managers should ensure that the community's mission, values, and behavioral expectations are clearly and consistently communicated. This can be reinforced through onboarding processes, pinned guidelines, regular community announcements, and structured content themes. Interactive elements such as expert-led sessions and shared resource libraries further promote alignment in understanding, enabling members to work toward shared objectives with greater cohesion.

Relational capital, encompassing trust, mutual respect, and emotional commitment, should be viewed as a dynamic resource requiring continuous investment. Celebrating long-term contributors, implementing peer-recognition programs, preserving community heritage through curated archives, and providing respectful conflict mediation all contribute to the stability and resilience of interpersonal relationships. These relational qualities not only encourage ongoing participation but also sustain the quality of interactions over time.

In conclusion, enterprise platform managers should move beyond a purely functionalist approach to community design and instead focus on cultivating a socially embedded, trust-oriented, and relationally rich interaction environment. By integrating social interaction strategy with thoughtful use of platform affordances, managers can transform online communities from transactional interfaces into collaborative ecosystems that continuously generate mutual value for both the enterprise and its participants.

5.2.2 Implication to Community Operation Teams

For community operations teams, the findings reinforce that effective operations extend far beyond driving short-term engagement numbers. Sustained value co-creation relies on building and maintaining the social conditions that nurture trust, shared understanding, and emotional connection among members. While platform managers establish the structural framework, it is the operations teams who activate, maintain, and adapt the community's daily rhythms to bring that framework to life. The study shows that users' co-creative behaviors emerge not from isolated interactions but from an ongoing sense of embeddedness within a socially cohesive environment.

A central operational priority is cultivating trust through everyday interactions. Trust grows not only from platform-level assurances but also from consistent, transparent, and empathetic engagement between operational staff and users. This requires timely responses to inquiries, impartial moderation of disputes, and consistent application of community guidelines. When operational teams demonstrate credibility through fairness, reliability, and responsiveness, members perceive the community as a secure and dependable space in which contributions are valued and respected.

Equally important is the active facilitation of emotional intimacy among members. Although emotional connection does not directly drive co-creation, it strengthens the relational and cognitive foundations of social capital. Operations teams can foster this by creating opportunities for interpersonal familiarity and shared experiences. This may include organizing informal conversation spaces, hosting virtual or hybrid community events, highlighting individual members through “spotlight” features, and encouraging collaborative storytelling. These initiatives humanize the community and strengthen bonds between members, encouraging them to engage with each other as well as with the platform content.

Supporting the visibility and accessibility of community networks is another key operational task. By providing topic-based subforums, implementing expertise-tagging systems, and showcasing collaborative activities such as co-authored threads or active discussion clusters, operations teams can help members navigate the community’s social structure. When users see clear pathways to connect with others and recognize existing relationships, they are more likely to integrate themselves into the network and participate actively.

Reinforcing shared cognition, common goals, norms, and interpretive frameworks, is also essential. Operations teams should guide members in developing a shared sense of purpose by curating onboarding resources, hosting thematic discussion weeks, producing editorial summaries of trending conversations, and offering reflections on community culture. These efforts help members internalize the community’s values and operating norms, fostering alignment and cooperation across diverse participant groups.

Long-term relational capital requires deliberate and ongoing reinforcement. Recognizing collaborative contributions rather than focusing solely on individual achievements, enabling systems for peer acknowledgment, and addressing conflicts

constructively all contribute to a respectful and cohesive environment. The consistency and fairness of these interventions shape the emotional climate of the community and influence whether members sustain long-term commitment.

Ultimately, the success of social interaction strategy depends on how they are translated into daily operational practices. Community operations teams play a pivotal role in transforming platform affordances into socially embedded experiences that build trust, foster connections, and reinforce shared purpose. Their capacity to animate the structural framework through relationally oriented, trust-centered, and goal-aligned engagement determines whether enterprise-led online communities can evolve into enduring ecosystems of collaborative value co-creation.

5.2.3 Implication to Government Regulators and Policymakers

For government regulators and policymakers, the findings of this study offer timely and relevant insights for the governance of digital platforms, particularly enterprise-led online communities where user participation and value co-creation are shaped by commercial entities. As such communities increasingly become arenas for economic collaboration, consumer engagement, and public discourse, the way in which trust, perceived risk, and social capital are cultivated within them has implications that extend beyond corporate strategy into regulatory oversight and public interest protection.

A key implication is that user trust is not solely a platform-level concern but a matter of systemic digital governance. The results of this study confirm trust as a fundamental enabler of co-creation behavior and a primary determinant of users' willingness to engage in platform-mediated processes. Strengthening regulatory frameworks to enforce platform accountability, transparency, and fairness is therefore essential. Standards for robust data protection, transparent content moderation, and clear user rights communication can help institutionalize trust at the ecosystem level, especially where platforms act both as content gatekeepers and community orchestrators.

While perceived risk does not directly drive behavioral engagement, it forms a critical foundation for social capital development, a prerequisite for meaningful and sustained participation. This suggests the need for proactive regulatory measures to reduce users' perceived vulnerability. Mandating informed consent, ensuring algorithmic transparency, implementing accessible grievance redressal channels, and providing opt-

out mechanisms for intrusive features can help lower perceived risk and create a psychologically safe environment for participation in enterprise-led communities.

The study also draws attention to the indirect yet important role of emotional intimacy and social connectedness in enabling sustained civic and economic collaboration online. This has broader implications for policy agendas on digital inclusion and participation equity. Community design, often regarded as purely technical or commercial, has profound social and cultural impacts. Public policies could therefore support platforms in adopting inclusive design standards that encourage accessibility, intercultural understanding, and diversity in community norms. Such measures would broaden engagement opportunities, enabling digitally marginalized groups to participate in co-creation and access the benefits of platform-enabled value processes.

Another significant policy insight emerges from the mediating role of social capital. Structural, cognitive, and relational capital form the social infrastructure through which enterprise–user interactions are transformed into participatory behaviors. Regulatory agencies could develop evaluation frameworks or certification mechanisms to assess the "social health" of digital communities. Similar to privacy, security, and content safety audits, indicators such as trust, relational integrity, and shared cognitive alignment could be incorporated into governance metrics, expanding the evaluative lens through which platform responsibility is assessed.

In summary, enterprise-led online communities, while commercially motivated, function as quasi-public spaces where norms of trust, perceptions of risk, and social value co-creation are constantly negotiated. Regulators and policymakers have a dual responsibility: to mitigate potential harms and to create enabling institutional conditions for digital communities to serve broader societal goals such as civic participation, collaborative innovation, and collective resilience. Aligning policy priorities with the socio-behavioral dynamics identified in this study will support the development of a human-centered and socially robust digital governance agenda.

5.3 Limitation of the Study and Implications of Future Study

5.3.1 Limitation of the Present Study

While this study advances theoretical and practical understanding of user value co-creation behavior within enterprise-led online communities, several limitations should be acknowledged, which also point to meaningful avenues for future research.

First, the study adopts a cross-sectional research design, collecting data at a single point in time. Although this design is appropriate for testing theoretically grounded relationships and structural mechanisms, it inherently constrains the ability to capture the dynamic and evolutionary nature of social capital formation and value co-creation behavior. Key constructs examined in this study, such as trust development, perceived risk mitigation, relational intimacy, and shared cognitive alignment, are not static states but processes that unfold through repeated interaction and accumulated experience. As a result, the current design limits the capacity to infer temporal sequencing and long-term causal dynamics among social interaction strategy, platform affordances, social capital dimensions, and co-creation outcomes.

Second, the empirical analysis is conducted within a single enterprise-led online community, namely Xiaomi's brand community. While Xiaomi represents a mature and well-structured example of a firm-curated digital ecosystem, the specific characteristics of its user base, governance arrangements, and technological infrastructure may influence the observed relationships. Consequently, the generalizability of the findings to other enterprise-led communities, particularly those operating in different industries, institutional environments, or cultural contexts, should be approached with caution. Platforms with alternative governance models, participation norms, or incentive structures may exhibit distinct co-creation dynamics.

Third, the analytical framework focuses primarily on the user perspective, emphasizing users' perceptions of interaction strategy, platform affordances, and social capital. This user-centered approach is well suited to examining value co-creation behavior as an experiential and participatory phenomenon; however, it does not explicitly incorporate the perspectives of platform managers, designers, or organizational decision-makers. As a result, the study does not directly account for how managerial intentions, operational constraints, or governance rationales shape the design and implementation of interaction strategy and technological affordances.

Finally, the analysis assumes a relatively stable and cooperative platform environment. In practice, enterprise-led online communities may experience periods of turbulence, including governance conflicts, technological disruption, strategic realignment, or shifts in user sentiment. Such conditions can alter trust relationships, weaken social capital, or disrupt co-creation processes in ways not fully captured by the current model. The absence of contextual variation related to instability or crisis limits the scope of inference regarding how social capital and co-creation mechanisms operate under stress or uncertainty.

In sum, these limitations highlight the need for future research that is more temporally sensitive, contextually diverse, and analytically expansive. While the present study provides a validated and theoretically grounded model linking social interaction strategy, platform affordances, social capital, and value co-creation behavior, further empirical refinement is required to capture the full complexity of co-creation dynamics in enterprise-controlled digital environments.

5.3.2 Implications for Future Study

Building on the limitations identified above, several promising directions emerge for advancing research on user value co-creation within enterprise-led online communities. These directions aim to deepen theoretical explanation, strengthen causal inference, and broaden contextual and methodological coverage.

First, future studies are encouraged to adopt longitudinal research designs to capture the dynamic evolution of social capital and co-creation behavior over time. A temporal approach would enable researchers to examine how trust, perceived risk, intimacy, and shared cognition develop, stabilize, or deteriorate in response to platform events, governance interventions, or accumulated interaction histories. Such designs would provide richer insight into causal sequencing and reveal whether the mechanisms identified in this study produce short-term engagement or sustain long-term co-creative participation.

Second, extending the current model across multiple platform contexts and cultural settings would enhance its generalizability and explanatory power. While this study focuses on a Chinese enterprise-led technology community, value co-creation mechanisms may vary across regions, industries, and institutional environments. Comparative research involving platforms in domains such as healthcare, education, public services, or civic

technology could help identify boundary conditions and contextual moderators, thereby refining theory on how social capital and co-creation interact under different governance and cultural regimes.

Third, incorporating multi-stakeholder perspectives represents an important direction for future inquiry. Integrating insights from platform managers, community moderators, designers, or policy actors would allow researchers to examine how interaction strategy and affordances are strategically conceived, operationalized, and adjusted over time. Qualitative approaches, including interviews, design ethnographies, or participatory observation, could reveal organizational logics and governance practices that complement user-level analyses.

Fourth, future research should explore the role of algorithmic systems in shaping social capital formation and co-creation behavior. As enterprise-led platforms increasingly rely on recommendation algorithms, content ranking, and automated moderation, algorithmic mediation becomes a central factor influencing trust, perceived fairness, visibility, and cognitive alignment. Investigating how algorithmic transparency, personalization intensity, and bias mitigation strategies affect user engagement would address a critical and underexplored dimension of platform governance.

Fifth, scholars are encouraged to examine nonlinear and disruptive dynamics within enterprise-led communities. Episodes of conflict, governance breakdown, strategic shifts, or platform crises offer valuable opportunities to study how social capital deteriorates, is contested, or reconstructed. Research on digital protest, large-scale user exit, or community recovery processes could deepen understanding of resilience, emotional dynamics, and collective memory in co-creative ecosystems.

Finally, mixed-methods research designs hold substantial potential for advancing this field. Combining survey-based analyses with behavioral data, network analytics, and qualitative insights would allow researchers to capture both perceived and enacted dimensions of co-creation. Digital trace data, such as interaction frequency, contribution histories, and network structures, could complement perceptual measures and provide a more behaviorally grounded account of social capital and co-creation processes.

In sum, future research can build on the conceptual and empirical foundations established in this study by expanding temporal scope, diversifying empirical contexts, and adopting richer methodological strategies. Such efforts would contribute to a more

comprehensive, resilient, and context-sensitive theoretical framework for understanding value co-creation in the evolving landscape of enterprise-led digital ecosystems.

5.4 Conclusion

This study investigated the social mechanisms underlying users' value co-creation behavior in enterprise-led online communities, using the Xiaomi brand community as an illustrative case. Grounded in social capital theory and concept of value co-creation, the research developed and empirically validated a structural model linking users' perceptions of social interaction strategy, specifically perceived risk, trust, and intimacy, to the three dimensions of social capital (structural, cognitive, and relational), and ultimately to value co-creation behavior. Through structural equation modeling, the results confirmed that trust exerts a significant direct influence on co-creation, whereas perceived risk and intimacy primarily operate through the mediating pathways of social capital.

The findings make several theoretical contributions. First, by positioning social capital as an active mediating mechanism between perception and behavior rather than as a static contextual resource, the study advances the explanatory scope of social capital theory. Second, it strengthens concept of value co-creation by demonstrating that user participation is not solely a function of technological affordances or individual motivation but is deeply embedded in socially constructed relational infrastructures. These insights challenge the assumption that simply increasing interaction opportunities necessarily enhances co-creation, emphasizing instead the necessity of socially meaningful and trust-based engagement frameworks.

From a practical perspective, the study offers actionable implications for four key stakeholder groups: enterprise platform managers, community operations teams, brand strategists, and government policymakers. Each group plays a distinct role in shaping the digital conditions that enable value co-creation, and the study provides targeted recommendations aligned with empirical findings to inform governance, operational practices, and strategic interventions. Whether through the institutionalization of trust-building measures, the operational fostering of emotional intimacy, the strategic cultivation of brand-aligned social capital, or the policy regulation of risk-reducing mechanisms, the results underscore the shared responsibility of multiple actors in sustaining collaborative and resilient digital ecosystems.

Notwithstanding these contributions, the study acknowledges several limitations, including its single-case design, cross-sectional methodology, and exclusive focus on user perceptions. These constraints limit the generalizability and temporal depth of the findings, thereby opening opportunities for future research to adopt longitudinal designs, incorporate multi-stakeholder perspectives, examine algorithmic mediation, and investigate the effects of platform disruption. Such approaches would enrich the theoretical and empirical understanding of value co-creation in increasingly complex digital environments.

In sum, this study confirms that value co-creation in enterprise-led online communities is not merely a transactional exchange but a socially embedded process shaped by users' perceptions, the configuration of social capital, and the quality of relational ties. By identifying and explicating the structural and cognitive pathways through which interaction strategy translate into co-creation, the study offers a more nuanced and socially grounded perspective to the discourse on digital engagement and collaborative innovation.

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APPENDIXES

APPENDIX A

Detailed Statements Used to Measure Variables

Appendix A. Detailed Statements Used to Measure Variables

Variables	Original items	Measurement items	Source
Social Interaction strategy	1.I'm worried about the quality of the product and the situation that I might buy fake goods.	SI1. I believe the information shared in the Xiaomi official online community is generally reliable and of good quality.	Yin et al. (2019)
	2.Commodities may be damaged in transit.	SI2. I feel confident that suggestions or feedback from other users in the Xiaomi community can support sound decision-making.	
	3.My personal information may be leaked.	SI3. I trust that my personal information is well protected when engaging in the Xiaomi online community.	
	4.After-sales service may not be guaranteed.	SI4. I am confident that Xiaomi responds effectively to feedback or concerns raised in the online community.	
	5.I think most of the businesses in social e-commerce have good reputation.	SI5. I believe Xiaomi, as the enterprise behind the community, has a good reputation.	
	6.Existing laws and systems can effectively guarantee the security of online transactions.	SI6. I trust that Xiaomi's platform follows proper rules and policies to ensure safe interactions within the community.	

Variables	Original items	Measurement items	Source
	7.I think the website and payment system are reliable and can guarantee the success of the transaction.	SI7. I believe the technical systems of Xiaomi's online community (e.g., data handling, comment management) are reliable.	
	8.Business credit rating is the main criterion for judging their credibility.	SI8. I consider Xiaomi's response record and engagement level in the community as important indicators of its trustworthiness.	
	9.I think the friends on this website are trustworthy.	SI9. I believe most members of the Xiaomi community are honest and trustworthy.	
	10.On this website, my friends and I have a very cordial feeling.	SI10. I feel a strong sense of connection with other users in the Xiaomi online community.	
	11.On this website, I feel very close to my friends.	SI11. I feel emotionally close to other members when interacting in the Xiaomi community.	
	12.On this website, I interact with my friends frequently.	SI12. I frequently engage in discussions or share ideas with other users in the Xiaomi official online community.	
Platform affordance	1.The platform enables me to submit new product ideas.	PA1.The Xiaomi community enables me to propose new ideas or suggestions related to the brand or its products.	Abhari et al. (2017)

Variables	Original items	Measurement items	Source
	2.The platform enables me to describe/present my product ideas.	PA2.The Xiaomi community allows me to present and elaborate on my creative ideas for product or service improvement.	
	3.The platform enables me to monitor my idea evaluation process.	PA3.The Xiaomi community enables me to track how my proposed ideas are received and evaluated by others.	
	4.The platform enables me to revise/resubmit my product ideas.	PA4.The Xiaomi community allows me to revise or update my previously submitted ideas based on community or platform feedback.	
	5.The platform enables me to review different product ideas.	PA5.The Xiaomi community enables me to browse and evaluate ideas contributed by other users.	
	6.The platform enables me to vote for different product ideas.	PA6.The Xiaomi community allows me to express support for others' ideas through voting or other interactive tools.	
	7.The platform enables me to contribute to product design/development.	PA7.The Xiaomi community gives me opportunities to participate in co-creating or improving products and services.	

Variables	Original items	Measurement items	Source
	8.The platform enables me to contribute to product commercialization.	PA8.The Xiaomi community enables me to take part in discussions or actions related to product launch and commercialization.	
	9.The platform enables me to share my knowledge.	PA9.The Xiaomi community facilitates sharing my experiences, knowledge, or suggestions with other users.	
	10.The platform enables me to solicit votes/support.	PA10.The Xiaomi community allows me to gather support or feedback from peers for my contributions.	
	11.The platform enables me to discuss new ideas with community.	PA11.The Xiaomi community supports real-time dialogue and collaborative discussion of new ideas.	
	12.The platform enables me to network with community.	PA12.The Xiaomi community helps me build social connections and maintain interactions with other community members.	
Structural capital	1. The supplier's representative spends time getting to know our people	SC1. Xiaomi community users take time to get to know each other within the Xiaomi official online community.	Singh et al. (2024)

Variables	Original items	Measurement items	Source
	2. Our supplier's representative contacts us by phone, e-mails, letters, and/or fax frequently	SC2. Xiaomi community users frequently interact with each other through posts, comments, and private messages in the Xiaomi official online community.	
	3. Our supplier's representative often talks about common interests besides work	SC3. Xiaomi community users often communicate about shared interests beyond Xiaomi products in the Xiaomi official online community.	
Cognitive capital	1. This supplier shares our goals for this business	CC1. Xiaomi community users share common goals related to improving Xiaomi products or services.	Singh et al. (2024)
	2. Both firms share the same business values	CC2. Xiaomi community users share similar values regarding active participation and collaboration within the Xiaomi official online community.	
	3. Both firms often agree on what is in the best interest of the relationship	CC3. Xiaomi community users generally agree on what actions best support the development and value of the Xiaomi official online community.	
Relational capital	1. This supplier is flexible in response to request we make	RC1. Xiaomi community users are willing to respond flexibly to others' requests within the Xiaomi official online community.	Singh et al. (2024)

Variables	Original items	Measurement items	Source
	2. This supplier makes an effort to help us during emergencies	RC2. Xiaomi community users make efforts to assist each other when difficulties arise in the Xiaomi official online community.	
	3. This supplier keeps its word	RC3. Xiaomi community users generally keep their promises during interactions in the Xiaomi official online community.	
	4. This supplier is trustworthy	RC4. Xiaomi community users are trustworthy in their interactions within the Xiaomi official online community.	
Users' value co-creation behavior	1.I use Alipay.	VC1. I participate in the Xiaomi official online community.	Tian et al. (2023)
	2.I use Alipay to manage my e-wallet accounts.	VC2. I manage my personal account and preferences within the Xiaomi official online community.	
	3.I use Alipay to do transactions.	VC3. I contribute content, feedback, or suggestions related to Xiaomi products or services in the official online community.	
	4.I sign up for Alipay that are specially designed for digital payment systems.	VC4. I sign up for product testing, topic discussions, or official events specifically designed for Xiaomi community members.	

APPENDIX B

Questionnaire (English Version)

Appendix B. Questionnaire (English Version)

Rattanakosin International College of Creative Entrepreneurship
Of Rajamangala University of Technology, Rattanakosin

Dear Mr. and Mrs:

Hello! Thank you for taking time out of your busy schedule to answer the questionnaire! This questionnaire is to collect your opinion as an ordinary community user of the Xiaomi community on the participation of community users in the value co-creation of the online branding community. This questionnaire is in the form of an anonymous survey, the data collected will only be used for this academic researcher, and will not be used for any commercial purposes, your answers will be kept completely confidential, so please feel free to answer. There is no right or wrong answer to any of the questions, so please answer according to your actual situation. Thank you again for your support!

Part 1 Social interaction strategy

(Please indicate your level of agreement by marking √ under the appropriate score, from 1-7, where 1 represents "Strongly Disagree" and 7 represents "Strongly Agree")

Item	1	2	3	4	5	6	7
A1. I am concerned about the quality of information shared in the Xiaomi official online community.							
A2. I worry that suggestions or feedback from other users in the Xiaomi community may lead to incorrect decisions.							
A3. I am concerned about the possibility of my personal information being exposed when engaging in the Xiaomi online community.							

Item	1	2	3	4	5	6	7
A4. I feel uncertain whether Xiaomi will respond effectively to feedback or concerns raised in the Xiaomi online community.							
A5. I believe Xiaomi, as the enterprise behind the community, has a good reputation.							
A6. I trust that Xiaomi's platform follows proper rules and policies to ensure safe interactions within the community.							
A7. I believe the technical systems of Xiaomi's online community (e.g., data handling, comment management) are reliable.							
A8. I consider Xiaomi's response record and engagement level in the community as important indicators of its trustworthiness.							
A9. I believe most members of the Xiaomi community are honest and trustworthy.							
A10. I feel a strong sense of connection with other users in the Xiaomi online community.							
A11. I feel emotionally close to other members when interacting in the Xiaomi community.							
A12. I frequently engage in discussions or share ideas with other users in the Xiaomi official online community.							

Part 2 Platform affordance

(Please indicate your level of agreement by marking √ under the appropriate score, from 1-7, where 1 represents "Strongly Disagree" and 7 represents "Strongly Agree")

Item	1	2	3	4	5	6	7
B1.The Xiaomi community enables me to propose new ideas or suggestions related to the brand or its products.							

Item	1	2	3	4	5	6	7
B2.The Xiaomi community allows me to present and elaborate on my creative ideas for product or service improvement.							
B3.The Xiaomi community enables me to track how my proposed ideas are received and evaluated by others.							
B4.The Xiaomi community allows me to revise or update my previously submitted ideas based on community or platform feedback.							
B5.The Xiaomi community enables me to browse and evaluate ideas contributed by other users.							
B6.The Xiaomi community allows me to express support for others' ideas through voting or other interactive tools.							
B7.The Xiaomi community gives me opportunities to participate in co-creating or improving products and services.							
B8.The Xiaomi community enables me to take part in discussions or actions related to product launch and commercialization.							
B9.The Xiaomi community facilitates sharing my experiences, knowledge, or suggestions with other users.							
B10.The Xiaomi community allows me to gather support or feedback from peers for my contributions.							
B11.The Xiaomi community supports real-time dialogue and collaborative discussion of new ideas.							
B12.The Xiaomi community helps me build social connections and maintain interactions with other community members.							

Part 3 Structural capital

(Please indicate your level of agreement by marking √ under the appropriate score, from 1-7, where 1 represents "Strongly Disagree" and 7 represents "Strongly Agree")

Item	1	2	3	4	5	6	7
C1. Xiaomi community users take time to get to know each other within the Xiaomi official online community.							
C2. Xiaomi community users frequently interact with each other through posts, comments, and private messages in the Xiaomi official online community.							
C3. Xiaomi community users often communicate about shared interests beyond Xiaomi products in the Xiaomi official online community.							

Part 4 Cognitive capital

(Please indicate your level of agreement by marking √ under the appropriate score, from 1-7, where 1 represents "Strongly Disagree" and 7 represents "Strongly Agree")

Item	1	2	3	4	5	6	7
D1. Xiaomi community users share common goals related to improving Xiaomi products or services.							
D2. Xiaomi community users share similar values regarding active participation and collaboration within the Xiaomi official online community.							
D3. Xiaomi community users generally agree on what actions best support the development and value of the Xiaomi official online community.							
D4. Xiaomi community users are enthusiastic about pursuing shared goals and value co-creation initiatives within the Xiaomi official online community.							

Part 5 Relational capital

(Please indicate your level of agreement by marking √ under the appropriate score, from 1-7, where 1 represents "Strongly Disagree" and 7 represents "Strongly Agree")

Item	1	2	3	4	5	6	7
E1. Xiaomi community users are willing to respond flexibly to others' requests within the Xiaomi official online community.							
E2. Xiaomi community users make efforts to assist each other when difficulties arise in the Xiaomi official online community.							
E3. Xiaomi community users generally keep their promises during interactions in the Xiaomi official online community.							
E4. Xiaomi community users are trustworthy in their interactions within the Xiaomi official online community.							

Part 6 Users' value co-creation behavior

(Please indicate your level of agreement by marking √ under the appropriate score, from 1-7, where 1 represents "Strongly Disagree" and 7 represents "Strongly Agree")

Item	1	2	3	4	5	6	7
F1. I participate in the Xiaomi official online community.							
F2. I manage my personal account and preferences within the Xiaomi official online community.							
F3. I contribute content, feedback, or suggestions related to Xiaomi products or services in the official online community.							
F4. I sign up for product testing, topic discussions, or official events specifically designed for Xiaomi community members.							

Part 7: Basic personal information (Please tick the box '□' in front of the selected option)

1. Your gender:

☐ Male

☐ Female

2. Your age:

☐ 18-25 years old ☐ 26-35 years old

☐ 36-45 years old ☐ 45 years old and over

3. Your education:

☐ High school and below

☐ College or Bachelor's Degree

☐ Master's Degree and above

4. Your status in the community is:

☐ General Member

☐ Administrator

5. How long have you been a member of this online brand community? (Single choice)

☐ 1 year and under ☐ 2-3 years

☐ 3-5 years ☐ 5+ years

6. The frequency of your interactions in that virtual brand community:

☐ Very few (average of 1 reply or post per quarter)

☐ Sometimes (average of 1 reply or post per month)

☐ Frequent (average of 1 reply or post per week)

☐ Always (average of 1 reply or post per day)

APPENDIX C

Questionnaire (Chinese Version)

Appendix C. Questionnaire (Chinese Version)

拉达那哥欣国际创意创业学院

拉加曼加拉理工大学拉达那科欣

亲爱的先生/女士：

您好！感谢您在百忙之中抽出时间来填写这份问卷！本问卷旨在收集您作为小米社区的普通社区用户，对于社区用户参与线上品牌社区价值共创的看法。本次问卷调查采用匿名形式，所收集的数据仅用于本次学术研究，不会用于任何商业用途，您的回答将得到严格保密，请放心作答。问卷中的所有问题均无对错之分，请您根据实际情况回答。再次感谢您的支持！

第一部分 社会互动策略

（请在相应的分数下标记√，从 1-7，其中 1 代表“强烈不同意”，7 代表“强烈同意”）

项目	1	2	3	4	5	6	7
A1.我对小米官方在线社区分享的信息质量感到担忧。							
A2.我担心小米社区其他用户的建议或反馈可能导致错误的决定。							
A3.我担心在小米在线社区中参与活动时，我的个人信息可能会被泄露。							
A4.我不确定小米是否能有效回应小米在线社区中提出的反馈或关注问题。							
A5.我认为小米作为社区背后的企业，有很好的口碑。							

项目	1	2	3	4	5	6	7
A6.我相信小米平台遵循正确的规则和政策，以确保社区内的安全互动。							
A7.我认为小米在线社区的技术系统（例如数据处理、评论管理）是可靠的。							
答：我认为小米在社区的回应记录和参与度是其可信度的重要指标。							
A9.我相信小米社区的大多数成员都是诚实和值得信赖的。							
A10.我觉得自己和小米在线社区的其他用户有很强的联系。							
A11.在小米社区中与其他成员互动时，我感觉与他们情感上很亲近。							
A12.我经常在小米官方在线社区与其他用户进行讨论或分享想法。							

第二部分 平台可供性

（请在相应的分数下标记√，从 1 到 7，其中 1 代表“强烈不同意”，7 代表“强烈同意”）

项目	1	2	3	4	5	6	7
B1.小米社区使我能够提出与品牌或其产品相关的新想法或建议。							
B2.小米社区使我能够展示并详细阐述我在产品或服务改进方面的创意想法。							
B3.小米社区使我能够跟踪我所提出的想法被他人接收和评价的情况。							

项目	1	2	3	4	5	6	7
B4.小米社区使我能够根据社区或平台的反馈，修改或更新我之前提交的想法。							
B5.小米社区使我能够浏览和评价其他用户提出的想法。							
B6.小米社区使我能够通过投票或其他互动工具表达对他人想法的支持。							
B7.小米社区为我提供参与共同创造或改进产品和服务的机会。							
B8.小米社区使我能够参与与产品发布和商业化相关的讨论或活动。							
B9.小米社区有助于我与其他用户分享我的经验、知识或建议。							
B10.小米社区使我能够为我的贡献从同伴处获得支持或反馈。							
B11.小米社区支持对新想法进行实时对话和协作讨论。							
B12.小米社区有助于我建立社会联系并与其他社区成员保持互动。							

第三部分 结构资本

（请在相应的分数下标记√，从 1-7，其中 1 代表“强烈不同意”，7 代表“强烈同意”）

项目	1	2	3	4	5	6	7
C1. 小米社区用户会花时间在小米官方线上社区中相互了解。							
C2. 小米社区用户经常通过帖子、评论和私信在小米官方线上社区中进行互动。							

项目	1	2	3	4	5	6	7
C3. 小米社区用户在小米官方线上社区中经常就超出小米产品范围的共同兴趣进行交流。							

第四部分 认知资本

（请在相应的分数下标记√，从 1-7，其中 1 代表“强烈不同意”，7 代表“强烈同意”）

项目	1	2	3	4	5	6	7
D1.小米社区用户共享与改善小米产品或服务相关的共同目标。							
D2.小米社区用户在小米官方在线社区内积极参与和协作方面有着相似的价值观。							
D3.小米社区用户普遍认同哪些行动最能支持小米官方在线社区的发展和价值。							
D4.小米社区用户在小米官方在线社区内热衷于追求共同目标和价值共创活动。							

第五部分 关系资本

（请在相应的分数下标记√，从 1 到 7，其中 1 代表“强烈不同意”，7 代表“强烈同意”）

项目	1	2	3	4	5	6	7
E1.小米社区用户愿意在小米官方在线社区内对其他人的请求做出灵活的回应。							
E2.小米官方在线社区遇到困难时，小米社区用户会互相帮助。							
E3.小米社区用户在小米官方在线社区的互动中一般都会遵守自己的承诺。							
E4.小米社区用户在小米官方在线社区的互动中值得信赖。							

第六部分 用户价值共创行为

（请在相应的分数下标记√，从 1 到 7，其中 1 代表“强烈不同意”，7 代表“强烈同意”）

项目	1	2	3	4	5	6	7
F1.我参与小米官方在线社区。							
F2.我在小米官方在线社区管理我的个人账号和偏好设置。							
F3.在官方在线社区中，我贡献了与小米产品或服务相关的内容、反馈或建议。							
F4.我报名参加小米社区成员专属的产品测试、专题讨论或官方活动。							

第七部分：基本个人信息（请在所选选项前打勾）

1. 性别:

☐ 男

☐ 女

2. 年龄:

☐ 18-25 ☐ 26-35

☐ 36-45 ☐ 45 岁以上

3. 学历:

☐ 高中及以下

☐ 学士学位

☐ 硕士及以上

4. 您在社区中的身份是:

☐ 普通会员

☐ 管理者

5. 您加入这个在线品牌社区多久了？（单选）

☐ 1 年及以下　　☐ 2-3 年

☐ 3-5 年　　☐ 5 年以上

6. 您在虚拟品牌社区中互动的频率：

☐ 很少（平均每季度回复或发帖 1 次）

☐ 有时（平均每月回复或发帖 1 次）

☐ 频繁（平均每周回复或发帖 1 次）

☐ 总是（平均每天回复或发帖 1 次）

APPENDIX D

Raw Data

APPENDIX D. Raw Data

The primary data is the first-hand data collected by the researchers during the survey. The quantitative data for this study were collected from 594 respondents. The data is publicly available at https://docs.qq.com/sheet/DV3Vqd0JZUG1Pb1dC Interested researchers may use the to access the data.

APPENDIX E

Publication of Journal during Ph.D. Study

APPENDIX E. Publication of Journal during Ph.D. Study

Journal of Posthumanism
2025
Volume: 5, No: 3, pp. 523–535
ISSN: 2634-3576 (Print) | ISSN 2634-3584 (Online)
posthumanism.co.uk

DOI: https://doi.org/10.63332/joph.v5i3.762

Research on the Mechanism of Online Community Users' Participation in Community Value Co-creation-Based on Social Capital Theory

Biqing Li[1], Hongxia Li[2]

Abstract

This study investigates the impact of economic and social invitation strategies on online community users' social capital (structural, cognitive, and relational dimensions) and their willingness to engage in value co-creation activities, grounded in social capital theory. Data were collected from 418 ordinary users of the Xiaomi community and analyzed using structural equation modeling. The findings reveal that economic reward strategies significantly enhance structural and cognitive social capital, whereas social invitation strategies positively influence cognitive and relational social capital. Structural social capital is found to affect the initiation of value co-creation activities, cognitive social capital impacts both initiation and participation, and relational social capital influences participation only. Moreover, social capital mediates the relationship between incentive strategies and users' willingness to co-create value. This study enriches the application of social capital theory in the context of value co-creation communities and provides a deeper understanding of the micro-mechanisms underlying user participation behaviors.

Keywords: *Online Community, Social Capital, Value Co-Creation, Economic Reward, Social Invitation.*

Introduction

Nahapiet and Ghoshal (1998) suggest that social capital consists of three dimensions, structural social capital, cognitive social capital and relational social capital. Enterprises can employ community interaction strategies to empower social interactions among community users. economic rewards, inforvalue co-creationmational incentives, and social incentives provided by enterprises can help to increase the value of structural, cognitive, and relational social capitalization of community members. Enterprises' community interaction strategies in online communities, i.e., community members' perceived community value, facilitate the process of social capitalization and accumulation of community members, and increase the social capitalization value of community members. Social capitalization stimulates the willingness of community members to participate in community value co-creation activities. Enterprises can stimulate customers to participate in community value creation and sharing activities to strengthen relationships between customers, which helps customers accumulate structural social capital, and similarly enterprises can stimulate customers to participate in community value creation and sharing activities to increase trust, communication between customers, which in turn promotes relational social capital and perceived social capital. Social capital acts as a

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mediating transmission mechanism between community interaction strategies and value co-creation willingness relationships. This study focuses on the role of social capital as a mediating mechanism. This study argues that users' online community participation is a process of social capitalization, and that community participation, evolutionary dynamics are motivated by community members' social capitalization motives. To use their existing knowledge, relationships, and emotions to create greater value for themselves and other community users through community interactions.

Research Model and Research Hypotheses

Theoretical Model

Based on the research related to social capital theory, the research model of this study as follows.

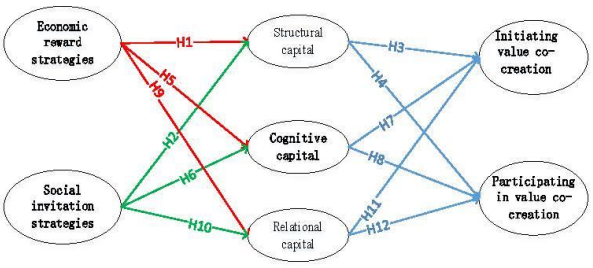


Plate 1: Proposed Model

Research Hypotheses

Structural social capital embodies community users' social invitation tie with other members of the community (Chiu & Wang, 2016). Hann (2023) found that the higher the community rank the higher the economic reward received may be. The economic value demand of the community users promotes the structural social capitalization. Community users are motivated to engage in social invitation for self-expression and social advancement, social invitation strategies can stimulate structural social capitalization among community users. Therefore, this study proposes the hypothesis:

H1: Economic reward strategies have a positive effect on community users' structural social capital.

H2: Social invitation strategies have a positive effect on community users' structural social capital.

In innovative communities, the higher the structural social capital of a community user, the higher it is, indicating that he or she is at the center of the network. The higher the structural social capital of a community user, the more likely it is that the member will be motivated to publish value co-creation themed activities rather than participate in value co-creation activities. Therefore, this study proposes the hypothesis:

H3: Structural capital of community users has a positive effect on initiating value co-creation.

H4: Structural capital of community users does not have a significant effect on participating in value co-creation.

Enterprises utilize intellectual capital to create economic benefits and competitive advantages, and similarly, individuals can rely on their own knowledge to create value for themselves, such as economic value. Economic value demands stimulate community users' cognitive capitalization. There are differences in the experience and knowledge level of each community user about the product/service, and social invitation enables them to obtain social support while promoting their new knowledge about the product/service. Therefore, social invitation strategies can stimulate the cognitive social capitalization of community users.Therefore, this study proposes the hypothesis:

H5：Economic reward strategies have a positive effect on community users' cognitive social capital.

H6: Social invitation strategies have a positive effect on community users' cognitive social capital.

Cognitive social capital is a relatively neutral concept, having a certain amount of cognitive social capital is desirable to participate in value co-creation activities, whether for opinion leaders or ordinary participants. Therefore, this study proposes the hypothesis:

H7: Cognitive capital of community users has a positive effect on initiating value co-creation.

H8: Cognitive capital of community users has a positive effect on participating in value co-creation.

Relational capital implies emotional attributes (Lin, 2021; Nahapiet, 1998). This affective attribute means that relational capital emphasizes more on community users' identification with the group, trust of others, responsibility, and group norms (Wasko, 2015). Enterprises' economic reward strategies, will not stimulate community users' relational social capitalization. The social invitation strategies fit well with the relational social capital of community users, through which social relationships are established and developed among community users. Social invitation strategies can stimulate relational social capitalization among community users. Therefore, this study proposes the hypothesis:

H9: There is no significant effect of economic reward strategies on community users' relational capital.

H10: Social invitation strategies have a positive effect on community users' relational capital.

The reciprocity and commitment elements of relational social capital imply the reinforcement of mutual aid and support among community users, the social attributes of relational social capital are especially evident when enterprises encourage more interaction among members in the community. For example, in the Xiaomi community, enterprises encourage community users to invite their community friends to participate in value co-creation activities, and the number of people participating in value co-creation activities increases. Therefore, this study concludes that relational social capital can be more effective in motivating community users to participate in value co-creation activities rather than actively publishing the topics of value co-creation activities. Therefore, this study proposes the hypothesis:

H11: Relational capital of community users does not have a significant effect on initiating value co-creation.

H12: Relational capital of community users has a positive effect on participating in value co-creation.

Data and Methodology

Samples Information

This study takes ordinary users of Xiaomi community as the research object. They were invited to fill out the questionnaire online by sending station messages in the community and given certain economic interactions, each ID was required to fill out only one questionnaire, which could not be repeated. A total of 600 questionnaires were distributed in this study and 534responses were received, with a response rate of 89%. By eliminating the unqualified samples such as incomplete filling, 418 valid samples were finally obtained, with an efficiency rate of 78.3%.

Variables Measurement

This study mainly utilized Amos software and SPSS software as statistical and path analysis tools, with analysis steps and methods referring to (Chen, Zheng & Liu, 2013) and (Wang, 2013). The measurement verbal items of each variable refer to well-established scales. Economic reward strategies reference (Burroughs, 2021; Leimeister, 2019); Social invitation strategies reference (Zhu & Dholakia, 2022; Zwass, 2010); Structural capital reference ((Robert, 2018); Cognitive capital reference (Leimeister, 2019; Nambisan & Baron, 2017; Wasko, 2015); Relational capital reference (Mathwick & Wiertz, 2018; Robert, 2018; Wiertz, 2017); and value co-creation reference (Kohler & Rohm, 2021; Ridings, 2022). Initiating value co-creation uses community members' activity initiation, i.e., the number of topic posts, as a strategic indicator, and participating in value co-creation uses community members' activity participation, i.e., the number of engaged reply posts, as a strategic indicator. For the sake of normal distribution of the data, value co-creation refers to the practice of (Chiu et al., 2006) where the total number of value co-creation was divided into two groups according to whether it was initiated or participated and converted into a 5-point Likert scale. Where 5 indicates complete agreement and 1 indicates complete disagreement.

Results of Empirical Analysis

Descriptive Statistics

Descriptive statistics for each variable in this study are shown in Table 1. The skewness and kurtosis values of each variable satisfy the requirements of normal distribution，indicating that the sample basically meets the normal distribution and the data quality is high.

Variable	Obs	Min	Max	Mean	Std. Dev	Skewness	Kurtosis
Economic reward strategies	418	0	17.264	8.268	2.637	-0.299	-0.118
Social invitation strategies	418	0	15.555	6.267	2.376	-1.346	1.381
Initiating value co-creation	418	3.635	9.087	7.191	1.388	-0.524	0.250

Participating in value co-creation	418	1.817	9.087	7.297	1.476	-0.040	-0.708
Structural capital	418	3.030	9.087	6.315	1.356	-1.029	1.309
Cognitive capital	418	4.089	9.087	7.422	0.974	-1.971	3.423
Relational capital	418	4.089	9.087	7.435	0.974	-1.745	2.616

Table I. Descriptive statistics of each variable (n=418)

Reliability and Validity Test

From the results of the reliability analysis in Table 2, it can be seen all the variables in this study are within the acceptable range, the internal consistency of each variable is within a reasonable range, and the combined reliability is also greater than 0.5, which indicates that the combination of variables has a relatively high reliability.

Research Variables	Items	Cronbach's α	Composite Reliability
Economic reward strategies	5	0.806	0.817
Social invitation strategies	7	0.788	0.801
Structural capital	4	0.833	0.847
Cognitive capital	6	0.776	0.805
Relational capital	5	0.750	0.769
Initiating value co-creation	3	0.789	0.785
Participating in value co-creation	4	0.788	0.784

Table II. Results of reliability test (n=418)

Tables 3 show the results of the composite reliability and average variance extracted (AVE). This suggests that each item is measured consistently and can reliably represent the respective concepts.

Research Variables	Cronbach's α	Composite Reliability	AVE
Economic reward strategies	0.806	0.817	0.600
Social invitation strategies	0.788	0.801	0.573
Structural capital	0.833	0.847	0.650

Cognitive capital	0.776	0.805	0.510
Relational capital	0.750	0.769	0.530
Initiating value co-creation	0.789	0.785	0.550
Participating in value co-creation	0.787	0.786	0.548

Table III. Convergence validity analysis results

	Economic reward strategies	Social invitation strategies	Structural capital	Cognitive capital	Relational capital	Initiating value co-creation	Participating in value co-creation
Economic reward strategies	0.775						
Social invitation strategies	0.250	0.757					
Structural capital	0.387	0.292	0.806				
Cognitive capital	0.336	0.568	0.259	0.714			
Relational capital	0.259	0.586	0.323	0.259	0.728		
Initiating value co-creation	0.274	0.510	0.314	0.577	0.498	0.742	
Participating in value co-creation	0.276	0.513	0.496	0.579	0.577	0.728	0.740

Table IV. Latent variable correlation coefficients matrix

Note: The diagonal line is the square root of average variance extracted (AVE)

According to table 4, it can be seen that the correlation coefficients of each latent variable are much smaller than 0.90. The square root of average variance extracted is greater than the correlation coefficients of every latent variable and other latent variables, which indicates that

the data of the present study possesses a good discriminatory validity, and indicates that the data collected by questionnaire research do not have serious common method bias. The data in this study can be used as the next step for analyzing statistics and hypothesis testing.

Hypothesis Test

Path Analysis

Table 5 shows the goodness of fit test results. The well-fitted model provides robust statistical support for the study, ensures the reliability of the analyzed results, and lays a solid foundation for the subsequent interpretation.

Indicator	χ^2/df	RMSEA	CFI	NFI	IFI	GFI	AGFI
Ideal value	<3	<0.08	>0.90	>0.90	>0.90	>0.90	>0.80
Fitted value	1.922	0.047	0.922	0.851	0.923	0.925	0.902

Table V. Goodness of Fit Test Results

Note: χ2/df is the ratio of the chi-square value to the degrees of freedom, RMSEA is the root mean square of the error of approximation, CFI is the comparative fit index, NFI is the normative fit index, IFI is the incremental fit index, GFI is the goodness-of-fit index, and AGFI is the adjusted goodness-of-fit index.

Considering these fit indicators, the researcher concluded that the structural model of this study has a good fit. It accurately explains and predicts the relationship between the research objects with high confidence and accuracy. The results of the analysis of the path hypothesis relationships are shown in Table 6.

Relationships	Hypothesis	Original Sample	Sample Mean	Standard Deviation	Standard Error	T Statistics	Inference
Economic reward strategies→ Structural capital	H1	0.29	0.29	0.05	0.05	5.92***	Supported
Social invitation strategies→ Structural capital	H2	0.08	0.08	0.06	0.06	1.53†	Rejected
Structura capital→ Initiating value co-creation	H3	0.26	0.26	0.17	0.17	4.78***	Supported
Structural capital→Participating in value co-creation	H4	0.03	0.03	0.02	0.02	0.55	Supported
Economic reward strategies→ Cognitive capital	H5	0.16	0.16	0.05	0.05	3.39**	Supported

Relationships	Hypothesis	Original Sample	Sample Mean	Standard Deviation	Standard Error	T Statistics	Inference
Social invitation strategies→ Cognitive capital	H6	0.38	0.39	0.05	0.05	7.47**	Supported
Cognitive capital→Initiating value co-creation	H7	0.31	0.31	0.21	0.21	5.67**	Supported
Cognitive capital→Participating in value co-creation	H8	0.52	0.52	0.34	0.34	9.47***	Supported
Economic reward strategies→ Relational capital	H9	0.07	0.07	0.04	0.04	1.61†	Rejected
Social invitation strategies→ Relational capital	H10	0.41	0.41	0.05	0.05	9.04***	Supported
Relational capital→Initiating value co-creation	H11	0.21	0.21	0.14	0.14	3.95†	Supported
Relational capital→ Participating in value co-creation	H12	0.44	0.44	0.29	0.29	8.05***	Supported

Table VI. Path coefficient T test results

Note: *represents $p<0.05$, **represents $p<0.01$, ***represents $p<0.00$, †represents $p<0.1$

The test results show that the economic reward strategies has a significant positive effect on structural capital ($\beta=0.29$, $t=5.92>1.96$, $p<0.00$), hypothesis H1 is supported. The social invitation strategies has a non-significant effect on structural capital ($\beta=0.08$, $t=1.53<1.96$, $p<0.1$), hypothesis H2 is rejected. Structural capital has a significant positive effect on initiating value co-creation ($\beta=0.26$, $t=4.78>1.96$, $p<0.00$), while the effect on participating in value co-creation is not significant ($\beta=0.03$, $t= 0.55<1.96$), hypotheses H3 and H4 are supported. Structural capital represents the structural position of community members in the social network, typical indicators such as degree centrality and bridging centrality, the higher these indicators are the more community members are at the center of the network, such as opinion leaders. This study confirms that structural capital has a positive and significant effect on initiating value co-creation and a non-significant effect on participating in value co-creation, indicating that community members who have a higher position and are more at the center of the network are more likely to initiate discussion topics than to participate in value co-creation activities or topic discussions.

The economic reward strategies has a significant positive effect on cognitive capital ($\beta=0.16$, $t=3.39>1.96$, $p<0.01$), hypothesis H5 is supported. The social invitation strategies has a significant positive effect on cognitive capital ($\beta=0.38$, $t=7.47>1.96$, $p<0.01$), hypothesis H6 is supported. Cognitive capital has a significant positive effect on both initiating value co-creation

(β=0.31, t=5.67>1.96, p<0.01) and participating in value co-creation (β=0.52, t=9.47>1.96, p<0.00) , hypotheses H7 and H8 are supported. Cognitive capital is a neutral concept, which is the accumulation of individual knowledge and information about the communities or products, there is no difference in the impact of cognitive capital whether it is initiating value co-creation or participating in value co-creation.

However, the effect of economic reward strategies on relational capital (β=0.07, t=1.61<1.96, p<0.1) is not significan, hypothesis H9 is rejected. Social invitation strategies has a significant positive effect on relational capital (β=0.41, t=9.04>1.96, p<0.00), hypothesis H10 is supported. Relational capital has a non-significant effect on initiating value co-creation (β=0.21, t=3.95>1.96, p<0.1), and a significant positive effect on participating in value co-creation (β=0.44, t=8.05>1.96, p<0.00), hypotheses H11 and H12 are supported. Relatively, relational capital emphasizes more on socialization, community members with high social capital have stronger emotional ties to the community and other community members, are more willing to work with other community members to maintain the community, they are willing to help others and actively participate in community activities. Therefore, community members with high social capital are more likely to participate in value co-creation activities than in initiating them.

Tests for the Mediating Effect of Social Capital

According to the suggestion of (Chen et al., 2013), there are four aspects that need to be focused on in the results of test data of multiple juxtaposed mediating variables. First, the common mediating effects and significance of multiple mediating variables. Second, the sole mediating effect and significance of a mediating variable after removing the role of other mediating variables. Third, a comparison of the magnitude of the sole mediating effects of multiple mediating variables. Fourth, the direct effect of the independent variable on the dependent variable after controlling for the common mediating effects of multiple variables. In addition, the analysis results of the structural equation model path showed that the effect of economic reward strategies on relational capital (β=0.07, t=1.61<1.96) was not significant; therefore, the mediating variables to be considered in analyzing the mechanism of the effect of economic reward strategies on initiating value co-creation and participating in value co-creation are structural capital and cognitive capital. The effect of social invitation strategies on structural capital (β=0.08, t= 1.53<1.96) is not significant, therefore, the mediating variables to be considered in analyzing the mechanism of influence of social invitation strategies on initiating value co-creation and participating in value co-creation are cognitive capital and relational capital. The results of mediating effect test are shown in Table 7.

		Economic reward strategies			Social invitation strategies		
		β	LLCI	ULCI	β	LLCI	ULCI
Common mediating effect		0.186	0.132	0.252	0.306	0.225	0.401
Sole mediating effect	Structural Capital	0.052	0.023	0.096	-	-	-
	Cognitive Capital	0.135	0.091	0.190	0.174	0.087	0.261

	Relational Capital	-	-	-	0.133	0.065	0.211
Mediating effect difference	Structural Capital +Cognitive Capital	-0.083	-0.147	-0.02	-	-	-
	Cognitive Capital +Relational Capital	-	-	-	0.041	-0.09	0.169
Direct mediating effect		0.017	-0.050	0.083	0.220	0.121	0.318
Mediating results		Full mediating effect			Partially mediating effect		

Table VII. Mediating effect test results

(1)According to the mediating effect test results, the mediating effect of structural capital and cognitive capital in the influence mechanism of economic reward strategies on initiating value co-creation and participating in value co-creation are as follows. First, the two mediating variables (structural capital and cognitive capital) jointly play a significant mediating effect (BootLLCI= 0.132, BootULCI= 0.252), and the common mediating effect is 0.186. Second, there are significant sole mediating effects in the two independent mediating effect paths, the sole mediating effect of structural capital is 0.052 (BootLLCI=0.023, BootULCI=0.096), the sole mediating effect of cognitive capital is 0.135 (BootLLCI=0.091, BootULCI=0.190). Third, the difference of the sole mediating effect of structural capital compared to cognitive capital is -0.083 (BootLLCI=-0.147, BootULCI=-0.020), the sole mediating effect of cognitive capital is significantly higher than the sole mediating effect of structural capital. Finally, after controlling for the common mediating effects of structural capital and cognitive capital, the direct effect of economic reward strategies on initiaing value co-creation is 0.017, this is non significant (BootLLCI = -0.050, BootULCI = 0.083), suggesting that structural capital and cognitive capital act as full mediating effect of economic reward strategies on initiaing value co-creation and participating in value co-creation.

(2) The mediating effect of cognitive capital and relational capital in the influence mechanism of social invitation strategies on initiating value co-creation and participating in value co-creation are as follows. First, the two mediating variables (cognitive capital and relational capital) jointly play a significant mediating effect (BootLLCI=0.225, BootULCI=0.401), and the common mediating effect is 0.306. Second, there are significant sole mediating effects in the two independent mediating effect paths, the sole mediating effect of cognitive capital is 0.174 (BootLLCI = 0.087, BootULCI = 0.261), the sole mediating effect of relational capital is 0.133 (BootLLCI = 0.065, BootULCI = 0.211). Third, the difference of the sole mediating effect of cognitive capital compared to relational capital is 0.041 (BootLLCI = -0.099, BootULCI = 0.169), it is not significant. Finally, after controlling for the common mediating effects of cognitive capital and relational capital, the direct effect of social invitation strategies on initiaing value co-creation is 0.220, this is significant (BootLLCI = 0.121, BootULCI = 0.318), suggesting that cognitive capital and relational capital play a partially mediating effect between social invitation strategies on initiaing value co-creation and participating in value co-creation.

Conclusions and Implications

This study explores the mechanism of community members' participation in value co-creation activities from the individual micro level, and the theoretical significance is mainly reflected in as follows. (1) Expanded the application of social capital theory in value co-creation communities. While previous studies have focused on generalized brand communities, this study expanded it by citing it to the field of enterprise-led online communities with product\service value co-creation as the main goal. In addition, previous studies have explored the research on the application of social capital in open source communities from the perspective of network structure research. In this study, the antecedents of social capital and the results of its influence are examined through the measurement of psychological mechanisms. (2) Enriched research on the micro-mechanisms of value co-creation in online communities. While previous studies on social capital in online communities have mainly viewed social capital as a dependent variable, this study argues that social capital should be viewed as a process that begins with the entry of community members into the community and is stimulated by community-specific factors, such as economic interactions as well as social interactions, that stimulate the social capitalization or accumulation of community members, which then facilitates the participation of community members in community value co-creation activities. (3) Deepened understanding of the factors that stimulate social capital. Theoretically, there are differences in the connotations of the three dimensions of social capital. Structural social capital embodies the social interaction connections among community members, and is influenced by non-social and emotional factors, for example, economic factors can stimulate the structural social capitalization or accumulation motivation of community members. For individual community members, cognitive social capital embodies the members' own knowledge about the product or the community, and is a more neutral concept, it has no emotional bias. Cognitive social capital is not only motivated by economic factors, but also by social factors, indicating that cognitive social capital is driven by a wider range of factors. Relational social capital emphasizes the social relationships among community members, and the relationships themselves contain emotions, making it an emotionally-biased concept. The relationship between relational social capital and the economic functional factors is not very strong, relational social capital is mainly influenced by social factors.

Acknowledgements: In the present study, we have drawn upon an extensive array of literature to construct the theoretical framework of our research. Notably, certain references, such as those by Hann et al. (2023), Burroughs et al. (2021), Leimeister et al. (2019), Robert et al. (2018), and Ridings et al. (2022), were utilized exclusively as background reading. Although these works were not directly cited in the main text, they provided essential theoretical support that significantly informed the development of our study. We extend our sincere appreciation to the authors of these references, whose contributions have laid a solid foundation for the conduct of this research.

Author Contributions: Conceptualization, methodology, supervision, software, validation and visualization: BL; investigation, data curation, formal analysis, writing-original draft, writing-review and editing: HL. All authors have read and agreed to the published version of the manuscript.

Availability of Data and Materials: The authors confirm that the data supporting the findings of this study are available within the supplementary materials.

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Clinical Trial: Not applicable

Consent to Publish Declaration: We confirm that the article is an original work and has not been published or submitted elsewhere. We understand and agree that the journal reserves the right to edit, typeset, publish and disseminate the article once it has been accepted for publication.

Ethics: This study was approved by the Rattanakosin International College of Creative Entrepreneurship, Rajamangala University of Technology Rattanakosin. All participants provided written informed consent prior to their participation in the study. They were informed about the purpose of the study, the procedures involved, the potential risks and benefits, and their right to withdraw at any time without penalty.

Informed Consent:The authors and the author team confirmed that all participants obtained written consent for participation and written consent for publication. For participants under 18 years, written consent was obtained from parents and / or legal guardians.

Data availability: The datasets supporting the findings of this paper are available upon request from the corresponding author.

Conflict of interest: The authors declare no conflict of interest.

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