

**Governance Mechanisms, Collective Psychological Ownership and
Value Co-Creation in Firm-hosted Online Brand Communities**

Yunlu Li

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Yunlu Li

ABSTRACT

The widespread adoption of digital information technology has prompted many companies to develop online brand communities, enhancing customer engagement and fostering participation in value co-creation. Nonetheless, these communities often grapple with issues like limited control, unregulated sharing, and adverse customer behaviors. This study aims to bridge gaps in the current literature by examining governance mechanisms within firm-hosted online brand communities to understand their influence on value co-creation activities.

Through a combination of theoretical analysis, semi-structured interviews, and Straussian grounded theory, this research delves into the multi-dimensional nature of governance in firm-hosted online brand communities. This study undertakes a comprehensive empirical analysis of two notable communities in China: Xiaomi Community and My Huawei. By using a theoretical framework that integrates the stimulus-organism-response model with the theory of psychological ownership and social identity, this study constructs a theoretical “Storyline”.

After three-stage coding (open coding, axial coding, and selective coding) of interview data and dialogue with existing literature, the main findings are as follows. First, based on theoretical induction using grounded theory, this study proposes that the governance mechanisms of firm-hosted online brand communities is a multi-dimensional concept encompassing rules, relationships, incentives and routines. Second, the four dimensions of the governance mechanisms of firm-hosted online brand communities collectively influence customers’ engagement in value co-creation behaviors. Third, collective psychological ownership plays a mediating role in the relationship between the governance mechanisms of firm-hosted online brand communities and customers’ value co-creation behaviors.

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TABLE OF CONTENTS

ABSTRACT.....	i
ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS.....	iv
LIST OF TABLES	x
LIST OF FIGURES	xi
CHAPTER 1: Introduction	1
1.1 Research Background.....	1
1.1.1 Real-world Background.....	1
1.1.2 Theoretical Background	2
1.2 Research Subject	3
1.2.1 Data Accessibility.....	4
1.2.2 The Diversity of User Profiles.....	5
1.2.3 The Representativeness of Online Communities	6
1.2.4 The Diversity of Community Culture.....	6
1.3 Statement of the Problem	7
1.4 Significance of the Study	9
1.4.1 Theoretical Significance	10
1.4.2 Real-world Significance	11
1.5 Research Contributions	11
1.6 Outline of the Study	12
1.7 Summary of Chapter 1	14
CHAPTER 2: Theoretical Framework and Literature Review.....	16
2.1 Introduction	16
2.2 Theoretical Framework of Online Brand Communities Research.....	16

2.2.1 Stimulus-Organism-Response (S-O-R) Model.....	16
2.2.2 Psychological Ownership Theory.....	21
2.2.3 Social Identity Theory	24
2.3 Research on Community and Online Brand Community Concepts.....	25
2.3.1 Community and Online Community	25
2.3.2 Online Brand Communities	27
2.4 Research on the Governance Mechanisms of Firm-hosted Online Brand Communities	29
2.4.1 The Concept of the Governance Mechanisms of Firm-hosted Online Brand Communities.....	29
2.4.2 Current Research Status of Governance Mechanisms in Firm-hosted Online Brand Communities	30
2.5 Firm-hosted Online Brand Communities Value Co-creation: Related Research	32
2.5.1 The Emergence and Definitions of Value Co-creation	32
2.5.2 Current Research Status of Value Co-Creation in Firm-hosted Online Brand Communities.....	33
2.6 Research on Online Brand Communities Psychological Ownership.....	36
2.7 Summary of Chapter 2	40
2.7.1 The Connection between Existing Research and this Study	40
2.7.2 Gaps in Existing Research.....	40
CHAPTER 3: Research Methodology	42
3.1 Introduction	42
3.2 Research Paradigm.....	42
3.3 Research Design.....	43
3.4 Research Strategy.....	45

3.5 Research Method.....	52
3.6 Research Participants in the Main Study	53
3.7 Role as a Qualitative Researcher.....	54
3.8 Pilot Study.....	56
3.8.1 Pilot Study Descriptive statistics	56
3.8.2 The main role of the pilot study	57
3.8.3 Issues Faced during the Pilot Study.....	58
3.8.4 Solutions	60
3.8.5 Effect of Pilot Study	62
3.8.6 Data Saturation of Pilot Study	64
3.9 Data Collection Method	64
3.9.1 Sampling.....	64
3.9.2 Interviews and Data Collection	67
3.10 Criteria for Ensuring Research Rigor.....	70
3.11 Ethical Considerations	71
3.11.1 Ethical Implications.....	72
3.11.2 Ethical Issues	74
3.11.3 Dissemination.....	76
3.11.4 Data Storage	76
3.12 Summary of Chapter 3	76
CHAPTER 4: Findings and Analysis	78
4.1 Introduction.....	78
4.2 Descriptive Statistics.....	78
4.3 Interview Framework	80
4.4 Open Coding	81

4.4.1 Pre-Coding: Data Preparation and Preliminary Processing in NVivo	12
.....	81
4.4.2 Extraction Process of Initial Concepts	82
4.4.3 Classification Process of Initial Categories	84
4.4.4 Coding Iteration and Traceability Assurance	85
4.4.5 Opening Coding Examples	86
4.4.6 Opening Coding Results	88
4.5 Axial Coding	148
4.5.1 Merge Initial Categories into Subcategories Based on “Semantic and Functional Consistency”	148
4.5.2 Verify Subcategory Rationality with “Interview Context”	150
4.5.3 Axial Coding Results	151
4.6 Selective Coding	158
4.6.1 Core Objectives and Overall Process of Selective Coding	158
4.6.2 Defining Criteria for Main Categories	158
4.6.3 Specific Operations for Coding Subcategories into Main Categories	159
4.6.4 Constructing the Theoretical “Storyline” and Model	164
4.7 Data Saturation	166
4.8 Theoretical Analysis	168
4.8.1 The Significance of Theoretical Analysis	168
4.8.2 Impact of Governance Mechanisms on Customer Value Co-Creation	168
4.8.3 Impact of Governance Mechanisms on Collective Psychological Ownership	170
4.8.4 Impact of Collective Psychological Ownership on Customer Value Co-Creation	171
4.8.5 Mediating Role of Collective Psychological ownership	172

4.9 The Construction of a Conceptual Model	173
4.9.1 Stimulus: Governance Mechanisms	173
4.9.2 Organism: Collective Psychological Ownership.....	174
4.9.3 Response: Customer Engagement in Value Co-creation Behaviors ...	175
4.9.4 Mechanism of Action	176
4.10 Summary of Chapter 4	177
CHAPTER 5: Discussion and Contributions.....	178
5.1 Introduction	178
5.2 Research Questions	178
5.3 Theoretical Contributions.....	179
5.3.1 Governance Mechanisms of Firm-Hosted Online Brand Communities	179
5.3.2 Governance Mechanisms and Customer Co-Creation	180
5.3.3 Collective Psychological Ownership in Firm-Hosted Brand Communities' Governance	181
5.4 Policy Implications.....	182
5.4.1 Foundations of Community Governance Mechanisms	182
5.4.2 Collective Psychological Ownership and Member Engagement	184
5.5 Managerial Implications.....	185
5.6 Implications for Other Stakeholders	187
5.7 Limitations and Future Research	188
5.7.1 Future Research Directions for Firm-Hosted Brand Community Governance.....	188
5.7.2 Other Unexplored Mediators	190
5.8 Conclusion.....	190

5.8.1 Multi-Dimensional Governance Mechanisms in Firm-Hosted Brand Communities.....	190
5.8.2 Governance Mechanisms Impact on Customer Value Co-Creation....	191
5.8.3 Collective Psychological Ownership Mediates Governance Mechanisms and Customer Value Co-Creation	192
BIBLIOGRAPHY	193
APPENDICES	210
Appendix A: Interview Schedule for Semi-structured Interviews.....	210
Appendix B: Electronic Consent Form for Studies.....	213
Appendix C: Recruitment Material for Volunteers.....	214
Appendix D: Participant Information Sheet.....	216

LIST OF TABLES

Table 1 Research Gaps, Research Objectives and Research Questions	8
Table 2 The Application of the SOR Model from the Perspective of Collective Psychology.....	20
Table 3 Definition of Online Communities	26
Table 4 Summary of Conceptual Definition of Representative Online Brand Communities.....	27
Table 5 Sorting out the Influencing Factors of Online Brand Communities' Value Co-Creation.....	34
Table 6 Sorting out the Results Variables of Online Brand Communities' Value Co-creation.....	35
Table 7 Comparison of Three Grounded Theory Approaches	48
Table 8 Descriptive Statistics of Pilot Study	57
Table 9 Descriptive Statistics of Formal Study	79
Table 10 Example of One Initial Category – Member Rights.....	86
Table 11 Open Coding Result.....	89
Table 12 Axial Coding Result	152
Table 13 Categories of Governance Mechanisms for Firm-Online Brand Communities.....	165

LIST OF FIGURES

Figure 1 Theoretical Framework Map	14
Figure 2 The S-O-R model	17
Figure 3 Formation Mechanism of Psychological Ownership	22
Figure 4 The Formation Process of Social Identity	24
Figure 5 Characteristics of Online Brand Communities.....	29
Figure 6 DART Model.....	33
Figure 7 Flow chart of Grounded Theory Research	45
Figure 8 The Logical Structure Diagram of Straussian Grounded Theory.....	50
Figure 9 Application of SOR model for Formal study	177

CHAPTER 1: Introduction

This chapter introduces the background and objectives of the study and presents the research questions. It also clarifies the significance and contributions of the study. Finally, this chapter provides the research outline.

1.1 Research Background

1.1.1 Real-world Background

1. Embracing the Digital Age for Corporate Growth

The rise of the digital economy has ushered in fresh avenues for corporate expansion. As a testament to this, as of the end of 2021, China had 1.067 billion internet users, with an internet penetration rate of 75.6% and over 1.6 billion mobile internet subscriptions (*China internet development report 2021 : blue book for world internet conference*, 2023). In the current digital landscape, marked by easy access to information and heightened competition, businesses also use online space such as the Internet for marketing (Kozinets et al., 2010). They harness digital tools to understand and meet consumer demands, thereby boosting operational efficiency.

2. Leveraging Online Brand Communities for Mutual Value Creation

Since the 21st century, with the popularization of the Internet, online brand communities have emerged as potent platforms where consumers actively exchange brand insights and experiences (Kozinets, 2002). This not only fortifies their bond with the brand but also amplifies consumer engagement. In today's digital milieu, consumers can have the opportunity to be more involved in product evolution by contributing innovative ideas and feedback. This collaborative spirit promotes a symbiotic relationship between consumers and corporations, accentuating value co-

creation, shared experiences, and mutual gains.

3. Navigating the Complexities of Online Brand Communities

However, online brand communities are not without their pitfalls. The inherent nature of the Internet, characterized by anonymity and unrestricted content dissemination, can rapidly amplify negative brand narratives. (Kozinets et al., 2010). Ensuring the veracity and impartiality of individual posts becomes a daunting task. Without proper checks, these platforms risk becoming hotbeds for misleading or harmful information dissemination (Wiertz et al., 2010). Companies, therefore, grapple with the delicate act of moderating community members without stifling their freedom, continually seeking effective strategies to navigate these concerns.

1.1.2 Theoretical Background

Research on the governance mechanisms of firm-hosted online brand communities is notably sparse, lacking a systematic exploration of its conceptual implications and core dimensions. While online brand communities are widely acknowledged as pivotal hubs for value co-creation (Prahalad & Ramaswamy, 2004; Ranjan & Read, 2016), their governance aspects remain largely untouched in extant literature. While extant studies (Chiu et al., 2019; Wirtz et al., 2013) have identified formal governance mechanisms such as written community rules and supervision systems, as well as informal governance mechanisms such as member-shared norms and interpersonal trust, they lack in-depth taxonomical elaboration and contextually tailored analysis. This limitation is particularly notable when examining firm-initiated and firm-hosted communities, which exhibit distinct hierarchical structures and goal orientations in contrast to their consumer-generated counterparts.

There is a clear absence of a holistic theoretical framework that elucidates how governance in firm-hosted online brand communities directly impacts customer

participation in value co-creation. This observation aligns with the arguments of Jiang et al. (2022) and Yin et al. (2023), who note that existing research on virtual brand community governance often overlooks the unique operational logic of firm-hosted platforms and their influence on user behavior. Most existing studies approach the topic from the customer's angle: for instance, Elsharnouby & Mahrous (2015) focus on how customers' perceived benefits drive co-creation willingness, and Tajvidi et al. (2021) emphasize the role of individual psychological traits (such as self-efficacy) in shaping co-creation behaviors. This customer-centric focus often sidelines the critical role that firm-hosted platforms play in designing governance structures (such as incentive systems, rule enforcement) to guide co-creation. Consequently, a significant knowledge gap remains regarding how governance structures—tailored to a firm's strategic goals—shape customer engagement in co-creation within these specific communities (Liu et al., 2024; Matthes et al., 2025).

1.2 Research Subject

Online brand communities are broadly categorized into two types: consumer-generated and firm-hosted (Kozinets, 2002). The largest firm-hosted online communities in China are Xiaomi Community (formerly known as MIUI), launched and tested in 2010, and “My Huawei” (formerly known as “Pollen Club”), launched in 2012, both of which have a user base of over 50 million in China and across the world (Huawei, 2023; Xiaomi, 2023).

The reasons for selecting the “Xiaomi Community” and “My Huawei” as research subjects lie in the fact that these online communities are at the forefront in terms of data accessibility, user profile diversity, representativeness of online communities, and the diversity of community culture—consistent with the criteria for selecting representative firm-hosted online brand communities proposed by prior studies (Meng et al., 2018; Pee et al., 2020). For instance, Pee et al.(2020) emphasized that ideal research subjects in virtual community studies should have transparent data

access and diverse user demographics, while Meng et al.(2018) noted that representative brand communities (such as Huawei's Pollen Club) can reflect the core characteristics of firm-hosted platforms due to their mature operation models and large user scales.

These communities exhibit an organic nature, characterized by the free dissemination of brand-centric content, member-driven resolution of internal issues, and open-ended discussions. On the other hand, firm-hosted communities are purposefully established by corporations with a goal to strengthen consumer relationships and gather insightful feedback. These platforms are more structured, emphasizing customer loyalty and satisfaction, while harnessing data to tailor services to consumer preferences. They maintain a clear hierarchical order, with company-appointed moderators ensuring members adhere to community guidelines. Overall, both community types offer spaces where consumers converge over shared experiences, interests, and sentiments.

1.2.1 Data Accessibility

1.Xiaomi Community

As of 2023, the number of registered users in the Xiaomi Community exceeded 50 million globally (including users from China and overseas), with users from China accounting for approximately 70%. According to Xiaomi Group's 2023 annual report, the DAU (Daily Active Users) of the China community was estimated to be around 1.5 to 2 million (an estimated value based on industry reports and comparisons with similar platforms). The overseas communities (such as those in India and Europe) had lower levels of activity, with a DAU of about 200,000 to 300,000. The average daily post volume in the China community was approximately 80,000 to 120,000 posts (data from 2023), covering product discussions, issue feedback, UGC (User-Generated Content), and others. During

peak periods (such as new product launches and Xiaomi Fan Festival), the post volume could double to over 200,000 (Xiaomi, 2023).

2. My Huawei

As of 2023, the number of registered users in the “My Huawei” exceeded 130 million globally, with users from China accounting for approximately 85%. The DAU (Daily Active Users) of the China community was around 2 to 2.5 million, higher than that of the Xiaomi Community. The overseas communities (such as those in Europe and the Middle East) had a DAU of about 150,000 to 200,000, which was affected by localized operations. The average daily post volume in the China community was approximately 50,000 to 80,000 posts, lower than that of the “Xiaomi Community”, but the proportion of technical discussion posts was higher (about 30%). The Developer Forum section saw an average daily contribution of about 1,000 to 1,500 technical documents (Huawei, 2023).

1.2.2 The Diversity of User Profiles

The Xiaomi Community primarily targets young users aged 18–35 and focuses on enthusiasts of geek culture. “Geek” refers to a group of individuals with in-depth knowledge and high enthusiasm for specific fields. It demonstrates distinct user behavior characteristics, including frequent participation in product beta testing and a passion for creating User-Generated Content, referred to as UGC. UGC encompasses content such as text reviews, product experience videos, and technical tutorials; these content types are created by community members rather than professional institutions and act as a core information carrier for knowledge sharing and interaction in online brand communities (Xiaomi, 2023).

“My Huawei” has a wider age range of users covering 25–50 years old, including business professionals and tech geeks, who have a higher demand for professional

support, such as developer forums and technical documentation (Huawei, 2023).

They represent two different user ecosystems: “mass participation” and “professional services”. The “My Huawei” community has many users, but fewer posts, which may also relate to the age of the users.

1.2.3 The Representativeness of Online Communities

Xiaomi and Huawei are the top two companies in China's technology industry in terms of market value and user base. According to the 2023 annual reports (Huawei, 2023; Xiaomi, 2023), Huawei holds 18% of the global smartphone market share, while Xiaomi has 14%. Combined, they account for over 40% of the Chinese market. Their online communities are not only windows for user services but also core carriers of corporate strategy, such as Xiaomi's “Mi Fan Economy” and Huawei's “Huawei Fans Ecosystem.” Among the knowledge base contributors in Huawei's community, 30% are certified developers, forming a collaborative innovation chain of “users-developers-enterprise” (Huawei, 2023). This structure not only consolidates the technical professionalism of the community's knowledge output but also aligns with the “ecosystem-oriented governance” of firm-hosted online brand communities emphasized by (Yin et al., 2023), where enterprises bridge users and professional developers to optimize value co-creation efficiency.

1.2.4 The Diversity of Community Culture

Xiaomi emphasizes “making friends with users” to strengthen emotional connections with its community members, and its online community has become a core testing ground for product innovation—where user feedback directly informs the iteration of products like MIUI systems and smart home devices (Xiaomi, 2023). This user-centric community positioning is explicitly outlined in Xiaomi's 2023 Annual Report, which highlights “community co-creation” as a key strategy for

product R&D and brand loyalty cultivation.

Huawei, on the other hand, positions itself as the best “tech assistant” for users, focusing on empowering community members with technical resources (such as developer toolkits and technical documentation) and viewing its online community as a critical binder for its ecosystem—integrating users, developers, and enterprise teams to drive collaborative innovation (Huawei, 2023). This ecosystem-oriented community function is detailed in Huawei’s 2023 Annual Report, which notes that the “My Huawei” community serves as a bridge between the enterprise and its user base, supporting the seamless connection of Huawei’s hardware, software, and service ecosystems.

1.3 Statement of the Problem

This study builds upon existing research findings to explore issues related to the governance mechanisms of firm-hosted online brand communities. After reviewing the “Limitations and Future Research” sections in the papers of multiple scholars, the research deficiencies in the existing studies on the governance mechanisms of firm-hosted online brand communities are identified as research gaps, and these gaps are the basis for the research objectives of this thesis.

Table 1 Research Gaps, Research Objectives and Research Questions

Research gaps	Research objectives	Research questions
1. Existing studies lack clear and systematic analyses of the conceptual definitions and constituent dimensions of firm-hosted online brand communities' governance mechanisms. Most existing studies are conducted from the perspective of customers, lacking research on the role of enterprises in firm-hosted online brand communities. 2.Existing literature has insufficient research on the mediating role of collective psychological ownership in firm-hosted online brand communities' governance. 3.Existing literature has insufficient research on the influence of firm-hosted online brand communities governance mechanisms on customers' value co-creation behavior.	1.Clarify and define the concept of the firm-hosted online brand communities' governance mechanisms and extract their constituent dimensions. 2.Explore the mediating role of collective psychological ownership between firm-hosted online brand communities' governance mechanisms and customers' value co- creation behavior. 3.Construct and validate a conceptual model of the influence of firm-hosted online brand communities' governance mechanisms on customers' value co- creation behavior.	1. What are the underlying framework and dimensions of governance mechanisms in firm-hosted online brand communities? 2.How does collective psychological ownership mediate the relationship between the firm-hosted online brand communities governance mechanisms and customers' value co- creation behavior? 3. How do governance mechanisms in firm-hosted online brand communities influence customer engagement in co-creation activities?

This study seeks to define the governance mechanisms within firm-hosted online brand communities, discern their influence on customer participation in value co-creation behaviors, and assess the varying impacts of these mechanisms on customer engagement. The research primarily revolves around three pivotal questions: “What is the underlying framework and dimensions of governance mechanisms in firm-hosted online brand communities?”, “How does collective psychological ownership mediate the relationship between the firm-hosted online brand communities governance mechanisms and customers’ value co-creation behavior?” and “How do governance mechanisms influence customer engagement in co-creation activities?”

1.4 Significance of the Study

The governance mechanisms of firm-hosted online brand communities represent a classic research topic in the fields of corporate governance theory and strategic management, particularly holding significant research value in the two subdomains of corporate governance for virtual platforms and strategic value co-creation (Prahalad & Ramaswamy, 2004; Williamson, 2005).

From the perspective of corporate governance theory, firm-hosted online brand communities, as virtual extensions of corporate operations, require governance mechanisms to address the inherent core challenges of corporate governance, such as controlling the opportunistic behaviors of community members and clarifying the rights and responsibilities between corporate administrators and users.

From the perspective of strategic management, such governance mechanisms serve as a key strategic tool: they enable enterprises to guide customers in participating in value co-creation activities, including specific forms such as providing product feedback and conducting collaborative innovation. This is consistent with the viewpoint proposed by Prahalad & Ramaswamy (2004), namely that “customer value co-creation” constitutes the core strategic direction for enterprises in the

digital era. Thus, the design and optimization of governance mechanisms are crucial for corporations to achieve long-term strategic goals such as enhancing brand loyalty and promoting product innovation.

1.4.1 Theoretical Significance

Firstly, this study deepens existing research by delineating the governance dimensions in firm-hosted online brand communities. By employing grounded theory, it identifies the constituent elements and operational patterns, thereby fortifying the theoretical framework of this domain. Semi-structured interviews with both community members and administrators provide a comprehensive analysis, bridging the gaps of prior studies and weaving governance theories seamlessly into the unique context of these communities.

Secondly, from the corporate lens, this research evaluates how governance mechanisms steer customer value co-creation behaviors, charting a fresh path for examining customer engagement. Past studies homed in on individual motivations and characteristics—such as customers perceived benefits (Elsharnouby & Mahrous, 2015), self-efficacy (Tajvidi et al., 2021), and psychological attachment (Zhang et al., 2020). However, they sometimes overlooked the influential role of corporate structures (such as governance mechanisms, platform design) in community co-creation (Jiang et al., 2022; Yin et al., 2023). This study addresses this oversight, probing into the varied impacts of governance mechanisms on customer participation in co-creation.

Lastly, the study underscores the escalating importance of psychological ownership theory, particularly its role in shaping customer behaviors within online brand communities.

1.4.2 Real-world Significance

Firstly, this study uses a strategic lens to suggest how robust governance mechanisms can be tailored for firm-hosted online brand communities. By demystifying the nuances and operational facets of such governance, it paves the way for businesses to navigate and tackle inherent community challenges. Consequently, brands are better positioned to make judicious governance choices during hands-on implementation.

Secondly, this research challenges the prevailing perception that the digital landscape curtails brand influence over communities. Instead, it underscores the significance of active brand involvement, balanced with preserving member autonomy. Such insights lay the groundwork for innovative promotional and marketing strategies within online community spaces.

Lastly, the study pinpoints conditions that optimize customer involvement in co-creation behaviors. It accentuates the interplay between governance mechanisms and the sentiment of collective psychological ownership. Armed with this knowledge, companies can formulate tailored incentive schemes, astute managerial approaches, and marketing strategies, ensuring they resonate more deeply with diverse customer groups, thus amplifying their co-creation engagement.

1.5 Research Contributions

This thesis proposes a multi-dimensional concept of firm-hosted online brand communities' governance mechanisms, including the rules, relationships, incentives and routines, through the application of grounded theory.

The research clarifies the concepts of firm-hosted online brand communities and their governance mechanisms and extracts the constituent elements of the

governance mechanisms through literature analysis and semi-structured interviews. It further constructs a conceptual model of the influence of governance mechanisms on customers' value co-creation behavior. Through semi-structured interviews, the direct and indirect impacts of the rules, relationships, incentives, and routines on customers' participation behavior are verified.

Collective psychological ownership, as a mediating variable, has a significant positive effect on customers' value co-creation behavior and plays different degrees of mediating roles in the relationships between different dimensions of the governance mechanisms and customers' participation behavior. The research results provide a new perspective for understanding the governance of firm-hosted online brand communities based on the proposed conceptual framework.

1.6 Outline of the Study

This study delves into the governance mechanisms of firm-hosted online brand communities, seeking to analyze its dimensions through grounded theory and clarifies the impact of different paths on value co-creation behaviors. The research is structured across five cohesive chapters:

1.Introduction

This chapter establishes the research context, focusing on the key questions related to the components of governance mechanisms in online brand communities and their effect on customer value co-creation. Meanwhile, the research background, significance, and selection of the research objectives are elucidated.

2.Theoretical Foundations and Literature Review

Introducing foundational theories such as the Stimulus-Organism-Response model,

psychological ownership theory and Social Identity Theory, this section critically reviews the literature concerning online brand communities' governance, collective psychological ownership, and value co-creation. The aim is to identify research gaps, which inform the study's conceptual model development.

3. Research Methodology

This chapter provides a comprehensive overview of the research philosophy, design, and methods, detailing data collection techniques and grounded theory-based coding. It underscores the measures taken to ensure data reliability and addresses ethical considerations.

4. Findings and Analysis

Building on the Stimulus-Organism-Response model and Psychological Ownership theory, this chapter extends existing theoretical frameworks to propose a context-specific conceptual model for firm-hosted online brand communities. Grounded theory methodologies and interview insights are employed to examine the intricate dimensions of online brand communities' governance mechanisms. Cross-references the dimensions elucidated with prevailing research, verifying the governance mechanisms model derived through the application of grounded theory.

5. Discussion and Conclusion

Offering a synthesis of the findings, this chapter delineates the study's significant contributions and offers practical management recommendations for enhancing online brand communities' strategies. It concludes with a reflection on the study's limitations and suggests potential trajectories for future research in the realm of online brand communities' governance and its consequent effects on customer behavior.

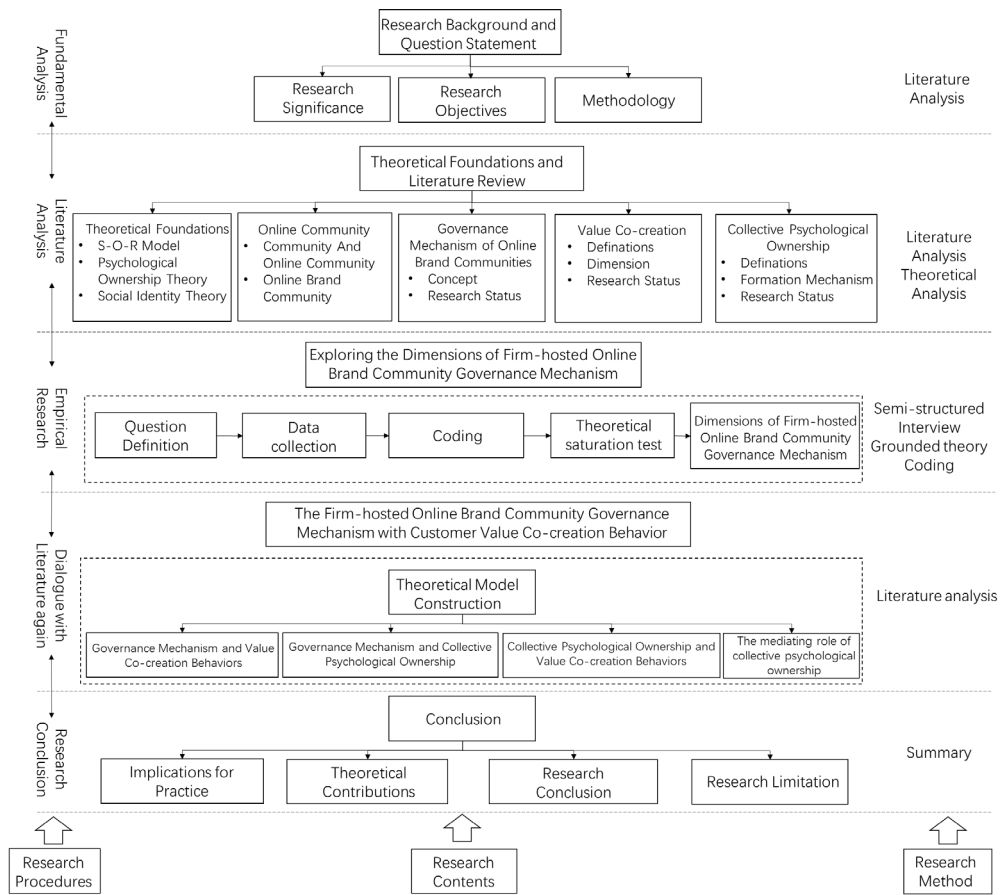


Figure 1 Theoretical Framework Map

1.7 Summary of Chapter 1

This chapter, in the environment of economic transformation, corporate digitalization, and the regulatory challenges of firm-hosted online brand communities, proposes the starting points, research subjects, key questions and significance of this study.

To study this topic, it is necessary to first clarify the concept of firm-hosted online brand communities. Based on the current development of online community governance and theoretical discussions in academia, this study uses literature sorting, in-depth interviews and draws on the Stimulus-Organism-Response (S-O-R) model to summarize the dimensions of governance mechanisms in firm-hosted online brand communities. Next, it engages in dialogue with existing research again to cross-verify the conclusions drawn from the interviews rooted in grounded theory.

Building on the theories of psychological ownership and social identity, and starting from the governance mechanisms of firm-hosted online brand communities, this study proposes pathways through which these mechanisms promote customer participation in value co-creation. Finally, it formulates research conclusions and puts forward corresponding policy recommendations.

Overall, this chapter positions the research within both practical and theoretical contexts, clarifies its core focus and objectives, providing a coherent and rigorous foundation for the subsequent chapters.

CHAPTER 2: Theoretical Framework and Literature Review

2.1 Introduction

This chapter establishes foundational theoretical underpinnings by systematically examining seminal research and core theories relevant to the study, thereby constructing the conceptual framework. The analysis specifically explores the Stimulus-Organism-Response (S-O-R) model, psychological ownership theory, and social identity theory, tracing their developmental trajectories while demonstrating their explanatory relevance to digital governance contexts. This theoretical engagement generates novel research angles through strategic integration of classical frameworks.

Moreover, this chapter meticulously reviews and synthesizes ideas surrounding online brand communities, organizational governance within online communities, value co-creation, and the role of collective psychological ownership. This comprehensive literature synthesis constructs a rigorous conceptual framework, enabling precise alignment between theoretical propositions and empirical investigation requirements.

2.2 Theoretical Framework of Online Brand Communities Research

2.2.1 Stimulus-Organism-Response (S-O-R) Model

To explain complex human behavior, Watson (1913) proposed the theory of behaviorism. He broke down the behavioral process into stimulus and response (abbreviated as the S-R model) and explicitly stated that behavior is a reaction to stimuli. These stimuli can originate from within the body or from the external environment. However, interpreting complex human behavior merely as a process of stimulus and response overlooks the impact of human consciousness and

psychological activities on behavior. Woodworth (1926) proposes the initial concept of the Stimulus-Organism-Response (S-O-R) model as an extension of the Stimulus-Response (S-R) model by introducing an intermediary “Organism” (O) dimension. Here, the “O” (Organism) refers to the internal psychological processes of individuals, including cognitive activities and emotional states that intervene between external stimuli (S) and behavioral responses (R). This theoretical adjustment marked the first time human consciousness and decision-making processes were formally incorporated into the study of consumer behavior, addressing the limitation of the traditional S-R model which overlooked internal psychological mechanisms (Pavlov, 1927).

Russell and Mehrabian (1974) improve the Stimulus-Organism-Response (S-O-R) model, which integrates cognitive and psychological factors, serving as intermediaries in stimuli responses. By capturing both external influences and internal processes, the S-O-R model provides a comprehensive view of human behavior. It's widely embraced in areas such as consumer behavior research and online brand communities' studies. This is commonly referred to as the S-O-R model. Belk (1975) Introduces the S-O-R model into the field of consumer research, incorporating products and their contexts, consumers' emotional states, and behavioral outcomes into the analytical framework.

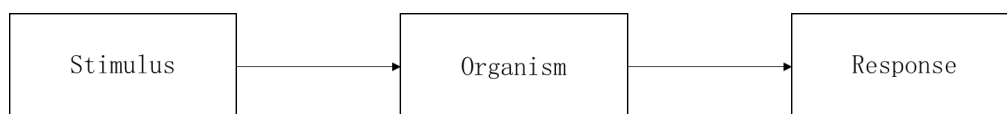


Figure 2 The S-O-R model
(Russell & Mehrabian, 1977)

With further research in consumer psychology, Bitner (1992) proposes the environment-consumer behavior model to analyze which psychological factors influence consumer behavior and to explain the underlying psychological activities

of consumer behavior. It points out that consumers' responses to external stimuli can be physical, cognitive, and emotional, and these responses affect actual consumer behavior. Leary (2007) discussed the assumption of the S-O-R model, positing that certain environmental factors can trigger individuals' emotional and cognitive states, leading to specific behavioral outcomes. In other words, the S-O-R model is a theoretical model that interprets individual behavior as a learned response to external stimuli, consisting of three components: stimulus, organism, and response. The stimulus refers to external environmental factors. The organism refers to people's emotional and cognitive states, including the entire process that intervenes between stimuli and responses.

At this stage, people transform stimuli into meaningful information, which further helps them make decisions. Emotional states reveal the psychological emotions evoked by stimuli and the feelings expressed under the stimuli; cognitive states refer to everything in people's consciousness about the acquisition, processing, retention, and retrieval of information, such as experiences, sensations, and thinking activities. The response refers to behavioral reactions and represents the ultimate reaction of an individual to a specific stimulus, including approach and avoidance behaviors.

As a meta-theory for analyzing individual behavior, the S-O-R model has become an important analytical framework for explaining the process of consumer behavior generation and has been applied by scholars to explore consumer behavior in various online environments. It treats the external market environment perceived by consumers as a stimulus factor. After being stimulated, consumers will have certain psychological reactions and then take some behavioral reactions. Park & Lennon (2009) verify the causal relationships among promotions, brand names and store image as S factors, perceived value and purchase intention as O and R factors, respectively. The results showed significant positive effects among promotions, brand names and store image with perceived value and purchase intention. Kim &

Lennon (2008) explore the impact of store environments in e-commerce (such as zooming images) on consumers' perceived pleasure based on the S-O-R theory. Pleasure further affects perceived information volume, and both are positively correlated with purchase intention. Baker (2012) introduces the S-O-R model into online transaction behavior as a basic theory to explore how group aggregation, interest, and pressure affect user behavioral orientation.

The S-O-R model plays a critical role in evaluating individual behavior, particularly within consumer behavior research. It has been applied extensively to probe diverse consumer behaviors in online brand communities. For instance, Islam and Rahman (2017) employ this model to assess the congruence between consumers and Facebook, framing brand community attributes as stimuli, with customer loyalty being the resultant behavior. Similarly, Kamboj (2020) applies the S-O-R model, considering customer social media participation motivation as external "stimulus" customer participation in social media brand community as "organism", and brand trust, brand loyalty, and brand co-creation as consumer behavior "response", to construct a theoretical model of influencing customer participation in brand co-creation in the context of social media brand community.

In recent years, many scholars have expanded the application of the SOR model in virtual scenarios from the perspective of collective psychology. "Collective psychology" refers to the consistent psychological state formed by group members under the influence of shared goals, experiences, and cultural norms. It manifests in collective identity, shared behavioral tendencies, and mutual emotional resonance, and plays a key role in shaping group decision-making and interaction patterns in online communities (Hartman et al., 2018).

The researcher summarized the research findings on the application of the SOR model from the perspective of collective psychology in recent years, with details shown in Table 2.

Table 2 The Application of the SOR Model from the Perspective of Collective Psychology

Author	The application of the SOR model
Hartman et al. (2018)	Placing collective emotions within the research framework of online communities provides new theoretical support for understanding group decision-making in the SOR model
Özgen et al. (2024)	Through attachment theory, theoretical support is provided for understanding the psychological decision-making process in online marketing, which is related to the cognitive processing in the SOR model. “Attachment theory” is proposed by Bowlby (1969) to explain the emotional bond between infants and caregivers. It has since been extended to interpersonal and consumer behavior research, referring to the stable emotional connection individuals form with specific objects. This definition influences individuals’ participation willingness and long-term commitment
Shang et al. (2023)	By studying the human brain network, scientific evidence is provided for the neural basis of cognitive and emotional processing in the SOR model
Zhu et al. (2020)	By investigating the influencing factors of collective cognitive orientation in online communities, a new perspective is provided for the response phase of the SOR model

Drawing on the practices of the authors in the above table, this research takes the firm-hosted brand community as the research subject, and chooses the S-O-R model as the basic research framework to explain the role of governance mechanisms of the firm-hosted brand community on the impact of customer participation in value co-creation behavior. That is, how the governance mechanisms in the firm-hosted brand community as a “stimulus” affects the emotional and cognitive states (organism) of community members’ collective psychological ownership, leading to the “response” of customer participation in value co-creation behavior.

2.2.2 Psychological Ownership Theory

1. The Concept and Characteristics of Psychological Ownership

Psychological ownership, a concept rooted in Furby's (1978) studies of possession in psychology, encapsulates the sense of an individual perceiving an object as their own. This perception extends to both tangible items and intangible concepts. Interestingly, people can experience this sense of ownership without legal claims, evident in their connection to school or corporate brands (Furby, 1980). On the flip side, legal possession doesn't guarantee the feeling of psychological ownership. The personal significance individuals attach to an item, as underscored by McCracken (1986) and Pierce et al. (2003), plays a pivotal role in fostering this sentiment.

2. The Reasons for Psychological Ownership

The urge for self-expression and identity, deeply rooted in one's intrinsic traits, often manifests through human possessions (Kumar & Kaushal, 2021). These territorial instinct prompts humans to seek "homes", underscoring their quest for both physical and psychological security (Hernandez, 2012; Jussila et al., 2015; Pierce et al., 2003). Pierce et al. (2009) pinpoint four primary motivations driving psychological ownership: efficacy and effect, self-identity, the need for space, and stimulation.

Contributions from various researchers further illuminate the facets of psychological ownership. Furby (1978) and Ladik et al. (2015) argue that control over objects augments feelings of ownership.

In contrast to individual ownership, collective psychological ownership emerges as a shared sentiment within a group, weaving together personal cognition with group

beliefs and obligations (Pierce & Jussila, 2010). Zhang et al. (2020) indicate that control over and intimacy with an object magnify these feelings of psychological ownership. This study offers a comprehensive exploration of psychological ownership's triggers and motivations, depicted in Figure 3.

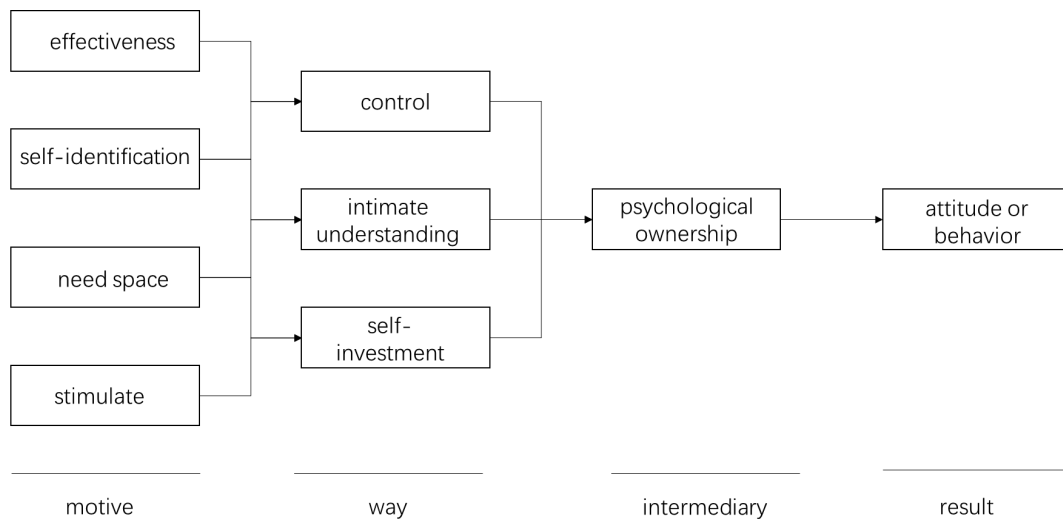


Figure 3 Formation Mechanism of Psychological Ownership
(Pierce & Jussila, 2010; Zhang et al., 2020)

This framework illustrates how four key motives - effectiveness, self-identification, need space, and stimulate - drive three psychological pathways (control, intimate understanding, and self-investment) that collectively foster psychological ownership, which finally influences an individual's attitude or behavior. The “need space” motive refers to the psychological need for personal autonomy and spatial boundaries, which motivates individuals to invest in environments or objects that provide them with a sense of control and belonging. As a distinctive contribution of the present study, this framework extends prior theoretical analyses by incorporating spatially oriented and identity-based needs into the broader discourse on psychological ownership theory. It provides important reference values for the coding of constructs and the development of the storyline in this research.

3. The role of psychological ownership

Psychological ownership, particularly within the context of an organization, addresses fundamental human needs, such as efficacy, self-identity, and a sense of space. Research has consistently highlighted that when employees feel a strong sense of ownership towards their workplace, they tend to express more positive organizational evaluations (Van Dyne & Pierce, 2004). Specifically, a heightened perception of psychological ownership—the subjective sense that one “owns” or is emotionally connected to the workplace—correlates with increased job satisfaction and a more positive work environment. On the other hand, a diminished sense of ownership often results in lower job satisfaction. Building on this, Zhang et al (2014) find that an individual’s psychological ownership directly influences their attitudes and behaviors in the workplace.

Beyond job satisfaction, psychological ownership has tangible effects on aspects like management and organizational citizenship behavior. Employees with a strong sense of psychological ownership exhibit increased responsibility, dedication, and exhibit beneficial behaviors beyond their designated roles (Pierce et al., 2001; Van Dyne & Pierce, 2004). This connection between psychological ownership and organizational citizenship behaviors is further corroborated by studies from Zhang (2016) across varied organizational settings.

Scholars have continuously explored the application of psychological ownership in various fields. As defined by Asatryan and Oh (2008), these communities intensify collective feelings of psychological ownership, a phenomenon especially pronounced within the Chinese cultural context. Members of these communities predominantly harbor a sentiment best described as “our intention”, spotlighting a collective consciousness and deep-seated feelings of ownership for the community (Pierce et al., 2018). This research aims to unpack these sentiments by investigating the governance mechanisms in firm-hosted online brand communities through

firsthand member interviews.

2.2.3 Social Identity Theory

Within the framework of a social group, individuals consistently seek to maintain a positive self-image and enhance the reputation of their group (Tajfel, 1982; Martiny & Kessler, 2014). This often translates to more favorable perceptions of their fellow members. Delving deeper, social identity theory explains that these social categorizations profoundly influence an individual's behavior and sense of identity (Ambrose et al., 2018; Ashforth & Mael, 1989). In addition to viewing themselves as isolated entities represented by terms like “I” or “myself”, individuals often extend their identity with the collective “we”, reflecting their group affiliations. Throughout this identity formation, an individual's psychological state and behavior are significantly moulded by the characteristics and perceived status of their affiliated social group (McKinley et al., 2014).

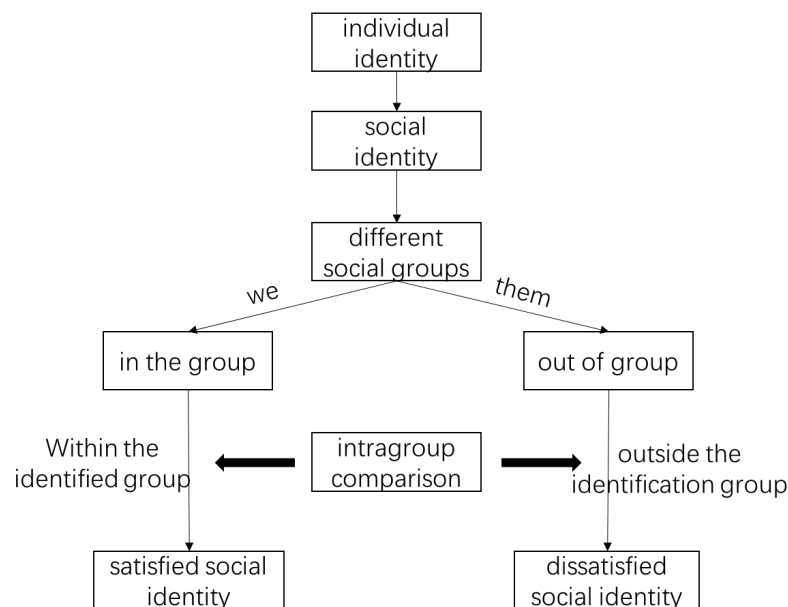


Figure 4 The Formation Process of Social Identity

(Ambrose et al., 2018; Edwards et al., 2019; McKinley et al., 2014)

Social identity theory centers on the logic that individuals transform “individual identity” into “social identity” through social categorization, resulting in a distinction between “we” (in-group) and “them” (out-group). On this basis, individuals engage in intragroup comparison (comparing themselves with members of the in-group or the out-group) which leads to either satisfied social identity (perceived advantages of the in-group affirm self-worth) or dissatisfied social identity (perceived advantages of the out-group threaten self-worth). Figure 4 visually illustrates this formation process: from individual identity to social identity, then to the “we–them” division, followed by intragroup comparisons, and finally to satisfied or dissatisfied social identity.

In this research, social identity theory serves as the key framework for explaining how governance mechanisms influence value co-creation. It reveals how members, through identification with the “in-group”, are driven to engage in value co-creation behaviors such as protecting the community’s interests and participating in innovation.

Building on the principles of social identity theory, this research aims to investigate the governance mechanisms within firm-hosted online brand communities. It further assesses the impact of collective psychological ownership and establishes its link to customer engagement and value co-creation behavior.

2.3 Research on Community and Online Brand Community Concepts

2.3.1 Community and Online Community

Ferdinand Tönnies’ 1887 publication, “Gemeinschaft and Gesellschaft” (Tönnies et al., 1887; Tönnies & Loomis, 1963), solidified his status as a trailblazer in community studies. Over the years, the definition of online communities has evolved.

Rheingold (2000) views Internet users as groups continuously engaged in online discussions, forming emotionally bonded communities. Around the same time, Mathwick (2002) regards them as platforms that prioritize free expression. Hagel and Armstrong (1997), underscore their significance as centers for mutual communication on specific subjects. In contrast, Kim and Kim (2018) highlight their foundation based on shared hobbies and interactive bonds. Pee et al. (2020) point to mutual obligations and shared goals as the backbone of these communities. Prahalad and Ramaswamy (2004) frame them as arenas facilitating interactive conversations. Meanwhile, Kim et al. (2008) see them as knowledge-centric social clusters united by shared objectives. Lastly, Yan et al. (2016) underscore their potential to enable knowledge-sharing among previously unacquainted individuals. The researcher summarized the above viewpoints in Table 3.

Table 3 Definition of Online Communities

Author	Definition of online communities
Rheingold (2000)	People can continue to have sufficient discussions with each other online and can share a certain level of information and knowledge. They have a certain level of understanding with each other, and thus these individuals form a group organization after accumulating a certain emotional foundation.
Mathwick (2002)	An online environment where one can express thoughts and ideas.
Hagel & Armstrong (1997)	In the online environment, community members gather other community members together through a specific theme, and through mutual communication, meet their enjoyment and practical needs.
Kim & Kim (2018)	The specific interpersonal relationships formed by community members' mutual interaction and exchange due to their interest and hobbies in a certain topic.
Pee et al. (2020)	An online network organization formed by a group of people with the same hobbies and interests, based on their obligations to others and common goals.
Prahalad & Ramaswamy (2004)	A type of interpersonal relationship developed by people in the specific environment of cyberspace through mutual communication, interaction, or discussion of common interests and hobbies.

Author	Definition of online communities
Kim et al. (2008)	A social group formed with common interests and goals for knowledge sharing and interaction.
Yan et al. (2016)	Organizations formed by individuals who share knowledge or information, interact and communicate with each other, and actively meet their respective needs in cyberspace but do not know each other.

Fundamentally, both online and physical communities center on interaction and the fostering of relationships. Online communities primarily flourish based on shared interests in the digital space, whereas physical communities are typically grounded in geographical closeness and shared experiences.

2.3.2 Online Brand Communities

With the pervasive growth of the Internet and rapid advancement in information technology, online brand communities have emerged as a digital evolution of traditional brand communities, garnering substantial academic interest. This thesis consolidates the myriad definitions of online brand communities, offering a summary of the most prominent ones from the literature.

The researcher compiled representative definitions of online brand communities provided by scholars, as detailed in Table 4.

Table 4 Summary of Conceptual Definition of Representative Online Brand Communities

Author	Definitions of Online Brand Communities
Muniz and O'Guinn (2001)	A professional and geographically unrestricted community composed of a structured social relationship based on brand worshippers.
Kozinets (2002)	A cyberspace where users communicate their brand experiences and attitudes towards each other through forums, personal homepages, and other online forms.

Author	Definitions of Online Brand Communities
Amine and Sitz (2007)	A self-selected, layered, and geographically borderless consumer group formed based on a specific brand: members share values and have a strong sense of identification with each other.
Algesheimer et al. (2005)	A specific group of relationships formed by the combination of computer technology and the Internet, where members have the same interest in the same brand.
Jang et al. (2008)	A professional and geographically unrestricted community formed based on social relationships among brand worshippers in cyberspace.
Sicilia & Palazon (2008)	A platform provided by a company for online communication between individuals who share a common culture and culture with a certain brand.
Lee et al. (2018)	A brand centric social network composed of brand and stakeholder members, as well as their communication and interaction-based relationship networks.
Cheng et al. (2019)	An online discussion and communication platform specifically designed for a specific brand, where consumers engage in activities such as collecting, exchanging information, and socializing.
Yu et al. (2021)	Social networks initiated by firm-hosted, brand followers, or third parties based on digital communication technology.
Cova & Pace (2006)	Gathering members around the core theme of the brand is a manifestation of traditional brand communities.
Zhao et al (2012)	A website discussion community for brand enthusiasts to share knowledge and experiences of brand products (or services).
Zhao et al (2015)	A platform for brand enthusiasts to achieve value co-creation through continuous social interaction through online platforms.
Sanz-Blas et al. (2021)	The online social network formed by connecting firm-hosted, customers, brands, and products, bringing together multiple stakeholders, contains a vast amount of information independently produced by customers.

Online brand communities and their traditional counterparts share similarities yet exhibit distinct differences. Both prioritize the fostering of interpersonal interactions. However, online communities, emerging from the digital age, may originate organically from consumers or be initiated by firms. They tend to be more diverse and less structured than traditional communities. While traditional brand communities often have well-established shared rituals, these are less evident in online settings.

Bagozzi and Dholakia (2002) list five characteristics of online brand communities, which Wirtz et al. (2013) condense into three: brand-centric focus, reliance on the Internet as the primary medium, and a range of sponsorship and governance options. Cova and Pace (2006) underscore consumer empowerment in this digital era, pointing to the amplified voices of consumers in online spaces. This research defines online brand communities as digitally mediated social networks that revolve around shared experiences, interests, or emotions, facilitated by either entities or passionate individuals, allowing fluid member participation (Cova & Pace, 2006). The researcher synthesized scholars' explorations of the characteristics of online brand communities and drew Figure 5.



Figure 5 Characteristics of Online Brand Communities

2.4 Research on the Governance Mechanisms of Firm-hosted Online Brand Communities

2.4.1 The Concept of the Governance Mechanisms of Firm-hosted Online Brand Communities

The term “governance” carries varied interpretations. In Chinese contexts, it often means “rule” or “restoration”, while in the West, it typically signifies “control” within specific areas. Traditionally, it denoted the administrative functions of governmental bodies (O'Mahony & Ferraro, 2007). The World Bank interprets governance as the exercise of power by institutions (Word Bank, 2021). For Williamson (2005), the focus of governance is on establishing order, reducing conflicts, and ensuring mutual benefits, sees it as a collective approach to

addressing common issues. As noted by Wu et al. (2022), governance harmonizes conflicting interests through institutional methods. Despite differences in definitions, there is emerging agreement on the core meaning of governance. This study defines governance in the context of firm-hosted online brand communities as the structure that directs the control maintained by community participants.

The term “mechanism”, though seemingly clear-cut, doesn’t have a singular, universally agreed-upon definition. Historically anchored in physics, it described the workings of machines. As its scope broadened to areas like biology and medicine, the term came to represent the functions of organisms, as pointed out by Liu et al (2009). In general, “mechanism” encompasses the relationships and functions between parts within entities or systems. While it is sometimes used interchangeably with terms like “institution” and “system”, truly grasping “mechanism” requires an exploration of its structure, foundational principles, and how its components interrelate.

This research describes the governance mechanisms of firm-hosted online brand communities as customized institutional frameworks and procedures devised by stakeholders. These are set up to guide member behavior, minimize risks, streamline community activities, and safeguard collective interests.

2.4.2 Current Research Status of Governance Mechanisms in Firm-hosted Online Brand Communities

Although research on governance mechanisms within firm-hosted online brand communities is sparse, insights can be gleaned from studies addressing network governance mechanisms and online community governance mechanisms.

Gilkeson and Reynolds (2003) assess auction pricing mechanisms in transactional communities. Ranjan & Read (2016) delve into how feedback motivates newcomers in news forums. Focusing on the challenges of behavioral and market

uncertainties, Grewal et al. (2010) categorize governance mechanisms in B2B e-commerce platforms. Wiertz et al. (2010) study feedback mechanisms' influence on free-riding behavior. In their research, Wareham et al. (2014) underscore the importance of governance mechanisms in resolving conflicting interests. Reischauer and Mair (2018) explore governance within Berlin's sharing economy. Meanwhile, Ivaturi and Chua (2019) examine norms in online communities and Kucharska (2019) integrates perspectives from both digital and physical community settings.

Turning to studies explicitly examining online brand communities, Mousavi et al. (2017) introduce socialization strategies, while Chiu et al. (2019) research governance structures rooted in transaction cost theory and social exchange theory. Focusing on general virtual communities like online forums, the findings of Chiu et al. (2019) overlook the unique characteristics of firm-hosted online brand communities, despite offering valuable insights. These unique traits include, first, firm-led strategic alignment. Unlike autonomous consumer-generated communities, these communities are designed to serve corporate goals, with governance tied to firm strategy (Liu et al., 2024). Second, integrated stakeholder collaborations that connect firms, customers, and even professional developers to form "user-developer-enterprise" chains, differing from simple peer interactions in general communities (Meng et al., 2018). Third, brand-centric co-creation, in which governance prioritizes brand-related value co-creation, not just broad information sharing (Pee et al., 2020). Fourth, formal hierarchical management, in which firms appoint dedicated administrators for rule enforcement, unlike informal self-governance in consumer communities (Matthes et al., 2025). Much of the existing literature adopts a broad stance, with only a few narrowing down to the governance mechanisms tailored for diverse online brand communities' demographics. Clearly, there is a gap in the literature, highlighting the need for a more comprehensive exploration of governance mechanisms in firm-hosted, rather than user-interest-initiated, online brand communities, where such communities demonstrate stronger

efficacy in stimulating users' value co-creation behaviors.

2.5 Firm-hosted Online Brand Communities Value Co-creation: Related Research

2.5.1 The Emergence and Definitions of Value Co-creation

Research on the value of co-creation predominantly hinges on two distinct theoretical perspectives. The first, posited by Prahalad and Ramaswamy (2004), interprets the concept through the prism of customer experience. They emphasize how both consumers and companies engage mutually, co-constructing unique and tailored experiences. In contrast, Vargo and Lusch (2004) approach it from a service-dominant logic standpoint, suggesting that value is a product of interactions and integrated resources between service providers and beneficiaries, with a marked emphasis on collaborative and mutual exchanges.

Delving deeper into the perspective of customer experience, Prahalad and Ramaswamy (2000) are trailblazers. They frame value co-creation as a collaborative venture where companies and customers stand on equal footing, working in tandem to generate value. This collaboration isn't restricted to just the company-customer dynamic; it encompasses a wider array of interactions, which includes peer dialogue among customers and engagements with other stakeholders in the value network, culminating in a richer customer experience.

Building upon this, Prahalad and Ramaswamy (2003) introduce the DART model, identifying Dialogue, Access, Risk Assessment, and Transparency as core tenets of effective value co-creation. This framework underscores the enhanced experiences and shared benefits possible within online brand communities.

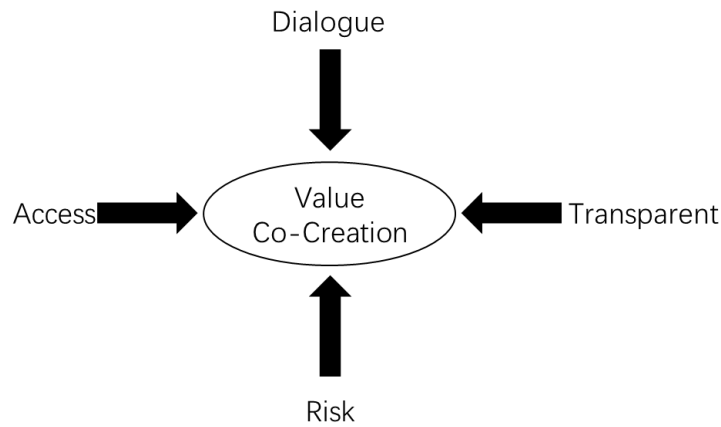


Figure 6 DART Model
(Prahalad & Ramaswamy, 2003)

The concept of value co-creation originates from joint production principles and has matured within the framework of service-dominant logic, emphasizing the centrality of customer experiences. The rise of digital communication technologies has nudged firms towards open innovation (Brem & Bilgram, 2015). Now, businesses not only involve customers in product conceptualization but also actively solicit their feedback (Taghizadeh et al., 2016). This shift means online brand communities no longer focus solely on transactions; they foster continuous customer interactions. As a result, customers have transitioned from being mere recipients to active contributors in value creation (Carlson et al., 2019). While nuances in interpretation persist among scholars, there's a shared understanding: value co-creation thrives on interactions hosted between customers and firms, where value perception rests with the customer. Grounded in the service-dominant logic, this perspective views both customers and online brand communities as collaborative stakeholders, engaged in distinct but synergistic value-creation processes (Vargo & Lusch, 2015; Winkler & Wulf, 2019).

2.5.2 Current Research Status of Value Co-Creation in Firm-hosted Online Brand Communities

Research has delved deeply into both the determinants and outcomes of value co-

creation. In terms of determinants, Elsharnouby & Mahrous (2015) underscore how a customer's perceived sense of belonging to an online community boosts their co-creation participation. Merz et al. (2018) posit that the driving forces behind value co-creation are the motivations and resources of customers. Building on this, Shamim et al. (2016) establish a connection between subjective norms, attitudes, and behaviors in value co-creation. Furthermore, Grönroos & Voima (2013) recognize the pivotal roles of relationships, commitment and trust within these online communities. Transitioning to the outcomes of co-creation, the primary focal areas in research have been loyalty, satisfaction, brand performance, and the overall brand experience.

Regarding scholars' research on the influencing factors of online brand communities' value co-creation, the researcher summarized the findings into Table 5 after reviewing relevant literature. These influencing factors carry important implications for the coding in this study.

Table 5 Sorting out the Influencing Factors of Online Brand Communities' Value Co-Creation

Source	Influence factor	Classify
Gebauer et al. (2013)	Perceived fairness	Environmental atmosphere
See-To and Ho (2014)	Online reputation	
See-To and Ho (2014); Zhao et al. (2019)	Trust	
Tajvidi et al. (2021)	Relationship quality	
Ul Islam & Rahman (2017)	Community characteristics	
Zhao et al. (2019)	Community atmosphere	
Ivaturi & Chua (2019)	Acceptance	
Tjandra et al.(2021)	Values	
Prahalad & Ramaswamy (2004) Trudeau & Shobeiri (2016)	Interaction	
Lee et al. (2006)	Customer knowledge	
Edwards et al.(2019)	Personal motivation	

Source	Influence factor	Classify
Lazarus et al. (2014)	Customer willingness	At the personal level
Campbell et al. (2009)	Community identity	
Chou (2016)	Online Community Sense	
Shamim et al. (2016)	Subjective norms	
Nadeem et al. (2021)	Member participation	
Zhang et al. (2016)	Information acquisition	
Nadeem (2021)	Customer engagement	
Zhao et al. (2019)	Self-efficacy	
Nambisan and Nambisan (2008)	Reward system	
Priharsari & Abedin (2021)	Transparency	
Algesheimer et al. (2005)	Brand loyalty	
Sicilia & Palazón (2008)	Corporate communication strategy	At the firm level
Tajvidi et al. (2021)	Social support	
Kozinets et al. (2010)	Network embedding	
Huang & Chiu (2018)	Governance mechanism	
Li et al. (2020)	Socialization strategy	
Wang et al. (2020)	Brand symbolic value	

Meanwhile, the researcher summarized the results variables of online brand communities' value co-creation explored by some scholars and compiled Table 6.

Table 6 Sorting out the Results Variables of Online Brand Communities' Value Co-creation

Source	Result variable
Stokburger-Sauer (2010)	Loyalty
Ranjan and Read (2016)	Brand performance
Kennedy & Guzmán (2016)	Brand experience
Brodie et al. (2013)	Brand assets
Kennedy & Guzmán (2016)	Satisfaction
Hsu et al. (2014)	Purchase intention
Lee and Kim (2018)	Reputation
Nadeem et al. (2021)	Brand relations
Sanz-Blas et al. (2019)	Community engagement

While current research on value co-creation within online brand communities provides rich insights, there are noticeable gaps. A common oversight in many studies is the broad definition of online brand communities, neglecting their diverse nature. While there's an abundance of research on the psychological motivations behind value co-creation, the specific contributions of firm-hosted communities are often overlooked. Reischauer & Mair (2018) highlight the strategic potential these communities hold for firms. Notably, scholars such as Zwick et al. (2008) and Cova et al. (2011) emphasize the critical need to consider governance in cooperative frameworks, pointing towards the significance of firm-hosted platforms. Nonetheless, there's a glaring absence of empirical evidence to bolster these theoretical discussions, particularly in the context of firm-hosted online brand communities.

2.6 Research on Online Brand Communities Psychological Ownership

Psychological ownership, marked by consumers feeling a profound sense of possession towards products and brands, can bolster beneficial behaviors (Kumar & Nayak, 2019a, 2019b; Kumar & Kaushal, 2021). The application of psychological ownership in online brand communities is closely related to this study. Hulland et al. (2015) focus on four important underexplored directions of psychological ownership theory in the fields of marketing and consumer behavior, outlining a roadmap for future research. These authors note that traditional marketing and economics research has mostly viewed ownership through the lens of the endowment effect: "once people own something, they tend to value it more". However, this perspective is arguably too narrow, concentrating mainly on the cognitive aspect of loss aversion. In contrast, psychological ownership theory offers a broader framework, emphasizing that the feeling of ownership also arises from three fundamental human motives: efficacy, self-identity, and belonging. Hulland et al. (2015) argues that theories of the extended self-need to be updated for the digital age. Social media platforms such as Facebook, X (formerly Twitter), and

online games are ideal settings for satisfying these three psychological ownership motives: users gain a sense of control (efficacy) by creating content, express their self-identity through personal profiles, and find belonging within communities. They suggest that psychological ownership in virtual environments is an important topic for future research.

Other scholars explore related research from different angles. For example, Kim et al. (2016) research how psychological ownership and social recognition influence original creators' willingness to share in online communities, especially in creative communities such as those centered on music, video, and smartphones. The study used user interviews and community log analysis to test the positive effects of psychological ownership and social recognition on sharing intention, as well as their interaction. When psychological ownership is high, social recognition can effectively change possessiveness into motivation to share. This result provides important theoretical support and practical guidance for online brand communities to maintain user engagement and encourage content co-creation.

The work of Hou & Zhang (2021) centers on the widespread but highly damaging phenomenon of “social loafing” in online brand communities. Based on social exchange theory, this study builds a theoretical model with psychological ownership and community commitment as the core mediating mechanisms, aiming to explore how different types of social support can help reduce social loafing. Through a questionnaire survey of 315 members from the online communities of major mobile phone brands (Xiaomi, Huawei, Apple), it finds that the majority of members in these communities are “lurkers”, who browse information but rarely or never contribute content. This behavior is defined as social loafing, and it seriously hinders the healthy development of the community. This study also finds that when members receive valuable resources (support) from the community, they feel obligated to reciprocate, which leads to more active participation. These findings suggest that psychological ownership is not an isolated concept, but a key

psychological bridge connecting external stimuli (social support) to the final behavior (reduction of loafing).

Kumar & Nayak (2019b) examine the key psychological mechanisms that drive customer brand interactions from the perspective of consumers' intrinsic psychological motives. They systematically apply psychological ownership theory to a specific group, which is non brand owners, and explores their psychological and behavioral patterns in the unique context of online brand communities. Their findings show that legal ownership is not a necessary condition for the emergence of psychological ownership. In online brand communities, non owners can also invest in a brand through virtual participation, such as posting content, answering questions, and joining discussions, thereby developing a strong sense of psychological ownership. This result challenges the traditional logic of owning first and identifying later, and reveals a new path of identifying first, through psychological ownership, and purchasing later.

Kumar (2022) further explores how visitors in online brand communities develop brand interactions through psychological ownership of the community, which ultimately influences their purchase intention. Based on psychological ownership theory, this study constructs and validates a theoretical model, with particular emphasis on the moderating role of perceived diversity and the impact of actual brand ownership. Kumar (2022) defines psychological ownership as a mental state in which an individual feels that a target object or part of it is "mine". In this study, the target of psychological ownership is clearly identified as the online brand community itself, rather than merely the brand at the center of the community, which means that visitors develop a sense of possession expressed as "it is our community". These findings show that the four dimensions of psychological ownership - self-efficacy, responsibility, belonging, and self-identity - all have a significant positive effect on brand interaction, which in turn significantly influences purchase intention. The research by Kumar (2022) successfully applies

psychological ownership theory to the dynamic and socialized digital environment of online brand communities. It not only confirms the validity of psychological ownership theory in explaining visitors' brand interaction behaviors, but also deeply reflects the uniqueness of online brand communities, by focusing on the visitor group, refining the dimensions of psychological ownership, introducing the moderating variable of perceived diversity, and distinguishing between brand ownership contexts.

Shi et al. (2022) investigate drivers of the engagement of solvers (members who actively help others and solve problems) in online crowdsourcing communities, with a particular focus on the mediating roles of psychological ownership and relationship quality. They analyze how perceived interactivity, which includes perceived communication, perceived controllability, and perceived responsiveness, affects solvers' participation behavior. This study is based on the Stimulus-Organism-Response (S-O-R) framework and reveals the synergistic effects of various combined factors on solver engagement. In this research, psychological ownership is defined as a mental state in which solvers develop a sense of "possession" toward the community. The sense of ownership leads solvers to view the community as an extension of the self, making them more willing to invest extra effort, such as recommending the community or offering improvement suggestions. This article provides important reference value for the model development.

The above scholars' articles offer important insights for this thesis. However, existing studies tend to focus on the consumer level, with limited attention paid to research from the corporate perspective or the collective perspective. In particular, there is a lack of investigation into comprehensive external governance factors that stimulate collective psychological ownership. Few studies have clarified the complete logical chain from external governance stimuli, to evoke psychological ownership, and ultimately to value co-creation behavior.

2.7 Summary of Chapter 2

2.7.1 The Connection between Existing Research and this Study

The existing research presented in this literature review serves as the theoretical foundation for understanding the entire study. These theories first clarify the academic context of the research field. They explain the established frameworks for analyzing “external stimuli (governance mechanisms) which influence internal psychological processes (collective psychological ownership) and which in turn affect behavioral outcomes (value co-creation)” in online communities.

Second, these theories help to establish the study’s design. For instance, the S-O-R model justifies the causal chain proposed in the research, while psychological ownership theory provides a basis for exploring the psychological link between governance and behavior. Finally, the literature review connects this study with prior scholarship, recognizing how it builds on or extends existing knowledge rather than existing in isolation.

2.7.2 Gaps in Existing Research

Based on the literature review, this study argues that existing research still has the following gaps.

Gap 1: Lack of a systematic multi-dimensional framework for governance mechanisms in firm-hosted online brand communities. Most existing studies on community governance focus on single dimensions (e.g., formal rules or material incentives) or conflate governance with general community management. Less attention has been paid to systematically identifying and verifying a comprehensive set of interrelated governance dimensions tailored to firm-hosted online brand communities.

Gap 2: Neglect of psychological mechanisms linking governance to value co-creation. Existing research often assumes a direct relationship between governance mechanisms and value co-creation, ignoring the internal psychological processes that mediate this link.

Gap 3: Insufficient contextualization in firm-hosted online brand communities. Many governance studies are based on general online communities (e.g., online open forums) rather than firm-hosted ones, which have unique characteristics. This means existing theories fail to address the specific governance challenges of such communities, such as balancing firm control and user autonomy, prompting customers' value co-creation behavior.

After identifying the gaps in existing research, this study aims to enrich the theory of online community governance and clarify the role of psychological factors in customers' value co-creation through theoretical and empirical research.

CHAPTER 3: Research Methodology

3.1 Introduction

The research philosophy informing this thesis is grounded in the interpretivist paradigm. This paradigm emphasizes understanding social phenomena through the individual meanings and interpretations constructed within specific contextual settings. Through this interpretivist framework, the study seeks to discover and analyze the governance mechanisms of firm-hosted online brand communities. It integrates perspectives from community members and administrators (also included moderators and managers), while assessing their validity through congruence with established academic literature.

3.2 Research Paradigm

Methodologically, as a multifaceted social phenomenon, the governance mechanisms of firm-hosted online communities encompass multiple dimensions including member behaviors, interaction patterns, rule formulation, and enforcement processes. Qualitative research is particularly effective in penetrating the “black box” of firm-hosted online community governance, enabling systematic exploration of underlying causal mechanisms, procedural dynamics, and contextual meanings inherent in these phenomena.

This study employs semi-structured interviews as the primary data collection method, guided by grounded theory’s theoretical sampling principles. The approach facilitates the acquisition of primary data capturing community members’ perspectives, emotional responses, and experiential narratives—elements inherently challenging to quantify through positivist paradigms. Furthermore, qualitative research emphasizes deciphering the essential qualities and interrelationships within social phenomena rather than relying on mere

measurement and enumeration. This methodology effectively reveals the complexity and dynamic evolution of governance mechanisms in firm-hosted online communities, yielding critical insights for developing evidence-based governance strategies. Adoption of qualitative research thus enables comprehensive investigation of these governance systems, generating actionable knowledge with dual relevance to theoretical advancement and practical implementation in the field.

3.3 Research Design

This research espouses a qualitative stance, chiefly applying grounded theory to probe into the governance mechanisms of firm-hosted online brand communities. Grounded theory is a research method jointly developed by Barney Glaser and Anselm Strauss (1967).

The method of grounded theory originated from a field observation conducted by Glaser and Strauss at a hospital in the 1960s regarding the handling of dying patients by medical staff (Glaser & Strauss, 1965, 1967). This theory emphasizes the importance of action, focuses on handling problematic situations, collects data through extensive use of field observation and in-depth interviews, and emphasizes understanding social interaction, social processes, and social changes from the perspective of the actors involved. It is a qualitative research method that uses systematic methods to develop and inductively derive grounded theories for certain phenomenon (Glaser & Strauss, 1967; Glaser et al., 1968).

Researchers generally do not begin with theoretical assumptions. They start with actual observations, derive insights from raw data, and then build towards a systematic theory. This is a method of establishing substantive theories from bottom to top, which involves searching for core concepts that reflect the essence of phenomena based on systematic data collection, and then constructing relevant social theories through the connections between these concepts (Glaser & Strauss,

1967; Glaser et al., 1968). This study also employs grounded theory and extracts the framework and dimensions of governance mechanisms in firm-hosted online brand communities through in-depth qualitative interviews.

Grounded theory has many applications in the research field of online brand communities. For example, regarding consumer roles in brand culture and value co-creation in online communities (Healy & McDonagh, 2013), the role of solvers (members who actively help others and solve problems) in online communities includes perceived interaction, relationship quality, and psychological ownership (Shi et al., 2022). Studies on online brand communities and value co-creation also apply grounded theory to explore related issues (Sarkar & Banerjee, 2023). These researchers all use grounded theory to collect data, discuss, and code from the surface to the inside, effectively solving research problems. This study also draws inspiration from grounded theory and extracts the framework and dimensions of governance mechanisms in firm-hosted online brand communities through interviews.

Grounded theory is a methodological tool for crafting theories from qualitative data. It encompasses two primary phases: formulating a substantive theory by identifying relationships among concepts and then establishing a formal theory by harmonizing the research outcomes with prevailing theoretical frameworks. This method, ensuring consistent research progression and compatibility with psychological ownership theory, integrates techniques as advised by Salmons (2014), such as semi-structured interviews and literature reviews. Following the data collation and coding processes, the goal is to illuminate the governance structures prevalent in online brand communities.

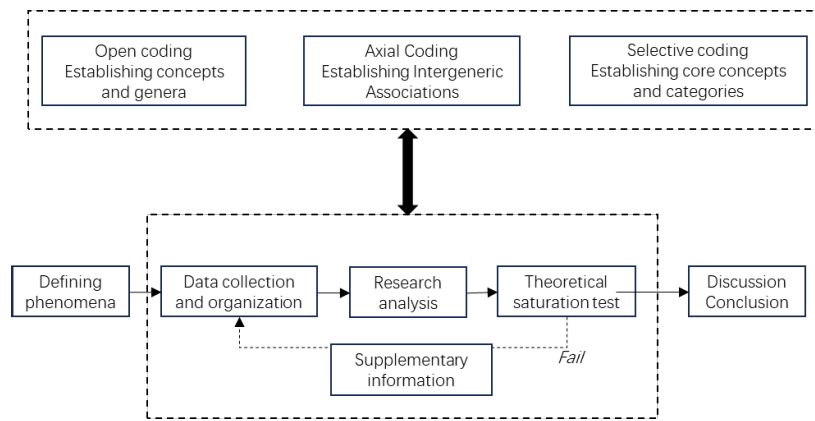


Figure 7 Flow chart of Grounded Theory Research
(Glaser & Strauss, 2017)

3.4 Research Strategy

However, in actual research practice, the application of grounded theory has involved different schools of thought, mainly including: Classic Grounded Theory, Straussian Grounded Theory, and Constructivist Grounded Theory. These three approaches are now compared.

1. Classic Grounded Theory

The classic grounded theory paradigm, originally articulated by Glaser and Strauss (1967), establishes an inductive framework for theory generation that resists pre-emptive theoretical frameworks. This methodological orientation prioritizes data-driven emergence of theory through systematic implementation of theoretical sampling and constant comparative analysis, thereby enabling the organic development of conceptual categories from empirical observations.

Epistemologically rooted in symbolic interactionism, the classic grounded theory approach rejects preliminary literature reviews during initial phases of inquiry to prevent theoretical contamination from extant scholarly frameworks. Such epistemic caution ensures that emerging conceptualizations remain responsive to data nuances rather than being constrained by pre-existing academic paradigms.

The methodology's core analytical mechanism involves progressive theoretical sampling, wherein data collection iteratively refines conceptual boundaries through sequential comparison of incident patterns across study participants.

Methodologically, classic grounded theory distinguishes itself through its triadic research process: open coding for initial pattern identification, axial coding to establish categorical relationships, and selective coding for theoretical synthesis. The constant comparative method facilitates simultaneous data collection-analysis cycles, enabling researchers to detect emergent properties and develop theoretical saturation through systematic variation exploration.

This foundational approach challenges traditional deductive research paradigms by advocating theory construction as an endogenous process emerging from lived experience. Its procedural rigor in maintaining data fidelity while generating abstract concepts has established enduring relevance in qualitative social science research.

2. Straussian Grounded Theory: (also Known as “Procedural” Grounded Theory)

The Straussian grounded theory paradigm, subsequently developed by Anselm Strauss and Juliet Corbin (1990), represents a methodological advancement within qualitative inquiry that emphasizes procedural systematization to address researchers' epistemic anxieties. This framework introduces a tripartite analytical structure comprising dimensional analysis, the paradigmatic model, and conditional matrices, which collectively establish rigorous standards for theoretical sampling and category saturation. Methodologically, it partially adopts to the Glaserian tradition by formalizing coding procedures through sequential stages—open, axial, and selective coding—that operationalize the research process through explicit decision trails.

A distinctive feature of this approach lies in its integration of structured analytic devices, notably dimensionalization (quantifying qualitative phenomena along continuums) and the conditional/consequential matrix (mapping inter-variable relationships). These heuristic tools enable systematic exploration of social processes while maintaining theoretical sensitivity. Crucially, Straussian methodology advocates for sustained engagement with extant literature throughout all phases of inquiry, positioning theoretical frameworks as dynamic dialogues between empirical data and established scholarly discourse rather than isolated constructions.

3. Constructivist Grounded Theory:

Within the realm of qualitative research methodologies, the constructivist grounded theory approach (Charmaz & Smit, 2007) presents a postmodern epistemological framework that fundamentally challenges traditional positivist paradigms. This theoretical orientation posits that theory functions as an interpretive representation of the investigated phenomena rather than as an objective mirror of reality, thereby aligning with postmodern critiques of grand narratives and absolute truths.

Central to this methodological approach is its recognition of the inescapable subjectivity inherent in the research process. It maintains that the researcher's ontological and epistemological perspectives serve not as impediments to be neutralized, but as vital constituents in the theoretical construction process. This perspective deliberately embraces the constructed nature of theoretical formulations, advocating methodological flexibility that permits adaptive research strategies responsive to emergent data patterns.

Notably diverging from conventional grounded theory's initial resistance to literature review, this approach endorses systematic engagement with existing scholarship throughout all research phases. The rationale posits that researchers'

pre-existing theoretical sensibilities and disciplinary knowledge bases contribute constructively to theory development, rather than contaminating the emergent understanding. Such epistemological transparency allows for the creation of theories that are both contextually grounded and academically situated within relevant scholarly discourses.

Table 7 Comparison of Three Grounded Theory Approaches
(Kenny & Fourie, 2015)

Type of Grounded Theory	Social Science Philosophy	Qualitative Research Method	Researcher Role	Attitude Towards Research Tradition	Theoretical Form
Classic Grounded Theory	Critical Realism	Yes	Creator	Forget	Latent Pattern
Straussian Grounded Theory	Positivism	Yes	Observer	Follow	Causal Relationship
Constructivist Grounded Theory	Constructivism	Yes	Participant	Reference	Narrative

Classic grounded theory aims to view researchers as *tabula rasa*. Here, “*tabula rasa*,” a Latin term translating to “blank slate”, represents the idea that researchers should approach data collection and analysis with an open and unbiased mind, free from preconceived notions and existing theoretical frameworks (Glaser & Strauss, 1967). However, from a practical standpoint, Glaser’s position also encounters significant difficulties. Udo Kelle (2005) pointed out that if researchers are asked to abandon all theoretical concepts, those in the open coding phase would become unguided, paying equal attention to every word, ultimately resulting in a vast number of scattered, lengthy codes that do not advance research at all. The modifications to grounded theory by Strauss, Corbin, and Charmaz, among others, provide direction for researchers, and many of their followers have stated that Glaser’s version of

grounded theory is very difficult to learn, while subsequent versions of grounded theory allow them to master a “scientific method” for handling qualitative materials by following a blueprint (Chamberlain-Salaun et al., 2013).

To eliminate the uncertainty of classic grounded theory in research, Strauss and his student Juliet Corbin (1990) proposed a more procedural and systematically rigorous grounded theory with a higher level of proceduralization, providing feasible guidance for newcomers to qualitative research (Kenny & Fourie, 2015). The proceduralized grounded theory offers a strict set of procedures and a conceptual framework, greatly easing the creative pressure on researchers themselves; Corbin believes that grounded theory does not differ much from other research paradigms when it comes to selecting research questions, which can come from literature, personal experience, professional experience, and various other sources (Corbin & Strauss, 2008). Based on this understanding, Strauss and Corbin formulated tools like “paradigm models” and “conditional matrices”, thereby greatly enhancing the procedural basis for grounded theory research.

Applying proceduralized grounded theory is the strategy for the research reported in this thesis. It allows for mutual resonance with existing research literature during the grounding process, permitting the researcher to review literature during the research process. It helps to combine existing theories with newly discovered data, enhancing the depth and breadth of the research. Although it provides clear steps, it also allows the researcher to adjust according to the actual situation during the research process, maintaining a certain degree of flexibility. In particular, the proceduralized grounded theory emphasizes verifying the causal relationships between categories, which has strong guiding significance for the mediating role of online brand governance mechanisms and collective psychological ownership that this thesis hopes to explore. Given the study’s focus on identifying causal relationships between governance mechanisms and value co-creation, Straussian grounded theory is selected for its emphasis on procedural rigor and variable

verification. Therefore, this thesis conducts research using the strategy of Straussian grounded theory.

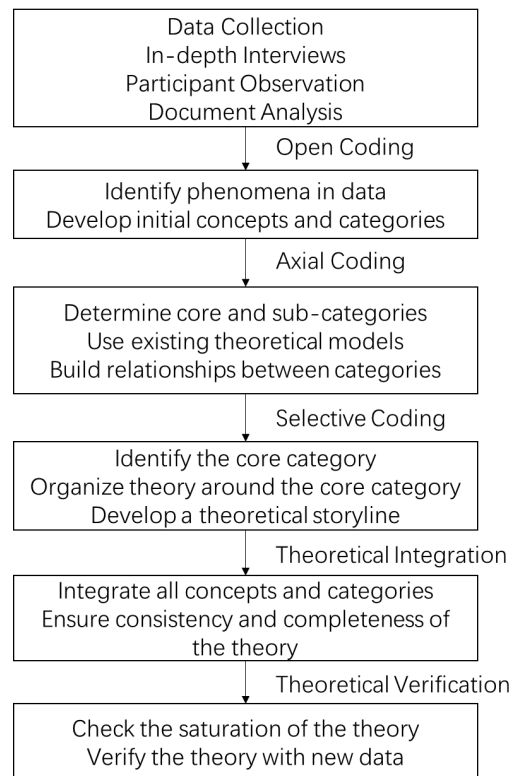


Figure 8 The Logical Structure Diagram of Straussian Grounded Theory
(Corbin & Strauss, 2008)

In proceduralized grounded theory, the concept of achieving theoretical saturation refers to the point in the data collection and analysis process where new data no longer yields new theoretical insights or does not significantly supplement or modify existing theory. In other words, theoretical saturation implies that the researcher has gathered sufficient information such that the core categories and related concepts are fully developed and explained, with no new attributes or dimensions emerging, and the theory-building process naturally comes to a halt.

There are several key steps and considerations for achieving theoretical saturation in proceduralized grounded theory:

1.Continuous Comparison

Throughout the data collection and analysis process, the researcher continuously compares new data with existing theory to check if the new data provides new insights or dimensions to the existing theory.

2.Theoretical Sampling

Theoretical sampling is a key feature of proceduralized grounded theory. The researcher selects cases based on the needs of theory development, and as the theory gradually reaches saturation, newly selected cases no longer provide new theoretical information.

3.Coding Process

During the processes of open coding, axial coding, and selective coding, the researcher continuously identifies and refines concepts and categories. When the coding process no longer generates new concepts or categories, or when new data only provides examples within existing categories without adding new content, theoretical saturation may have been achieved.

4.Adequate Development of Core Category

In proceduralized grounded theory, the core category is the center of the theory of construction. When the core category is fully developed and the relationships with other categories are clear and explicit, theoretical saturation may have been realized.

5.Literature Review

Corbin and Strauss (1990) believe that a review of appropriate literature can help

understand theoretical saturation. When existing literature fully supports the theory and new literature no longer provides new materials for theory construction, it may indicate that theoretical saturation has been reached.

6.The Researcher's Judgment

The judgment of theoretical saturation partly depends on the researcher's experience and intuition. The researcher needs to assess whether the data provides sufficient support for the theory and decide whether to continue data collection.

7.Repetitiveness of Data

When the collected data begins to repeat existing theory without providing new perspectives or in-depth explanations, this is usually a signal that theoretical saturation may have been achieved.

Theoretical saturation is a dynamic process that requires the researcher's continuous reflection and evaluation. It is important to recognize that theoretical saturation does not mean that the research is perfect or final, but rather that within the context of the current study, the theory has been fully explored and developed.

3.5 Research Method

Literature analysis: drawing from premier databases, this study presents a comprehensive review of contemporary research on online brand communities. Through this analysis, gaps in the existing literature become apparent, spotlighting areas that have not been fully explored and thus offer theoretical grounding for the current study.

Interviews: the primary method of data collection is through anonymous, semi-

structured interviews. Adopting this approach grants the flexibility to delve into participants' unique experiences, their perceptions, and insights surrounding the governance dynamics of firm-hosted online brand communities. To gather comprehensive data, the interview questions aim to draw out detailed responses. They center on pivotal topics, such as community regulations, decision-making paradigms, strategies for conflict resolution, and the influence of psychological ownership.

Qualitative analysis: anchored in relevant theories, the study engages in semi-structured interviews with both regular members and administrators of specific online brand communities, namely Xiaomi Community and My Huawei. Using the coding procedure inherent to grounded theory, the research identifies challenges to the governance design of firm-hosted online brand communities and distils essential governance components.

Building upon insights from the literature review and integrating them with findings from the qualitative analysis, the methodology delivers a comprehensive perspective on the governance of firm-hosted online brand communities. It sheds light on their influence on collective psychological ownership and the subsequent implications for customer engagement in value co-creation.

3.6 Research Participants in the Main Study

The main interviewees of this thesis are the administrators and standard members of two of the largest firm-hosted online brand communities in China, “Xiaomi Community” and “My Huawei”. Specifically:

1. Administrators

This includes managers appointed by the company within the firm-hosted online

brand communities, such as moderators, trainee moderators, community moderators, and community junior reporters. These individuals are responsible for the daily management, supervision, and maintenance of community order.

2. Standard members

The term standard member refers to active consumers or brand enthusiasts within firm-hosted online brand communities who participate in community discussions, share information, and provide feedback. They are the main subjects of community interaction and value co-creation.

In this study, semi-structured interviews were conducted to collect the opinions and suggestions of these interviewees to gain an in-depth understanding of the actual situation and challenges faced by the governance mechanisms of firm-hosted online brand communities. Through grounded theory analysis of the data from these interviewees, the researcher has refined the constituent elements of the governance mechanisms of firm-hosted online brand communities and further explored how these governance mechanisms affect customer participation in value co-creation behaviors.

3.7 Role as a Qualitative Researcher

1. Data Collection and Analysis

The researcher collects data through semi-structured interviews and document analysis. These methods are commonly used in qualitative research to obtain in-depth and rich first-hand information.

2. Use of Grounded Theory

The thesis uses grounded theory for coding the collected data, which is a qualitative research method that emphasizes inducing theory from data. Grounded theory allows the researcher to deeply understand the complexity and multi-dimensional characteristics of the governance mechanisms in firm-hosted online brand communities. It focuses on using procedural grounded theory methods, emphasizing the “storyline” to describe phenomena and the driving factors behind them, thus developing a new, complete theoretical model.

3. Theory Construction

Based on the collected data, the researcher refines the constituent elements of the governance mechanisms of firm-hosted online brand communities through qualitative analysis and then constructs a theoretical framework. This process reflects the role of qualitative research in theory development, generating new concepts and theories from field research.

4. Contextualized Research

The researcher focuses on the specific context of firm-hosted online brand communities, using qualitative research methods to deeply understand the characteristics and functions of the governance mechanisms in this context. This contextualized research method helps to reveal complex phenomena in specific environments.

5. In-depth Interviews

In-depth interviews are conducted with administrators and standard members of firm-hosted online brand communities. This is a key method for obtaining

participants' personal perspectives and in-depth understanding, helping the researcher gain comprehensive information from individual differences.

6.Application of Qualitative Analysis Tools

The researcher uses NVivo 12 tools to organize data, which is qualitative data analysis software used to assist in coding, categorizing, and thematic analysis of the unstructured data collected from the interviews.

7.Research Philosophy

The thesis mentions that the research philosophy is interpretivism, which is usually associated with qualitative research methods, emphasizing the understanding of the intrinsic meaning and personal experiences of the research subjects.

8.Research Innovation

This study introduces innovative conceptualization of the constituent dimensions of governance mechanisms in firm-hosted online brand communities. Systematic qualitative inquiry enables methodological advancements that generate novel analytical frameworks and empirical research instruments for subsequent investigations.

3.8 Pilot Study

3.8.1 Pilot Study Descriptive statistics

The researcher sent 60 interview invitations, to which 16 people replied. In the end, four people were interviewed, including 2 Xiaomi community users, 1 My Huawei user, and 1 part-time administrator of the Xiaomi community. In the following text, to ensure the privacy of the respondents, we have numbered them. Respondents 1

and 2 are Xiaomi community users, Respondent 3 is a My Huawei user, and Respondent 4 is a Xiaomi community administrator.

Table 8 Descriptive Statistics of Pilot Study

Content	Option	Number	Content	Option	Number
Gender	male	3	Registration time	Within 1 year	0
	female	1		1-3 years	1
				3-5 years	1
				Over 5 years	2
Communi- nity	Xiaomi Community	3	Login frequency	Rarely (every season)	0
	My Huawei	1		Sometimes (monthly)	0
Identity type	administrator	1		Frequent (weekly)	1
	standard member	3		Always (every day)	3

3.8.2 The main role of the pilot study

1.Ensuring Interview Question Validity

The pilot study enabled alignment of interview questions with the three core research questions (governance mechanisms dimensions, impact on value co-creation, mediating role of collective psychological ownership). These were tested via four interviewees (two Xiaomi Community users, or standard members, one My Huawei user, and one Xiaomi administrator). Overly broad questions were removed (e.g., vague “perceptions of governance”) and scenario-specific ones were added (e.g., “Did you join product feedback due to community points?”) to capture targeted data on governance, psychological ownership, and co-creation.

2. Ensuring Interview Question Comprehensibility

Interviewees were provided with plain-language definitions of abstract concepts (e.g., “governance mechanisms as community rules or interaction methods”). Academic jargon was re-written (e.g., “perceive governance’s driving effect on co-creation”) into accessible phrasing (e.g., “Did community rules or rewards make you more willing to suggest product improvements”). Potentially confusing questions were adjusted (e.g., “collective psychological ownership” was rephrased as “Do you feel the community is ‘ours’? Give an example”) based on pre-interviewees’ feedback.

3. Ensuring Online Interview Device Effectiveness

Tencent Meeting (the chosen online meeting tool) was tested with all four pre-interviewees: microphone clarity was verified, along with camera stability, and the recording function to avoid any data loss.

3.8.3 Issues Faced during the Pilot Study

1. Sample Representativeness Issue

In the Pilot Study stage, due to time constraints, the researcher only selected four respondents, so the selected respondents may not fully represent the diverse characteristics of the entire online brand communities. Different users have different participation backgrounds, levels of activity, interests, and types of contributions. For example, new and old users may have different perceptions of community rules and value co-creation; administrators and standard members have vastly different perspectives. If the samples fail to cover these diversities, the research results are limited by sampling bias, making it difficult to fully reveal the true situation. Therefore, the researcher expanded the sample range in the

subsequent formal study to ensure that the data sources have broad representativeness.

2. Data Collection Challenge

Obtaining high-quality data is an important challenge when exploring complex issues such as governance mechanisms and value co-creation. Respondents may have varying understandings of these abstract concepts, and their descriptions may be vague or superficial, making it difficult for research to delve deeper into the actual operational mechanisms. The researcher needed to guide respondents to share their first-hand experiences and develop profound insights about the community in detail and accurately through follow-up questioning.

3. Conceptual consistency issue

During the interview process, the specific meanings of “governance mechanisms”, “value co-creation”, and “collective psychological ownership” may vary among different respondents. This required the researcher to clarify and unify the standard definitions of these core concepts before the interviews began, to ensure that respondents answered questions based on the same understanding, thereby ensuring consistency and comparability of the research.

4. Risk of subjective bias

During the execution of the pilot study, the researcher sent interview outlines to respondents in advance. Based on current attempts, semi-structured interviews can achieve good results. As semi-structured interviews mainly rely on the subjective expressions of respondents themselves, their opinions and feelings are easily influenced by personal emotions, attitudes, memories, and other factors, which may lead to subjective results and reduce the objectivity of the study.

5. Translation Issues

Since the interviewees are Chinese, the interviews were conducted in Chinese, which may lead to some issues due to translation. First, loss of context: language is not only a direct conversion of words, it also encompasses cultural and contextual meanings, and literal translation may not accurately convey the original intent. Second, slang and idioms: slang and idioms in Chinese may not have direct English equivalents, and their translation may lose their original flavor and depth. Third, semantic ambiguity: some Chinese expressions may not have precise counterparts in English, leading to ambiguous or altered meanings in translation. Fourth, emotional tone: the emotional tone of language may be diluted or altered during translation. Fifth, language style: the language styles of Chinese and English may differ, and it is necessary to maintain the original style and tone when translating.

3.8.4 Solutions

1. Solving the problem of sample representativeness

Expanding the research network: The researcher joined QQ and WeChat groups associated with the Xiaomi Community and My Huawei, published interview plans, and recruited an appropriate number of representative respondents.

2. Optimize data collection

Practicing repeated questioning: during the interview process, the researcher followed up on vague or highly summarized answers, striving to obtain more detailed and specific practical experience. What's more, the researcher avoided correcting the thoughts and feelings of participants, focused on listening, and asked guiding questions to obtain appropriate answers.

3. Unified conceptual understanding

Provide an interview outline before the interview: this method was used in the interviews. Pre-communication with the respondents before the interview enabled them to inquire if they understand the concepts in the interview outline and thus improved the interview effectiveness.

Prepare conceptual explanations in advance: clearly explained the concepts of “governance mechanisms” and “value co-creation” to the respondents at the beginning of the interview, ensuring that both parties had a consistent understanding of the concepts.

4. Dynamic adjustment of interview framework

Real time feedback and correction: immediately after the interview, the researcher organized notes based on the recording, summarized new information and uncovered key points provided by the respondents, and adjusted the outline of subsequent interviews in a timely manner.

5. Improve the quality of individual interviews

Based on the respondents' acceptance, tried to extend the duration of a single interview to 30 minutes as much as possible, and established trust with the respondents through discussion before the interview started to ensure that respondents were interviewed in a relaxed mood.

6. Fully Consider the Interview Context in the Translation process

Due to potential translation issues, it is necessary to fully consider the context and tone of the interviewees and consider the cultural background of the readers. Adjust

the language appropriately to suit different cultural environments. The researcher first conducted theoretical analysis and coding of the Chinese interview results independently. After drawing conclusions, Google Translate was used to assist in translating the research process and findings into English.

3.8.5 Effect of Pilot Study

1. Optimize Research Design

Refining the interview outline: by conducting interviews with a small subset of the target group, the researcher can understand the problems in the interview outline, such as which questions were too abstract, which questions were not specific enough, or which ones did not arouse the interest of the respondents. Therefore, the interview outline can be fine-tuned to make it more relevant to the research objectives and the actual experiences of the respondents.

2. Improve Data Collection Methods

Interview skill improvement: in the pilot study, the researcher had the opportunity to exercise and enhance interview skills, including questioning methods, response strategies, and how to guide respondents to engage in in-depth discussions. After four rounds of interviews, the effectiveness of the interviews was continuously improved. Through existing interview experiences, the use of online meeting software (Tencent Meeting) was found to be sufficient to obtain the information required for this study.

Interview device tests with 4 participants confirmed that the software's core functions—including microphone audio clarity, camera stability, and real-time recording—operated without technical failures, ensuring no loss of interview content, and the recordings were clear. The software's screen-sharing feature

allowed the researcher to display interview outlines and consent forms directly, reducing misunderstandings. These contributed to the smooth progress of subsequent large-scale interviews.

3. Preliminary Confirmation of the Effectiveness of the Study

Concept verification: the Pilot Study helped the researcher confirm how core concepts such as “governance mechanisms”, “value co-creation”, and “collective psychological ownership” are reflected in practice, thereby determining the scope of governance mechanisms and the impact of collective psychological ownership on value co-creation.

4. Test Sample Representativeness

Calibration sample selection strategy: through the pilot study, the researcher found that the sample being studied was representative. “Xiaomi community” and “My Huawei” are both the firm-hosted online brand communities with the most users in China. Interviewed participants demonstrate a high degree of congruence with their respective communities while expressing aspirations for continuous improvement.

5. Data Processing and Analysis

Improving coding level: through preliminary processing and analysis of interview data from pilot study, the researcher improved the level of data coding, saved time, and improved efficiency for subsequent large-scale data processing.

6. Accurately Convey the Interviewees’ Intentions

By thoroughly considering the context and cultural background of the interviewees, it is possible to minimize issues during the translation process, ensuring the quality

of the study and the accurate communication of the interviewees' original intentions.

In short, the pilot study is not only the foundation for formal research, but also an important testing ground for research design, implementation, and analysis. It ensures the rigor and feasibility of subsequent research and provides strong guarantees for fully revealing the impact of online brand communities' governance mechanisms and value co-creation.

3.8.6 Data Saturation of Pilot Study

The target sample size for the formal study was approximately 40 participants. The pilot study comprised four interviews, with a sample size equal to one tenth of the envisaged full sample. The criterion for achieving data saturation in this study is when subsequent interviews cease to introduce new information or themes (Glaser & Strauss, 2017). Obviously, the four interviews did not reach theoretical saturation, especially regarding the category of governance mechanisms; new concepts continued to emerge but at least outlined a preliminary theoretical model.

3.9 Data Collection Method

3.9.1 Sampling

To capture a rich array of insights, this study employed a theoretical sampling technique, targeting individuals experienced with Firm-hosted Online Brand Communities. This ensured the inclusion of varied viewpoints, encompassing community administrators and active members. The investigation focused on two leading Chinese smartphone brand communities: “Xiaomi Community” (formerly known as “MIUI”) by Xiaomi and Huawei's “My Huawei” (formerly known as “Pollen Club”). Both communities have gained significant traction in China, marked by impressive user retention and enthusiastic engagement (Cui et al., 2021;

Meng et al., 2018).

1. Criteria for the Selection of Respondents

The interviewees are users of the Xiaomi community and My Huawei. The researcher registered accounts in these online communities, and then observed and recorded the users who posted frequently for a long time (see the below criteria). After that, sent them emails to introduce the purpose of the research and invited them to participate in the study.

Inclusion criteria:

- (1) You need to be 18 years old.
- (2) If you are a user of Xiaomi or Huawei, you have registered in Xiaomi community or My Huawei for more than 1 year and have logged in at least once a month.
- (3) Have posted your own opinions at least three times in online communities.
- (4) You hope to contribute your efforts to the progress of your beloved online community.
- (5) Participate in interviews not for commercial interests.
- (6) Participate in interviews based on personal feelings.

Exclusion criteria:

- (1) You are under 18 years old.
- (2) You are not a user of Xiaomi or Huawei, and do not have a Xiaomi community or My Huawei account.
- (3) Never express your own views in an online community.
- (4) You are not interested in the progress of the online community.
- (5) Participate in interviews for commercial interests.
- (6) Participate in interviews on behalf of others.

This study ensured strict adherence to ethical standards by utilizing exclusively publicly accessible platform data, with the explicit intention of avoiding any invasion of user privacy. The research protocol involved two phases: first, systematic identification and verification of active community membership status (either “Xiaomi Community” or “My Huawei”) among the sampled populations; second, formal solicitation via email correspondence to obtain informed consent for participation in the interview process.

This study confirmed that volunteering respondents from firm-hosted online brand communities demonstrate marked enthusiasm for community optimization. Correspondingly, the research design deliberately refrained from incorporating monetary incentives, acknowledging the intrinsic motivation demonstrated by participant contributions.

2. Sample Size

Regarding the number of interviews, Glaser and Strauss (1968) proposed in their classic study that the number of interviews using grounded theory typically ranges from 12 to 30 participants. This range aims to capture the complexity of social phenomena through a diverse sample while avoiding data redundancy. For more complex phenomena, the number of interviews can be increased.

The core principle of grounded theory is “theoretical sampling” rather than “random sampling” (Corbin & Strauss, 2008). Two important criteria for judging data saturation are: first, whether the data sufficiently support the extraction of categories; second, whether new theoretical nodes emerge. After each interview, the data should be analyzed and compared with existing conclusions. If no new comparative results emerge from subsequent interviews, theoretical saturation is reached. Grounded theory emphasizes “data-driven” research, and the number of participants should be adjusted based on the dynamic process of data analysis rather

than rigidly following a fixed number (Guest et al., 2020).

To ensure that the sample covered different dimensions of the research phenomenon (such as different occupations, experiences, and cultural backgrounds), which enhanced the universality of the theory, a pilot study was conducted with four individuals, which did not achieve theoretical saturation. Therefore, it is necessary to expand the sample size for interviews, including both standard members and online community administrators. There were approximately 60 candidates willing to participate in the interviews. Considering the research topic of this thesis and the principle of “theoretical sampling,” the researcher prioritized selecting interviewees with high forum rankings (indicating longer registration time and higher activity levels in the community) and community administrators.

After interviewing the 37th participant, theoretical saturation was achieved. Therefore, the final sample size for interviews in this study was 40. Since the number of users in online communities far exceeded the number of administrators, the majority of the respondents were standard members. A total of 35 standard members from the two online communities accounted for 87.5%, while the five administrators from the two communities made up 12.5%. Detailed sample statistics are presented in Table 9 in chapter 4.

3.9.2 Interviews and Data Collection

1. Preparation Stage

Both the Xiaomi Community and My Huawei platform have an email function. The researcher sent interview invitations to the Xiaomi community and My Huawei users, informing them of the purpose of the interview and clarifying the conditions that the respondents need to meet, including being at least 18 years old, a loyal user of the Xiaomi community or My Huawei, and hoping to contribute efforts to the

progress of their beloved online community.

The researcher completed the design of a semi-structured interview outline before the interviews began. To ensure the success of the interviews, the researcher conducted a second online trial interview with classmates, verifying the reliability of the online interview software Tencent Meeting (a conference software provided by Tencent that has similar functionality and security to Zoom).

2. Pre-interview Communication

After some users initially agreed to accept the interview, the respondents who were interviewed had signed and replied to a scanned copy of the electronic consent form before the interviews, which included agreeing to have the interviews recorded. Subsequently, the researcher and the respondents agreed on the interview time. Three days prior to the start of the interview, the researcher had already sent the semi-structured interview outline to the respondents.

3. Interview Implementation

Before the interview began, the researcher waited in a quiet room for the respondents to go online and adjusted the equipment with them. The researcher once again confirmed to the respondents that they were over 18 years old and informed them that if they felt any discomfort during the interview, they can stop the interview at any time. This interview was recorded through Tencent Meeting. The recording function included in the software was used where consent was given to help the researcher, as English was not their first language, to capture all information during the interview conversation.

To avoid any awkwardness during the interviews, firstly, the researcher exchanged simple greetings with the respondents and introduced the approximate time and

process of the interviews, ensuring that the respondents were comfortable and understood the next steps. Subsequently, interviews were conducted according to pre-prepared questions, and timely follow-ups were conducted where necessary to ensure in-depth information was obtained.

All interviewees who agreed to take part in the study were initially given the semi-structured interview schedule, which included a brief overview of the research project, the length of an interview, the use of a digital voice recorder, their anonymity and confidentiality, and their rights as research participants. Meanwhile, all this was explained again to the interviewees to ensure the protection of their privacy before the interviews took place, and they were offered the opportunity to ask questions (Bell & Bryman, 2007) to establish credibility and gain the interviewees' confidence. Furthermore, it was emphasized that all data would be strictly protected in accordance with the University of Stirling's guidance on GDPR.

Due to the need for follow-up questions and the fact that most of the respondents answered based on their own feelings, their responses were relatively vague. Therefore, the average time in the pilot study of four interviews was around 32 minutes, which exceeded our previous expectation of 30 minutes.

In the large-scale interviews, the researcher informed the respondents that the duration of each interview would be around 35 minutes. In fact, the researcher finally calculated that the average duration of each interview was 29 minutes. Due to the increasing data saturation and improved proficiency in conducting interviews, the length of the interviews showed a decreasing trend over time.

Considering that administrators have a deeper understanding of the online community, more interaction time with the community, and greater involvement in the construction of governance mechanisms, they provided more information during the actual interviews, and the interviews with them lasted longer. The

average interview duration for standard members was about 25 minutes, while that for administrators was close to 40 minutes.

4. End of Interview

After the interviews, the researcher expressed gratitude to the respondents for their time and contributions. The researcher informed the respondents that the recordings would only be used for research purposes and that all content would be strictly confidential, ensuring the anonymity and privacy of the respondents. All data would be anonymized during the transcription process. The researcher also explained when and how the research results could be obtained. In addition, the researcher informed the respondents that if they wish to provide additional information after the interview, they could contact the researcher at any time and provide their contact information.

In short, the researcher completed forty interviews through the interview format described above. Furthermore, it should be emphasized that all data is strictly protected in accordance with the University of Stirling's guidance on GDPR.

3.10 Criteria for Ensuring Research Rigor

1. Reliability

This research methodology comprises two reliability dimensions: first, the systematic selection of scholarly literature through established academic databases; second, the implementation of verbatim transcription protocols to ensure authentic representation of interviewee perspectives while maintaining strict semantic fidelity to original narratives.

2.Validity

This study employs two methodological enhancements: first, the utilization of NVivo 12 qualitative analysis software for systematic data coding and analysis ensures methodological precision in handling empirical materials. Second, through systematic integration of established theoretical frameworks from the pilot study, the research design implements sequential application of the Stimulus-Organism-Response (SOR) model followed by grounded theory procedures.

3.Rationality

This study incorporates systematic research design through establishing logically methodological rigor. Next, empirical verification confirms that the study's content possesses objective, being independent of subjective with researcher subjectivity.

4.Sustainability

This research demonstrates dual applicability: while primarily focused on firm-hosted online brand communities, its findings exhibit broad generalizability that extends to other digital community contexts. Furthermore, through systematic identification of conditional combinations influencing customer engagement in value co-creation processes, the study establishes a theoretical framework that informs sustainable governance strategies for firm-hosted online brand communities.

3.11 Ethical Considerations

This study strictly adheres to ethical research protocols through systematic implementation of informed consent procedures and rigorous safeguards for participant confidentiality and anonymity. Research data is exclusively utilized for

developing a comprehensive governance framework for firm-hosted online brand communities, with particular emphasis on systematically examining the role of psychological ownership mechanisms.

3.11.1 Ethical Implications

This study implemented a systematic recruitment process: initial potential participants were via email contacted, with snowball theoretical sampling techniques. Eligible participants received digitally distributed consent forms and information sheets via email, with the former requiring electronic signatures to formally document participation agreements after explicit acknowledgment of study requirements, while the latter systematically outlined key procedural elements including confidentiality protections through anonymization measures, voluntary participation terms, audio-recording protocols, data dissemination policies, and researcher contact details.

This study systematically aligned with methodological recommendations from Braun et al. (2013) , Creswell and Creswell (2017), and Saunders et al. (2019) to ensure rigorous ethical protocols. The core ethical requirements were explicitly delineated in the following sections:

1. Confidentiality and anonymity

This study maintains strict confidentiality protocols through systematic anonymization procedures, employing participant pseudonyms (e.g., Respondent #1, Respondent #2) during data transcription and throughout subsequent analysis and reporting phases. De-identified data were systematically utilized in all publications, with explicit implementation of privacy-preserving measures at each research stage: data collection, thematic analysis, and knowledge dissemination. These methodological safeguards ensure complete participant anonymity while

preserving data utility.

2. Maintain personal privacy

This study implemented rigorous data management protocols: electronic and audio-visual materials were encrypted and stored on institutional cloud infrastructure with multi-factor authentication; physical transcripts were maintained in climate-controlled archival facilities under biometric access controls. All data de-identification and destruction procedures strictly complied with the University of Stirling's data retention policy and GDPR guidelines.

3. Responsibility

This study upholds ethical research standards through: a) Voluntary participation protocols ensuring respondents may withdraw at any phase without penalty or explanation; b) Secure data collection procedures conducted in controlled access environments with exclusive researcher-participant presence; c) Continuous clarification opportunities throughout all research phases; d) Strict adherence to participant consent protocols for all data processing activities. These safeguards collectively ensure participant safety and psychological well-being while maintaining full compliance with institutional ethical approval documentation.

4. Integrity

This study upholds academic integrity through two core mechanisms: a) Rigorous adherence to factual accuracy in reporting research outcomes; b) Comprehensive disclosure of all study parameters through both verbal and written channels; c) Maintenance of ethical transparency to mitigate risks of misinformation.

3.11.2 Ethical Issues

This study's core ethical issues and mitigation methods are detailed below:

Ethical issues 1

The leakage of identity information and the guarantee of anonymity. In the internet community, an important feature is anonymity, so this is particularly important for Interviewees.

Mitigate way 1:

To ensure anonymity, all interviews involved only the researcher and interviewees and were conducted one-on-one. The meetings took place on encrypted communication platforms. The researcher anonymized all identifiable data by replacing it with pseudonyms names (e.g., Respondent Number 1, Respondent Number 2) during transcription. Each interviewee was assigned a unique identifier number. The research excluded participants' real names or network IDs. All interview questions avoided personal privacy details such as age, religious beliefs, or marital status. Even when published, no reader could identify the participants. The researcher has implemented measures to prevent disclosure of interviewees' identities.

Ethical issues 2

Interviews have a bad psychological impact on interviewees. Interviews may trigger negative memories of past online community interactions, leading to psychological impact.

Mitigate way 2:

Before the interviews, the researcher sent the interview outline and consent forms to participants, providing clear information about the interview content. If participants were unwilling to answer specific questions, the researcher avoided asking them. During the interviews, participants could terminate the session at any time if they felt uncomfortable. The researcher also provided all participants with opportunities to request clarifications. Importantly, data collection was conducted only after obtaining explicit approval and permission from participants to avoid causing harm.

Ethical issues 3

Integrity reported the interview results truthfully. Interviewees may worry about whether the interview results can be reported truthfully.

Mitigate way 3:

All interview results were reported truthfully, and the researcher didn't distort the true thoughts of the interviewees for any purpose.

Ethical issues 4

Conflict of interest. Was the interview conducted for commercial purposes? Interviewees may be concerned about whether the interview may involve commercial purposes.

Mitigate way 4:

The researcher clearly informed before the interview that the purpose of this

interview was non-commercial and there were no economic benefits involved.

3.11.3 Dissemination

Research Publications: The study findings are written up as a thesis. The thesis is published in database of Stirling University and made available to the scientific community and interested readers.

It's important to note that when disseminating study results, the researcher must uphold ethical guidelines in accordance with University of Stirling and GDPR guidelines, ensure that the privacy and anonymity of participants are protected.

3.11.4 Data Storage

All data is disposed of on a date determined in accordance with University of Stirling and GDPR guidelines. It is stored on a password-protected server at Stirling University, and only specific personnel (the researcher and academic supervisor) can access it for 10 years, after which it is properly destroyed.

3.12 Summary of Chapter 3

Chapter 3 elaborates on the study's methodology, which is based on the interpretivist paradigm and adopts qualitative research approaches, with Straussian grounded theory as the core research strategy due to its procedural rigor.

It outlines key research methods including literature analysis, semi-structured interviews, and qualitative data analysis. A pilot study was conducted to test and optimize interview tools, devices, and processes, addressing initial issues. Formal data collection uses theoretical sampling, with participants selected to ensure representativeness, until theoretical saturation was achieved.

Additionally, the chapter specifies criteria for ensuring research rigor and details of ethical considerations to safeguard the study's integrity.

CHAPTER 4: Findings and Analysis

4.1 Introduction

This chapter follows the logical framework of Straussian grounded theory and conducts a three-stage coding analysis of the transcribed interview texts, including open coding, axial coding, and selective coding. The entire coding process relies on NVivo 12 qualitative analysis software to ensure the systematicity and traceability of data processing—from marking original text segments, extracting initial concepts, and grouping initial categories, to integrating subcategories into main categories and identifying core variables. Meanwhile, this chapter closely aligns with the research objectives (clarifying the dimensions of governance mechanisms, exploring their impact on value co-creation, and verifying the mediating role of collective psychological ownership) to avoid deviations in coding direction.

In addition, before formal coding, this chapter first presents the descriptive statistics of the formal interview samples. After completing the three-stage coding, this chapter further integrates the coding results with the Stimulus-Organism-Response (S-O-R) model to construct a conceptual model of the mechanism through which governance mechanisms influence customer value co-creation behavior. Finally, it verifies the theoretical saturation of the data to ensure that the research conclusions are sufficiently supported by empirical evidence and meet the rigorous requirements of qualitative research.

4.2 Descriptive Statistics

Table 9 Descriptive Statistics of Formal Study

Content	Option	Number	Content	Option	Number
Gender	male	28	Registration time	Within 1 year	0
	female	12		1-3 years	4
				3-5 years	11
				Over 5 years	25
Community	Xiaomi Community	26			
	My Huawei	14		Rarely (every season)	0
			Login frequency	Sometimes (monthly)	8
Identity type	administrator	5		Frequent (weekly)	10
				Always (every day)	22
	standard member	35			

In the large-scale interviews, the researcher sent out over 1,000 interview invitations, of which 214 individuals responded. Ultimately, 40 participants met the criteria and agreed to be interviewed. These participants included 23 Xiaomi Home users, or standard members, 12 My Huawei standard members, 3 Xiaomi Home community administrators, and 2 My Huawei community administrators. During the data collection process, the researcher observed that Xiaomi standard members demonstrated a higher level of enthusiasm in responding, which may be attributed to the company's popularity among electronics enthusiasts.

To ensure the privacy of the participants, their responses are coded in the subsequent analysis. Specifically, participants 1 to 23 are Xiaomi Home standard members, participants 24 to 26 are Xiaomi Home community administrators, participants 27 to 38 are My Huawei standard members, and participants 39 and 40 are My Huawei community administrators. Given that the number of users (standard members) in the communities significantly exceeds that of administrators, the majority of the participants are community users.

4.3 Interview Framework

The interview framework comprises five thematic steps, each systematically organized to maintain narrative coherence.

1. Cognition and participation: this covers members' understanding of the community, their motivations for joining, experiential feelings, participation frequency, and their roles (e.g., administrators or standard members).
2. Understanding and opinions on governance mechanisms: definition of "governance mechanisms", understanding of community rules and their impact on self-participation, attitude towards rules and consequences of violations, role of relationship in member interaction, experience of community incentive measures, and shaping of behavioral interaction by conventions and unwritten routines.
3. The impact of governance mechanisms on customer co-creation value: the promoting effect of mechanisms on product design, feedback, and development activities, positive impact examples sharing, and negative impact experiences caused by lack or improper governance.
4. Collective psychological ownership correlation: the degree of connection with the community and outcomes, the impact of collective ownership on participation in co-creation, the incentive of collective ownership for co-creation, and its role in shaping the overall community culture and activities.
5. Improvement suggestions and additional experiences: governance mechanisms, improvement suggestions to enhance customer participation in co-creation activities, and sharing other experiences and insights about community members.

4.4 Open Coding

The core goal of open coding is to extract initial concepts related to “governance mechanisms of firm-hosted online brand communities, collective psychological ownership, and value co-creation” from raw interview texts, and group semantically related initial concepts into initial categories, laying the foundation for subsequent axial coding and selective coding.

Since all the respondents’ answers were in Chinese, the interview content contains cultural contexts, emotional nuances, and specific expressions. A direct translation may lead to semantic deviations or weakened emotions. Moreover, Chinese slang, idioms, and vague expressions often lack direct equivalents in English. To ensure the accurate transmission of the original intentions and to maximize the preservation of the respondents’ authentic expressions, the researcher chose to code in Chinese first and then translate the results into English. The English translation was conducted initially using Google Translate with further modifications made by the researcher where Chinese traditional idiomatic expressions were used.

4.4.1 Pre-Coding: Data Preparation and Preliminary Processing in NVivo 12

Before extracting Initial Concepts and Initial Categories, it is necessary to complete data import and preprocessing through NVivo 12 to ensure the integrity and analyzability of coding materials.

1.Data Import

First, interview recordings were transcribed into text format verbatim, and auxiliary materials such as interview notes and interview outlines were sorted out. Subsequently, these unstructured data (transcribed texts, auxiliary documents) were imported into NVivo 12 and a project was created. “Memos” were established in

the project to record theoretical ideas and concept extraction logic in real-time during the coding process, ensuring traceability of subsequent coding.

2.Initial Review and Node Creation

All transcribed texts were read through to grasp the overall content. “Nodes” were created in NVivo 12 as carriers for coding, and the software “Data Merging” function was used to integrate interview data from different respondents. This facilitated cross-interview comparison of similar expressions and provided horizontal references for the subsequent extraction and classification of initial concepts.

4.4.2 Extraction Process of Initial Concepts

Initial concepts are refined summaries of specific expressions, behavioral descriptions, or psychological perceptions in interview texts that are directly relevant to the research topic. The extraction process strictly relies on the text marking and node management functions of NVivo 12, following the principle of ensuring that concepts are “data-driven and closely aligned with original statements” (Glaser & Strauss, 2017). The specific operations are as follows:

1.Text Segment Marking: Identifying Content Relevant to the Research Topic

Using “governance mechanisms, collective psychological ownership, and value co-creation” as core screening dimensions, the transcribed interview texts were browsed sentence by sentence in NVivo 12, and text segments related to content such as “community rules, member interactions, incentive measures, psychological belonging, and participation behaviors” were marked. For example:

Respondent 2 mentioned, “We can join or leave anytime based on our interests”. This expression was related to “freedom of entry and exit” and marked as a target

text segment.

Respondent 14 mentioned, “The community lets us vote... This voting system makes us feel like we are part of the community”. This segment was related to “member rights” and marked as text to be coded.

2. Concept Refinement: Generating Initial Concepts from Marked Texts

The semantics of the text segments marked in NVivo 12 were refined, converting colloquial expressions into concise and accurate conceptual terms to form Initial Concepts. For example:

Extracted “Freedom of Entry and Exit” from the “join or leave anytime” expression by Respondent 2.

Extracted “Right to Vote” from the “vote” expression by Respondent 14.

Extracted “Information Protection” from Respondent 11 who mentions that the “community protects our personal info from being leaked”.

3. Node Association: Recording Initial Concepts in NVivo 12

In the “Tree Nodes” module of NVivo 12, an independent “sub-node” was created for each extracted Initial Concept, and the original interview text segment (including respondent number and sentence position) corresponding to the concept was associated with the corresponding sub-node, realizing a one-to-one correspondence between “concepts and raw data”.

4.4.3 Classification Process of Initial Categories

Initial categories were collections formed by grouping initial concepts that were semantically related and point to the same core theme. The classification process relies on the node clustering and logical association functions of NVivo 12, following the principle of “homologous concepts and consistent dimensions” (Charmaz & Smit, 2007). The specific operations were as follows:

1. Concept Clustering: Identifying Semantic Associations of Initial Concepts

The sub-nodes corresponding to all initial concepts in NVivo 12 were viewed, and the original text backgrounds of different concepts were compared using the “Node References” function to screen out concepts with consistent semantic orientations. For example:

“Freedom of Entry and Exit”, “Blurred Boundaries”, and “Right to Vote” all pointed to “the rights of community members to participate independently and express opinions” and were highly semantically related.

“Fraudulent Behavior Prevention”, “Information Protection”, and “Spam Messages Filtering” all pointed to “measures for protecting members’ privacy and information security in the community” and belonged to the same thematic dimension.

2. Category Naming: Generating Initial Categories and Establishing Parent Nodes

A general name was given to the semantically related initial concepts to form an initial category. A “parent node” was created for this category in NVivo 12, and all associated initial concept sub-nodes were classified under it. For example: “Freedom of Entry and Exit”, “Blurred Boundaries”, and “Right to Vote” were grouped into the Initial Category “Member Rights”. A parent node “Member Rights”

was created in NVivo 12, and the three concept sub-nodes dragged under this parent node.

“Fraudulent Behavior Prevention”, “Information Protection”, and “Spam Messages Filtering” were grouped into the initial category “Privacy Protection”. Similarly, a parent node was established and sub-nodes were integrated.

3. Cross-Validation: Ensuring the Rationality of Categories by Combining Interview Contexts

The “Cross-Tabulation” function of NVivo 12 was used to analyze the correlation strength between initial categories and respondent identities (standard members or administrators) as well as community types (Xiaomi Community or My Huawei), ensuring that the categories did not deviate from the specific interview contexts. For example, the “Member Rights” category appeared in the expressions of respondents from both communities and covered different identities, which indicated that this category had universal representativeness and did not need to be split.

4.4.4 Coding Iteration and Traceability Assurance

Since Open Coding is an iterative process, initial concepts and initial categories need to be dynamically adjusted based on new data. The functions of NVivo 12 play a key supporting role in this process:

1. Iterative Adjustment: Repeated Verification and Recoding

As interview data increased, if new initial concepts (such as “New Product Testing Privilege” that appeared in subsequent interviews) were discovered, a new sub-node was created in NVivo 12, and then it was determined if it belonged to an existing

initial category (e.g., they classified it as “Extra Privileges”) or a new category. If the existing categories could not cover it, a new initial category (such as “Role Models of Success”) was added.

2.Traceability: Recording in Memos and Node Attributes

In the “Memos” of NVivo 12, the researcher recorded in detail the extraction basis of each initial concept (e.g., “Right to Vote derived from Respondent 14’s description of community decision-making participation”) and the classification logic of the initial categories (e.g., “Member Rights covered the rights related to members’ independent participation and excluded statements about obligations”). At the same time, the researcher added “Attributes” to each node, marking the coding time and concept source to ensure the entire coding process was reproducible and verifiable.

4.4.5 Opening Coding Examples

Taking one initial category, Member Rights, as an example:

Table 10 Example of One Initial Category – Member Rights

Initial Category	Initial Concept	Source of Original Statement	Coding Logic in NVivo 12
Member Rights	Freedom of Entry and Exit	Interview statement of Respondent 2	Mark the text segment of "being able to join or leave the community at any time", refine it into the sub-node “Freedom of Entry and Exit”, and classify it under the parent node “Member Rights”.

Initial Category	Initial Concept	Source of Original Statement	Coding Logic in NVivo 12
	Blurred Boundaries	Interview statement of Respondent 9	Mark the text segment of “members can be both creators and sharers of information”, refine it into the sub-node “Blurred Boundaries”, and classify it under the same parent node
	Right to Vote	Interview statement of Respondent 14	Mark the text segment of “the community allowing members to vote and put forward suggestions”, refine it into the sub-node “Right to Vote”, and classify it under the same parent node

This example illustrates that initial concepts are derived entirely from semantic refinement of the raw interview texts, while initial categories result from the thematic integration of related concepts. The entire process is implemented accurately with the support of the node management and text association functions of NVivo 12.

In summary, the generation of initial concepts follows the process of “marking raw texts, then refining semantics, next creating nodes”, and the formation of initial categories follows the process of “semantic clustering of concepts, then thematic naming, finally integrating into parent nodes”(Charmaz & Smit, 2007). Both rely on NVivo 12 as a tool support and strictly adhere to the principles of “data-driven, context-compliant, and iterative verification”, ensuring that the coding results are highly consistent with the research topic and traceable (Glaser & Strauss, 2017).

4.4.6 Opening Coding Results

The results of open coding are presented in the following table, which includes four parts: initial category, initial concept, original statement, and respondent number.

Table 11 Open Coding Result

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
1	Member Rights	Freedom of Entry and Exit; Blurred Boundaries; Right to Vote	‘I feel like the reason our community is so vibrant and innovative is because of its openness. It's like we can join or leave anytime based on our interests, and that freedom to come and go is awesome. This way, we constantly get fresh ideas and perspectives, which enriches the community's knowledge and diversity of viewpoints.’ ‘We're not just passive recipients of information here. Each of us can be a creator and sharer of information, contributing to our thoughts and experiences, and that makes our community's knowledge base grow richer. This two-way interaction keeps the community evolving, and each of us can be a key player in shaping its development.’ ‘The community lets us vote, which is great. It means we can directly suggest ideas for products and services, and our feedback is valuable to the company. This voting system makes us feel like we're part of the community, that our voices are heard and can make a difference in its growth, and that feeling is truly fantastic.’	The interviewees believe that the three key concepts of “freedom of entry and exit,” “blurred boundaries,” and “right to vote” together form the cornerstone. They not only promote the free flow of information and the diversification of viewpoints but also provide community members with equal opportunities to participate in and influence decision-making. In such a community, every member has the chance to be an active participant and contributor, driving the community forward together. Based on the interviewees' statements, the researcher has coded the three initial concepts under the category “Member Rights”.	Respondent2; Respondent9; Respondent14;

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
2	Participation	Dependence; Democracy; Self-restraint; Self-responsibility; Self-management	‘In our community now, it feels like everyone has a bit of a dependency mindset. Maybe it's because we really trust this platform, or we think other members know more.’ ‘I believe it’s something each of us in the community must have. We can express ourselves freely and participate in decision-making, but we also need to realize that whatever we say or do will have an impact on ourselves and the community. So, we've got to keep ourselves in check, avoid saying the wrong things or doing harmful actions, and be responsible for our own behavior.’ ‘I think democracy is something especially important in the internet age. It means that each of us has an equal opportunity to participate in decision-making. In our community, this spirit is all about everyone being able to speak freely, join discussions, and vote, deciding together where our community is headed and what rules we should set. This kind of open and inclusive environment makes us more willing to get involved, but at the same time, it requires us to respect others' thoughts and rights when expressing our own opinions.’ ‘In online communities, we're not only responsible for our actions, but we also need to learn how to better manage the way we participate.’	The dependency mindset of community members in public affairs needs to be transformed into active participation and contribution. In the communities of the internet age, the principle of democracy requires that every member has an equal opportunity to participate, while self-restraint, self-responsibility, and self-management are important guarantees to ensure that this participation can proceed healthily and orderly.	Respondent6; Respondent17; Respondent24; Respondent39

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
3	Hierarchical Structure	Rank; Power tilt; Management authority; Complaint handling	‘In the operation and management of the community, we adopt a “rank” system. This system maintains community order and promotes effective management by defining different roles and levels of authority. The multi-tiered management structure of the community consists of moderators, administrators, probationary moderators, and regular users, each with its specific responsibilities and permissions.’ ‘The “power tilt” is a direct reflection of this rank system. In the community, members with higher ranks, such as administrators and senior moderators, possess greater management power and decision-making capabilities. They can review community content, delete inappropriate posts, and ban accounts that violate rules to ensure a healthy and orderly community environment. This power tilt not only facilitates quick responses and efficient handling of various issues but also recognizes and rewards members with more experience and greater contributions.’ ‘Management authority is the core function of the community management team. In addition to being responsible for daily content management and user behavior supervision, management personnel also provide guidance on the community's development direction and policy	The community's rank system, power tilt, management authority, and complaint handling together form an effective management system. Through this system, the community can ensure orderliness while safeguarding the rights and interests of members, which helps to improve the operational efficiency of the community. However, it may also lead to an excessive concentration of speaking power, causing the voices of junior members to be overlooked.	Respondent10; Respondent24; Respondent26; Respondent37

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			formulation. They have the right to interpret and enforce community rules and can take appropriate measures when necessary to protect the interests of community members and maintain community stability.' 'Complaint handling is a crucial part of community management, directly related to the rights and interests of members and the fairness of the community. When members encounter problems or dissatisfaction, they can report the situation to the management through the complaint mechanism. Management personnel need to carefully review and handle complaints fairly, ensuring that every voice is heard, and every issue is properly resolved. This process not only helps to resolve conflicts and disputes but also enhances members' trust and satisfaction with the community.'		
4	Content of Responsibility	Job Responsibilities; Collaboration; Content Operation; Resolution of Disputes	'I think community managers are important. Their job is not just about maintaining order, but also about promoting harmony and improving user experience. As the guardians of the community, managers need to have sharp insight and impartial judgment to ensure the healthy development of the community environment.' 'Collaboration is an essential part of community management. Managers need to work closely with other	Community managers take on multiple responsibilities within the community. Their work is not only related to the daily operations of the community but also directly impacts its long-term development and members' satisfaction. Through efficient collaboration, meticulous	Respondent24; Respondent25; Respondent26; Respondent40

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			members to push forward community affairs. This collaboration is not only with other managers but also with community members through communication and coordination. Through effective collaboration, we can better understand members' needs, solve problems, and enhance community cohesion. " "Content operation is at the core of a manager's work. We need to plan, publish, and maintain content based on the community's positioning and members' interests, organize online and offline activities, and promote community culture. Only through careful planning and management can we attract more users, increase community activity, and boost its influence.' 'Resolving disputes is an important task in community management. Managers must be fair and impartial when handling interpersonal conflicts and balance the interests of all parties. They need to improve community rules, deal with violations promptly, and reduce conflicts through mediation and communication to maintain community harmony and stability.'	planning of content operations, and impartial dispute resolution, managers can effectively promote the healthy development of the community.	
5	Legal Boundaries	Laws and Regulations, Legal	'The internet booming like crazy, online communities have become super popular places for people to chat, share stuff, and collaborate. Even though these communities are virtual,	The community's rules and policies must be based on the current laws and regulations, strictly adhere to	Respondent1; Respondent8; Respondent26;

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
		Boundaries, National Law	we got to follow real-world laws and regulations to keep things running smoothly and legally.' 'Talking about laws and regulations, they're the foundation for making community rules. Operators and managers need to make sure every rule lines up with national laws, like copyright law, privacy protection law, and anti-unfair competition law. These laws set clear boundaries for community operations, preventing activities from infringing on others' rights or messing up social order.' 'Legal boundaries are super important when making community rules. The rules need to be clear and specific—not too vague that they can't be enforced, and not too strict that they limit members' legitimate rights. Setting legal boundaries is all about balancing freedom and order in the community, allowing people to speak their minds and be creative while preventing the spread of illegal info and bad behavior.' 'National law is the ultimate guideline for community rules. No matter how big or small the community is, or how many members it has, national law always comes first. When making and enforcing rules, you have got to follow local laws and consider international laws, especially for communities that span across countries. Community rules	legal boundaries, and take national law as the highest standard. Only in this way can the community protect the rights and interests of its members.	Respondent29

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			must be in line with national law and can't break any rules.'		
6	Community System	Regulatory Provisions, Division of Powers, Standardized Clauses	'In community management, regulatory provisions are crucial. They keep the community running smoothly. A clear, fair, and transparent system helps everyone know what they can and should do, and it clarifies rights and obligations. The provisions need to spell out the community's structure, management processes, decision-making mechanisms, and other key issues. That way, every member knows their role and what actions they can take.' 'Talking about division of powers, this is a super important part of the regulatory provisions. In the community, moderators, administrators, and other managers need to have their powers divided based on their responsibilities and importance. For example, moderators handle day-to-day content management and user interactions, while administrators deal with more complex issues and set up community policies. Clear power division prevents abuse and makes decisions more democratic and transparent.' 'Standardized clauses are also a big deal. They guide everyone's behavior in the community. This includes the code of conduct for members, standards for posting content, and procedures for handling s. These clauses need to be	By establishing rational "Regulations Provisions", clear "division of powers", and specific "Standardized Clauses" the community can effectively manage and guide the behavior of its members, thus promoting the healthy development of the community. These management tools provide a framework and guidelines for the behavior of community members.	Respondent5; Respondent9; Respondent30

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			specific and easy to understand and follow. They should cover basic behavior requirements, penalties for violations, and mechanisms for resolving disputes and complaints. With these standardized clauses, the community can set up a fair and just management standard, so everyone can communicate and collaborate in an orderly and friendly environment.'		
7	Privacy Protection	Fraudulent Behavior; Information Protection; Spam Messages	'In online communities, scamming is super dangerous. It not only screws over the people who get impersonated but also ruins trust within the community. If members don't feel safe, they'll participate less. So, community managers need to act fast to protect everyone's property and information.' 'Information protection is super important in community management. Communities need to use good tech and management practices to prevent user information from being leaked or misused. For example, encrypting users' data, regularly updating security protocols, and giving extra protection to sensitive info. Communities also need to educate members regularly about safety, raise their awareness of online scams, and teach them how to spot and avoid scams.' 'Spam messages are a common trick used in online scams. Scammers send fraudulent messages to trick users into	Community managers should place great emphasis on the dangers of fraudulent behavior. By enhancing information protection and improving the ability to guard against spam messages, they can safeguard the security of community members and maintain the stability of the community. Through these measures, the community can provide users with a safer and more reliable online environment, thereby increasing user trust and satisfaction.	Respondent3; Respondent11; Respondent16

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			revealing personal information or clicking on malicious links. To cut down on spam, communities need to upgrade their algorithms to better identify and block these messages. Also, communities should set up effective complaints and feedback systems to encourage users to report suspicious messages. That way, they can act quickly to stop scams from spreading.'		
8	Content Regulation	Following the Rules; Information Accuracy; Content filtering	'In online communities, to keep the environment healthy, you have to make sure the info is real and the content is legal. The community needs to set up a clear set of rules so everyone knows what to do, and that way, the quality of the content can be maintained.' 'Talking about "following the rules" that's a basic requirement for community management. The community needs to spell out the rules and show people how to properly give feedback and post content. For example, the format of the content, the language used, and what kind of stuff can't be posted. Whether it's posting, commenting, or sending private messages, everyone needs to stick to these rules so the community stays orderly, and people can communicate well.' 'Information accuracy is at the heart of content management. The community encourages everyone to post real and	By following the rules, demanding information accuracy, and employing technical means of content filtering, the community can effectively enhance the quality of content and protect users' rights and interests.	Respondent4; Respondent7; Respondent24; Respondent27

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			valuable info, but no false or misleading stuff. For example, those posts with contact info about online business opportunities, part-time jobs, or lottery wins need to be strictly reviewed to make sure they're genuine and legal. Otherwise, users can easily get scammed.'		
			'Content filtering is an important part of community management. The community needs to use good algorithms and technology to automatically filter and review user-generated content, and quickly remove any bad stuff like violence, pornography, fraud, or personal attacks. The community can also set up keyword filters to automatically screen out sensitive words and prevent inappropriate content from spreading.'		
9	Technical Filtering	Identity Verification; Screening System; Automatic Blocking; Technical Review	'In online communities, making sure users are safe and content is complaint is super important. To get that done, the community operators have put in place a bunch of tech solutions and management strategies to boost the community's safety and reliability.' 'Identity verification is a crucial step to ensure users are who they say they are. By requiring users to link their phone numbers during registration, the community can better tell who's real and who's not. This not only protects users' info but also gives the community management reliable user	By implementing identity verification, utilizing a screening system, employing automatic blocking, and conducting technical review, the community can effectively enhance its security and management level. These measures collectively create a healthier, more positive, and safer online environment, providing users with a	Respondent1; Respondent9; Respondent10; Respondent15; Respondent24

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			data.' 'The screening system is a high-tech tool the community uses to filter out non-compliant content. The "online keyword screening system" in the community automatically scans user posts. If it finds any sensitive words or inappropriate info, it acts right away, like warning, deleting, or banning users. This helps keep the community clean and stops bad info from spreading.' 'The automatic blocking feature is cool too. By setting up rules and keyword libraries, the community can automatically block posts and comments that might be controversial or against the rules. This really improves management efficiency and reduces the need for human resources.' 'Technical review is also a must-have. Besides the automatic screening system, the community needs a professional tech team to review everything, making sure all content meets the standards and ethical guidelines. Technical review isn't just about checking posted content; it's also about monitoring user behavior and preventing and dealing with potential risks.'	reliable platform for communication and sharing. At the same time, they also help the community establish a good reputation and build user trust.	

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10	Principle of Fairness	Fairness and Justice; Maintaining Order and Discipline; Equality; Equitable Distribution	‘In online communities, if you want healthy development, "fairness and justice" are the foundation. Whether it's organizing activities or implementing projects, it must be based on this principle, so everyone can participate in an equal footing. Whether it's voting, competitions, or resource sharing, everyone should have equal opportunities and rights, without any discrimination or bias.’ ‘To make this happen, community managers need to "maintain order and discipline" by setting clear community rules and codes of conduct to guide people's behavior. These rules need to be fair and reasonable, protecting members' rights while also keeping the community atmosphere harmonious. At the same time, there needs to be an effective supervision and enforcement mechanism to make sure everyone follows the rules and any violations are corrected and dealt with promptly.’ ‘Equality is a basic right for community members to participate in activities and is also key to attracting and retaining members. The community needs to provide equal participation opportunities for all members, no matter their background, status, or contributions. This equality applies not only to activity participation but also to resource access and expressing opinions. Managers need to work hard to	By adhering to the principles of fairness and justice, maintaining order and discipline, ensuring equal participation opportunities, and implementing equitable distribution in resource management, the community can enhance its attractiveness and cohesion.	Respondent6; Respondent17; Respondent26; Respondent35

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			eliminate all kinds of inequalities so that everyone feels valued and respected.’ ‘Fair distribution is an important principle for community resource management. Resources in the community, like information, knowledge, opportunities, and rewards, should be distributed according to fair standards. This means the community needs to establish a just evaluation system and a transparent distribution mechanism to ensure that resource allocation is both reasonable and transparent. In this way, it can not only motivate members' enthusiasm and creativity but also enhance their sense of belonging and satisfaction.’		
11	Zero Tolerance	Serious Handling; Bearing the Consequences; Assuming Legal Responsibility.	‘In online communities, if someone posts or spreads harmful information, we must be tough and "take it seriously." Especially during public health events like the COVID-19 pandemic, any info that might cause panic, mislead people, or mess up epidemic control efforts needs to be spotted and stopped by community managers right away.’ ‘The community needs to make it clear to members that spreading false info, posting harmful videos, or creating panic not only breaks community rules but can also seriously affect social order. If someone does this, the community will act according to its internal regulations and the law. Penalties might include losing some or all permissions, like being	By seriously handling violations, clarifying the severity of bearing the consequences, and emphasizing the necessity of assuming legal responsibility, the community can effectively curb the spread of harmful information, protect the interests of its members and society, and serve as a constraint on its members.	Respondent2; Respondent8; Respondent25; Respondent27; Respondent39

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			banned from posting, commenting, or sending private messages; having your account suspended or deleted, depending on how bad it is; and if it's serious, the violator might face legal consequences.' 'Taking responsibility is something every community member needs to understand. While everyone enjoys the freedom to express themselves online, they also need to realize how their actions can impact others and society. The community isn't a place outside the law. Members need to follow the law, respect others' rights, and protect public interests when they speak up.' 'Facing legal responsibility is the most serious warning for illegal actions. If a member breaks the law, it's not just the community that will act; law enforcement will get involved too. This could mean civil compensation, administrative penalties, or even criminal liability. So, community members need to fully understand how serious the law is, follow it voluntarily, and help keep the online space clean and healthy.' 'By acting against violations, making members understand how serious the 'consequences' are, and emphasizing the need to "assuming legal responsibility," the community can effectively stop the spread of harmful information, protect		

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			members and society, and promote a healthy online environment. This is not just a constraint on community members but also a contribution to the entire online society.'		
12	Community Supervision	Supervision; Close Monitoring; Regulation	'In managing online communities, keeping an eye on things is something we have to do all the time. Admins and the ops team need to stay on top of activities and discussions to make sure everyone's communicate in a healthy and positive way. If someone breaks the rules—like spamming or misusing features—the community has to have zero tolerance. We got to act fast—canceling prizes, restricting activities, or even banning accounts if needed.' 'Staying closely tuned into the community is super important. Operators need to be on high alert, watching interactions between members to make sure everything is fair and transparent. We can't let anyone mess with the community's interests or violate others' rights. This means monitoring stuff like transactions, contests, and voting to ensure everyone's playing by the rules.' 'Regulation is key to keeping order in the community. We need a solid system in place—with clear rules, effective reporting mechanisms, and fair penalties. It's not just about obvious rule-breaking; we also must watch out for sneaky stuff happening behind virtual identities. Although virtual	By conducting effective supervision, close monitoring, and strict regulation, the community can promptly identify and address various violations, protect the legitimate rights and interests of community members, and uphold fairness and justice within the community.	Respondent3; Respondent22; Respondent26

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			interactions can be tricky—people might switch account names or use different identities to dodge regulation—we can still improve our game through tech solutions and user education.’		
13	Enhance Internal Control	Need for Integration, Sense of Responsibility, Sense of Ownership, Passive Response.	‘In managing online communities, admins aren't just rule enforcers; they're also the ones who shape the community's culture and atmosphere. To really communicate with community members and earn their trust and respect, admins need to be part of the community, not just some outside watchdog.’ ‘Responsibility is a must-have quality for admins. They need to be accountable for their actions, care for the members' well-being, and support the community's healthy development. This shows how seriously they handle community matters, whether it's posting notices, answering members' questions, or resolving disputes. Admins can't just “react after the fact”; they need to take the initiative.’ ‘A sense of ownership is another important mindset admins should develop. They need to see themselves as the community's owners and actively get involved in its growth, not just stand by and watch. This mindset can spark their enthusiasm and creativity, pushing them to find solutions instead of waiting for problems to go away on their own.’	Administrators should integrate themselves into the community, exercise a sense of responsibility and ownership, and avoid a passive response attitude. By actively and proactively engaging in community management, they can effectively maintain community order and earn the respect and support of community members.	Respondent7; Respondent20; Respondent25; Respondent39

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			‘In community management, reacting passively can make problems worse. Admins need to set up a system to proactively identify and solve issues, dealing with complaints and reports promptly instead of waiting until they can't be ignored. This requires not just familiarity with community rules and culture but also good communication skills and the ability to handle crises.’		
14	Reward	Points Redemption; Reward Measures; Material Rewards; Application for Moderator	‘The development and liveliness of an online community really depend on user participation and contributions. To get people more involved in community activities, the points exchange system is super useful. Users can earn points by doing everyday stuff in the community, like posting, replying, or sharing. These points can be used to get real products or services from the community store, and they also boost users' status and influence within the community.’ ‘Reward measures are a keyway for community managers to motivate users. By setting up rewards like points and honor badges, the community can not only recognize users' good work but also make them feel more connected and accomplished. These rewards can be short-term, like for a specific event, or long-term, like a user ranking system, to encourage ongoing participation in building the community.’	By implementing points of redemption, reward measures, material rewards, and providing opportunities to apply for moderator positions, the community can effectively motivate user participation and contribution. These mechanisms can enhance user satisfaction and loyalty and attract more new users to join.	Respondent6; Respondent11; Respondent23; Respondent30

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			‘Material rewards are a direct way to get users more involved in community activities. Besides virtual honors and recognition, the community can also give out physical prizes, like electronics, books, or coupons. These kinds of rewards can really fire up users' enthusiasm and get them to join in community discussions and activities more often, which in turn makes the whole community livelier.’ ‘Applying to be a moderator gives users an even higher level of participation. Outstanding users can not only show their worth through points and rewards but also apply to become moderators and directly take part in managing and developing the community. This not only provides a platform for users to showcase their abilities and contributions but also brings fresh energy and management power to the community.’		
15	Extra Privileges	Enjoy Privileges, New Product Testing	‘In online communities, having privileges is a way to recognize and reward user loyalty and contributions. By giving certain users privileges, the community can make them more satisfied and give them a stronger sense of belonging. This also gets them more involved, which in turn boosts the community's cohesion and vitality.’ ‘Especially for moderators, who are a special group, the community usually gives them extra rights and respect.	By offering the opportunities of “Enjoying Privileges” and “New Product Testing”, the community can not only reward and motivate users but also enhance interaction and communication with them. These measures provide users with a richer and more valuable	Respondent9; Respondent25; Respondent39

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			According to the moderator management regulations, not only do current moderators get privileges like management authority and decision-making involvement, but even former moderators can still enjoy some benefits, like priority in community activities or getting exclusive badges. This kind of recognition for the moderator role helps keep a stable and active moderator team and attracts more people to get involved in community management.' 'New product testing is another type of privilege. It lets some users experience and test products before they're officially released. This way, users can get a first look at the latest features and services and provide valuable feedback for product improvements. For users, it's a unique experience and an honor. For the community and developers, it serves as an effective way to do market research and quality control.'	experience. At the same time, this also helps the community collect user feedback to continuously optimize products and services, thereby improving its competitiveness.	
16	Role Models of Success	Part-time Moderators, Honor, Motivational Effects	'In online communities, being a part-time moderator is kind of a special role. It not only helps with community management and operations but also gives regular members a chance to show what they can do and contribute. For members with high ranks, becoming a part-time moderator is like a thumbs-up for their long-term active participation—it's a real motivator and makes them feel valued.'	By offering high-ranking members the opportunity to become "Part-time Moderators," the community can not only strengthen management and operations but also effectively leverage "honor" and "motivational effects." This	Respondent25; Respondent26; Respondent39

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			‘Becoming a part-time moderator is a pretty big deal and feels like an honor. It shows that the community trusts and respects you. This kind of recognition not only boosts your status in the community but also gives you more influence. When other members see someone, they look up to become a part-time moderator, it inspires them to get more involved and contribute more, hoping to earn similar recognition and honor.’ ‘Motivation is super important in community management. By offering the chance to become part-time moderators, the community can really get members fired up and creative, encouraging them to take a more active role in building and developing the community. This motivation comes not only from the honor of being a moderator but also from recognizing members' contributions, helping them grow personally, and spreading the community's culture and values.’	encourages active participation of community members and the development of community culture. This mechanism helps create a virtuous cycle, where community members gain recognition through active contributions, and this recognition, in turn, motivates more members to participate in the community.	
17	Reputation Evaluation	Points Advantages, Community Recognition, Credit Accumulation	‘In online communities, mechanisms like points of advantage, community recognition, and credit accumulation are super important. They not only motivate people to interact more but also help maintain a good order and trust within the community.’ ‘Points advantage is usually linked to how active and	In online communities, reputation evaluation is a comprehensive measure of a member's influence and contribution. It is typically based on the member's behavior, content quality, interaction	Respondent4; Respondent8; Respondent31

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			contributing members are. If you join discussions, share useful stuff, or help answer others' questions, you earn points. These points can boost your ranking and visibility in the community and even let you join special activities or enjoy certain perks. Members with more points tend to get more attention and trust, which helps them build a wider social network.' 'Community recognition is another important measure of your status and influence in the community. If you perform well and actively contribute to the community, your activity level and reputation naturally go up. Members with high recognition are often seen as opinion leaders or experts, and their views are more likely to be accepted by others. This kind of recognition not only gives people a sense of achievement but also encourages them to keep contributing to the community.' 'Credit accumulation is the trustworthiness that members build through consistent good behavior over time. This trust is the foundation of relationships in the community. For new members who haven't built enough credit, the community might limit their ability to start activities or participate in some sensitive operations. These restrictions protect the community from potential harm and motivate new members	frequency, and recognition from other community members. Members with a high reputation are often regarded as the core figures of the community. Their opinions and suggestions are given more weight and can have a positive impact on the development of the community.	

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			to get involved and build up their credit.'		
18	Sense of Achievement	Excitement; Praise; Ranking	'In online communities, how much users participate and contribute is related to the feedback and recognition they get. When users' efforts are recognized by the community, that positive feedback can really motivate them and give them more enthusiasm and drive.' 'Talking about excitement, that's a natural reaction when users get positive feedback in the community. For example, when their posts are highlighted or they get lots of likes and positive comments, they feel like their hard work has paid off. This sense of achievement and recognition makes them more excited to join community activities. This excitement not only affirms their personal achievements but also strengthens their sense of belonging and participation in the community.' 'Praise is an important way to motivate people in the community. The community uses things like highlighting posts, liking, and commenting to show appreciation for users' contributions and make them feel valued and influential. This kind of praise not only encourages users to keep creating and sharing quality content but is also part of the community culture, promoting mutual respect and	By leveraging the emotional experience of "excitement", the positive feedback of "praise", and the motivational mechanism of "ranking", online communities can effectively stimulate users' enthusiasm for participation. This not only enriches and diversifies the content within the community but also enhances users' sense of belonging and fulfillment.	Respondent19; Respondent20; Respondent27

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			support among members.’ ‘Ranking levels are a way for the community to measure how active and contributive users are. The higher the user's rank, the more active and contributive they are in the community. High-ranking users not only get more respect and recognition but also enjoy special perks, like access to exclusive testing activities. This ranking system motivates users to keep participating in community building and to keep improving their status.’		
19	Authoritative Certification	User Authority, Reputation, Representation, Tilt in Speaking Chance	‘In online communities, user authority is super important—it measures how influential and trustworthy someone is. If you see a ‘V’ badge next to a member's name, that means they've gone through the community's strict review and are recognized as experts or people who've made significant contributions. This kind of certification not only makes them more authoritative in the eyes of regular users but also shows that they have a good reputation in the community.’ ‘We first set authority boundaries, then use technical filtering, and handle violations strictly, this authority and reputation aren't set in stone. If a certified user does something shady, like spreading false info, attacking others, or doing anything that harms the community's reputation, the community must act. This could include warnings, limit	User authority, reputation representation, and tilt in speaking chance collectively influence the behavior and interaction patterns of community members. On the one hand, the community can cultivate a group of influential and active users. On the other hand, it may also lead to inequality in speaking power.	Respondent24; Respondent26; Respondent30

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			their permissions, or even revoke their certification. It's all about maintaining the community's standards and integrity, making sure people's actions match their certified status, and protecting the community's overall interests.' 'As the community grows and interactions increase, you'll start to see a tilt in speaking power. Members who actively participate, share high-quality content, and help others tend to earn more respect and trust. Their opinions are more likely to be accepted, so they have more influence in the community. This tilt in speaking power is a recognition of members' contributions and is part of the community's incentive mechanism, encouraging everyone to keep contributing positively.'		
20	Resource Sharing	Openness; Sharing; Design Themes	'The core of community culture is all about being open. In an open community, everyone can freely exchange ideas, share knowledge, and experiences. Whether you're a newbie or a seasoned user, you can find your place and keep growing. This openness also means the community embraces different viewpoints and innovative ideas, and that kind of atmosphere attracts more talent to join and help move the community forward.' 'Sharing is what makes the community lively. Tech experts sharing their experience with rooting phones, designing	By emphasizing the spirit of "openness", encouraging a culture of "sharing", and supporting innovation in "design themes," online communities can establish an environment that is vibrant, knowledge-rich, and full of creativity. Such communities are not only able to attract and retain users but also stand out in the	Respondent13; Respondent17; Respondent29

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			themes, or other professional knowledge not only help other members solve problems but also promote knowledge sharing and technical progress within the community. Sharing can also strengthen connections between members and boost the community's overall technical level and creativity.' 'Design themes are a big part of showing off creativity and personal style in the community. Members design unique themes, interfaces, or features to showcase their creativity and taste. These designs not only enrich the community's content but also enhance the user experience. Activities around designing themes can also get members more involved and make the community culture more diverse and unique.'	highly competitive cyberspace, becoming a trusted and beloved platform for communication.	
21	Norms of Reciprocity	Duty to Reciprocate, Mutual Benefit, Willingness to Help	'In online communities, interactions aren't just simple transactions. They're built on a culture of giving back, mutual benefit, and being helpful. This kind of culture not only makes the community more harmonious but also strengthens connections and trust between members.' 'Take the obligation to give back, for example. When you receive help or resources from others, you feel like you should return the favor. This drives people to share their own experiences and skills after getting knowledge or help. For	The principles and attitudes of "duty to reciprocate", "mutual benefit", and "willingness to help" collectively form the foundation of healthy interactions among community members. Through these mechanisms, the community can maintain and develop its internal network of mutual	Respondent11; Respondent15; Respondent23; Respondent34

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			instance, when a brand offers a free trial of a new product, members are happy to write reviews and share their real thoughts. This helps the brand improve the product and gives other members useful references.' 'And then there's mutual benefit, which is a basic principle in how community members interact. By helping each other, sharing ideas, and solving problems together, everyone grows. This builds a support network where everyone can get help when they need it and help others when they can. This kind of interaction not only boosts the community's cohesion but also increases members' satisfaction and loyalty.' 'And let's not forget to be helpful. This attitude is super popular in the community. Members who are always ready to help others usually earn respect and recognition. By selflessly sharing their knowledge and experience, they help solve problems and build a good reputation in the community. This not only addresses specific issues but also encourages more people to join in and help others, creating a positive and uplifting community atmosphere.'	assistance and also attract more members to join.	
22	Gain Recognition	Valued; Gaining Attention;	'In online communities, everyone wants to be recognized and valued for their contributions. The community managers and operations team need to create an environment where	By making members feel that their contributions are valued, ensuring that their efforts gain attention, and	Respondent10; Respondent20; Respondent28;

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
		Being Pinned; Not Remaining Obscure	people feel like their voices are heard and their efforts are rewarded.' 'To make this happen, the community can do a lot to boost members' participation and visibility. For example, picking active members to be intern moderators or main moderators. This not only gives them valuable management experience but also makes them feel important in the community. These kinds of efforts show members that their opinions and suggestions are valued and that their hard work isn't going unnoticed.' 'Being pinned makes me feel valued, like this is my community, when someone's post or suggestion gets pinned to the top, it's not just a recognition of their content quality but also a huge motivator. Pinned content gets more exposure and attention, which encourages them to keep creating great stuff. It also sends a message to other members that if their content is valuable, the community will support and highlight it.' 'Getting attention is a basic need for community members when they interact. People post, discuss, or help because they want to be noticed. The community can use recommendation systems or trending topics to give quality content and active members more exposure. This kind of	by pinning their content to highlight its value, the community can effectively stimulate members' enthusiasm for participation and enhance their sense of belonging and fulfillment. Such an environment is conducive to the personal growth and development of members.	Respondent35

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			attention not only satisfies members' sense of achievement but also promotes more interaction and collaboration within the community.'		
23	Joint Construction	Community of Shared Interests, Win-Win Cooperation, Common Development	'The idea of a community of shared interests is really about everyone having common goals. Whether you're an admin, a moderator, or just a regular member, you have got to realize that only by working together and pulling in the same direction can the community thrive, and everyone get the most out of it. This kind of understanding helps cut down on internal conflicts and brings everyone closer together.' 'Win-win cooperation is a key strategy for community growth. It encourages members to work together, share resources, swap info, and support each other to reach common goals. In the process, everyone grows and benefits. This kind of positive interaction not only builds a positive community culture but also attracts more external resources and partners.' 'Common development is what the community is ultimately aiming for. In this journey, the community focuses not only on its own growth but also on the personal development of its members. By providing learning resources, creating opportunities, and encouraging innovation, the community can help members enhance their skills, broaden their	By coordinating the interests of all parties and establishing a community of shared interests, the community can achieve the goal of win-win cooperation and further promote common development. This model of joint construction and shared benefits not only enhances the community's cohesion and competitiveness but also promotes the personal growth and value realization of community members.	Respondent19; Respondent24; Respondent36; Respondent37

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			horizons, and realize their personal value. In return, members' growth brings fresh ideas and energy back to the community, pushing it to reach higher levels.'		
24	Integration of Values	Consultative Resolution, Conflict of Needs, Personality Traits, Diverse Values	'In online communities, working things out through negotiation is an effective way to handle conflicts. After all, members come from all walks of life, with different personalities and a whole range of values. So, when everyone gets together to solve problems, you got to take everyone's opinions and needs into account.' 'Conflicting needs are common in communities, especially those big ones with lots of different viewpoints. For example, some members might want the community to focus on certain themes or activities, while others want a more open space for discussion. In cases like this, admins need to be democratic and inclusive and find solutions that balance everyone's interests through negotiation.' 'The personality of a community is interesting. It's the unique character and vibe that the community shows, usually shaped by the common behaviors and values of its members. For example, a community focused on tech innovation might develop a personality that encourages exploration and experimentation, while one centered on lifestyle sharing might feel more laid-back and casual.'	By resolving conflicts through consultation, respecting and understanding members' personality traits, and embracing diverse values, such an environment is conducive to addressing internal issues and contradictions within the community.	Respondent6; Respondent15; Respondent21; Respondent34

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			‘With all these diverse values, communities need to respect and accept different viewpoints and lifestyles. Without a single belief system, members can freely express their thoughts without worrying about being excluded. This kind of diversity is what gives communities their energy and creativity, and it's also a big reason why they attract such a wide range of people.’		
25	Emotional Investment	Emotional Experience, Emotional Interaction, Emotional Needs	‘In online communities, how people feel really matters. It’s what keeps them coming back and makes them stick around. People aren’t just looking for information or cool features—they want real, deep emotional connections. When a community can offer that kind of emotional experience, it becomes more than just a place to chat or make deals. It becomes a warm, welcoming home where people’s emotional needs are met.’ ‘Emotional interactions are the glue that holds a community together. When people share their personal stories, swap experiences, and help each other out, they build strong emotional bonds. It’s not just about positive stuff, though. It’s also about understanding and respecting different viewpoints. In a community like that, everyone feels accepted and valued. That makes them way more likely to open and share their thoughts and feelings.’	For community operators, understanding and meeting users' emotional experiences, emotional interactions, and emotional needs are crucial. By creating a warm, inclusive, and supportive community environment, the community can not only attract and retain users but also encourage their active participation and long-term loyalty. This emotionally centered community culture will ultimately become a key factor in the community's success.	Respondent1; Respondent20; Respondent32;

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			‘Emotional needs are a huge reason why people get involved in community activities. These days, people care a lot more about how a product or service makes them feel. In a community, people aren’t just shopping—they’re looking for emotional fulfillment and a sense of belonging. So, the community needs to offer activities and content that really resonate with people, making them feel like they belong, are respected, and can achieve something meaningful.’		
26	Inclusivity	Out-of-the-box, Community Character, Allowing mistakes	‘In online communities, it’s super important to encourage creativity and free expression. If the community can create an open and inclusive environment, it’ll bring out people’s creativity and imagination, making the content in the community way more diverse and interesting.’ ‘The community really encourages this “out-of-the-box” way of thinking. It shows how much the community values innovation and unique ideas. In this kind of culture, people are encouraged to come up with all sorts of new ideas, even if they sound a bit weird or ahead of their time. This kind of culture not only attracts people who love to innovate but also inspires existing members to explore more and challenge the status quo.’ ‘One of the cool things about the community is that it allows mistakes. Here, you don’t have to worry about messing up.’	By encouraging “out-of-the-box” thinking, shaping a unique community character, and creating an environment that Allows mistakes, an inclusive environment can effectively stimulate members' creativity and enthusiasm for participation.	Respondent5; Respondent18; Respondent22; Respondent31

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			People are more willing to try and explore because they know it's okay to make mistakes. The community encourages everyone to ask questions and experiment, even if they might slip along the way. This kind of attitude creates a positive learning environment where everyone can share ideas and grow together.' 'Allowing mistakes is a big part of the community's culture. It sends a message that making mistakes isn't a sign of failure but an opportunity to learn and grow. By creating this kind of environment, the community helps people see failure in a positive light and stay optimistic when facing challenges. This kind of culture not only boosts people's confidence and problem-solving skills but also promotes mutual support and collaboration within the community.'		
27	Community Support	Brand Support, Active Participation, Proactive Feedback	'Brand support is basically the trust community members have in the community and the brand. When people are willing to share their experiences and talk about the brand in the community, it not only boosts the brand's image but also gives other members something real to trust. This kind of support can show up in lots of ways, like writing product reviews, joining brand activities, or recommending the brand to friends. It makes the community more united and helps the brand get more loyal users and potential	Brand support, active participation, and proactive feedback together form the cornerstone of a community's healthy development. Through the organic combination of these three elements, the community can not only establish a positive, active, and mutually supportive atmosphere but also	Respondent2; Respondent3; Respondent10;

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			customers.' 'Active participation is what keeps the community lively. Enthusiastic users who join discussions, contests, and votes make the community more interesting and bring members closer together. This kind of involvement makes people feel like they're a big part of the community, and their opinions and suggestions get more attention, which makes them even more involved and satisfied.' 'Proactive feedback is what keeps the community improving. When users offer suggestions, they help the community and the brand find problems, improve services, and make better products. Feedback can be about improving existing features or what people are hoping for in new products. The community and brand should encourage feedback and take it seriously. Responding to users' suggestions in a timely way not only improves the user experience but also builds stronger loyalty to the brand.'	engage in a virtuous interaction with the brand, jointly driving the continuous optimization and innovation of products and services. This interactive and cooperative model will ultimately bring long-term success and prosperity to both the community and the brand.	
28	Interaction	Following, Direct Replies, Socializing	'First off, following is the first step for people to connect to the community. By following others, you can see their updates and shares right away, like rooting experiences or product reviews. This following relationship helps everyone build a tight info network, making interactions more frequent and closer. Following also shows what people are	Following, Direct replies, and Socializing are indispensable elements in online communities. Together, they form the foundation of community interaction, promoting the healthy development	Respondent4; Respondent11; Respondent25; Respondent34

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			interested in or who they trust, and it helps create experts and opinion leaders in the community.' 'Direct replies are super important in community interactions. They show how much the community cares about members' questions and feedback. When product, tech, and customer service teams reply directly to questions every day, it not only clears people's doubts but also builds trust between members and the community or brand. This kind of timely communication improves service quality and makes people feel valued.' 'Socializing is one of the core functions of a community. A community isn't just a place to share info; it's a place to socialize. Here, members can make friends who share their interests, join discussions, and participate in activities together. Social features bring the community to life and make members want to spend more time interacting. Through socializing, people can build lasting relationships and create a strong community culture and sense of belonging.'	of the community, and fostering close connections among members. Through these behaviors, the community can continuously attract new members, maintain its activity level, and ultimately become a vibrant and valuable platform for communication.	
29	Cultural Identification	Stimulating Interest; Cultural Identity; Brand Culture	'Getting people interested is the key to keeping community members active. If the community can offer content and discussions that match what people are into, they're way more likely to join in. Stuff like technology, product	By stimulating interest to attract members' participation, establishing cultural identification to enhance connections among members, and	Respondent7; Respondent17; Respondent29;

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			features, or usage tips—these common interests can spark lively debates and deep conversations. By keeping members interested, the community stays attractive and gets people to keep coming back.’ ‘Cultural identity builds emotional connections between community members. Community culture forms when everyone agrees on certain values and codes of conduct. Take the Xiaomi community, for example. People there identify with Xiaomi’s core values—focus, excellence, reputation, and speed. This cultural identity makes members feel like they’re part of the community and strengthens their loyalty to the brand and sense of belonging.’ ‘Brand culture is a big part of community culture, and it directly shapes the community’s vibe and direction. A strong brand culture can guide members’ behavior and shape the community’s image. In the My Huawei community, I share brand culture and test new phones because I feel it is ‘our community. The brand culture isn’t just in the products and services; it’s also in how the community is run and managed. Through various activities and interactions, the community helps members experience the charm of the brand culture and deepen their understanding and identification with the brand.’	reinforcing brand culture to shape the community's image, online communities can effectively increase members' activity levels and loyalty, promoting healthy community development. This approach to community building, centered on interest, identification, and culture, will ultimately make the community a vibrant and attractive platform for communication.	

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30	Cohesion	Team Cohesion; Decision-Making Conflicts; Community Formation	‘Team cohesion is all about trust, support, and cooperation among team members. When a team has strong cohesion, they can collaborate super effectively and tackle all kinds of challenges in community management. If conflicts pop up during decision-making because of different backgrounds, effective communication and coordination are key to resolving those differences, keeping the team's goals aligned, and making sure decisions get carried out smoothly. Strong cohesion boosts management efficiency and sets a good example for community members.’ ‘Decision conflicts are common in teams, especially diverse ones. These conflicts might come from differing opinions, values, or resource allocation. Community managers need to be inclusive and open-minded, encouraging everyone to speak their minds and then finding the best solutions through negotiation and compromise. Handling these conflicts well not only keeps the team harmonious but also drives community innovation and development.’ ‘Formatting a community is a gradual process that takes time and effort to develop connections among members and a unique community culture. Take smartphones for example, because they’re so interactive, it’s easy to build a lively community around them. Through continuous interaction	By strengthening team cohesion, properly addressing decision-making conflicts, and continuously promoting community formation, online communities can establish a stable, harmonious, and highly attractive environment. Such a community not only provides support and assistance to its members but also fosters friendships and cooperation among them.	Respondent9; Respondent18; Respondent33;

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			with global users, the community can attract passionate fans and develop its own culture and values. In a big family like the My Huawei community, members feel a sense of belonging and warmth, which is a key source of community cohesion and the foundation for long-term growth.'		
31	Sense of Belonging	Sense of Security; Mutual Affirmation; Respect; Internal Recognition	'In online communities, a sense of security is super important! It gives everyone a space where they can speak their minds and interact freely. Because it's a virtual community, people's identities are somewhat protected, so they don't have to worry about the awkward stuff or risks of real life. This security makes people more willing to open, share their thoughts and experiences, and gradually build trust and friendships within the community.' 'Mutual affirmation is key to building connections among community members. When enthusiasts share their insights and experiences in the community, they not only get feedback and support from others but also feel that their value and contributions are recognized. This process strengthens the bonds between members and makes everyone feel like an essential part of the community.' 'Respect is one of the basic rules in community culture. In the community, everyone's views and contributions should be respected, no matter their experience, knowledge, or	By providing a sense of security, promoting mutual affirmation, upholding respect, and strengthening internal recognition, online communities can effectively enhance members' sense of belonging and identification.	Respondent2; Respondent10; Respondent22; Respondent30

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			status. By respecting each other, the community creates an equal and inclusive environment where everyone can express themselves freely without fear of being belittled or ignored. I feel ‘this is our community and we all want it to be better’ ‘Internal recognition is super important for enhancing members’ sense of belonging and community cohesion. When members’ actions and contributions are recognized by others, they feel that their efforts are rewarded, and this recognition motivates them to keep contributing to the community. Internal recognition isn’t just about words; it’s also shown through the community’s actions and policy support.’		
32	Communication	Timely Notification; Announcements; Listening to feedback	‘If there are any important changes or events in the community, the admins need to let everyone know quickly and clearly. It’s not just about posting a simple notice; the information needs to be complete and easy to understand. For example, if the community rules are changed or new features are being added, the admins should explain in detail why the changes are happening, what the impacts are, and what actions members might need to take. This kind of timely and transparent communication helps reduce misunderstandings and uncertainties and makes members	By timely informing members of changes and significant events, issuing substantive announcements, and sincerely listening to feedback, online communities can establish an efficient, interactive, and user-centered communication mechanism. This mechanism not only helps enhance the community's transparency and	Respondent24; Respondent39; Respondent40;

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			feel respected and valued.' 'Announcements are a common way for community management to communicate, share community news, updates, events, and important information. But effective announcements aren't just about one-way information delivery; they're also a great opportunity for admins to interact with members. Through announcements, admins can collect feedback and suggestions from members, making members feel heard and that their opinions matter for the community's development.' 'Listening to feedback is super important for community development. Community admins should actively collect and consider members' opinions and suggestions, whether through formal surveys or everyday discussions and feedback. In all stages of product research, development, testing, and after-sales service, members should be encouraged to participate and become partners in the community's development. This sense of participation not only boosts members' satisfaction but also brings valuable user insights and innovative ideas to the community.'	trustworthiness but also promotes continuous improvement and innovation within the community, ultimately leading to the joint growth of the community and its members.	
33	Community Relationships	Relationship Capital; Offline	'In online communities, relationship capital is like an invisible treasure. It shows the trust and connections built between admins and users. This kind of relationship not only	By actively building and maintaining relationship capital, encouraging the establishment of	Respondent10; Respondent20; Respondent28;

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		Connections; Interpersonal Relationships; Cooperative Relationships	gives admins more say and influence but also lays a solid foundation for the community's stability and growth. Good relationship capital makes information flow smoother, enhances interactions among members, and boosts community cohesion.' 'Offline connections are a key part of developing relationships among community members. Through private messages or other social platforms, members can bypass the usual community communication paths and build more private and personalized connections. This kind of offline interaction often deepens understanding and friendship among members, forming tighter cooperative relationships in the community. Establishing offline connections helps extend virtual community interactions into real life, enhancing members' sense of belonging and the community's authenticity.' 'Interpersonal relationships are super important in online communities. Good relationships not only promote knowledge sharing and experience exchange but also provide support and help when facing problems and challenges. A healthy network of relationships can reduce conflicts, improve cooperation efficiency, and make the community a warm and harmonious place for	offline connections, strengthening the exchange of interpersonal relationships, and promoting the development of cooperative relationships, online communities can effectively enhance their attractiveness and activity levels, achieving joint growth and success with their members. This people-oriented community management philosophy will ultimately make the community a vibrant and cooperative social space.	Respondent35

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			communication.’ ‘Building cooperative relationships is a key goal for online communities. When members have strong relationships, they’re more willing to collaborate, solve problems together, and create new values. The community can organize online and offline activities to provide platforms and opportunities for cooperation, encouraging members to work together. This kind of cooperation not only helps with community innovation and growth but also increases members’ sense of participation and satisfaction.’		
34	Identity Recognition	Identity Reconstruction; Internet Identity; Online ID; Integration of Virtual and Real	‘In this internet age, personal identity reconstruction is a phenomenon you can't ignore. With more online activities, how people present themselves online is often different from their traditional social selves. This reconstruction isn't just about changing appearances; it's more about shifting roles and self-perceptions. Online, people can choose different roles and identities based on their interests and needs to express themselves.’ ‘Your internet identity is basically your label in the online world. Compared to your real-world social identity, it's way more flexible and changeable, and you can adjust it based on different situations and goals. You can have multiple roles online, like being a gamer, blogger, or a forum moderator.	Identity reconstruction, internet identity, online ID, and integration of virtual and real together form identity recognition. These elements help users acquire new identities and roles within online communities, thereby generating more complex trust and dependence on the community.	Respondent4; Respondent7; Respondent15; Respondent16

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			These roles together form your internet identity and show different functions on different platforms.' 'Your online ID is your first mark in cyberspace. It's not just a login credential but also the foundation for building connections and interactions in online communities. Over time, as users interact, reply, and share, they gradually build up their reputation and influence. This ID transforms from a simple symbol into a network identity with specific personality traits and social value.' 'Integration virtual and real describes the interaction and integration between online and real-life identities. In online communities, people don't just use text and pictures to show themselves; they also use videos and live streams for face-to-face interactions. This direct interaction makes online identities more real and specific and makes online social activities livelier and more intimate. At the same time, online interactions and experiences also influence people's real-life behaviors and perceptions, achieving an organic combination of online and offline identities.'		
35	Unwritten Rules	Rumors, Unwritten Rules, Flexible Rules	'In online communities, people often pass around rumors and gossip to share info and form their opinions. Even though these messages might not be officially confirmed, they can create a kind of hidden agreement among members.	The rules and behavioral standards within a community are often diverse and complex, and the actions of community managers can	Respondent12; Respondent27; Respondent33;

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			For example, rumors between friends can shape new members' first impressions of a particular section, which then affects how they behave and interact.' 'Unwritten rules are interesting. These are informal norms that community members develop over time through interactions. Even though they're not officially written down, everyone just follows them. For example, some communities have a silent agreement not to rush content creators. People don't pressure authors to update content, which creates a more relaxed and friendly environment for creation. This kind of understanding helps maintain a harmonious atmosphere and promotes mutual respect among members.' 'Flexible rules are a big part of community management. Community rules aren't always set in stone; sometimes they need to be adjusted based on specific situations and members' reactions. When enforcing rules, managers might show different levels of tolerance and flexibility based on members' behavior and attitudes, as well as the overall interests of the community. This kind of flexibility helps the community adapt better to changes and meet members' needs more effectively.'	be interpreted in different ways by different members. Therefore, community managers need to possess a high degree of sensitivity and judgment to ensure that their actions are recognized and supported by the majority of members. At the same time, the community also needs to establish effective communication channels, allowing members to express their opinions and suggestions and to participate together in the formulation and improvement of community rules.	

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36	Community Culture	Cultural Information; Community Philosophy; Cultural Isolation; Cultural Boundary	‘In the community, when people chat and interact, they share all sorts of knowledge and values. We call this "cultural information". In tech communities, sharing stuff like rooting experiences and bug info isn't just about passing info—it's part of what makes the community unique. This kind of cultural information, focused on tech discussions and product improvements, helps everyone learn from each other, grow together, and really brings the community closer.’ ‘The “community philosophy” is the core value that everyone in the community believes in and pursues. For example, in the Xiaomi community, the values of "focus, excellence, reputation, and speed" aren't just slogans for the brand—they're the guidelines and values that community members live by. Spreading and practicing these values gives everyone a common goal and action plan, which really helps the community stay stable and grow.’ ‘Cultural isolation is a kind of self-protection mechanism that communities develop over time. By using specific "language," symbols, and behaviors, the community can tell who's an insider and who's not, keeping its uniqueness and purity. This kind of isolation helps members feel like they belong and be proud of their community, while also being	The dissemination of cultural information, the practice of community philosophy, the establishment of cultural isolation, and the demarcation of cultural boundaries together constitute the foundation of community culture. Through the interplay of these cultural elements, the community can not only maintain its uniqueness and vitality but also attract and retain like-minded members.	Respondent3; Respondent6; Respondent14; Respondent15

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			cautious and selective about outside influences.’ ‘Cultural boundaries are the limits of the community's cultural reach and influence. Members define the community's characteristics and set its boundaries through different focuses and activities. These boundaries help members recognize and preserve their unique culture, and they also give the community direction and scope for development.’		
37	Collectivism	Unified action; Collective living; Anti-individualism; Collective behavior	‘In online communities, if everyone doesn't pull together, the community just won't have that spark. You have to have everyone working toward the same goal to really make things happen. Whether it's online events or offline meetups, these activities bring people closer and show the community's real power.’ ‘Collective living is all about that feeling of everyone being in it together hanging out, doing stuff as a group. When people chat and interact regularly, they naturally build bonds and memories. If the community organizes more activities—like online chats, offline dinners, or group projects—that sense of togetherness really comes alive. It makes people feel like they belong and helps them support each other when needed.’ ‘Individualism has its place in the community, like when	By fostering unified action and collective living, the community can promote close connections and joint participation among its members. Meanwhile, psychological identification with the concept of collectivity ultimately leads to the outcome of collectivism.	Respondent20; Respondent23; Respondent35; Respondent38

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			people chase their own goals or show off their unique styles. But if it gets too extreme, it can mess up with the community's overall interests. So, the community needs to balance encouraging personal growth with teaching everyone the importance of collectivism—basically, looking out for the community's bigger picture and long-term goals.’ ‘Collective behavior is a huge part of community culture. When people cooperate and grow together, the community thrives. With this kind of teamwork, people are way more willing to contribute, solve problems, and face challenges as a group. It naturally builds up the community's team spirit and ability to work together.’		
38	Common Practice	Solidarity; Self - help Spirit; Pairing New and Experienced Members	‘In online communities, how people behave and their attitudes really shape the culture and vibe. For example, when someone in the community faces a challenge or unfairness, members will jump right in to support and help them without hesitation. This kind of unwavering support not only shows the community’s unity and sense of justice but also inspires more people to join in and stand up for fairness and justice together.’ ‘The spirit of self-reliance is also super important in the community. It encourages people to solve problems on their own instead of waiting for help. This spirit pushes everyone	In the daily operations and special events of the community, the spirit of unwavering support and the strategy of pairing the experienced with the new members are both crucial. Together, they form the core of the community's culture, guiding the behavior and interactions of its members. By cultivating this spirit and implementing this strategy, the	Respondent16; Respondent24; Respondent33;

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			to learn actively and explore on their own, like looking up info and sharing experiences to build their skills. Fostering this spirit not only makes members more independent and confident but also takes some pressure off the management team and helps use community resources more efficiently.’ ‘Pairing new and experienced members is an effective strategy in community activities and teamwork. Matching seasoned members with newcomers helps the new folks integrate quickly and passes on valuable knowledge and experience. Experienced members can share their lessons learned and guide newcomers on how to get involved, while new members bring fresh ideas and energy. This kind of pairing not only strengthens team cohesion but also drives continuous innovation and development in the community.’	community can establish an environment that supports mutual assistance and collective growth, where every member can find their place and realize their value.	
39	Common Language	Slang; Shared interests, Common Rituals and Traditions, Similarities, Opinion shaping	‘The “Slang” in the community is interesting. Members create it to express specific emotions or shared jokes. This language not only builds stronger bonds but also becomes part of the community culture. Through this unique way of communicating, members can quickly recognize and accept each other, which feels close.’ ‘Shared interests are the foundation of the community. They bring people with the same hobbies and pursuits together. These shared interests not only provide a platform for	Slang, shared interests, common rituals and traditions, similarities, and opinion shaping together constitute the core of the subculture of online communities.	Respondent1; Respondent9; Respondent17; Respondent19; Respondent30

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			communication and sharing but are also key to the community's vitality and cohesion. Members deepen their understanding and friendship by discussing, sharing, and participating in related activities.' 'Common rituals and traditions are a big part of community culture. Through regular activities and celebrations, like anniversary parties or special holiday events, these rituals and traditions not only make members feel the community's warmth and care but are also important for passing down and developing the community's culture.' 'Similarity is also important in the community. People often feel close and comfortable because they have similar backgrounds, interests, or viewpoints. In the community, similarity makes it easier for members to build friendships and trust and to form consistent opinions and actions.' 'Opinion shaping also plays a big role in the community. Community leaders and active members guide public opinion by sharing their views, organizing discussions, promoting activities, forming common values, and action guidelines. This kind of guidance not only helps resolve internal disagreements and conflicts but also strengthens the community's unity and influence externally.'		

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40	Shared Consciousness	Opinion Leaders; Public Topics; Unified Opinions; Value Judgments, Emotional Resonance	‘In online communities, “opinion leaders” are super important. They guide discussions and public opinion using their expertise, influence, and credibility. In the Xiaomi community, these leaders might be tech experts, long-time users, or die-hard fans. Their deep understanding and passion for the products can attract a lot of followers and bring everyone together.’ ‘Public topics are what everyone in the community is paying attention to and discussing. They usually revolve around product features, tech innovations, or industry trends. Through these discussions, people can freely share their thoughts and ideas, which promotes the exchange of views and sparks new ideas. This free flow of ideas ultimately helps form a consensus and action plan within the community.’ ‘The formation of "unified opinions" is the foundation for community negotiation and cooperation. In the Xiaomi community, through effective public dialogue and discussion, members can reach agreement on important issues. This consensus helps the community stand united and face challenges or make decisions together. It also reflects the community members' shared recognition of certain values and goals.’	Opinion leaders, public topics, unified opinions, value judgments, and emotional resonance are key elements in forming consensus and cohesion within online communities. Through the interplay of these elements, communities can effectively guide public opinion and promote deliberation.	Respondent3; Respondent22; Respondent26; Respondent32; Respondent37

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			‘Value judgments are the evaluations and views on the importance of things that community members form through discussions and exchanges. In the My Huawei community, members often form common value judgments based on similar life experiences and emotional experiences. These value judgments are not only reflected in product reviews but also in their views on community culture and development.’ ‘Emotional resonance is a key bond that builds deep connections between community members. When members share their real-life experiences and express their love for the products or loyalty to the brand, these emotional expressions often resonate with other members. This emotional resonance not only strengthens mutual understanding and support among members but also helps enhance the community's cohesion and centripetal force.’		
41	Conformity	Group opinion; Social Identity; Herd Effect	‘The influence of a community is really something. When people chat and share info in a group, they gradually develop a common way of behaving and thinking. In this kind of environment, when it comes to making purchases, people often aren't deciding on their own—they're heavily influenced by what the whole community thinks and does.’ ‘For example, when people see that most folks in the group	In the Xiaomi Community and My Huawei, conformity psychology and community influence significantly shape users' purchasing behavior. Communities, as important platforms for information exchange and the	Respondent5; Respondent15; Respondent21;

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			are super positive about a certain phone, they figure it's safe and smart to go along with the crowd. This kind of thinking makes people more likely to choose products that everyone else approves of when they have lots of options.' 'Sometimes, community members don't have enough info and just follow the herd. For instance, some users might buy a product just because everyone in the group is praising it, even though they don't really know much about it themselves. Sometimes, this choice might not fully meet their actual needs and could even lead to disappointment.'	formation of values, have an undeniable impact on individual decision-making.	
42	Community Consciousness	Community Satisfaction; Community Belonging; Community Commitment.	'When you're in the Xiaomi community and you get that high-quality service, quick feedback, and useful info, your satisfaction just shoots up. It's not just about the products; it's about the whole interactive experience and the support the community gives. When people are happy, they're way more into joining community activities and sharing their experiences. That really helps build a positive image of the Xiaomi brand.' 'Xiaomi community runs all kinds of cool events, online and offline, like new product launches, user meetups, and tech exchanges. These events bring people closer together. Consumers don't just feel like they're part of the community; they build a real sense of belonging to the	Xiaomi Community and My Huawei have effectively promoted consumers' identification and loyalty to the Xiaomi brand by establishing a strong sense of community. The various dimensions of community consciousness are interconnected and work together to influence consumers, making them not only users of the brand but also its advocates and staunch supporters.	Respondent3; Respondent16; Respondent34;

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			Xiaomi brand through all the interactions. When people feel like they're part of the Xiaomi family, their loyalty to the brand just naturally grows.' 'When consumers are super satisfied and feel like they truly belong in the My Huawei community, they're much more likely to stick around for the long haul. This isn't just about showing up to events; it's about keeping up their support for the My Huawei brand and spreading the word. Loyal community members often turn into the brand's biggest cheerleaders, bringing in more potential customers through the power of word-of-mouth.'		
43	Knowledge Behavior	Sharing Usage Experiences; Feedback on Issues; Q&A	'In the community, sharing usage experience is super common. Experienced users write detailed tutorials, post product reviews, or record operation videos to help new users get up to speed with Xiaomi products. This kind of selfless knowledge sharing not only makes new users more satisfied but also raises the knowledge level of the entire community.' 'Feedback on issues is also an important part of user knowledge behavior. When users run into problems with the product, they'll ask questions or report issues in the community. This info is super helpful for other users who might face the same problems, and it also gives Xiaomi first-	Knowledge behavior refers to activities that users engage in around knowledge within internet communities. These activities include sharing knowledge, acquiring knowledge, communicating knowledge, verifying knowledge, and evaluating knowledge. Together, these behaviors form the community's knowledge ecosystem, facilitating the dissemination and	Respondent4; Respondent12; Respondent35;

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			hand feedback for product development and service improvement.’ ‘Commenting and answering questions is also a must-have in the community. In the Q&A section, users can comment on and answer other people’s questions. This interaction not only helps the askers find solutions but also gives the responders a sense of achievement and recognition.’	renewal of knowledge.	
44	Community Atmosphere	Atmosphere Building; Emotional Connection; Attractiveness	‘When you’re in a community that really encourages sharing, helping each other out, and showing respect, people are way more likely to get involved in discussions, ask questions, and share their own experiences. This kind of interaction doesn’t just help solve real problems that people face the product—it also makes them feel noticed and valued by the brand. And that really boosts their satisfaction and loyalty.’ ‘Emotional connection is super important for building a long-term relationship between a brand and its consumers. The My Huawei community does a great job of creating a warm and friendly atmosphere where people feel like they belong and are understood. When consumers find like-minded friends in the community and share bits of their lives, their loyalty and emotional investment in the brand just grow stronger. This kind of connection doesn’t just lead	The community atmosphere refers to the overall mood and environment created by factors such as member interactions, culture, and values within an internet community. It is reflected in the friendliness among members, the liveliness of communication, the quality and diversity of content, as well as the inclusiveness towards new members. A positive community atmosphere can enhance members' sense of belonging and participation.	Respondent13; Respondent31

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			to repeat purchases, which also turns them into brand promoters.'		
45	Participation and Feedback	Online Activities; Offline Activities; Product Improvement	'Our online community activities are super diverse—we have everything! Like pre-launch discussions for new products, letting users vote on new features, live Q&A sessions, and tech-sharing meetups. These activities are great because even if people can't be there in person, they can still jump in and share their thoughts and needs. Through these events, users can chat directly with the development team, talk about issues they've faced with the product, or suggest improvements. The community uses this feedback to tweak product strategies and improve designs, making sure we're really meeting user needs.' 'Offline activities focus more on user experience and interaction. The My Huawei community regularly holds events like new product experience sessions, user meetups, and tech seminars, inviting users to try out the latest Huawei products and chat face-to-face with designers and engineers. These events not only show users that My Huawei values their input but also help uncover potential issues and areas for improvement through hands-on experience. The direct feedback from these offline events helps Huawei get a better	By participating in activities, users not only feel like they are part of the community's family, but also see their opinions and suggestions being adopted and translated into actual product improvements. This process of participation and feedback not only enhances user satisfaction and loyalty but also provides strong momentum and support for the continuous improvement of the product.	Respondent10; Respondent40

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			handle on market trends and user needs, leading to more effective decisions in product development.'		
46	Understand User Needs	User Participation; Feedback on Needs; Market Response	'In the community, getting users involved is a big deal. Xiaomi and Huawei are super proactive about involving users in product development. They use all sorts of ways, community forums, surveys, one-on-one interviews, to get people's input. Users can chime in with ideas during the design phase, share their thoughts during testing, and talk about their experiences after the product is out. This kind of involvement makes users feel like they're really making a difference, and it boosts their sense of participation and loyalty to the brand.' 'User feedback is huge! Xiaomi and Huawei collect everyone's opinions through community platforms and then really dig into it. This helps them understand what users truly want and where the market is headed. This feedback is super critical for product upgrades. It helps the R&D team figure out exactly what needs fixing, optimize features, and make the user experience better.' 'Huawei's community is super quick to respond to user feedback. Huawei is always on top of market changes and can quickly pick up shifts in market dynamics and user needs	The community has established an efficient and interactive communication mechanism by encouraging user participation, actively collecting feedback on needs, and responding quickly to the market. This open participation model not only makes users an important part of product development but also provides the brand with the motivation and direction to keep moving forward. As the community continues to develop and improve, it will continue to play a key role in driving product improvements and meeting user needs, contributing to the brand's ongoing growth and success.	Respondent10; Respondent30; Respondent39;

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			through real-time interactions on the community platform. They can swiftly adjust their strategies and roll out new products or services to meet market demands. This agility keeps Xiaomi ahead in the game and wins over users in a super competitive market.'		
47	Product Development	Early Experience Program; R&D Improvement; Closed Testing; R&D Model	'In the early stages of development, Xiaomi and Huawei post concept discussions, product previews, and user experience surveys on community platforms to actively get users involved and gather feedback. These insights are super important for the initial design and feature setup. The R&D teams adjust the design direction and optimize the layout based on user feedback to make sure the new products meet real user needs and expectations.' 'As the product development goes deeper, Xiaomi and Huawei keep collecting user feedback and suggestions through the community platform. Issues users run into, additional feature needs, and performance evaluations all become key references for product improvements. The R&D teams closely monitor this feedback and keep iterating and optimizing the products, striving to perfect every little detail.' 'To further enhance user experience, Xiaomi and Huawei also run closed beta testing programs. They pick active and	Xiaomi and Huawei's open attitudes and emphasis on user feedback during the product development process have not only driven continuous product improvement but also deepened the emotional connection between users and the brands. This user-centric development model has brought Xiaomi and Huawei continuous market success and an expanding user base, laying a solid foundation for their long-term development. As the community platforms continue to improve and user engagement increase, Xiaomi and Huawei will continue to lead the industry in product development and user	Respondent6; Respondent7; Respondent27; Respondent29;

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			influential users from the community to test new products before they're released. These users get to try out the unreleased products and give detailed feedback—like their first impressions, performance evaluations, and any issues or suggestions for improvement.' 'Xiaomi and Huawei take the feedback from closed beta testing very seriously. They quickly analyze and organize it, using it as a key reference for product iteration. The R&D teams make necessary adjustments and improvements based on this feedback to solve potential issues and boost overall quality before the product hits the market. This user-centric development model helps the products better meet user expectations and enhances the user experience. Seeing their input valued and acted upon, users feel more loyal and satisfied with the brand.'	experience enhancement.	
48	Punishment	Account Suspension; Post Deletion; Deduction of Points; Level Reduction, Mute; Legal Action.	'Virtual communities, as online communication platforms, need a set of rules to keep things in order. When someone breaks the rules, moderators usually take some kind of punishment to keep users in line.' 'Take account suspension, for example. It's a common punishment in online communities. Basically, it means shutting off a user's access for good or for a while. This is usually for serious rule violations, like posting illegal stuff,	Punishment measures in online communities are important means to maintain community order and protect user rights. When implementing these measures, community managers need to balance the regulation of behavior with the protection of user rights to	Respondent5; Respondent16; Respondent26; Respondent27; Respondent33; Respondent40

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			harassing other users, or spreading fake ads. Suspension can effectively stop bad behavior and protect other users and the community's image. But it's used sparingly to avoid hitting innocent users and to give people a chance to appeal and protect their rights.' 'There's a post deletion. Moderators remove content that violates rules or isn't appropriate. It's a milder punishment to quickly get rid of harmful info and keep the community environment positive. Deletion can be for a single post or a series of related ones and might come with a warning or other penalties. When deleting posts, moderators must be careful not to violate users' rights, like freedom of speech.' 'There's also a point of deduction. If users break rules, like posting illegal content, using foul language, attacking others, or spreading false info—their reputation points get taken away. Users need basic points to post, so if they lose too many, they can't post anymore.' 'Level reduction is another punishment. The community's level system is there to encourage positive interaction and rule-following. Users can level up by posting quality content or participating in activities, but breaking rules can lower their level. Of course, users can appeal to avoid being demoted.'	ensure the rationality, fairness, and effectiveness of the measures.	

Serial number	Initial category	Initial concept	Original statement	The meaning of the initial category	Respondent number
			‘Muting is when users are banned from posting in the community, either temporarily or permanently. This is for users who keep posting violations or don’t change after multiple warnings. Muting can be a total ban or just for specific sections or topics. It helps reduce bad behavior and gives users a chance to correct their mistakes. When muting, moderators should clearly explain the reason and duration to keep things transparent and fair.’ ‘Finally, if violations break the law—like defamation, copyright infringement, or spreading obscene material—it’s time to involve the law. Besides community punishments, moderators should report possible illegal content to law enforcement and assist with investigations.’		

4.5 Axial Coding

Axial coding is the core link that transforms initial categories into subcategories. The coding process strictly adheres to the logic of Straussian grounded theory (procedural grounded theory) and relies on NVivo 12 for hierarchical integration and relational verification.

Subcategories are formed by “further merging initial categories and refining the analysis of specific interview contexts” (Glaser & Strauss, 2017). The merging follows three core logics: semantic relevance, functional consistency, and theoretical fit (Charmaz & Smit, 2007).

4.5.1 Merge Initial Categories into Subcategories Based on “Semantic and Functional Consistency”

1. Example 1: Merging into Subcategory “Boundaries of Authority and Responsibility”

Take the merging and coding process of the subcategory “Boundaries of Authority and Responsibility” as an example. Specifically, the initial categories included in this subcategory are “Member Rights” and “Legal Boundaries”. The merging logic lies in that both initial categories focus on the core theme of “defining the scope of rights and obligations of community participants (members or administrators) and legal constraints”. Among them, “Member Rights” encompasses initial concepts such as “Freedom of Entry and Exit” and “Right to Vote”, which mainly serve to clarify the scope of members’ participation rights; while “Legal Boundaries” includes initial concepts like “Laws and Regulations” and “National Law”, focusing on defining the legal limits in the process of community operations.

In terms of specific operations in NVivo 12, the steps were as follows: first, create

a subcategory node named “Boundaries of Authority and Responsibility”; second, drag the two initial category nodes (“Member Rights” and “Legal Boundaries”) into this subcategory node to complete hierarchical integration; finally, record the merging basis in the “Memo” module of this subcategory node, with the specific statement being “Merged based on consistent function of ‘clarifying rights, obligations, and legal boundaries of participants’” so as to ensure the traceability and logical rigor of the coding process.

2. Example 2: Merging into Subcategory “Operational Measures”

Take the merging and coding process of the subcategory “Operational Measures” as a second example. Specifically, the initial categories included in this subcategory are “Community System”, “Privacy Protection”, “Content Regulation”, and “Technical Filtering”. The merging logic centers on the fact that all four initial categories focus on “specific strategies and methods for daily community operations, as well as procedural norms that members are required to follow”. For instance, “Community System” encompasses concepts such as “Regulatory Provisions” and “Division of Powers”, which serve as systematic operational norms for community management; while “Technical Filtering” includes concepts like “Identity Verification” and “Automatic Blocking”, representing technical means adopted for operational management purposes.

In terms of specific NVivo 12 operations: first, create a subcategory node named “Operational Measures”; second, drag the four initial category nodes into this new node, and use the “Cross-Tabulation” function to verify they were consistently mentioned in “community daily management” (e.g., Administrator respondent 24 referenced “technical filtering” and “content regulation” together when describing “community order maintenance”); finally, mark the logical relationships between initial categories in the “Model” function, typically “Community System links Technical Filtering, systematic norms guide technical implementation”.

3. Example 3: Merging into Subcategory “Collective Emotions”

Take the merging and coding of the subcategory “Collective Emotions” as an example. The included initial categories are “Sense of Belonging”, “Sense of Achievement”, “Emotional Investment” and “Gain Recognition”, all reflecting “members’ emotional experiences and psychological attachments to the community”—in line with the “emotional dimension” of psychological ownership theory. For example, “Sense of Belonging” covers “Sense of Security” and “Mutual Affirmation” (emotional connection to the community), while “Gain Recognition” includes “Valued” and “Being Pinned” (emotional satisfaction from community recognition).

In NVivo 12, first create the “Collective Emotions” subcategory node under the temporary node of “Collective Psychological Ownership” (a separate main category). Then drag the four initial category nodes into it and use the “Node References” function to link to interview quotes—e.g., Respondent 28’s remark “Being pinned makes me feel valued, like this is my community” was linked to both “Gain Recognition” and “Collective Emotions”.

4.5.2 Verify Subcategory Rationality with “Interview Context”

The merging of “Hierarchical Structure” and “Participation” into the Subcategory “Virtual Organizational Structure”, is based on Respondent 24’s (an administrator) statement: “The community has moderators, administrators, and users (hierarchical structure), and users can participate in voting (participation)” —this quote confirms that the two initial categories are interrelated in practice, justifying their merger into the same subcategory.

When merging “Unwritten Rules” and “Common Language” into “Behavioral Synchrony”, Respondent 1 (a user) and Respondent 27’s (a user) comment: “We

don't rush content creators (unwritten rules) and use our own slang (common language)" is used to verify that these initial categories together form "recognize and accept each other, tacit behavioral consistency among members".

4.5.3 Axial Coding Results

The researcher ultimately derived 15 subcategories, namely:

1. boundaries of authority and responsibility;
2. operational measures;
3. rule enforcement;
4. virtual organizational structure;
5. community integration;
6. relational embeddedness;
7. reward measures;
8. punishment measures;
9. reputation mechanisms;
10. behavioral synchrony;
11. network consensus;
12. collective emotions;
13. collective cognition
14. value co-creation of brands
15. value co-creation of products.

The basis for the creation of these subcategories is shown in Table 13.

Table 12 Axial Coding Result

Subcategory	Initial category	Initial concept	Connotation of sub-category
Boundaries of Authority and Responsibility	Member Rights	Freedom of Entry and Exit; Blurred Boundaries; Right to Vote	Clarify the scope of regulation, establish a list of powers and a list of responsibilities for the participating entities, and clarify the relationships of their respective duties.
	Legal Boundaries	Laws and Regulations, Legal Boundaries, National Law	
Operational Measures	Community System	Regulatory Provisions, Division of Powers, Standardized Clauses	Strategies and methods for the daily operation of the community, as well as the procedural rules or codes of conduct that members collectively adhere to.
	Privacy Protection	Fraudulent Behavior, Information Protection, Spam Messages	
	Content Regulation	Following the Rules, Information Accuracy, Content Filtering	
	Technical Filtering	Identity Verification, Screening System, Automatic Blocking, Technical Review	
Rule Enforcement	Principle of Fairness	Fairness And Justice, Maintaining Order and Discipline, Equality, Equitable Distribution	Managers should implement existing regulations and provisions effectively in the community to fully leverage the application value of the current regulatory system based on the enforcement intensity of relevant norms and terms within the community.
	Content of Responsibility	Job Responsibilities, Collaboration, Content Operation, Resolution of Disputes	
	Community Supervision	Supervision, Close Monitoring,	

Subcategory	Initial category	Initial concept	Connotation of sub-category
Virtual Organizational Structure		Regulation	The virtual organizational structure breaks through the physical boundaries and hierarchical structure of traditional organizations, enabling collaboration and communication among members through information technology and online platforms. This structure emphasizes flexibility, efficiency, and the autonomy of members.
	Zero Tolerance	Serious Handling, Bearing the Consequences, Assuming Legal Responsibility.	
	Hierarchical structure	Rank, Power Tilt, Management Authority, Complaint Handling	
	Participation	Dependence, Democracy; Self-Restraint; Self-Responsibility; Self-Management	
Community Integration	Inclusivity	Out-Of-The-Box, Community Character, Allowing Mistakes	Members' perception of the community environment, including the shared understanding of the policies, practices, and behaviors that the community expects and advocates.
	Enhance internal control	Need For Integration, Sense of Responsibility, Sense of Ownership, Passive Response	
	Community Support	Brand Support, Active Participation, Proactive Feedback	
Relational Embeddedness	Identity Recognition	Identity Reconstruction, Internet Identity, Online ID, Integration of Virtual and Real	The network of direct and indirect relationships among community members, characterized by mutual understanding,

Subcategory	Initial category	Initial concept	Connotation of sub-category
	Community Relationships	Relationship Capital, Offline Connections, Interpersonal Relationships, Cooperative Relationships	trust, and commitment.
Reward Measures	Reward	Points Redemption, Reward Measures, Material Rewards, Application For Moderator	The strategies and methods used by community managers to encourage members to share knowledge by providing material or non-material rewards, such as community points, ratings, virtual token rewards, badges, and coupons.
	Extra Privileges	Enjoy Privileges, New Product Testing	
	Role Models of Success	Part-Time Moderators, Honor, Motivational Effects	
Negative Incentive	Punishment	Account Suspension, Post Deletion, Deduction of Points, Level Reduction, Mute, Legal Action	A series of coercive measures taken to maintain order and regulate member behavior. These measures aim to impose sanctions on rule-violating actions.
Reputation Mechanisms	Authoritative Certification	User Authority, Reputation Representation, Tilt in Speaking Chance	Using reputation information to influence the behavior of organizations or individuals, and a scientific member evaluation system within the community.
	Reputation Evaluation	Points Advantages, Community Recognition, Credit Accumulation	
Behavioral Synchrony	Common language	Slang, Shared Interests, Common Rituals and Traditions, Similarities, Opinion Shaping	Behavioral Synchrony understanding refers to the unspoken consensus and tacit agreement formed among members through long-term interaction and communication
	Unwritten Rules	Rumors, Unwritten Rules, Flexible	

Subcategory	Initial category	Initial concept	Connotation of sub-category
		Rules	within a specific group or organization.
	Interaction	Following, Direct Replies, Socializing	This tacit understanding is reflected in the language, communication, and habits of members, achieving a state where the behaviors of community members are aligned. The informal common language and values formed during the cooperation and communication among community members.
	Common practice	Solidarity, Self - Help Spirit, Pairing New and Experienced Members	
	Communication	Timely Notification, Announcements, Listening to Feedback	
Network Consensus	Community Culture	Cultural Information, Community Philosophy, Cultural Isolation, Cultural Boundary	Network consensus rests on shared norms of decentralization and honesty, while its real-time operational climate fosters a collaborative environment for unified agreement.
	Community atmosphere	Atmosphere Building, Emotional Connection, Attractiveness	
Collective Emotions	Sense of Belonging	Sense of Security, Mutual Affirmation, Respect, Internal Recognition	This refers to a psychological state that an individual experiences when participating in collective activities or belonging to a group. This state involves identification with the collective, a sense of belonging, achievement, and group consciousness. This psychological experience not only affects an individual's behavior and attitude but also has a significant impact on the cohesion and effectiveness of the group.
	Sense of Achievement	Excitement, Praise, Ranking	
	Emotional Investment	Emotional Experience, Emotional Interaction, Emotional Needs	
	Gain Recognition	Valued, Gaining Attention, Being Pinned, Not Remaining Obscure	

Subcategory	Initial category	Initial concept	Connotation of sub-category
Collective Cognition	Collectivism	Unified Action, Collective Living, Individualism, Collective Behavior	Members are aware of the various resources that the collective possesses and have a clear understanding of the collective's goals and vision. This reflects an individual's pursuit of the collective's goals and values
	Conformity	Group Opinion, Social Identity, Herd Effect	
	Knowledge behavior	Sharing Usage Experiences, Feedback on Issues, Q&A	
	Shared consciousness	Opinion Leaders, Public Topics, Unified Opinions, Value Judgments, Emotional Resonance	
	Community consciousness	Community Satisfaction, Community Belonging, Community Commitment	
Value Co-creation of Brands	Integration of Values	Consultative Resolution, Conflict of Needs, Personality Traits, Diverse Values	Refers to the process in which members of a specific organization or community jointly create and enhance value. This co-creation not only involves the sharing of material resources but also encompasses exchanges and collaboration in spiritual and cultural dimensions, aiming to achieve the overall improvement of organizational or community value, as well as the enhancement of company brand recognition and reputation through interactions and collaboration among members.
	Resource Sharing	Openness, Sharing, Design Themes	
	Cultural Identification	Stimulating Interest, Cultural Identification, Brand Culture	
	Norms of Reciprocity	Duty To Reciprocate, Mutual Benefit, Willingness to Help	
	Cohesion	Team Cohesion, Decision-Making Conflicts, Community Formation	
Value Co-creation of	Product development	Early experience program, R&D	The process of co-creating and enhancing

Subcategory	Initial category	Initial concept	Connotation of sub-category
Products		improvement, closed testing, R&D model	the value of a product through the active participation and feedback of users during the product development and construction phase, in collaboration with the developers.
	Joint Construction	Community of Shared Interests, Win-Win Cooperation, Common Development	
	Participation and feedback	Online Activities, Offline Activities, Product Improvement	
	Understand user needs	User Participation, Feedback on Needs, Market Response	

4.6 Selective Coding

Selective coding constitutes the third phase in the procedural grounded theory coding process. This stage entails the systematic induction and refinement of the main categories to ultimately identify a core attribute capable of unifying all identified categories. It further establishes relationships among the attributes, main categories, and other subordinate categories. By articulating the phenomenon and its underlying causal mechanisms through a coherent “story line”, this process culminates in the formulation of a comprehensive theoretical framework.

4.6.1 Core Objectives and Overall Process of Selective Coding

Selective coding constitutes the final phase in Straussian grounded theory. It involves systematically inducing and refining main categories to ultimately identify a core attribute capable of unifying all identified categories (Glaser & Strauss, 2017). It further establishes relationships among the attributes, main categories, and other subordinate categories, and formulates a comprehensive theoretical framework by articulating the phenomenon and its underlying causal mechanisms through a coherent “storyline”. The core process revolves around “integrating subcategories into main categories, then identifying core variable relationships, next constructing the S-O-R (Stimulus-Organism-Response) theoretical model”, which strictly aligns with the study’s logical chain of “governance mechanisms influencing collective psychological ownership and value co-creation”.

4.6.2 Defining Criteria for Main Categories

Before coding subcategories into main categories, two core criteria must be established in accordance with this study to ensure coding does not deviate from theoretical and empirical foundations, and to ensure the integrity of the storyline.

1.Theoretical Criterion: Anchored in the S-O-R model and psychological ownership theory

Stimulus: governance mechanisms of firm-hosted online brand communities.

Organism: collective psychological ownership.

Response: value co-creation behaviors.

2.Empirical Criterion: Functional Consistency of Subcategories and Support from Interview Contexts

Subcategories grouped under the same main category must be invoked in similar interview contexts and serve a common governance objective.

4.6.3 Specific Operations for Coding Subcategories into Main Categories

1.Main Category 1: Rules

Corresponding Subcategories:

Boundaries of Authority and Responsibility, Operational Measures, Rule Enforcement.

Coding Basis:

Functional Consistency: all three subcategories serve as “governance tools for firms to constrain member behaviors and ensure community order through formal institutions”. For example, “Boundaries of Authority and Responsibility” defines the rights and obligations of members or enterprises, “Operational Measures” refers to daily institutional implementation methods, and “Rule Enforcement” involves supervision and punishment for institutional implementation.

Empirical Support from Interviews:

All three subcategories are associated with interview contexts of “formal community management”. For instance, Respondent 26 (an administrator) stated: “We first set authority boundaries, then use technical filtering (operational measures), and handle violations strictly (rule enforcement)”, which involves all three subcategories and confirms functional synergy.

Theoretical Alignment:

Conforms to the “formal institutional stimulus” attribute of “Stimulus” in the S-O-R model.

2. Main Category 2: Relationships

Corresponding Subcategories:

Virtual Organizational Structure, Community Integration, Relational Embeddedness.

Coding Basis:

Functional Consistency: all three subcategories serve as “governance tools to enhance members’ sense of belonging and promote collaboration through social connections”. For example, “Virtual Organizational Structure” provides a hierarchical foundation for interpersonal collaboration, “Community Integration” fosters cohesive atmospheres, and “Relational Embeddedness” builds trust-based connections among members.

Empirical Support from Interviews:

Respondent 10 (a user) stated: “The clear hierarchy (virtual structure) and inclusive atmosphere (community integration) make us trust each other (relational embeddedness)”, which covers all three subcategories and confirms functional relevance.

Theoretical Alignment:

Conforms to the “social connection stimulus” attribute of “Stimulus” in the S-O-R model.

3. Main Category 3: Incentives

Corresponding Subcategories:

Reward Measures, Punishment Measures, Reputation Mechanisms.

Coding Basis:

Functional Consistency: all three subcategories serve as “governance tools to guide members’ active participation through rewards, punishments, and reputation systems”. For example, “Reward Measures” provide positive incentives, “Punishment Measures” impose negative constraints, and “Reputation Mechanisms” offers long-term guidance.

Empirical Support from Interviews:

Respondent 8 (a user) and Respondent 26 (an administrator) stated: “Points (reward) make me active, account suspension (punishment) stops bad behavior, and ‘V’ certification (reputation) keeps me committed”, where the three subcategories collectively form an incentive system.

Theoretical Alignment:

Conforms to the “motivational guidance stimulus” attribute of “Stimulus” in the S-O-R model.

4. Main Category 4: Routines

Corresponding Subcategories:

Behavioral Synchrony, Network Consensus.

Coding Basis:

Functional Consistency: both subcategories serve as “governance tools to form members’ behavioral consensus through informal norms”. For example, “Behavioral Synchrony” refers to implicit behavioral tacit understanding among members, and “Network Consensus” refers to collective value recognition.

Empirical Support from Interviews:

Respondent 27 (a user) stated: “We use our own slang (behavioral synchrony) and agree on ‘no rushing creators’ (network consensus)”, where the two subcategories collectively form the foundation of informal governance.

Theoretical Alignment:

Conforms to the “informal norm stimulus” attribute of “Stimulus” in the S-O-R model.

5. Main Category 5: Collective Psychological Ownership

Corresponding Subcategories:

Collective Emotions, Collective Cognition.

Coding Basis:

Functional Consistency: both subcategories represent “members collective psychological identification with the community and serve as mediating variables connecting governance mechanisms and value co-creation”. For example, “Collective Emotions” refers to emotional attachment, and “Collective Cognition” refers to shared cognition.

Empirical Support from Interviews:

Respondent 22 (a user) stated: “I feel ‘this is our community’ (collective emotions) and we all want it to be better (collective cognition)”, where the two subcategories

collectively form the core of psychological ownership.

Theoretical Alignment:

Fully aligns with the “emotional-cognitive dual dimension” of psychological ownership theory and conforms to the mediating attribute of “Organism” in the S-O-R model.

6. Main Category 6: Value Co-Creation

Corresponding Subcategories:

Brand Value Co-Creation, Product Value Co-Creation.

Coding Basis:

Functional Consistency: both subcategories represent “the final behavioral outcomes of member participation, driven by governance mechanisms through collective psychological ownership”. For example, “Brand Value Co-Creation” refers to culture-related identification behaviors, and “Product Value Co-Creation” refers to product feedback/development behaviors.

Empirical Support from Interviews:

Respondent 29 (a user) stated: “I share brand culture (brand co-creation) and test new phones (product co-creation) because I feel it’s ‘our community’”, where both subcategories are driven by collective psychological ownership.

Theoretical Alignment:

Conforms to the behavioral outcome attribute of “Response” in the S-O-R model.

4.6.4 Constructing the Theoretical “Storyline” and Model

1. Defining the Core Storyline

The core logic is (the arrows represent causation): “Governance mechanisms (Rules/Relationships/Incentives/Routines) of firm-hosted online brand communities (Stimulus) → through the mediating role of Collective Psychological Ownership (Organism) → ultimately drive members’ Value Co-Creation behaviors (Response)”.

2. Model Visualization in NVivo 12

Use the “Model” function to draw a node relationship diagram, marking causation arrows for “Stimulus (4 governance main categories) → Organism (Collective Psychological Ownership) → Response (Value Co-Creation)”.

3. Theoretical Saturation Verification

Randomly select and import the interview results of Respondent 14 and Respondent 26 and use NVivo 12’s “Node References” to check if new data generates content not covered by the main categories. The result shows “no new categories emerge, indicating theoretical saturation”.

Table 13 Categories of Governance Mechanisms for Firm-Online Brand Communities

Attribute	Main category	Sub-category	The Definitions of the main category
Stimulus (Governance Mechanisms)	Rules	Boundaries of Authority and Responsibility; Operational Measures; Rule Enforcement	A set of rules, regulations, and systems that clarify the responsibilities and obligations of management personnel and standard members, supervise the performance of these duties, and require them to bear negative consequences.
	Relationships	Virtual Organizational Structure; Community Integration; Relational Embeddedness	Members establish potential relationships based on a series of interactions, which are used to guide member behavior to create a community atmosphere filled with harmony, friendliness, and mutual benefit.
	Incentives	Reward Measures; Punishment Measures; Reputation Mechanisms	The methods of publicly recognizing, encouraging, or punishing members to enhance their stickiness, loyalty, and brand awareness, as well as to eliminate undesirable behaviors.
	Routines	Behavioral Synchrony; Network Consensus	The unwritten shared concepts and thinking habits that members gradually form through online communication.
Organism	Collective Psychological Ownership	Collective Emotions; Collective Cognition	Emphasizing the collective mindset of members, identifying the group through the perceived common property.
Response	Value Co-creation Behavior	Value Co-creation of Brands; Value Co-creation Of Products	The process by which users co-create and enhance value through interaction and collaboration with businesses, brands, or other users.

4.7 Data Saturation

The criterion for achieving data saturation in this study is when subsequent interviews cease to introduce new information or themes (Glaser & Strauss, 2017). In the interviews for the study of online community governance mechanisms, determining whether the interview data has reached saturation is a crucial step when applying grounded theory. Saturation is an important quality assessment criterion in qualitative research, involving three concepts: theoretical saturation, thematic saturation, and data saturation. Theoretical saturation focuses on the development level of the theory, while data saturation emphasizes the repetitiveness of new data during the data collection process. Thematic saturation lies between the two, focusing on the emergence of new themes.

1. Saturation

In this study, after conducting 40 in-depth interviews, the researcher observed clear signs of data saturation during the data collection process. Specifically, when analyzing the data from the most recent interviews, the researcher found that the newly emerging information began to highly overlap with the existing data and failed to reveal new themes or theoretical categories. Moreover, through the records of the structural coding book, the researcher noticed that the attributes of core concepts and categories had been fully developed and consistently validated across different participants. Therefore, the researcher concluded that increasing the number of interviews would not significantly enhance the depth or breadth of the theory.

Nevertheless, the researcher acknowledges the limitations of the study, including potential sample bias and the possible underrepresentation of certain marginalized perspectives. Taking these considerations into account, the researcher concluded that 40 interviews were sufficient to achieve theoretical saturation, thematic

saturation, and data saturation in this study, thereby ensuring the richness and reliability of the research findings (Guest et al., 2020).

2. Validity

In this study, the researcher recruited 40 participants from Chinese largest community platforms, “Xiaomi Home” and “My Huawei.” To ensure the validity of the research findings, multiple measures were taken during the data collection and analysis processes. First, in accordance with the principles of grounded theory, the researcher implemented theoretical sampling to ensure that the selected samples could cover different aspects and levels of online community governance. The researcher sent out numerous interview invitations, and based on the respondents’ replies, purposefully selected representative samples to cover two genders, identity type, and community participation experiences. This sampling method helps reveal the multidimensional characteristics of online community governance, thereby enhancing the depth and breadth of the research findings.

Subsequently, the researcher employed open coding to identify and name the key concepts and attributes within the data. By using the method of continuous comparison, the researcher constantly sought similarities and differences between new and existing data. This method enabled the researcher to identify consistencies and variations in the data during the analysis, thereby enhancing the reliability of the research findings and focus on the achievement of theoretical saturation.

During the research process, the researcher actively wrote memos, documenting the thought process of the study and the trajectory of theoretical development. This not only maintained the transparency and traceability of the research but also enabled the researcher to reflect on and verify the research process, thereby further enhancing the validity of the study.

4.8 Theoretical Analysis

4.8.1 The Significance of Theoretical Analysis

Drawing on the Stimulus-Organism-Response (S-O-R) framework derived from grounded theory, this study engages in a dialogue with the literature to construct a conceptual model to explain customer value co-creation behaviors in firm-hosted online brand communities. In this model, four governance mechanisms—Rules, Relationships, Incentives, and Routines—function as “stimuli”; collective psychological ownership acts as the “organism (mediator); and customers value co-creation serves as the behavioral “response”. To validate this framework, a systematic literature review was conducted to clarify inter-variable relationships and verify congruence with existing theoretical and empirical studies.

4.8.2 Impact of Governance Mechanisms on Customer Value Co-Creation

1. Rules

Rules in firm-hosted online brand communities are formal regulatory tools developed by firms and administrators to define behavioral boundaries, responsibilities, and punitive measures (Sibai et al., 2015). Aligned with social identity theory (Huang & Chiu, 2018), they mitigate opportunism and business risks by pre-specifying member obligations, monitoring processes, and standards for penalizing deviant behavior (Yang et al., 2016). Beyond regulation, rules facilitate two-way communication: firms or administrators actively listen to customer needs and adapt rules to community growth, incorporating customer input to align individual and community goals (Li et al., 2020).

By curbing misconduct and managing information overload, Rules foster a fair and positive interaction environment (Cristina, 2020). This reduces risk perceptions—

especially among new members—and enables orderly information sharing and knowledge contribution, ultimately enhancing customer motivation to participate in value co-creation (Bhatti et al., 2021).

2. Relationships

Relationships complement rules by enhancing flexibility through socialization, addressing uncertainties unforeseen by formal regulations (Khalid, 2019). Socialization cultivates reciprocal trust and interdependence among members: frequent interactions strengthen trust, increase information exchange, and foster mutual identification with the community and brand (Choi et al., 2019; Sanz-Blas et al., 2021). Social norms derived from relationships reduce resource waste from misaligned expectations (Laud & Karpen, 2017) and mitigate “free riding” by exposing individual behavior to collective oversight (Lee & Chen, 2011).

As relationships deepen, members develop psychological capital and a sense of reciprocity, prompting spontaneous cooperation, knowledge sharing, and problem-solving (Chiu et al., 2005; Liu et al., 2020). A trust-based atmosphere further eliminates concerns about opportunism, accelerating resource flow, and enabling value co-creation (Wiese & Akareem, 2019).

3. Incentives

Rooted in social identity theory, incentives motivate value co-creation by fulfilling members’ expectations of benefits (Hatch & Schultz, 2010). Firm-hosted online brand communities typically use positive incentives and negative incentives to reinforce desirable behaviors and deter deviance (Cavusoglu et al., 2021; Nambisan & Nambisan, 2008). Material rewards prevent dissatisfaction from unmet expectations (Nambisan & Baron, 2009), while non-material rewards enhance self-efficacy and belonging (James et al., 2017).

Incentives also shape social identity: recognized members strengthen their connection to the community, while lower-status members strive for higher status by contributing more (Elsharnouby & Mahrous, 2015). By reducing information asymmetry and increasing trust (Hsu et al., 2014), incentives drive members to align their behaviors with community goals, sustaining active participation in value co-creation (Zhang & Liu, 2022).

4. Routines

Routines are informal, tacit norms formed through repeated member interactions (Casaló et al., 2008). Unlike rules, they lack codified enforcement but operate via social pressure, reflecting collective values and guiding behavior through shared cognitive tendencies (Rialti et al., 2018). Routines reduce behavioral uncertainty by helping members—especially newcomers—understand community expectations and synchronize interactions (Brem & Bilgram, 2015).

By integrating individual cognition into collective action paradigms, routines foster community cohesion and identification (Funk et al., 2004). Routines enhance communication efficiency, predictability, and trust, mitigating conflicts and stabilizing community activities (Lavie et al., 2012). Shared values and perspectives from Routines further strengthen members' sense of belonging, encouraging proactive engagement in value co-creation (Ozuem et al., 2016).

4.8.3 Impact of Governance Mechanisms on Collective Psychological Ownership

Collective psychological ownership—members' sense of “ownership” toward the firm-hosted online brand communities—originates from self-efficacy, organizational identification, and perceived control (Pierce et al., 2018). Each governance mechanism influences collective psychological ownership through distinct pathways:

Rules: by ensuring fairness and justice (Pierce et al., 2003), Rules enhance members' sense of security and self-efficacy. Decentralized enforcement gives members control over community operations, strengthening responsibility and shared mental models—key antecedents of collective psychological ownership (Lee & Suh, 2015; Morrongiello et al., 2017).

Relationships: deepened interactions build cohesion and meet members' needs for belonging. Trust and reciprocity reduce psychological costs, fostering a sense of “in-group” identity and control over community outcomes—foundations for collective psychological ownership (Fuchs et al., 2010; Karahanna et al., 2015).

Incentives: by satisfying psychological needs, incentives enhance community identification and self-efficacy (Pierce et al., 2009). Rewards increase members' control and investment, stimulating collective psychological ownership (Ozuem et al., 2016; Tonteri et al., 2011).

Routines: shared mental models and linguistic codes from routines promote cognitive assimilation and emotional attachment (Yen & Hung, 2017). Sustained participation builds familiarity and a sense of “integration” with the community, crystallizing collective psychological ownership (Lavie et al., 2012).

4.8.4 Impact of Collective Psychological Ownership on Customer Value Co-Creation

Collective psychological ownership fosters a “we” culture in firm-hosted online brand communities, motivating members to act in the community's collective interest (Kumar, 2022). Rooted in social identity theory, members categorize themselves as “in-group” and exhibit prosocial behaviors to maintain their identity (Ambrose et al., 2018; Ashforth & Mael, 1989).

Collective psychological ownership enhances responsibility for the community, prompting members to protect the communal interest and engage in altruistic acts (Van Dyne & Pierce, 2004; Zhang et al., 2014).

It strengthens belonging and emotional attachment, increasing time and effort invested in community activities (Lee & Chen, 2011). Satisfied, attached members are more likely to contribute to information exchange, problem-solving, and innovation—core value co-creation behaviors (Chai & Kim, 2012; Chiu et al., 2019).

4.8.5 Mediating Role of Collective Psychological ownership

Collective psychological ownership acts as a critical mediator between governance mechanisms and value co-creation, translating external stimuli into behavioral responses. In each of the instance below, the arrows represent causation.

Rules → Collective Psychological Ownership → Value Co-Creation: rules create fair environments, reduce social risks, and build institutional trust. This fulfills prerequisites for collective psychological ownership, which then drives proactive participation (Chou et al., 2016).

Relationships → Collective Psychological Ownership → Value Co-Creation: trust and reciprocity from relationships strengthen psychological identification. Collective psychological ownership emerging from this identification stimulates stewardship behaviors for value co-creation (Shi et al., 2022).

Incentives → Collective Psychological Ownership → Value Co-Creation: Incentives enhance perceived value and self-efficacy, fostering collective psychological ownership. Members with collective psychological ownership view the community as “theirs” and prioritize collective goals, increasing co-creation

engagement (Dholakia et al., 2004).

Routines → Collective Psychological Ownership → Value Co-Creation: shared mental models from routines deepen relational embeddedness and emotional attachment (Wu et al., 2022). Collective psychological ownership formed through this process motivates behaviors that advance community interests (Ye & Gawronski, 2016).

4.9 The Construction of a Conceptual Model

After the empirical research based upon the interview data and theoretical analysis, the following model is obtained.

4.9.1 Stimulus: Governance Mechanisms

Stimuli are changes in the internal and external environment that can cause functional and active changes in the human body. In general consumer research, stimuli are often considered as a set of attributes that influence consumers' perceptions (Su et al., 2016), or the sum of all the inducements that consumers see and hear (Eroglu et al., 2003). For example, Hsu et al. (2014) proposed that in a virtual environment, the stimulus factors can be website information quality, system quality, virtual interaction, and feedback.

In the context of firm-hosted online brand communities, external environmental factors also serve as important stimuli for consumers. Companies, through governance mechanisms, foster a positive atmosphere of mutual assistance and equality within the community, monitor and manage community activities, and guide member behavior. These actions provide a foundation for the successful establishment and operation of the community platform and support members' social interactions within the community. Essentially, this represents an external

environmental stimulus for community members.

By improving the community environment and atmosphere through governance mechanisms, companies can directly influence consumers' perceptions and cognitions, which in turn affect their attitudes and intentions towards value co-creation activities within the firm-hosted online brand communities. Therefore, in the S-O-R model, the governance mechanisms of firm-hosted online brand communities can be regarded as an external stimulus variable.

4.9.2 Organism: Collective Psychological Ownership

The S-O-R model introduces an individual's cognition or emotion as an intermediary variable in the study of environmental stimuli and behavioral responses. Stimuli affect consumer's perceptions, influencing their emotions and cognition. This means that the differential behavioral responses generated by individuals are due to their different internal psychological states and the individual cognitions formed by consumers in response to external environmental stimulus.

Collective psychological ownership is a comprehensive attitudinal variable that includes both emotional and cognitive components and thus is likely to mediate the relationship between stimuli and responses. Firm-hosted online brand communities provide individuals with a sense of confidentiality that allows them to engage in activities anonymously. By permitting members to freely create their identities and personalities within the community, it enhances their autonomy (Pierce et al., 2018). Meanwhile, governance mechanisms, as important situational variables within firm-hosted online brand communities, can safeguard the legitimate rights and interests of members (Kumar & Kaushal, 2021), create an environment with a good communication atmosphere, and provide a platform for members to project their ideal selves beyond their actual selves, thereby achieving self-extension (Kumar & Nayak, 2019b).

Based on the above arguments, the governance mechanisms of firm-hosted online brand communities can enhance community members' sense of control, intimate understanding, and investment of time and energy in the shared layer of the firm-hosted online brand communities. Members' sense of collective autonomy, joint control over the community, collective intimacy, and collective self-investment in the community can all give rise to a sense of collective psychological ownership (Pierce & Jussila, 2010). Under the influence of this cognition and attitude, group members may actively contribute to the group to maintain their identity and status within it. That is, they participate in the co-creation of value in firm-hosted online brand communities. Therefore, this thesis regards collective psychological ownership as the organism in the S-O-R model that elicits customer behavioral responses.

4.9.3 Response: Customer Engagement in Value Co-creation Behaviors

Firm-hosted online brand communities are important platforms for companies to co-create value with customers. Customer participation in value co-creation behaviors plays a crucial role in the long-term development of enterprises. This thesis employs the S-O-R model to illustrate how external stimuli experienced by community members influence their true psychological states and leads to behavioral changes. It investigates the dynamic process of customer engagement in value co-creation behaviors.

Specifically, customer behavior is a process that begins with external stimuli, which then causes changes in the organism, ultimately leading to a response. Similarly, the customer participation in value co-creation behaviors discussed in this thesis is also triggered by some kind of external stimulus or influence. This stimulus or influence leads to changes in the customer's psychology and cognition, which in turn results affects their behavior.

4.9.4 Mechanism of Action

Stimulus-Organism: the external rules, incentives and internal relationships, and routines of the community (stimulus) can affect members' psychological needs and emotional experiences (organism). For example, a positive community atmosphere and cultural identification can arouse members' emotional investment and sense of belonging.

Organism-Response: members' psychological needs and emotional experiences (organism) will drive their behaviors (response). For example, when members feel that their contributions are recognized, they will experience a stronger sense of achievement, which in turn will lead them to participate more actively in community activities.

Stimulus-Response: the external rules, relationships, incentives and routines of the community (stimulus) can also directly influence members' behaviors (response). For example, strict technical filtering and content regulations can restrain members' behaviors and maintain the order of the community.

In summary, this study draws on the research approach of the S-O-R model, taking the governance mechanisms of firm-hosted online brand communities as the independent variable (stimulus), collective psychological ownership as the mediating variable (organism), and customer participation in value co-creation behaviors as the dependent variable (response). It explores the underlying mechanisms through which the governance mechanisms of firm-hosted online brand communities influence customer participation in value co-creation behaviors.

By applying the S-O-R model, the researcher can preliminarily formulate the governance mechanisms of firm-hosted online brand communities and identify the pathway model influencing value co-creation. The detailed conceptual model is

illustrated in Figure 9.

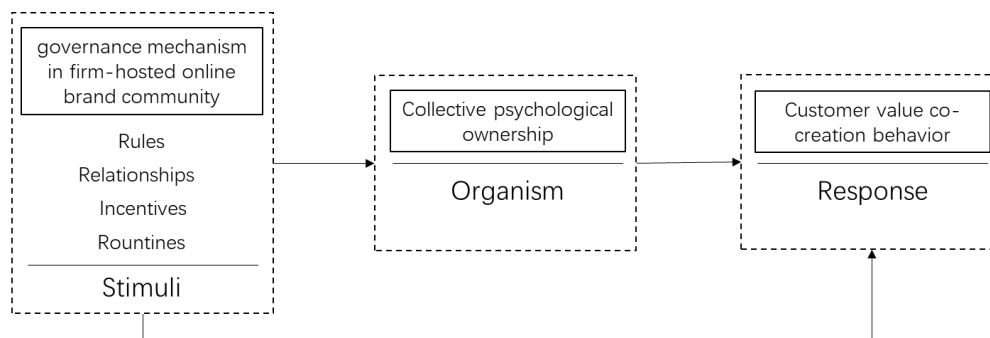


Figure 9 Application of SOR model for Formal study

4.10 Summary of Chapter 4

This chapter employed Straussian grounded theory and NVivo 12 to perform three-stage coding analysis of interview-derived data, yielding 195 initial concepts, 48 initial categories, 15 subcategories, and 6 core categories. Data saturation was methodically achieved. After the theoretical analysis and dialogue with the literature, integrating the S-O-R model framework, a model was formulated to elucidate how online community governance mechanisms influence customer value co-creation processes under the mediating effect of collective psychological ownership.

CHAPTER 5: Discussion and Contributions

5.1 Introduction

This thesis focuses on the governance mechanisms of firm-hosted online brand communities. It proposes and delineates the concepts and dimensions of these mechanisms. Employing grounded theory, the study then constructs and verifies a model depicting the relationships among governance mechanisms, collective psychological ownership, and customer participation in value co-creation behaviors.

This chapter summarizes the research conclusions, elaborates on the innovative aspects of the study, and provides practical insights for the design of firm-hosted online brand communities' governance, and the management of customer participation in value co-creation behaviors. It also points out the limitations of the research and looks forward to possible future research directions.

5.2 Research Questions

This thesis investigates three core questions, “What is the underlying framework and the dimensions of governance mechanisms in firm-hosted online brand communities?”, “How do governance mechanisms influence customer engagement in co-creation activities?” and “How does collective psychological ownership mediate the relationship between firm-hosted online brand communities' governance mechanisms and customers' value co-creation behavior?”

First, through a review and synthesis of relevant literature, this study clarifies and defines the conceptual underpinnings of governance mechanisms in firm-hosted online brand communities. Through qualitative research methods, it summarizes the existing challenges and difficulties in the design of governance mechanisms for firm-hosted online brand communities and identifies the dimensions that constitute

these mechanisms. Second, using the S-O-R model as the research framework and building on theories of psychological ownership and social identity, the study explores how the governance mechanisms of firm-hosted online brand communities affect customer participation in value co-creation behaviors. This forms the basis for constructing the conceptual model of this study. Grounded theory is then applied to explore the underlying mechanisms through which governance mechanisms influence customer participation in value co-creation. Finally, the researcher verifies the logical correctness of the model through interaction with existing literature.

5.3 Theoretical Contributions

The main research theoretical contributions of this thesis are as follows:

5.3.1 Governance Mechanisms of Firm-Hosted Online Brand Communities

The thesis extends the theoretical research on governance mechanisms in the context of firm-hosted online brand communities, and provides a clear research paradigm for the study of governance mechanisms in firm-hosted online brand communities.

Building on existing research on governance mechanisms, the thesis focuses the research context on firm-hosted online brand communities, clarifies and defines the conceptual connotations of the governance mechanisms of firm-hosted online brand communities, and delineates the research boundaries of these governance mechanisms. On this basis, through semi-structured interviews and literature analysis, the study deconstructs the concepts behind the governance mechanisms of firm-hosted online brand communities and distils the dimensions that constitute these governance mechanisms. The research extends existing studies of governance mechanisms in firm-hosted online brand communities, explores new concepts and

expands knowledge in this area, enriching research outcomes on the governance mechanisms of firm-hosted online brand communities.

The thesis identifies four core dimensions of governance mechanisms of firm-hosted online brand communities—rules, relationships, incentives, and routines. These may also be relevant to the governance mechanisms of other types of online communities.

5.3.2 Governance Mechanisms and Customer Co-Creation

The thesis constructs and verifies a conceptual model of the impact of the governance mechanisms of firm-hosted online brand communities on customer participation in value co-creation behaviors. It reveals the underlying mechanisms through which these governance mechanisms influence customer participation in value co-creation behaviors, thereby extending existing theory and providing a new perspective and direction for the study of customer participation in value co-creation behaviors in the context of firm-hosted online brand communities.

Earlier studies on value co-creation in online brand communities has predominantly focused on exploring the factors influencing customer participation in value co-creation behaviors from the customer perspective, neglecting the role of companies as co-creators of value within online brand communities. Based on a review of research related to the governance mechanisms of online brand communities, this study proposes that although firm-hosted online brand communities are virtual organizations, this does not mean that companies are powerless in online brand communities, nor does it imply that companies should tightly control them. On the contrary, companies should participate in the operation of firm-hosted online brand communities while respecting the autonomy of community members.

Integrating with the corporate perspective, this study clarifies the role of companies

or brand operators in firm-hosted online brand communities and introduces the concept of governance mechanisms into this specific research context. This approach broadens the study of customer participation in value co-creation behaviors beyond factors solely related to customers.

By positioning governance mechanisms as the antecedent variable and introducing collective psychological ownership as a mediating variable, this study explores their impact on customer value co-creation behaviors. A conceptual model of how firm-hosted online brand communities' governance mechanisms influence customer value co-creation behaviors is constructed. Through empirical research, the study reveals the underlying mechanisms of how governance mechanisms affect customer value co-creation behaviors.

5.3.3 Collective Psychological Ownership in Firm-Hosted Brand Communities' Governance

The thesis introduces the concept of collective psychological ownership and reveals the impact of the governance mechanisms of firm-hosted online brand communities on customer participation in value co-creation behaviors from the perspective of collective psychological ownership. This not only helps to uncover the complex psychological processes through which the governance mechanisms of firm-hosted online brand communities affect customer participation in value co-creation behaviors but also provides empirical evidence for the impact of collective psychological ownership on consumer behavior in firm-hosted online brand communities.

In previous research, although some scholars have extended the theory of psychological ownership from the organizational domain to the online brand communities' domain, current research on psychological ownership in online brand communities mainly focuses on the individual level, neglecting the factors of

collective psychological ownership. This thesis argues that the “collective” paradigm is of great significance in the study of firm-hosted online brand communities, and collective psychological ownership deeply influences the thinking and behavior patterns of members in firm-hosted online brand communities.

Within this theoretical context, based on the S-O-R model and through a review and analysis of existing literature, the thesis starts from the theory of psychological ownership, introduces collective psychological ownership as a mediating variable, and constructs a conceptual model of the impact of the governance mechanisms of firm-hosted online brand communities on customer participation in value co-creation behaviors, mediated by collective psychological ownership. It reveals the impact mechanisms and path of action of the governance mechanisms of firm-hosted online brand communities on customer participation in value co-creation behaviors from the perspective of collective psychological ownership. This not only verifies the impact of collective psychological ownership on consumer behavior in the context of firm-hosted online brand communities but also helps to uncover the complex psychological mechanisms through which the governance mechanisms of firm-hosted online brand communities affect customer participation in value co-creation behaviors. Additionally, it extends the theory of psychological ownership and enriches the theoretical research related to customer psychological ownership.

5.4 Policy Implications

5.4.1 Foundations of Community Governance Mechanisms

Brand operators and companies should place greater emphasis on, and actively enhance, the development of governance mechanisms within their firm-hosted online brand communities. Whether through the constraints of rules, the guidance of relationships, the reinforcement of incentives, or the direction of routines, all

these elements can have a significant direct or indirect impact on customer participation in value co-creation behaviors within firm-hosted online brand communities. Firm-hosted online brand communities lacking governance mechanisms are likely to disintegrate or perish. At the same time, brand operators and companies should also target different customer segments with varying perceptions and needs, selecting different conditions to maximize customer participation in value co-creation behaviors.

Brand operators and companies should establish and improve various rules, systems, and member agreements of firm-hosted online brand communities that reflect fairness and transparency. This includes clarifying the roles and responsibilities of each participant, regulatory requirements, and punitive measures, as well as managing and supervising the community environment to safeguard the legitimate rights and interests of all participants and ensure the orderly operation of the firm-hosted online brand communities, such as promptly deleting low-quality content, spam, or posts infringing intellectual property rights.

By leveraging the power of members, actively encouraging them to monitor and report inappropriate behavior or content, and promptly handling complaints, the community can maintain a healthy environment. Additionally, adapting to the development of the times and technological advancements, companies should continuously apply technical filtering methods and utilize big data technologies to govern the activities and interactions within firm-hosted online brand communities. For instance, employing “cyber patrols” and “sensitive word” detection can help manage and monitor the community more effectively, thereby improving governance efficiency.

Brand owners and companies should not be overly rigid and harsh when formulating rules, ensuring that the sense of control that rules may impose on members is minimized. Moreover, by integrating rules with incentives, companies

can not only maintain the authority of community rules and regulations but also enhance the visibility of community incentive measures. Through the dual effects of positive and negative incentives, customer participation in value co-creation can be maximized.

5.4.2 Collective Psychological Ownership and Member Engagement

The important role of collective psychological ownership in promoting customer participation in value co-creation behaviors within firm-hosted online brand communities should not be overlooked, especially when the governance mechanisms of these communities are not well-developed. Enhancing collective psychological ownership is a key pathway to obtaining customer participation in value co-creation behaviors. Helping members form a collective psychological ownership of the community can provide substantial support and assistance for cooperation between the company and its customers.

Firm-hosted online brand communities create a participatory experience for members, providing a space for customers to interact and communicate with like-minded individuals, and fostering a sense of “we” by breaking down barriers. Companies should not view firm-hosted online brand communities merely as tools for profit but should engage in equal dialogue with customers, earnestly listen to their opinions, and to some extent, enhance customers’ voice. Only when customers feel a sense of belonging akin to “home” within the firm-hosted online brand communities can their participation in value co-creation behaviors be maximized.

Brand operators can create opportunities for members to develop collective psychological ownership in the firm-hosted online brand communities through the implementation of rules, relationships, incentives, and routines. This allows members to clearly understand their roles, objectives, and behavioral norms, thereby enhancing their sense of control over community activities and interactions,

which in turn stimulates their psychological attachment to the community.

What's more, brand operators and companies can cultivate a harmonious, friendly, and mutually supportive community environment, fostering a cohesive and intimate community culture that meets members' emotional needs, enhances interaction among members, and promotes mutual understanding and recognition. This encourages the formation of friendships and close relationships, leading to a sense of social identification with the firm-hosted online brand communities and a voluntary increase in members' investment in the community.

Additionally, companies can implement appropriate decentralization and empowerment within the firm-hosted online brand communities to increase members' control and autonomy over community activities. This allows members to utilize their talents and realize their own values. In this process, members are encouraged to closely link their personal development and capability enhancement with the community's development, further increasing their satisfaction and commitment to the community.

5.5 Managerial Implications

By creating an inclusive, friendly, harmonious, and mutually supportive atmosphere within the community, members are encouraged to ask questions, view replies from others, and interact with one another, thereby improving relationships among members. This is particularly important for new members who, due to their limited time in the community and unfamiliarity with the environment and other members, may interact cautiously because of perceived uncertainties. To address this, community managers can actively organize community events, encourage mutual assistance among members, and provide timely feedback or responses when necessary.

Firm-hosted online brand communities may implement stratified community architectures through interest-based sub-forums and thematic segments. This segmentation enables members to selectively engage in micro-communities aligned with their specific needs, thereby facilitating multi-dimensional social capital accumulation within the platform. Proactive relationship cultivation is essential for members to effectively resolve conflicts and divergences arising during community interactions, shifting from passive conflict management to strategic disagreement resolution. The relational embeddedness cultivated through sustained engagement incentivizes members to allocate resources toward relationships maintenance, subsequently enhancing mutual trust levels. This trust foundation strengthens collaborative problem-solving efficacy and information exchange depth, thereby enabling value complementarity between community participants.

Online communities can optimize the incentive mechanisms for members' contributions and diligently meet the differentiated needs of customers. This enables community members to enhance their image and status within the community through continuous contributions, thereby strengthening their motivation to participate. Communities can affirm the positive behaviors of customers through material rewards such as lottery opportunities and points redemption for products, as well as spiritual rewards like virtual awards or enhanced community reputation, thereby improving customer experience.

For example, within the community, companies can enhance members' influence and prestige by awarding virtual badges to contributing members, offering part-time moderator opportunities to active members, and providing exclusive rewards for members of different levels (including discount codes, opportunities to test new products, etc.).

When formulating community incentive measures, brand operators and companies should adopt a combination of short-term and long-term incentives, as well as

material and spiritual incentives, tailored to the needs of different customers. Additionally, incentives should not focus solely on short-term outcomes. Instead, they should transform incentivized behaviors into cultural norms within the community, internalizing community expectations as a tacit understanding and consensus among members, thereby encouraging attitudes and behaviors that are beneficial to the community's development.

Brand owners and companies should also pay attention to the tacit understanding and consensus formed by community members through long-term online interactions within firm-hosted online brand communities. Members of firm-hosted online brand communities construct a collective metaphorical fantasy through their interactions, forming a common consciousness and behavioral tacit understanding among the group.

Routines are a mutually reinforcing pattern among members of firm-hosted online brand communities, which can help members establish the community expectations they desire and thereby encourage them to act together. Routines, often spread through interpersonal communication, are more persuasive than other governance mechanisms, more likely to bring a sense of trust among members, and more readily accepted by members. The routines in firm-hosted online brand communities are not pre-existing or fixed. On the one hand, they can be developed by actively communicating with customers to understand their values or attitudes and thereby gain their understanding and recognition. On the other hand, "opinion leaders" within the community can demonstrate and guide other members, with brand owners and companies conveying their expectations to members through these opinion leaders.

5.6 Implications for Other Stakeholders

For users of firm-hosted online brand communities, the research findings define

their role from “participants” to “co-creators”. The governance mechanism’s dimensions—such as transparent rules defining participation rights, inclusive relationship norms, and targeted incentives—provide users with clear pathways to safeguard their interests while contributing value. For instance, explicit rules on feedback adoption and reward distribution reduce uncertainty in participating in product testing or UGC creation, while the cultivation of collective psychological ownership encourages users to proactively share experiences, propose innovations, or assist peers. This implies users can leverage the community’s governance system to not only express demands but also gain a sense of belonging by integrating personal goals, including skill improvement, identity expression, with the community’s value co-creation objectives.

For community groups within these platforms, who can utilize the governance mechanism’s routines and incentive dimensions to enhance internal cohesion: for example, adopting the community’s shared behavioral norms to maintain group order, or using reputation-based incentives to motivate members’ active participation. Additionally, community groups can act as “amplifiers” of collective psychological ownership, which in turn drives broader participation in brand value co-creation.

5.7 Limitations and Future Research

While this thesis has certain theoretical and practical significance in advancing the research on the governance mechanisms of firm-hosted online brand communities and revealing their impact mechanisms on customer participation in value co-creation behaviors, it also has some limitations that need to be further addressed and improved in future research.

5.7.1 Future Research Directions for Firm-Hosted Brand Community Governance

This thesis validates the conceptual model by collecting data through self-assessment of members of firm-hosted online brand communities, and all variables belong to the category of personal perception or attitude. In the future, it would be beneficial to collect paired data from both community managers and standard members for comparative research, which would further enhance the scientific rigor of the study and the credibility of the conclusions. Additionally, the research subjects of this thesis are the Xiaomi Community and My Huawei, both of which are firm-hosted online brand communities in the IT industry.

Moreover, although My Huawei has not been established for a long time, its predecessor migrated from the “Huawei Pollen Club”, so it can be said that the development of these two firm-hosted online brand communities is relatively mature. However, firm-hosted online brand communities in different industries and at different stages of development (infancy, growth, maturity, and decline) have different development goals and focuses, which may have certain impacts on the attitudes and behaviors of customers within the community. Future research should consider the type and lifecycle of firm-hosted online brand communities and delve into how the characteristics of different types of communities and those at different lifecycle stages influence the research conclusions, thereby further expanding the scope of applicability of the research findings.

In addition, the impact of the governance mechanisms of firm-hosted online brand communities on customer participation in value co-creation behaviors may have a time-lag effect. Future research should adopt a dynamic perspective to explore whether and how the influence of the governance mechanisms of firm-hosted online brand communities on customer participation in value co-creation behaviors evolves over time.

5.7.2 Other Unexplored Mediators

In this study, collective psychological ownership mediated the impact of rules, relationships, incentives, and routines on customer engagement in value co-creation behaviors. However, it remains unclear whether other mediating variables, in addition to collective psychological ownership, could explain the mechanisms through which governance mechanisms influence customer engagement in value co-creation behaviors. Therefore, future research will continue to explore other potential mediating factors in the relationship between governance mechanisms and customer engagement in value co-creation behaviors to further refine the existing model and enhance the scientific rigor and completeness of the research model.

5.8 Conclusion

5.8.1 Multi-Dimensional Governance Mechanisms in Firm-Hosted Brand Communities

In previous studies, the understanding of the governance mechanisms of online communities has been chaotic to a certain extent. Different scholars have interpreted them from their respective perspectives but failed to comprehensively clarify the governance mechanisms across various dimensions.

The first core issue of this thesis is to explore the concept and dimensions of the governance mechanisms of firm-hosted online brand communities. First, the concept of firm-hosted online brand communities is clarified, and the general concept of governance mechanisms is analyzed. Based on this, by reviewing and analyzing the literature on governance mechanisms in relevant fields, the concept of the governance mechanisms of firm-hosted online brand communities is defined. This mechanism refers to the various institutional designs, power arrangements, and specific operational processes formed by owners and stakeholders in firm-hosted

online brand communities to constrain and reshape members' behaviors, reduce opportunistic risks, ensure orderly and efficient community operations, and safeguard common interests.

Next, based on the concept of the governance mechanisms of firm-hosted online brand communities, data was collected through semi-structured interviews with community administrators and standard members, as well as through literature analysis. Grounded theory was then applied to code the collected data, and the dimensions of the governance mechanisms were identified. After conducting a dialogue with existing literature, it is demonstrated that the governance mechanisms of firm-hosted online brand communities is a multi-dimensional concept, specifically including rules, relationships, incentives, and routines.

5.8.2 Governance Mechanisms Impact on Customer Value Co-Creation

After identifying the four-dimensional governance mechanisms of firm-hosted online brand communities, this study further explores how these governance mechanisms affect customers' value of co-creation behaviors directly or indirectly.

Through semi-structured interviews with members of the Xiaomi Community and My Huawei, combined with relevant research findings, the logical relationships in the conceptual model between the governance mechanisms of firm-hosted online brand communities and customer participation in value co-creation behaviors are verified. The results show that among the direct impacts of the governance mechanisms dimensions on customer participation in value co-creation, rules, relationships, incentives, and routines all have significant positive effects on customer participation in value co-creation behaviors. Regarding the indirect impacts of the governance mechanisms on customer participation in value co-creation behaviors, rules, relationships, incentives, and routines can all indirectly influence customer participation in value co-creation behaviors through collective

psychological ownership.

5.8.3 Collective Psychological Ownership Mediates Governance Mechanisms and Customer Value Co-Creation

Based on a review of previous studies, this thesis argues that consumers do not passively accept governance mechanisms; instead, they interpret and evaluate governance mechanisms through their internal psychology and thus respond accordingly. This study holds that collective psychological ownership has a significant impact on customer participation in value co-creation behaviors. This study adopts the S-O-R model as its foundational research framework, originating from the psychological ownership theory and introducing the concept of collective psychological ownership.

To address the research objectives, on the one hand, this study undertakes theoretical analysis to explore the relationship between collective psychological ownership and customer value co-creation behavior, and on the other hand, empirical analyses the mediating role of collective psychological ownership in the relationship between the governance mechanisms of firm-hosted online brand communities and customer value co-creation behavior. The findings validate the logical relationships embedded in the conceptual model, revealing that collective psychological ownership exerts a significantly positive influence on customers' participation in value co-creation behaviors and specifically functions as a mediating mechanism in the relationships between the four core dimensions of governance mechanisms—rules, relationships, incentives, and routines—and customer value co-creation behaviors.

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APPENDICES

Appendix A: Interview Schedule for Semi-structured Interviews

Interview Schedule for the thesis: Governance Mechanism, Collective Psychological Ownership and Value Co-Creation in Firm-hosted Online Brand Communities.

Section 1. Understanding Online Brand Communities:

1. How did you first become aware of the Xiaomi Community/My HUAWEI, and what motivated you to join?
2. Can you describe your overall experience as a member of the online brand community? What activities do you usually engage in within the community?
3. How frequently do you participate in activities like product feedback, discussions, or co-creation initiatives within the online brand community?
4. What are the main reasons that keep you engaged in the Xiaomi Community/Pollen Club?
5. Are you a manager, brand representative, or customer?

Section 2. Perceptions of Governance Mechanisms:

6. What does "governance mechanisms" mean to you in the context of the Xiaomi Community/Pollen Club?
7. Have you noticed any rules, guidelines, or policies set by the community

administrators to govern interactions and behaviors within the online brand community? If yes, how do you feel these mechanisms impact your participation?

8. How do you perceive accountability mechanisms within the online brand community? Are there any consequences for improper behavior or rule-breaking?
9. How do relationships influence the way members interact and collaborate within the online brand community?
10. Have you come across any incentives designed to encourage active participation and value co-creation? If yes, please share your experiences with these incentives.
11. How do online conventions or unwritten rules shape the behavior and interactions of members within the online brand community?

Section 3. Influence of governance mechanisms on Customer Participation in Value Co-Creation:

12. From your experience, how do you think the governance mechanisms in the Xiaomi Community/Pollen Club influence customer participation in activities like product design, feedback, or new product development?
13. Can you share an example of a situation where you felt that the governance mechanisms positively impacted customer engagement and value co-creation within the online brand community?
14. Conversely, have you encountered any instances where the lack of governance

or improper governance negatively affected customer participation in value co-creation activities?

Section 4. Collective Psychological Ownership:

15. How connected do you feel about the Xiaomi Community/Pollen Club and its outcomes? Do you believe that a sense of collective ownership influences your level of participation in value co-creation?

16. Have you experienced a situation where a sense of collective ownership within the community motivated you to actively contribute to the value of the co-creation process?

17. How do you perceive the influence of collective psychological ownership in shaping the online brand community's overall culture and activities?

Section 5. Final Thoughts:

18. In your opinion, what improvements could be made to the governance mechanisms in the online brand community to enhance customer participation in value co-creation activities?

19. Is there anything else you would like to share about your experiences and insights as a member of the Xiaomi Community/Pollen Club?

Thank you very much for accepting our interview request. Your answers will be of great help to our research.

Appendix B: Electronic Consent Form for Studies

Research Project Title: Governance Mechanism, Collective Psychological Ownership and Value Co-Creation in Firm-hosted Online Brand Communities.

GUEP Approval Number:

	Please tick box
I confirm that I have read and understood the information sheet explaining the research project and I have had the opportunity to ask questions about the project.	
I understand that my participation is voluntary and that I am free to withdraw at anytime during the study without giving a reason, and without any penalty. I understand that if I withdraw no more data will be collected from me. However, any data collected up until the point that I withdraw may be kept and used in the data analysis.	
I understand that my responses will be kept anonymous.	
I understand that my statements may be cited in the published paper.	
I understand that this interview will be recorded	
I agree to take part in this study	

Appendix C: Recruitment Material for Volunteers

Join Our Research on Governance Mechanisms in Corporate Online Brand Communities

Hello!

Are you interested in exploring the fascinating world of online brand communities and their impact on customer engagement? If so, we invite you to participate in our research study at the Xiaomi Home and Pollen Club. We are seeking volunteers like you to help us delve into the governance mechanisms of corporate online brand communities and understand how they influence customer participation in value co-creation activities.

About the Research:

In recent years, Online brand communities have become increasingly prevalent as companies seek to engage with customers, encourage participation in product development, and foster social connections. However, the lack of standardized behavioral norms in these online platforms poses challenges for companies in managing and controlling activities within the community.

Our research aims to address these challenges by studying governance mechanisms in corporate online brand communities. We will explore the dimensions of governance and their impact on customer engagement in value co-creation activities.

About the Online Interview:

The interview will be conducted online and will take about 20 minutes. This online interview will be recorded. If you are willing to participate in our research, I will

send you the Participant Consent Form. You will need to sign the ***Participant Consent Form*** and send it to me. In addition, I will send you a semi-structured interview schedule before the interview.

In addition, there are several tips that need to be noted:

1. The interviewees in this study need to be at least 18 years old. Please confirm that the age requirement has been met.
2. You must be an active member of the Xiaomi Community or Pollen Club.
3. For other details, please refer to the attached Participant Information Sheet.

Your valuable contribution as a participant in our research will help uncover the mechanisms that drive customer engagement in online brand communities. Together, we can pave the way for more effective and engaging customer experiences in the digital world.

Looking forward to your reply, thank you!

Appendix D: Participant Information Sheet

1. Research Project Title

Governance Mechanism, Collective Psychological Ownership and Value Co-Creation in Firm-hosted Online Brand Communities.

2. Background, aims of project

I am Li Yunlu, a Dman student at the University of Stirling. My research objective is Firm-hosted online brand Communities. This research will focus on two core questions: "What are the concepts and dimensions of governance mechanisms in Firm-hosted online brand communities?" and "How do governance mechanisms in firm-hosted online brand communities affect customer participation in value co-creation behavior?" To provide you with a better experience in Firm-hosted Online Brand Communities, I hope you can participate in my research. I would like to invite you to take part in this research study, and I would be very grateful.

3. Why have I been invited to take part?

You have been invited because you are a user of Xiaomi Community or Pollen Club. You may also have experience, insight, and information, which are able to provide and contribute further knowledge to the study.

4. Do I have to take part?

No. You do not have to take part. You are under no obligation to take part. If you do decide to take part, you can withdraw your participation at any time without needing to explain any reason. If you withdraw, I will not collect any more data from you. However, any data collected until the point that you withdraw will be kept and used in the data analysis. You will be given this information sheet to keep and be asked to complete an electronic consent form.

5. What will happen if I take part?

You will need to complete the interviews. Your interviews will be audio-recorded if you give your consent. Audio-recording is to help me because English is not you and me first language. Each interview will last about 20 minutes in a safe, quiet, and private online environment using Tencent Meeting. You will not be required to attend on-site.

6. Are there any potential risks in taking part?

There are no foreseeable risks in taking part. There are no financial or health and safety issues involved in this project.

7. Are there any benefits to taking part?

There will be no direct benefit to you from taking part in this research.

8. What happens to the data I provide?

I am carrying out this study as part of my personal studies towards the completion of my doctoral degree. The information will be stored anonymously using fictitious names such as Interviewee 1 and Interviewee 2. All electronic data and audio data will be securely stored on the University server with password protection while the hard copies of transcripts will be kept in a secure and locked cabinet at all times on the campus accessible only by the researcher. All data will be disposed of when reaching the determined date in accordance with the University of Stirling and GDPR guidelines.

9. Recorded media

The interviews will be audio-recorded through Tencent Meeting's voice recorder application and recording device, if consent is given. Using the audio recording during the interview will help you grasp all the information provided. The audio data and the transcribed data in forms of electronic data will be stored confidential and secure on the University's server with password protection. Such data will only be accessible by the researcher. When discussing the data analysis with my

supervisor, I will use the transcribed data in which all identifiable data are already replaced with fictitious names. By this, the confidentiality of the audio data will be protected. Importantly, the data will never be carried out without the participants' approval and permission.

10. Will the research be published?

This research will be used for my postgraduate doctoral project. The findings may also be presented at conferences or published in academic journals. You will not be identified in any publication. The University of Stirling is committed to making the outputs of research publicly accessible and supports this commitment through our online open access repository STORRE. Unless funder/publisher requirements prevent us, this research will be publicly disseminated through our open access repository.

11. Who has reviewed this research project?

The ethical approaches of this project have been approved via The University of Stirling [General University Ethics Panel].

12. Who do I contact if I have concerns about this study or wish to complain?

If you would like to discuss the research with someone, you can send an email to my email address

1. Yunlu li, Researcher

Email: yunlu.li@stir.ac.uk

2. Kevin Campbell, Supervisor

Email: kevin.campbell@stir.ac.uk

3. Kevin Grant, Dean of Stirling Management School

Email: kevin.grant@stir.ac.uk

You will be given a copy of this information sheet to keep it up.

Thank you for participating.