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Research Jungle on Online Consumer Behaviour in the Context of Web 2.0: Traceability, Frontiers and Perspectives in the Post-Pandemic Era

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Abstract: In recent years, the study of online consumption behavior has gradually formed its research system and analysis model based on the inheritance of traditional research paradigms, focusing on the inner mechanism of consumption models explained by consumption activities. Online consumption is based on the research scenario of social e-commerce and forms a broad research network through the extension of consumer objects, consumer psychology, and consumer concepts. Although the theoretical constructs of online consumer behavior continue to improve, the relevant studies still do not fully grasp the research frontiers due to the lagging research nature. In the context of Web 2.0, it is impossible to run through the latest developments in online consumption research. Moreover, the study of online consumer behavior has shown a trend of diversification and multiple schools of thought, and a research jungle has emerged, which in essence is the perfection and new height of the study of consumerism. This paper analyses the origins, frontiers, and prospects of online consumer behavior research to clarify the formation principles, development paths, and future directions of the online consumer behavior research jungle. Ultimately based on the economic changes in the post-pandemic context, this paper integrates and proposes an evolving mechanism for studying online consumption behavior, intending to achieve a peek into and reveal the jungle of online consumption research.

Keywords: online consumer behavior; research jungle; consumer science; social e-commerce; web 2.0



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1. Introduction

In recent years, the development of Internet technology has gradually changed people's lifestyles and the way of value production and exchange, and the consumption concept, mode, and status of consumer groups have thus faced significant changes [1]. As the production-consumption unity logic gradually replaces traditional production-consumption binary logic, the rationality-driven traditional consumption decision theory can hardly explain the new phenomenon [2]. As a result, the concept of online consumer behavior has emerged and received extensive attention and in-depth research from academics [3–5].

Based on the extension of traditional consumer behavior theory, online consumer behavior presents new qualities [6,7]. In the context of the Internet, multi-dimensional communication [8] and multi-channel connection give a more profound connotation to consumer behavior. The essence of trading, exchange, and production activities is creating, disseminating, and consuming information [9]. This paper further explains the causes of online consumer behavior theories by tracing consumption theories to their origins. Since there are parallel schools of research on online consumer behavior and a theoretical jungle is beginning to take shape, the integration of consumption theories can enable the categorization and division of research trends on online consumer behavior [10]. Moreover,

research on online consumption behavior has become increasingly mature in the past five years. By comparing previous studies, scientific research resources can be effectively allocated to guide the efficient construction of the theoretical system of online consumption behavior and form a theoretical framework of online consumption behavior that better fits reality [11]. Regardless of the changes in consumption patterns, the evolution mechanism of online consumption under Web 2.0 and social architecture has always been inherited from traditional consumption theories in the post-pandemic era [12,13]. Based on the frontier dynamics, this paper can generate preliminary judgments on social networks, online communities, and consumer behavior in the post-pandemic era to contribute to the theoretical basis for the recovery of the Internet economy [14].

Based on the analysis of traditional consumption theory and consumer behavior, this paper explores the development of the emerging online consumption behavior, summarises the main research elements of online consumption behavior through bibliometrics and research trends, and then analyses the evolution of online consumption behavior in the post-pandemic era. In contrast to traditional consumer behavior and consumption theory, this paper addresses the following main issues: (1) to analyse the evolutionary patterns of consumption theory and behavior from traditional consumption to online consumption to the post-pandemic era; (2) to summarise the research themes of online consumption in existing studies and analyze the main research elements on online consumption behavior; (3) to explore the frontiers of research in the age of online consumption in the context of Internet e-commerce; (4) the prospects for future directions, methods, and convergence models for research on online consumer behavior in the era of online consumption and the post-pandemic era. (5) We define the study of online consumer behavior in the Web 2.0 era as a “jungle” scale, which means that research in this field is neither isolated nor has it reached the whole, large scale of a system or discipline, so we need to make a reasonable judgment on its inner mechanisms. Like the intertwined leaves of the jungle, the papers, concepts, and ideas in the ‘intertwined’ section are at the heart of the jungle system. We have focused on this, and this relationship is also applicable to Histcite citation analysis, bibliometrics, and other research methods. The inherent complexity of this jungle is better revealed than in meta-analysis. (6) The significance of the literature analysis is to enlighten more scholars to explore, and this paper also focuses on the potential trend of this research direction and gives a hypothetical model of quantitative judgments that can be analyzed. In the subsequent research, we also hope to expand the study of online consumer behavior into a complete disciplinary system or discipline based on the evolution of consumerism, the complement of theory, and the strengthening of empirical evidence, and this upgrade of jungle framework research is also the focus of this paper. (7) In addition, we have added a description of the foundational status of the field, including the diversity of topics, the most influential authors or originators of articles, the status of cross-research collaborations, and the intellectual and theoretical hierarchies within research. In addition to these foundational analyses, we have also made reasonable judgments about what issues prevent deeper exploration of the field.

The primary purpose of HistCite is to analyze and structure the results of the literature search in order to understand trends in the development of disciplines, historical events, and the number of scientific articles produced by universities, research institutes, and authors, and to create topological charts based on the results. This paper first analyses the evolutionary patterns of consumption theory and consumption behavior in the context of different consumption eras. Secondly, it uses bibliometric methods and Histcite citation analysis software to summarize subject terms [15] to compare and analyze the research themes, main contents, and keywords of online consumption behavior. Then, based on analyzing the research on online consumption behavior decision making that inherits the traditional paradigm, a research perspective in social e-commerce is summarily proposed. Finally, innovative research perspectives on online consumption behavior are presented to analyze future research directions and methods on online consumption in the context of the post-pandemic era.

2. The Concept of Consumer Behavior Traceability

As consumption theory is an essential part of economics, it is essential to understand and clarify the relationship between consumption theory and economics [16]. Deciphering the code of evolution of consumption theory based on economic perspective can effectively reconstruct the system of consumption theory. It also promotes the interpretation and application of consumer and consumption behavior concepts based on theoretical interpretation.

2.1. The Evolution of Consumption Theory

Academics generally consider that Keynes' theory of total income of consumption in his General Theory of Employment, Interest and Money published in 1936 marked the formal opening of consumption theory study [17]. This paper divides consumption theory into traditional and modern consumption theories based on the rational expectations revolution of the 1970s. Deterministic studies dominate traditional consumption theory, and its core hypotheses are the absolute income hypothesis and the relative income hypothesis [18]. Modern consumption theory is dominated by the study of uncertainty and identifies the random wandering hypothesis and the precautionary savings hypothesis as the theory's cornerstones, as shown in Figure 1.

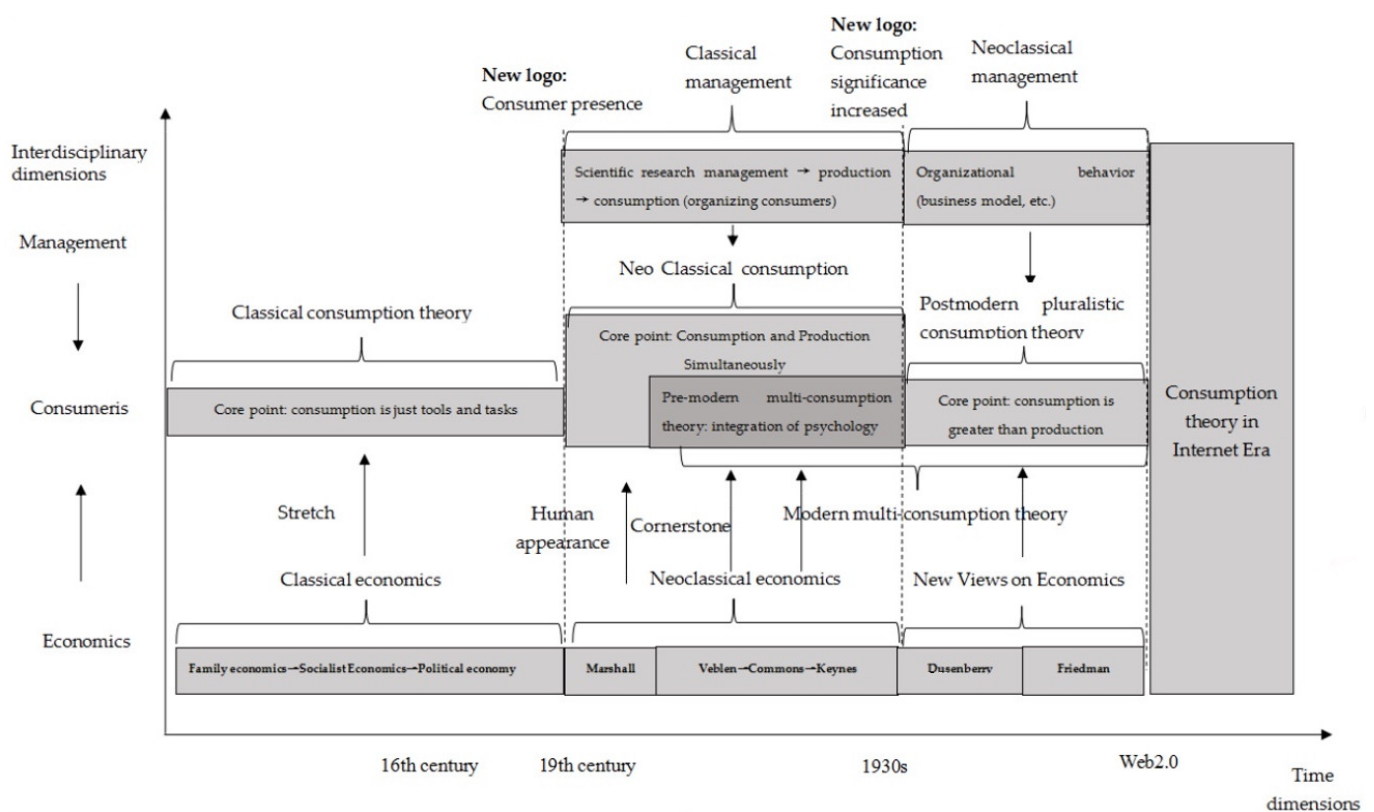


Figure 1. Evolution of consumption theory.

- Classical consumption theory

In classical economic theories, the relationship between consumption and production already exists. Therefore, the definition of consumption theory can be further expanded. Consumption theory can be extended in classical economics to form the most primitive classical consumption theory [19]. Consumption at the stage of family economics is an essential social and interactive means to meet family development. Only the main body of the family economy can be defined as the consumption object. Throughout the 4th century to the 16th century AD, the essence of consumption theory in the stage of religious

economics was to meet the needs of society and power. There is also no initiative in consumption, and the consumption objects have changed from believers to merchants [20]. The consumption theory of classical economics emerged in the 17th century. As the bourgeoisie entered the stage of history, consumption behaviors tended to be diversified. People chose freely according to their preferences, and the concept of consumers also formally appeared: actors purchase goods mainly for individuals or families, and they can actively choose according to their wishes [21].

- Neoclassical consumption theory

After the second industrial revolution, people's consumption power and consumption thinking have changed, and consumption freedom has increased. Combined with the previous classical economic theory, the concept of the consumer has formally appeared. This article believes that the emergence of consumers signifies that consumption theory has entered the neoclassical stage. Marshall and others gave their core views: marginal utility value theory, consumer surplus theory, consumption habit, and regional theory [22]. They mentioned "consumers" for the first time, and at the same time pointed out that consumption is the psychological consciousness produced by people's inner pursuit of material, which laid the foundation for later scholars to introduce consumption theory into psychological perspectives. The relationship between consumption, desire, and satisfaction clarifies commodities' essential role in consumption activities: satisfying desires and diminishing utility as consumption increases. Moreover, the consumption motivation is also explained: the comparison between consumer surplus and actual consumption cost [23]. As the neoclassical school began to study consumption development strategies and promotion paths, consumption research peaked.

At the end of the nineteenth century, the classical school of management, represented by Tero, offered new insights into production activities. Tero broadened the path of scientific management, production activity, and consumption activity to the study of consumption theory, further enriching the consumer's concept. The emergence of the firm has refined the consumer's concept as a consumer in the historical arena, which shows that neoclassical consumer theory is based not only on neoclassical economics but also on classical management ideas and the theoretical system becoming increasingly complete.

- Modern multi-consumption theory

Institutional economics [24], born out of the neoclassical school of economics, is along the same lines as neoclassical consumption theory. In the pre-modern diversified consumption theory, in the late 19th century, the expansion of capitalism accelerated, technological advancement brought about the increase of social productivity, the rapid increase of consumer demand, and a new era of mass consumption. Veblen, the pioneer of institutional economics, introduced psychological guidance to consumerism for the first time. Then Commons, the founder of institutional economics, pulled out consumer studies' perspective from a purely economic perspective and analyzed the impact of the environment on consumption, thinking that the cultural atmosphere or habits will determine people's consumption activities. He subsequently introduced politics, law, sociology, psychology, and other perspectives to explore the source of changes in consumer behavior. In the post-modern diversified consumption theory, after the 1930s, capitalist society entered the post-industrial era, and the service industry ushered in significant historical opportunities. Society changed from "production" as the core to "consumption" as the core. At this stage, neoclassical management theory introduces consumption into the organizational perspective and considers group consumption decision-making behavior. At the same time, scholars gradually pay attention to the relationship between business operations and consumption and reshape consumption concepts and behaviors through business models. Dusen Bailey and Samuelson further discussed the influencing factors and rational decision-making of consumption, highlighting consumption status. The core sign of this stage is that consumption status has risen to the highest point, becoming the core driving force of social and economic development.

- Consumption theory in the Internet age

At the end of the 20th century, the Internet gradually emerged, and consumption theory showed a new development trend. Mainstream views include the basic theory of the Internet proposed by Wu [25] and the theory of the integration of production and consumption proposed by Shen Lei. In essence, this emphasizes that modern consumer activities rely on Internet platforms, and consumer boundaries are further blurred. That is to say, everyone is a consumer in a broad sense, and all forms of organization are also consumers, gradually erasing the boundary between consumption and production and highlighting the dual identity of individual consumers and producers. The core feature of consumption theory in the Web era is to combine consumption activities with Internet information media, broaden the integration of information fields and consumption activities, and become more practical [26].

- Theories of consumption in the post-pandemic era

As the nature of the technological basis (the Internet) and the characteristics of the era (predominantly online consumption) of consumption theory in the post-pandemic era have not changed, it is encapsulated in the theory of consumption in the Internet era. However, due to the restrictions imposed by the epidemic on economic channels, the consumer's specific 'production-consumption unification' will be further strengthened. This theory is mainly derived from the overlay of the theory of revenge consumption and the theory of free economy. It is a theory of revenge consumption based on the material basis of the rapid economic progress of society as a whole and the psychological drive of emotional consumption that goes beyond actual needs. In the post-epidemic era, consumption has amplified desires, class differences, and comparison, but it has also stimulated productivity development and social progress. Adam Smith, the founder of liberal economic theory, argued that consumption does not necessarily bring only the foolish frivolity of the pursuit of extravagance; one will constantly slowly develop higher needs. The practice of vindictive consumption proved to be a more diverse presentation of the liberal economy, and more social progress became apparent. Alternatively, instead, this is the rebound of society in the post-epidemic era. Consumerism and consumer behavior will continue in the new era but will be given a different meaning. Consumption will tend towards pragmatism and purity, and people will become more acutely aware that: consumption does not command life and life commands consumption. Consumerism will be interrogated more seriously in order to provide an adequate theoretical basis for careful budgeting. Consumer activities and Internet information will be affected by government regulatory policies, and there will be an inevitable trend of centralization. For example, during community closures, as consumer activity shrinks, the resource allocation mechanism relies on the openness of Internet information. Ultimately each consumer buys the required supplies centrally in the online channel. This situation has led to the strengthening of the government's position in the digital ecosystem and Internet information platform, resulting in a government-led 'production-consumption unification' model, which may be similar to the planned economy of the past. However, the expansion of the Internet has increased the scope for 'planability' and 'activism' of online consumers.

2.2. Evolution of Consumer Research

Academics defined the beginnings of consumer research as motivational research in the 1940s, arguing that the external driving forces and motivations for consumer research development were manifold. However, in conjunction with the existing analysis, the consumer concept already exists in neoclassical consumer theory, and the core concepts are primarily highlighted, a scholarly leap that further enriches consumer studies [27]. The only formal academic study of the 'consumer' is the *Annual Review of Psychology*, whose gaps have allowed consumer research to lag behind consumer theory. Consumer behavior is highly complex and cannot be fully explained by a single model. As a result, scholars have realized that consumer research covers many disciplines such as psychology, society,

and computing. In this intellectual context, while the consumer emerged in neoclassical consumer theory, formal research progressed in postmodern pluralistic consumer theory. Based on consumer research systems, this paper delineates three types of consumer research.

- Behavioral determinism and social cognitive research—the traditional consumer

In behavioral determinism, consumer research tends to explore value maximization and time-consistent preferences, thus yielding results that deviate significantly from classical economic theory. In contrast to consumer behavior research, which essentially models the influence of externalities on consumers, behavioral determinism is based on a consumer behavior perspective and identifies the external environment's responses.

In social cognitive research, much academic attention has been paid to social cognitive psychology's influence on consumers, including the genesis and evolution of the stages of communicative models and memory-based task studies. Overall, social cognitive research is an empirical paradigm study that focuses more on theories related to the consumption environment and summarizes the researcher's review. Traditional consumer research was limited by the circumstances of the times and did not essentially extend beyond the consumers themselves, and because the commodity economy had not yet flourished, there was less empirical research.

- Activist and postmodern consumer research—the modern consumer

This phase of research introduced the discourse of consumer behavior. Positivist consumer research looks to explain the causal relationship between consumers and consumer behavior. However, postmodern consumer research focuses on particular objects such as consumer experience and consumer behavior through the subjective analysis of historical data. With McQuarrie and Mick [28] combining semiotic analysis and experimental research in their study, there is a trend towards the convergence of activist and postmodern consumer research, and modern consumer research tends to diversify and become more academically compatible.

- Consumers in the Internet age

This phase of consumer research themes was accompanied by an unprecedented boom in improving business models and the Internet's emergence. Because of the further integration of consumer research and consumer behavior research, consumer research in this period was inclusive and open to incorporating other theories. Of particular importance, online consumers' concepts and online consumer behavior also emerged in this theoretical system. Scholars began to develop advanced research based on the original study of consumers towards the association of business models with media platforms [29]. The research objective is to construct a rational system of research on online consumption and to actively explain the motives for the change of business models and the value of the use of media platforms in consumption activities, etc. For example, Ye et al. [30] mentioned the differences between online consumer behavior and traditional consumer behavior, and in subsequent studies, research branches such as online consumer trust and online consumer environment emerged. These new attributes of the Web brought about entirely new research directions and converged to form consumer research in the Web era.

- Consumers in the post-pandemic era

Along with the changes in public administration and the restructuring of government governance activities, this phase of consumer research topics showed differentiated characteristics. As can be seen in conjunction with the previous analysis, the research system developed for online consumption is beginning to integrate public goods and necessities. Due to the economic impact of the epidemic, consumers have become more dependent on the availability of essential consumer goods and online technology. Consumers need online consumption to enable many social and shopping activities. For example, the current hot educational applications, free from geographical and environmental restrictions, have brought online education into the home. As a service of immediate need, education is an

essential extension of the new online consumer system, and the new needs and services represented by it will become the focus of new research.

3. Lineage of Research on Online Consumer Behavior

In light of the preceding analysis, the formalization of consumption theory into a theoretical jungle has led to a shift in the focus of academic research towards the theme of the 'consumer.' However, under consumer theory in the web age, there has been a significant shift in the body of consumer research: academics tend to generalize consumer research in terms of consumer behavior. As a consumer behavior log emerged in the Web era of consumer theory and society entered the Internet era, online consumer behavior log became an important opening area for contemporary consumer theory, and the jungle of consumer theory officially entered the era of online consumer behavior research.

3.1. Analysis of Bibliometric Results

In this paper, the "Web of Science Core Collection" was selected as the platform for searching literature on the topic of "online consumer behavior" for all years. The search was based on the subject terms = "online consumer behavior*, internet consumer behavior*, web consumer behavior*, digital consumer behavior*", spanning all years (from 1975 to 2019). After removing unrelated subject categories such as Ecology, Marine Freshwater Biology, and Substance Abuse, there were 6620 articles. Combined with Shen Lei et al.'s compendium of research on online consumer behavior up to 2014, this paper provides a focused analysis of subsequent research from 2014–2019 to clarify the cutting-edge dynamics of online consumer behavior [9].

3.1.1. Number of Documents

As seen in Table 1, the number of articles on online consumer behavior has increased year on year, from six in 1996 to 793 in 2018 (2019 is not yet fully counted). The study found a peak after 2015, with 52.3% of the total number of articles published in the last 5 years and 81.3% of the total number of articles published in the last 10 years, indicating a significant change in frontier research the last 5 years. Therefore, the study of online consumer behavior is still on the rise, the discipline is relatively young, and new topics and subjects are emerging quickly, and it is essential to strengthen the cutting-edge research on online consumer behavior.

3.1.2. Comparison of the Distribution of Subject Terms

To understand the content overview of the field of online consumer behavior, this paper conducted subject word summary statistics based on Histcite citation analysis software and censored and collated the top 200 subject words in terms of word frequency. The final result was 78 buzzwords grouped into seven research directions: consumer object, consumer psychology, consumer, marketing, green consumption, consumer behavior, and Web 2.0. As shown in Table 2.

Table 1. Number of publications in the research literature on online consumer behavior over the years.

Year	Number of literature	Percentage
1996	6	0.09%
1997	4	0.06%
1998	17	0.26%
1999	9	0.14%
2000	33	0.50%
2001	47	0.71%
2002	59	0.89%
2003	99	1.50%
2004	102	1.54%
2005	116	1.75%
2006	139	2.10%
2007	148	2.24%
2008	188	2.84%
2009	271	4.09%
2010	345	5.21%
2011	392	5.92%
2012	361	5.45%
2013	374	5.65%
2014	448	6.77%
2015	531	8.02%
2016	682	10.30%
2017	754	11.39%
2018	793	11.98%
2019	702	10.60%

Table 2. Comparison of word frequencies and classifications of subject terms in online consumer behavior research.

	1996–2014	2015–2019	Ringgit Growth Rate		1996–2014	2015–2019	Ringgit Growth Rate		1996–2014	2015–2019	Ringgit Growth Rate
Consumer				Consumers				Consumer Behavior			
Health	172	181	5.23%	Community	52	63	21.15%	Use	132	175	32.58%
Food	68	187	175.00%	Groups	21	31	47.62%	Search	117	79	–32.48%
Travel	41	59	43.90%	Social	138	430	211.59%	Purchase	114	231	102.63%
Banking	35	57	62.86%	Users	68	76	11.76%	Purchasing	107	121	13.08%
Knowledge	33	69	109.09%	Young people	-	53	-	Decision-making	69	78	13.04%
Auctions	46	-	–100.00%	Students	-	47	-	Experience	68	85	25.00%
Music	29	-	–100.00%	Media	55	222	303.64%	Select	60	72	20.00%
Hotels	-	61	-					Explore	57	62	8.77%
Fashion	-	49	-	Marketing				Comment	54	130	140.74%
Luxury	-	36	-	Relationships	49	63	28.57%	Spread the word	43	62	44.19%
Clothing	-	34	-	Value	67	102	52.24%	Evaluate	35	37	5.71%
Organic	-	33	-	Advertising	80	88	10.00%	Intervention	29	33	13.79%
Consumer Psychology				Branding	79	197	149.37%	Get involved	-	88	-
Trust	132	113	–14.39%	Price	70	54	–22.86%	Web 2.0			
Intentions	97	201	107.22%	Word of mouth	56	76	35.71%	Mobile	121	190	57.02%
Perception	96	119	23.96%	Strategy	32	32	0.00%	Electronic	93	72	–22.58%
Self	86	113	31.40%	Product	101	138	36.63%	Digital	90	134	48.89%
Understanding	87	59	–32.18%	Quality	96	75	–21.88%	Technology	93	93	0.00%
perception	76	132	73.68%	Channels	53	67	26.42%	New	72	70	–2.78%
privacy	70	59	–15.71%	Dynamics	21	56	166.67%	Virtual	70	53	–24.29%
Loyalty	67	70	4.48%	Culture	35	56	60.00%	APP	36	47	30.56%
Attitude	63	98	55.56%					Data	36	101	180.56%

Table 2. Cont.

	1996–2014	2015–2019	Ringgit Growth Rate		1996–2014	2015–2019	Ringgit Growth Rate		1996–2014	2015–2019	Ringgit Growth Rate
Consumer				Consumers				Consumer Behavior			
Gender	39	49	25.64%	Green consumption				Interaction	22	70	218.18%
Preference	37	49	32.43%	Environment	39	42	7.69%	Sharing	20	70	250.00%
Motivation	26	45	73.08%	Sustainable	-	55	-	Content	46	72	56.52%
Satisfaction	70	87	24.29%	Development	-	55	-	Information	297	249	-16.16%
Risk	67	75	11.94%	Green	-	43	-	Traffic	23	-	-100.00%
Personal	43	42	-2.33%					Facebook	-	47	-
personality	20	-	-100.00%					Electronic Word of Mouth	-	37	-

Hotels, fashion, luxury goods, the clothing industry, and the organic sector have become the focus of consumption in the web era, as living conditions have gradually improved. Academics have also paid great attention to these themes in the last five years, with diet and health and knowledge sharing [31] attracting social attention. With the integration of neoclassical management concepts, organizational forms have emerged in the concept of the consumer. In the age of online consumption, however, it has become a key focus of research in recent years, as the Internet shortens the distance between people and expands the means of communication, with communities replacing the traditional sense of face-to-face offline organizations. At the same time, consumer groups tend to be younger, and this shift is because the Internet receptors are predominantly younger people, who are more influenced by the Internet, more receptive to learning and, therefore, more quickly involved in online consumption activities. In the last five years of the study, the terms group, social, and media have emerged with great frequency, with a 125% increase over the previous five years, while young people and students have emerged more recently, signaling a change in the main consumer force.

In the early days of the Internet, research on online consumer behavior focused on privacy issues, and a crisis of trust was widespread and received academic attention [32]. As the technology matured and online consumption behavior became more widespread, the research theme words of trust, understanding, privacy, and risk gradually became marginalized, and keywords such as intention, perception, self, attitude, and satisfaction gradually became centralized. This marks the beginning of a period of user-led internet consumption [33], emphasizing improving customer satisfaction, perceived utility, and creating a superior online consumption environment. As the energy environment becomes increasingly hostile, companies and consumers alike are turning to green consumption activity.

As shown in Figure 2, in the last 5 years, the following changes in research themes have taken place: (1) In the field of co-creation, the last 5 years of research have highlighted the actual contribution of consumers in value co-creation and a shift from “producer-consumer value makers” to “producer-consumer” research has been achieved [34]. At the same time, it highlights B2C (Business-to-Customer) as a value creation convergence study, exploring consumer-led value co-creation models based on a focus on inter-firm value linkages and an exploration of inter-consumer value interactions. (2) In the field of consumer research, there has been a shift from the analysis of consumer concepts and settlements to the analysis of consumer patterns, fully revealing the reasons for the emergence of community and group consumption and classifying it as a “new” form of consumption [35]. (3) In the field of practice, a break with the original research paradigm: original research focused on new media venues. It focused on explaining the impact and disruption of the web or new media on consumption activities, ignoring the similarities and differences between the changing qualities of consumers’ observed behavior in the context of new media practices and traditional consumer behavior. A significant change is a study of how people use the internet to change consumption rather than being influenced by it.

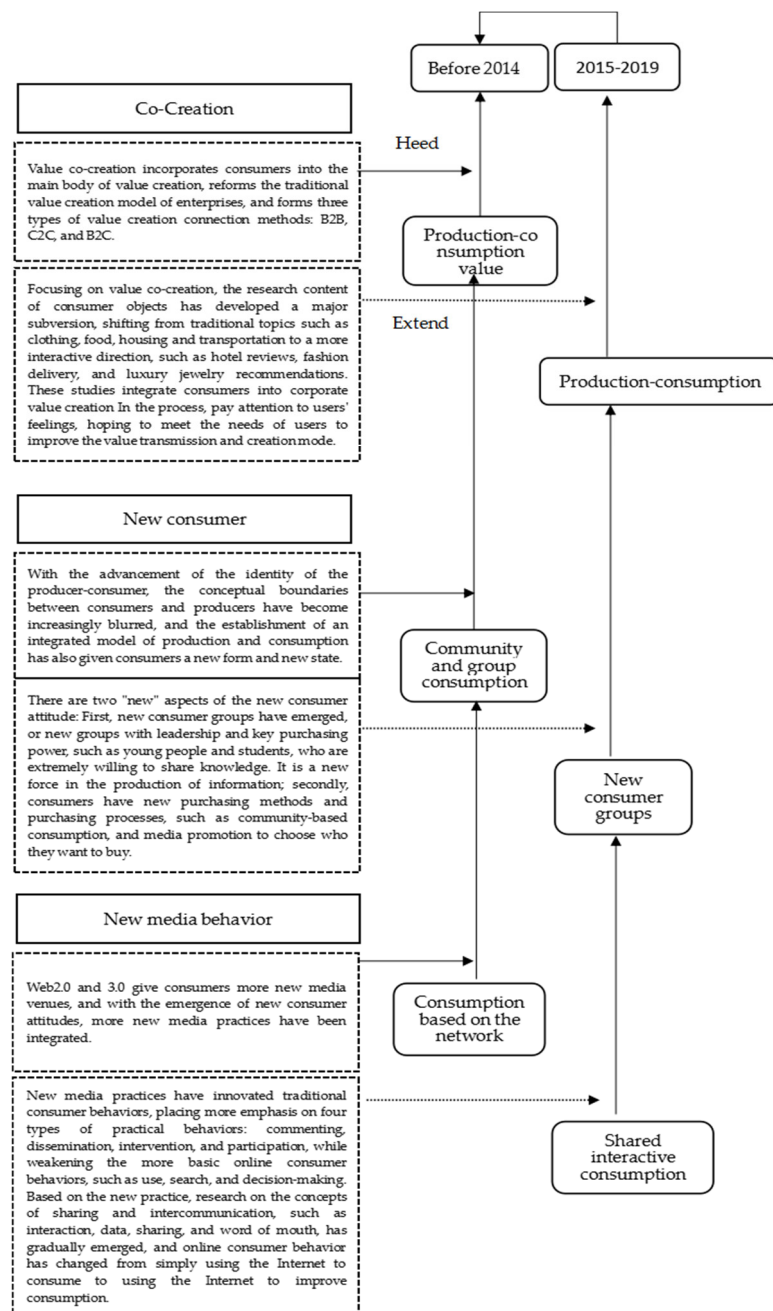


Figure 2. Changes in research topics of online consumer behavior in the past 5 years.

3.2. Summary of Research Trends over the Past Five Years

To sort out the critical literature on online consumer behavior and the cross-citation relationships, this paper analyses the top 50 literature works in this library in terms of citation counts (LCS), aiming to discover the mainstream content through a visualization method. As shown in Figure 3, each circle and number represents a piece of literature, and its size is proportional to the number of citations, while the arrows between the circles represent citation relationships.

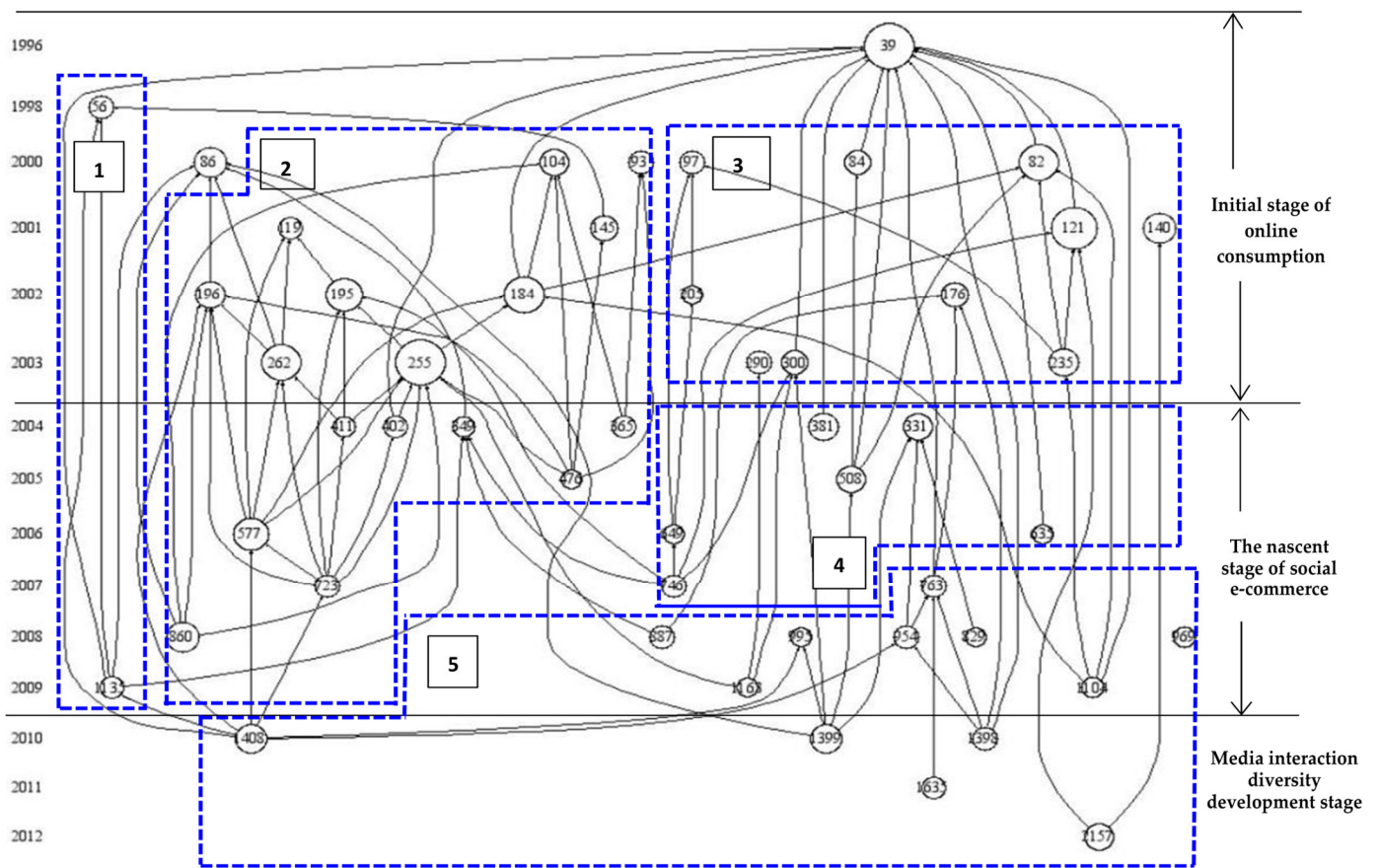


Figure 3. Top 50 important documents and citation relationships of online consumption behavior citation counts (LCS) ranking.

3.2.1. Themes in Online Consumer Behavior Research

By longitudinally summarising the 50 critical pieces of literature listed in the figure, research on online consumer behavior has gone through Figure 3. In 1996, Hoffman DL first defined marketing in a hypermedia computer environment (No. 39) and inspired Degeratu AM to compare traditional and online retailer behavior (No. 56). Eventually, Hoffman DL suggested that branding, awareness, and trust are vital to maintaining heterogeneity among online retailers. These studies form the source of the field of online consumer behavior. From 1996–2003, scholars largely followed the paradigm of traditional consumer behavior research and conducted initial research on online consumer behavior. This part of the literature laid the theoretical foundation for subsequent research and had a significant impact. After 2004, along with society’s entry into the web 1.0 era, the concept of social e-commerce flooded into people’s view, and emerging terms such as reviews, virtual communities, and multi-channel were incorporated into marketing, becoming a sign of the budding period of social e-commerce. After 2010, due to the rapid upgrading of information technology, digitalization has been the primary trend. As a result, social media and the interaction and dissemination of information gradually became the subject of consumer behavior in the Web 2.0 era.

We have summarised the main elements of our research over the past decade or so through cross-sectional observations.

- **Consumer search and experience behavior.** In early studies of Internet consumer behavior, scholars started with search behavior, focusing on the impact of changes in search behavior on consumer decision-making processes and attempting to uncover the black box of consumer experience mechanisms with models. Since then, the

research field has gradually expanded, using big data from websites to mine and analyze consumer search and experience behavior and to dissect the psychological process of consumer decision making.

- A model of consumer decision-making based on trust-risk uncertainty. The virtual nature of the Internet allows the gap between goods and consumers to span the digital information gap. Scholars have combined the theory of planned behavior, technology acceptance models, and expanded traditional consumer decision models to explain online consumers' willingness and acceptance of online shopping. Perceived usefulness, ease of use, and trust have become the three main factors that predict online consumer behavior.
- Retail development under human-computer interaction. Meuter ML first studied the interaction between consumers and technology-based self-service in 2000. In 2002, Burke RR further compared consumers' shopping experience online and in physical shops, analyzed the interaction between consumers and technology and media, and made future retailing development recommendations.
- Social e-commerce in a multichannel context. Five significant challenges must be addressed to manage a multichannel environment, involving data integration, understanding consumer behavior, channel evaluation, cross-channel resource allocation, and channel strategies coordination. A conceptual framework is proposed to show the relationships inherent in these challenges. Subsequently, Verhoef PC [28] suggests that the 'research shopping phenomenon tends to use one channel to search and another to buy, which is essentially attribute-based decision-making behavior, lacking targeting of channels and cross-channel coordination.
- Social media and interaction. This type of research is based on virtual community users' behavior and examines the role of consumer online socialization styles, social participants, messaging patterns, and word-of-mouth heterogeneity.

By combing through the vital literature up to 2014, it is easy to see that the body of research on online consumer behavior has taken shape. The focus of research is no longer just on trust and consumption decision models but has been expanded and enriched concerning the Internet scenario's realities. For example, scholars have improved, applied traditional consumption decision models and technology acceptance models, and virtual communities and IWOM (Internet Word of Mouth) have been explored [36]. In explaining new phenomena with the times, a more effective conceptual framework is established, which provides roots for in-depth research. Moreover, in social e-commerce, value co-creation has led to the integration of virtual communities, which represent information platforms, and e-commerce platforms, which represent markets. The interactive nature of the Internet context is inextricably linked to online consumption decision-making behavior, a direction and theme that scholars have devoted their research to in the last decade. As seen in Figure 3, the core body of research on online consumption behavior was formed mainly before 2014, and even though the number of citations in the literature is closely related to the time of publication, the literature has barely made it to the top 50 of the LCS ranking in the last 5 years. Considering that existing research tends to be more diverse, the literature after 2015 is further explored below and compared with the body of research developed.

3.2.2. The Main Content of the Research on Online Consumption Behavior from 2015 to 2019

The content of research on online consumer behavior in recent years follows the traditional paradigm of research on consumer behavior and maintains the coherence and rationality of research. However, with the prosperity of the Internet and virtual economy, new research has gradually focused on online markets and new media, and its research features include:

- Maintain a strong focus on the original areas and retain the underlying research systems and disciplines.

Combined with Figure 4 and the analysis of research themes, it can be seen that in the last 5 years, research has continued to strengthen consumer objects' analysis under the perspective of convergence and co-creation. For example, literature 154 dissects online consumer behavior in the tourism industry [37]; literature 327 provides a review and analysis of online consumer research in the hotel and tourism industry [38], further corroborating the changing trends of new keywords such as hotel and tourism, while research on value delivery and creation methods such as consumer reviews enters the ascendant. The study of consumer influences from new media practices continues to incorporate consumer search and experience behaviors. It is based on models such as the Trust–Risk Uncertainty consumer decision to provide a comprehensive explanation of the actual impact of online platforms on consumers. For example, work number 714 in the literature proposes the influence of consumer cognition and emotional perception on online consumer behavior [39], which continues to extend the research on social presence trust and e-commerce purchase intentions [40]; 572 dissects the mechanisms of the role of firm-generated content on user behavior [41]. It is easy to see that most scholars continue to start with the factors influencing consumption, hoping to find a comprehensive and integrated set of critical elements to map out the mechanistic black box of online consumption behavior.

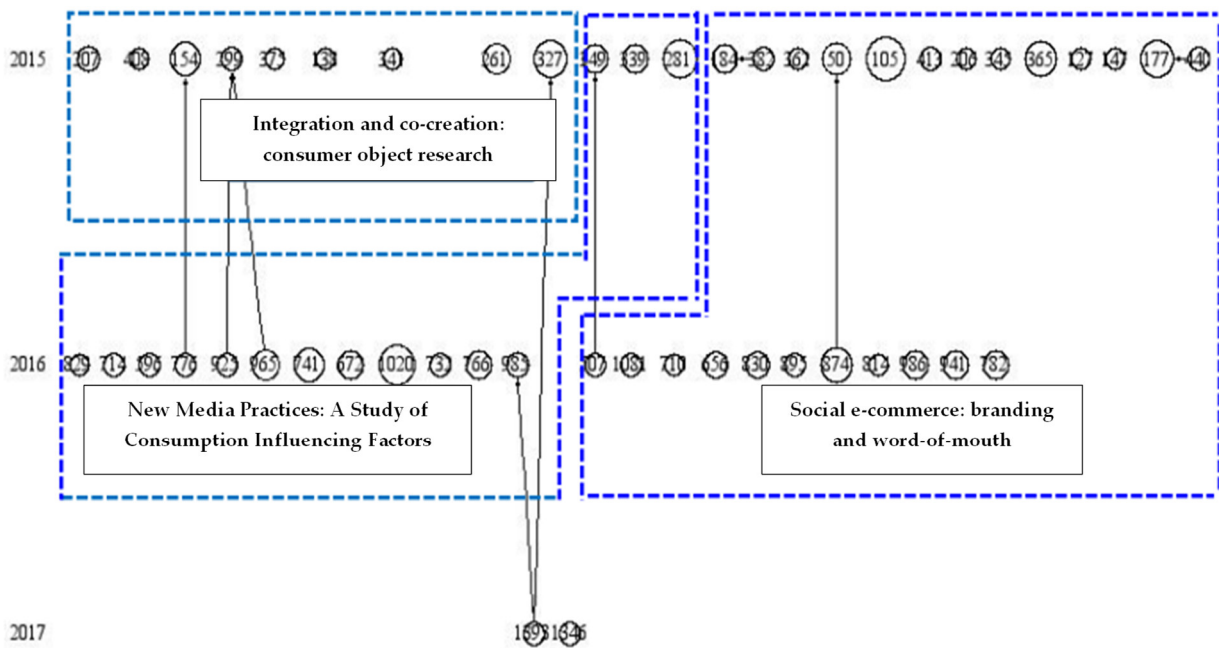


Figure 4. Top 50 key literature and citation relationships for online consumer behavior LCS rankings, 2015–2019.

- Integration of research based on original research sightlines and threads.

As can be seen in Figure 3, the last 5 years of research have seen a new convergence and development, although the previous perspectives of consumer search, consumer decision making, social commerce, social media and interaction have been retained. In convergence and co-creation research, researchers are increasingly focusing on the new trend of consumers and businesses linking up to create value. For example, work number 299 in the literature incorporates the technology acceptance model (TAM) and focuses on the psychological factors behind the behavior, incorporating cognitive, emotional, and other customer perception studies, resulting in a new research approach [42]. Work number 261 in the literature is grounded in the social commerce research system and proposes an evolutionary process of power transfer from consumer to buyer, feeding back social commerce's value to the marketplace [43]. These two types of research are well placed to address value co-creation between consumers and companies and between consumers and

consumers. The original single research paradigm has made it difficult to overcome this challenge. Convergent research provides excellent research ideas and pathways to address the new issues of online consumption.

In the field of social commerce, as traditional research has focused on the phenomenon itself, it is not easy to reflect the substantive progress of social commerce by simply dissecting the phenomenon. With the progression of convergence research, new hotspots have emerged in social e-commerce research: 105 analyzed user fit within brand communities [44]; 345 addressed the purchase mechanism for groceries' multi-channel distribution [45]; 206 matched words, motivations, and media choices to identify words motivations that influence consumer objects' performance [46]. IWOM research has, until 2014, only been produced as a research bridge combining the two functions of online marketplaces and media, cutting across the two main research areas of e-commerce and virtual communities. In the last 5 years, through integration into the context of social e-commerce, IWOM has seen the emergence of new topics that have evolved on their own, such as e-word-of-mouth motivations, as well as new research directions through the combination of topics such as brand communities, corporate performance, and influencing factors, ultimately breaking through the limitations of research on the association between IWOM and online consumer behavior by information formats, product categories, and community differences.

- Entirely new research hotspots have emerged.

Due to differences in the times and the maturity of the research system, previously vacant research directions appear in Figure 4. For example, work number 1346 in the literature refers to the association between knowledge sharing and electronic word of mouth. Work number 329 first mentions the influence of brand and user originality (UGC) [47]. Work number 572 analyses the association between original corporate content (FGC) and customer behavior [48]. Work number 732 also focuses on the factors influencing willingness to share knowledge [49]. This literature covers two main points: original content and knowledge sharing, which largely stem from the platform economy's current rise. As a result, online consumer behavior has shifted from individuals' scattered and disorganized character to groups with aggregation, guidance, and leadership, marking the inclusion of personal brands such as key opinion leaders (KOLs) and bloggers in the research system. This opens up two primary directions for the following research: ① continue to answer the topic of value co-creation well, address the original research gaps and empower B2C and C2B (Customer to Business) models. ② how netizens and bloggers can further remove the boundaries between individualized organizations and enterprises and achieve the dual transformation of production and consumption in the context of social e-commerce.

4. Frontiers of Research on Online Consumer Behavior

Based on the previous analysis, it can be seen that the hotspots and frontiers of online consumer behavior in the last 5 years have not yet been captured. A visual analysis of the relevant literature from 2015–2019 was imported through VOS-Viewer to obtain a keyword clustering diagram as shown in Figure 5, which can be divided into two main thematic directions.

4.1. A Study of Online Consumer Behavior Decisions Following the Traditional Paradigm

Consumer behavior is a broad field of study that is "concerned with the processes involved in the selection, purchase, use or disposal of products, services, ideas or experiences by individuals or groups to satisfy their needs and desires," and consumers are those who "generate desires, make purchases and dispose of products" in the process of consumer behavior. Based on this, the traditional paradigm has developed a framework for the study of consumer behavior, the core of which is to address the basic question of "who-what-why-how." The keywords "technology acceptance model", "trust", "perceived risk", "perceived usefulness", "perceived value", "motivation", "perceived risk" and "per-

ceived usefulness". "motivation", "satisfaction", "loyalty", etc. are all based on planning behavioral theories or combined with technology acceptance models. They are also part of the study of online consumer psychology and consumer decision-making behavior from a trust-risk-uncertainty perspective. In online consumer behavior, scholars follow the traditional framework and continue to refine it to achieve higher accuracy levels in predicting consumer behavior, expanding towards interactive behavior in social e-commerce contexts.

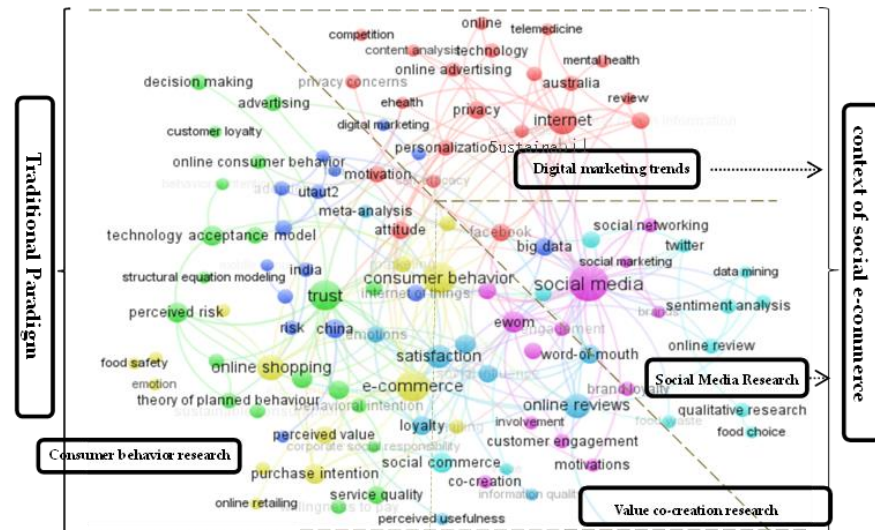


Figure 5. Keyword analysis of online consumer behavior research in the last five years (2015–2019).

4.2. An Emerging Research Perspective in the Context of Social E-Commerce

- Value co-creation research

The term “value co-creation” refers to an innovative path to competitive advantage in a rapidly changing market environment (Shown in Figure 6). With the diversification of marketing, how companies realize value has changed qualitatively, and scholars have recognized the place and role of consumers in the value chain of companies. To cater to the upgrading of the consumer market, companies’ business models have undergone disruptive innovation. In the diagram, the keywords “involvement,” “co-creation,” “engagement,” “review,” and “word of mouth” reflect the business logic of value co-creation between companies and consumers in the Web 2.0 era. As a product of this concept, the “sharing economy” provides a new scenario for consumer behavior and gives rise to a new characteristic of online consumption—collaborative consumption. Digital consumers can acquire, distribute and share products through collaborative consumption based on other users through virtual communities [50].

As shown in Figure 7. In the last five years, value co-creation’s research network has focused on two types of research system: human-object research and bridging human-object analysis through the study of online media. From a ‘human’ perspective, this is essentially a study of the consumer’s own value creation model. By analyzing the three levels of purchase motivation, purchase trajectory and behavior, and purchase feedback, it is possible to visualize the individual consumer’s activities and the consumer-to-consumer relationship within the online consumer platform, which further supports the research in Figure 3. Influences, including emotions, play a role in consumer motivation and thus determine consumer purchasing behavior. In the online era, shopping behavior is transformed into a shopping experience including search and interaction, and finally, the purchase behavior determines the purchase feedback, which is achieved through the group (C2C “Consumer to Consumer”) and the self. From a ‘things’ perspective, the last 5 years of research have essentially looked at the value creation model (B2B) of companies themselves and between companies [51]. What is mainly novel is the trend for research on value co-creation to be conducted through the expansion of research in social commerce, which has

been accompanied by the rise of the Internet and the rise of online consumer behavior—B2C and C2B research. For example, in the case of B2C, it is essentially a research-led analysis of the role of a company’s existing value model in creating its value for consumers [52]. For example, Agnihotri R [53] argues that social media has changed the way buyers and sellers interact with each other. The use of social media and information dissemination behaviors by companies acting on consumers can enhance customer satisfaction and deliver value. In contrast, in C2B research, the consumer is used as the research lead, dissecting the impact of purchase motivation, behavior, and feedback on business activities in the above diagram. For example, Cortez RM [54] argues that value creation occurs mainly in increasing a firm’s customer assets, using big data for marketing precision, and optimizing the industry environment and platform ecosystem, which are determined mainly by the people the firm serves—the consumers. Online consumer behavior and the concept of production and consumption have brought about a change in the structure of the value chain and disruption in the way value is created for traditional enterprises, resulting in multiple research paths for B2B, C2C, and B2C and C2B.

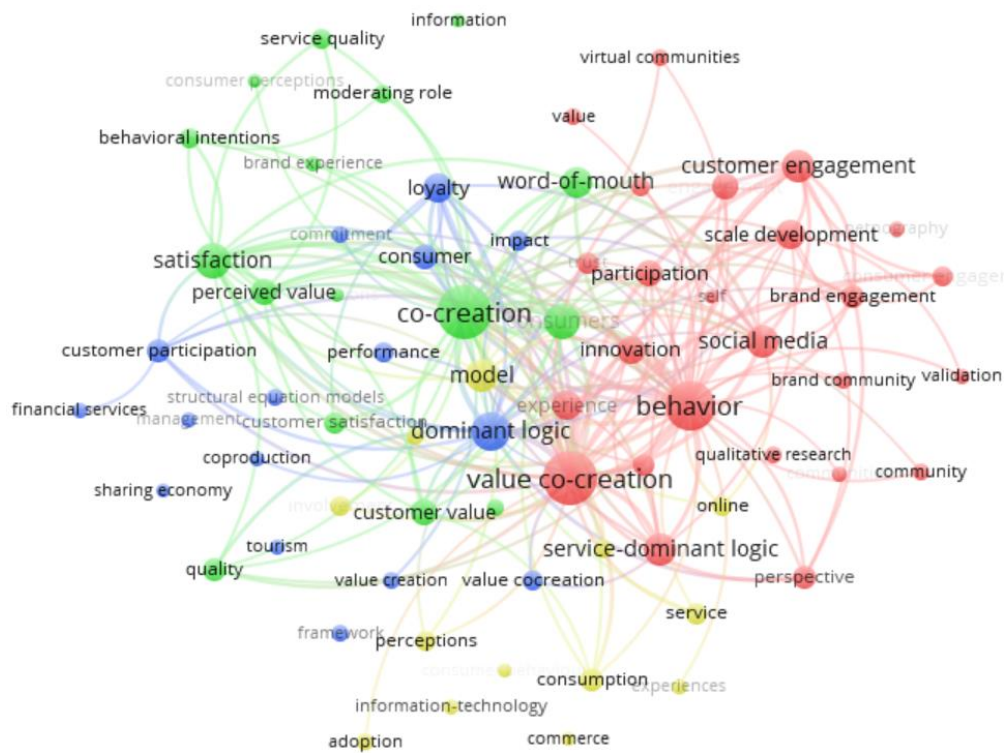


Figure 6. Keyword analysis for the last 5 years (2015–2019) in the area of online consumer behavior—value co-creation.

- **Social media research**

With the popularity of social media, a revolution in media and interaction is sweeping consumers and markets. When online consumers visit Facebook and Little Red Book, post tweets and microblogs, or browse, like, comment and retweet on social media, social media marketing silently permeates these online consumer behaviors [55]. In the diagram, the terms “Facebook,” “Twitter,” “Social networking,” “Social media,” “Relationship,” and “Electronic word of mouth” allude to the academic understanding of this change. The appearance of these keywords alludes to the academic attention and interest in this change [56].

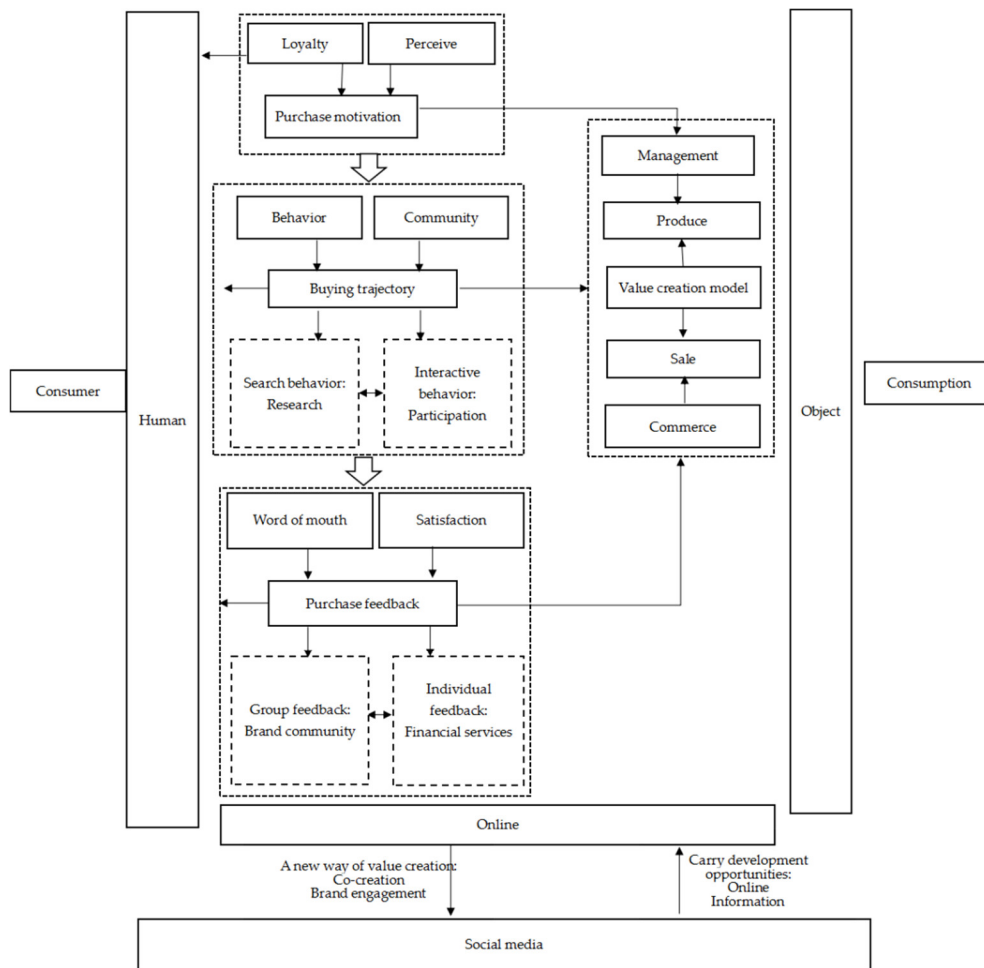


Figure 7. Online consumer behavior research framework in the field of value co-creation.

The lack of a human and social element has been identified as two of the significant weaknesses holding back the development of e-commerce. “Social commerce is a new concept that could improve this situation, but research on the subject still lacks a systematic framework. As seen in Figure 8, there are four trends in social media research: Firstly, It focuses on applications, physical networks, and other physical perspectives, such as Facebook, Twitter, networking, technology, and other keywords. Combined with the preceding list of subject headings, it is evident that platform communities’ field is on an upward trajectory of research. This reflects the current academic desire to build a hardware foundation that works and has a high customer experience and satisfaction level. In this way, the physical prerequisites for upgrading online consumer behavior and value co-creation are realized. Secondly, it focuses on studying social media user experiences, such as user acceptance (user acceptance), satisfaction (satisfaction), and other keywords. On the one hand, hardware applications provide the basis for user feelings; on the other hand, the analysis of user feelings indicates the direction for the upgrade of applications [57], thus forming recursive research. Thirdly, an extended exploration of user perceptions, such as big data, sentiment analysis, and opinion mining keywords, has begun. The focus on user reviews and feedback [58] is invariably linked to the study of ‘value co-creation. Fourth, discover the logic of individualized organizations creating value. Under the social e-commerce platform, as the concept of production and consumption deepens, user feedback has emerged as an organized, shaped, and agglomerated trend, with individuals (netizens, bloggers, anchors) gradually evolving into independent brands i.e., personalized organizations. Unlike the B2C and C2B models of value creation, the personal organization is a self-evolving process, uninterrupted by external factors. Therefore, this value creation

the new and abstract actual phenomenon. How to effectively integrate existing views in the study of online consumer behavior and establish an up-to-date paradigm is of profound significance for future research.

- Thirdly, the change in value creation patterns across society as a whole result from online consumer behavior. As seen in Figure 10, online consumer behavior has entered a phase of diversified and creative research. In a networked environment, everything is transmitted in the form of information to all parties. Along with the background of online communities and social e-commerce, information began to be used as a value transfer between consumers, gradually forming a C2C model of value creation. With the birth of word of mouth came key opinion leaders, the dominant networkers in the community—netizens, bloggers, etc. Moreover, key opinion leaders influence consumer identity and feelings, which influences the value creation process and ultimately the production process and product marketing process of the company, forming a C2B value-led model. The way value is created between companies is beginning to shift from the traditional B2B model to the B2C model. As companies focus increasingly on the consumer's dominance in the production of corporate value, the co-creation of value on the corporate side is eventually moving towards a C2B model. However, personalized organizations' specificity has led to their gradual evolution into corporate organizations with sales attributes and product manufacturing characteristics, where key opinion leaders form clusters of fans by their charisma, which is how consumers become self-organized (B2C2B). This type of self-organization allows for autonomous value creation and delivery, i.e., the value self-creation model. The birth of self-organization will pose a huge challenge to traditional businesses and even to successful online consumer businesses in transition.
- Fourthly, the intersection of disciplines in the study of online consumer behavior. In his analysis of consumer behavior's evolution over the past 50 years, Taihong Lu [42] refers to "interdisciplinarity" as the future trend of the discipline. In tracing online behavior's origins, this paper illustrates the natural attributes of its origins in economics and philosophy. We also point out its integration with psychology and sociology when capturing the frontiers. In establishing a research paradigm for online consumer behavior in the future, scholars should value the contribution of interdisciplinary intersections to the body of research on online consumer behavior. As technology upgrades, the areas that scholars need to consider in an integrated manner will spread in a web-like fashion, such as digital technology. In contrast, the impact of mobile networks, data storage, extensive data mining, and database technology upgrades on consumer psychology and behavior will need to be addressed. Similarly, when considering social responsibility, we need to look at the role of environmental, low carbon, and sustainable technology research in the energy sector on green consumer behavior. When considering the artistic effect, the relevance of regional cultural backgrounds and historical heritage to brand marketing and consumer preferences should not be overlooked. From traditional consumers to online consumers and consumer generators, from product mix management to customer portfolio management, from mass to personalization, from offline commerce to e-commerce, from traditional marketing to digital marketing and even database marketing, social media marketing, and mobile marketing, the study of online consumer behavior is in an era of rapid change.
- Finally, the integration of online consumer behavior with the logic of governmental governance. In fact, before the epidemic crisis, the self-organization-led online consumption model was becoming increasingly sophisticated (B2C2B) [65]. Nevertheless, with large crises and 'black swan' events on the horizon, the dominance or influence of governmental governance logic cannot be ignored in online consumer activity. Although this dominance does not reach the level of a planned economy, it affects the consumer's sense of consumption and purchases logic. The opposite is reflected in the incompatibility of the luxury sector with online consumer behavior due to the suppression of offline consumer behavior. In organizational perceptions, online

consumption implies fast food consumption and convenience, which can hardly be equated with expensive luxury goods. In the long run, the post-pandemic era will significantly impact non-rigid industries, and online consumption will face enormous challenges and changes.

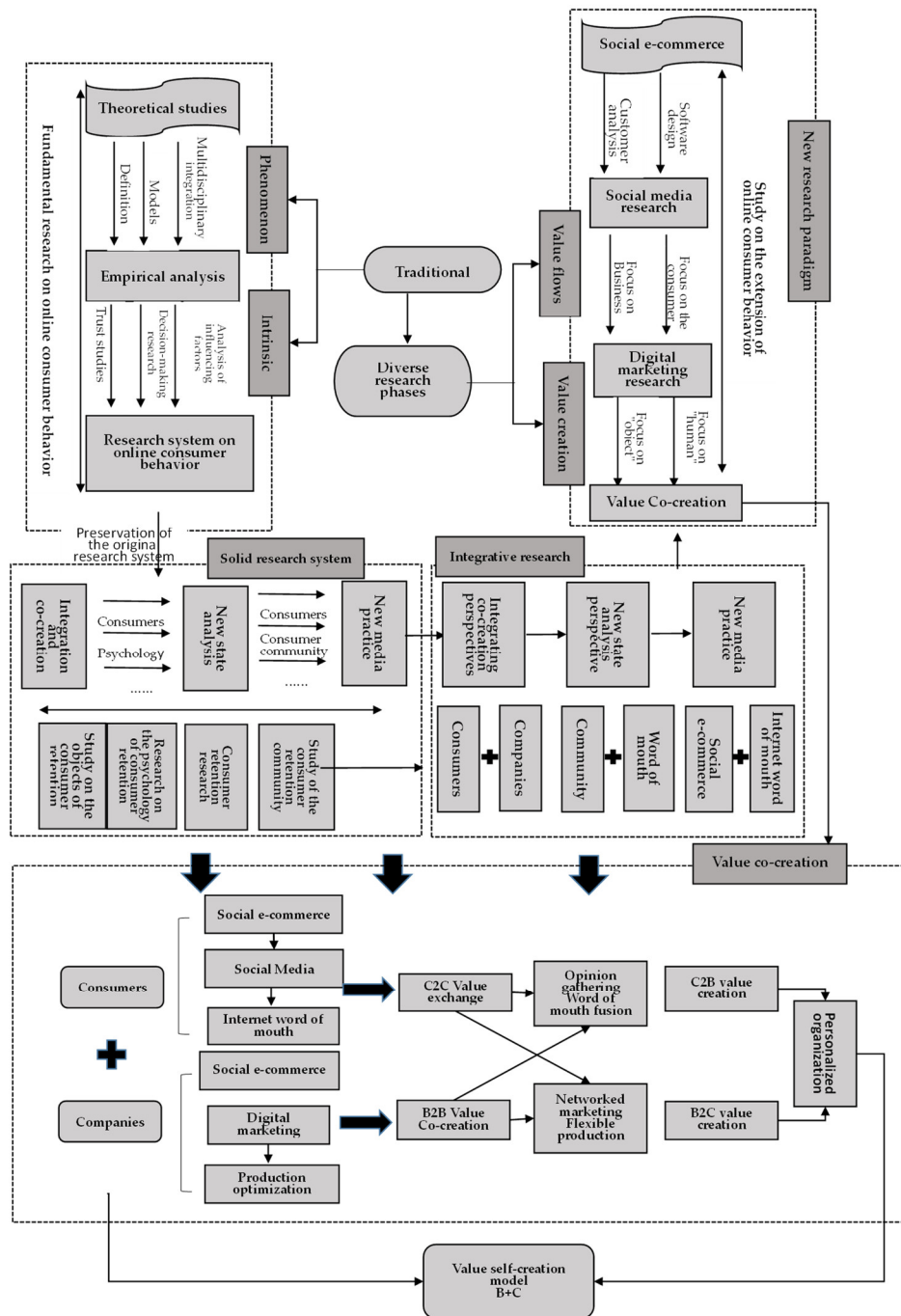


Figure 10. Framework for research on the evolutionary mechanisms of online consumer behavior.

6. Conclusions, Responses and Research Implications

6.1. Conclusions and Recommendations

- From an enterprise perspective, this paper provides a practical basis for enterprises to access user resources and portray online consumer behavior in the Web 2.0 era. The article draws on the changing themes and behavioral content of online consumer

research to guide companies in adjusting their strategies to meet the practical needs of more online consumers. On the one hand, there has been a significant shift in consumer targeting towards social, youth, student, and new media groups, which companies need to focus on to gain a foothold in the online market and grow their customer stickiness. On the other hand, there is a more profound adjustment in consumer behavior, with health, food, and fashion products increasing in purchasing power and a deeper degree of internal influence on consumer behavior due to the unified identity of production and consumption. How to capture the heart of each customer requires companies to take advantage of the Web 2.0 web opportunity to achieve a broad and comprehensive impact campaign.

- This paper guides the practical reality and profound changes in consumer behavior based on theory from the consumer's perspective. As consumer theory has evolved, the connotation of the consumer has been gradually refined and adapted. In the early years of history, the consumer was merely an appendage of rights and a generator of household purchases, appearing in a passive form in the phase of classical consumption theory. After the second industrial revolution, the freedom of consumption increased, and the concept of consumer behavior first emerged. The consumer satisfies the inner psychological consciousness of the pursuit of material things and engages in consumption activities autonomously and positively. Along with the change in the relationship between production and consumption, neoclassical consumption theory gave birth to the concept of the "human being," the subject of consumption. After expanding capitalism, the modern pluralist theory of consumption was born, with the integration of society and the consumer as the central perspective. This multidisciplinary approach has led to a differentiated interpretation of consumer behavior. In the Internet era, the consumer arena has shifted significantly, changing consumer behavior and consumption patterns and giving consumers a new identity as "producers and consumers." With the impact of the epidemic crisis, theories of retaliatory consumption and the free economy have given consumers and consumer behavior new drivers, and the spirit and channels of consumption have changed. In general, the evolutionary pattern of consumer theory and behavior is accompanied by changes in the social context. For consumers themselves, the core of their purchasing power and consumer behavior still comes from their source. To become a rational consumer, it is necessary to rely on the spiritual meaning of neoclassical consumption theory, which identifies consumption at the household and social level as another manifestation of production, i.e., a social purchase for the substantial needs and reproduction of the household or the individual. If one wants to be a sensual consumer, one can select the goods that maximize marginal utility and satisfy the spiritual dimension on their own, according to the social environment and the influence of the external mainstream. Following the guidance of consumption theory in the Internet era and consumption theory in the post-pandemic era, consumption, as an adjunct to social activity, becomes a key channel for self-participation and integration into society.
- From the academic community's perspective, this paper further identifies the research frontiers in the age of online consumption through bibliometrics and research network analysis. It constructs a prototype research jungle for online consumer behavior, identifying the current situation where the field is not studied in isolation and is insufficient to support the scale of the discipline. The paper thus provides a research direction for subsequent research and gives potential content to be explored. In terms of research themes, the study of online consumer behavior in the Web 2.0 era has changed in the areas of convergence and co-creation, consumer research and practice, and the research trend has shifted from the initial stage of online consumption to the nascent stage of social e-commerce and the multifaceted development of media interaction. During this period, research on consumer search experience behavior, consumer decision models based on trust-risk certainty, retail development in human-computer interaction, social e-commerce in a multichannel context, and social media and interaction

have become increasingly sophisticated. With these topics, the originally fragmented research on online consumer behavior gradually crosses over and becomes a point of convergence for academic branches, thus setting the stage for forming a research jungle. In the new research cycle, the frontiers of online consumer behavior maintain the hotspots mentioned above while starting to focus on topics such as digital marketing trends, social media, and value co-creation. Although the traditional research paradigm is still followed, the new perspective brings new academic perspectives and values. We believe that subsequent academic circles should focus on the exploration of the nature of online consumers, update the original research paradigm, and through the intersection of multidisciplinary research, elevate the jungle of online consumer behavior research into a research system or discipline, ultimately leading to changes in the value creation model of the whole society by online consumer behavior.

- From the post-pandemic era, the study of online consumer behavior has not changed substantially. However, there has been some adjustment in consumer and even consumption behavior due to changes in the social environment. In this process, the focus should be on the dominance and intervention of government logic. The article points out where online consumer behavior should go in the post-pandemic era and how Web 2.0 communities should be built under the government's guidance. In the face of the impact of the epidemic, the economic recovery after the epidemic, and the new forms of online consumption, the government should improve the consumption channels in the Web 2.0 era and facilitate the transition from the Web 2.0 era to the Web 3.0 era to cope with the impact of the environmental changes on online consumption in order to guide the changes in consumer behavior caused by the environment of the times in a positive direction.

6.2. Research Significance and Shortcomings

Through the study of consumption theories and consumer behavior in different consumption eras, this paper contrasts and analyses the differences in research themes, research content, and keywords in different eras and summarily gives an outlook on the era of online consumption research in the Web 2.0 era, which is of great significance.

From an academic perspective: this paper provides suggestions for future research directions on online consumer behavior in the Web 2.0 era. Summarily, it suggests how academics should develop new theories, methods, hypotheses, and models to explore the development of online consumer behavior.

From a practical point of view: the article offers advice on how companies should develop in the Web 2.0 era. From the consumer perspective: the article provides reference suggestions on how to optimize online consumption behavior properly. Finally, it provides research directions for the leap of online consumption behavior from the Web 2.0 era to the Web 3.0 era. The article points out where online consumer behavior should go in the post-pandemic era and how Web 2.0 communities should be built under government guidance.

Research shortcomings: this paper has a shortcoming since the research concept is rather ambitious, and some other niche articles have not been studied for the consumer behavior research jungle. It is hoped that subsequent studies will build on this foundation to refine the perspective of the study.

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