

THE EVOLUTION OF CONSUMER BEHAVIOR RESEARCH: MAPPING GLOBAL TRENDS, CONCEPTUAL STRUCTURES, AND RESEARCH FRONTIERS (2020–2025)

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ABSTRACT

Consumer behavior research has undergone substantial transformation in response to digitalization, changing consumption practices, sustainability concerns, and the growing integration of technology into consumer decision-making. This study aims to map the development of consumer behavior research during 2020–2025 by identifying publication characteristics, geographical contributions, conceptual structures, thematic clusters, and emerging research areas. A bibliometric analysis was conducted using 4,925 journal articles retrieved from the Scopus database and filtered according to selected subject areas, publication stage, document type, and open-access status. Descriptive analysis was combined with science mapping using VOSviewer to examine keyword co-occurrence, network relationships, temporal patterns, and research density. The findings demonstrate that consumer behavior research is highly interdisciplinary, with Social Sciences and Business, Management and Accounting representing the dominant subject areas. The United States, China, the United Kingdom, Australia, and India constitute the leading contributing countries. The keyword network identifies four broad research orientations: digital and marketing-driven consumption; sustainable and environmentally responsible consumption; psychological, demographic, and health-related behavior; and regulated or risk-related consumption. The findings further indicate that established concepts such as perception, purchase intention, perceived value, and consumer psychology remain central while becoming increasingly connected to electronic commerce, social media, influencer marketing, live-streaming commerce, and digital marketing. Sustainability also occupies a prominent position through themes including recycling, food waste, green products, willingness to pay, renewable energy, and electric vehicles. Relatively recent research attention is evident around emerging digital and immersive technologies, including artificial intelligence, metaverse, augmented reality, and gamification. Overall, the study demonstrates that consumer behavior research is evolving from a predominantly purchase-oriented perspective toward a more integrated framework encompassing digital transformation, sustainability, psychological processes, social interaction, and technological mediation. The findings

provide a science-mapping foundation for developing future interdisciplinary research agendas in contemporary consumer behavior.

Keywords: *consumer behavior; bibliometric analysis; Scopus; digital consumption; research trends*

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I. INTRODUCTION

Consumer behavior has become an increasingly complex area of research as consumers' decision-making processes are continuously shaped by technological development, changing social values, economic conditions, and the rapid transformation of markets. Traditionally, consumer behavior research has focused on how individuals or groups select, purchase, use, and dispose of products and services. However, the emergence of digital technologies has substantially expanded the context in which consumption takes place. Consumers now interact with brands through social media, e-commerce platforms, mobile applications, online communities, recommendation systems, and increasingly sophisticated digital environments. Consequently, consumer behavior has evolved from a primarily individual decision-making perspective toward a multidimensional phenomenon involving technology, social interaction, digital platforms, identity, experience, and data-driven marketing (Lemon & Verhoef, 2016; Wedel & Kannan, 2016).

The transformation of the digital marketplace has particularly influenced how consumers search for information, evaluate alternatives, make purchasing decisions, and engage with brands. The proliferation of social media and user-generated content has reduced the traditional boundaries between producers and consumers, allowing consumers to simultaneously act as buyers, reviewers, content creators, brand advocates, and members of online communities. In this environment, consumer decision-making is increasingly influenced by electronic word-of-mouth, social influence, online reviews, influencers, personalized recommendations, and digital experiences (Appel et al., 2020; Dwivedi et al., 2021). At the same time, the increasing availability of consumer data has enabled firms to employ artificial intelligence, machine learning, and analytics to personalize marketing activities and predict consumer preferences, thereby creating new interactions between consumers and algorithmically mediated marketplaces (Davenport et al., 2020; Huang & Rust, 2021).

The period 2020–2025 is particularly important for understanding these transformations. The COVID-19 pandemic accelerated digital adoption and changed consumer purchasing patterns, encouraging greater reliance on e-commerce, digital payments, social commerce, contactless services, and online consumption. Research during this period increasingly examined how consumers adapted to uncertainty, health concerns, digital channels, and changing lifestyles. At the same time, post-pandemic consumption has continued to evolve through

the expansion of mobile commerce, social commerce, live-stream shopping, artificial intelligence, and personalized digital experiences. These developments have created new research questions concerning not only what consumers purchase, but also how digital environments shape consumer perceptions, emotions, engagement, trust, and decision-making.

Another important transformation concerns the growing emphasis on the consumer experience. Contemporary marketing research increasingly conceptualizes consumption as a journey that extends across multiple touchpoints rather than as an isolated purchasing decision. Lemon and Verhoef (2016) emphasize that customer experience is formed through interactions across multiple stages and channels, while subsequent research has highlighted the importance of omnichannel environments and digitally connected consumer journeys. The emergence of artificial intelligence further complicates this landscape because consumers increasingly encounter automated recommendation systems, chatbots, personalized advertising, and AI-enabled service encounters. These technologies may improve convenience and personalization while simultaneously raising concerns regarding privacy, transparency, trust, and consumer autonomy (Davenport et al., 2020; Huang & Rust, 2021).

Consumer behavior research has also become increasingly concerned with ethical, social, and sustainability-related dimensions of consumption. Growing awareness of climate change, responsible consumption, data privacy, ethical production, and social inequality has encouraged researchers to reconsider conventional assumptions that consumer decisions are primarily driven by price, quality, and individual preferences. Sustainability-oriented consumer behavior, for example, involves complex interactions among attitudes, values, perceived behavioral control, social norms, and actual purchasing behavior. Similarly, digital consumption creates new questions regarding the collection and use of personal data and the extent to which algorithmic personalization influences consumer choices. These developments demonstrate that contemporary consumer behavior is simultaneously an economic, psychological, technological, social, and ethical phenomenon.

Despite the substantial growth of literature in these areas, the expansion of consumer behavior research has also resulted in a highly fragmented knowledge landscape. Different streams have developed around topics such as consumer decision-making, digital consumer behavior, social media, online shopping, consumer experience, impulse buying, sustainability, artificial

intelligence, personalization, electronic word-of-mouth, and consumer engagement. Although numerous individual studies and reviews have examined particular dimensions of these developments, a comprehensive mapping of how the intellectual and conceptual structure of consumer behavior research has evolved during the recent digital transformation remains valuable. Bibliometric analysis provides an appropriate approach for addressing this issue because it enables researchers to systematically examine large volumes of scientific publications, identify dominant research themes, map relationships among concepts, and detect emerging areas of scholarly interest (Donthu et al., 2021).

Accordingly, this study aims to examine the evolution of global consumer behavior research during 2020–2025 by mapping its publication trends, conceptual structures, dominant themes, and emerging research frontiers. Using bibliometric analysis of Scopus-indexed literature, the study seeks to answer three central questions: (1) How has consumer behavior research evolved in terms of publication patterns and geographical contributions during 2020–2025? (2) What are the dominant conceptual structures and thematic clusters that characterize the field? and (3) Which emerging topics are likely to shape the future research agenda of consumer behavior? By addressing these questions, this study contributes to a clearer understanding of how consumer behavior scholarship has transitioned from conventional consumption and purchasing perspectives toward a more digital, interconnected, data-driven, experiential, and sustainability-oriented research domain.

II. LITERATURE REVIEW

Consumer behavior has traditionally been examined as the process through which individuals recognize needs, search for information, evaluate alternatives, make purchasing decisions, consume products or services, and evaluate their experiences. However, the rapid transformation of markets has expanded the theoretical boundaries of consumer behavior beyond individual purchasing decisions. Contemporary consumers operate within complex environments shaped by digital technologies, social networks, platform ecosystems, cultural values, and increasingly personalized marketing systems. Consequently, consumer behavior is increasingly understood as a dynamic process involving cognitive, affective, social, technological, and experiential dimensions (Lemon & Verhoef, 2016; Wedel & Kannan, 2016).

One of the most significant developments has been the emergence of digital consumer behavior. The growth of e-commerce, mobile commerce, social media, and digital platforms has transformed how consumers obtain information and interact with brands. Consumers increasingly rely on online reviews, electronic word-of-mouth, social media content, influencers, and online communities when forming purchase intentions and evaluating products. Social media has also transformed consumers from passive recipients of marketing communication into active participants who create, share, and circulate market-related content (Appel et al., 2020). Dwivedi et al. (2021) further argue that digital and social media marketing has created new research opportunities concerning consumer engagement, social influence, electronic word-of-mouth, personalization, and the changing relationship between consumers and brands. These developments indicate that digitalization has not simply created additional consumption channels but has fundamentally altered the mechanisms through which consumers form preferences and make decisions.

Another important stream concerns consumer experience and customer journey. Contemporary consumption increasingly occurs across multiple interconnected touchpoints, including physical stores, websites, mobile applications, social media, marketplaces, and post-purchase communities. Lemon and Verhoef (2016) conceptualize customer experience as a multidimensional journey encompassing pre-purchase, purchase, and post-purchase interactions. This perspective is increasingly relevant in digital environments, where consumers may move continuously between online and offline channels. Accordingly, research has increasingly examined omnichannel behavior, customer engagement, personalization, service experience, and the integration of multiple consumer touchpoints. The development of these themes demonstrates a shift from understanding consumer behavior as an isolated transaction toward understanding consumption as a continuous and interconnected experience.

The rise of artificial intelligence and marketing analytics represents another major transformation in consumer behavior research. The increasing availability of consumer data enables firms to predict preferences, personalize recommendations, automate communication, and optimize customer experiences. Davenport et al. (2020) argue that artificial intelligence is transforming marketing activities by improving personalization, prediction, and customer interaction, while Huang and Rust (2021) emphasize that AI is reshaping marketing strategy and the division of tasks between humans and machines. From a consumer

behavior perspective, these developments raise important questions concerning algorithmic recommendations, personalization, consumer trust, privacy, perceived control, and the potential influence of automated systems on consumer decision-making. Thus, contemporary research increasingly examines not only how consumers make decisions, but also how technological systems participate in shaping those decisions.

Consumer behavior literature has also expanded toward impulse buying, hedonic consumption, emotional responses, and psychological mechanisms. Digital environments can facilitate rapid purchasing decisions by reducing transaction friction and exposing consumers to personalized promotions, limited-time offers, social cues, and real-time product information. These conditions can stimulate impulsive and emotionally driven consumption. At the same time, social comparison, fear of missing out, perceived scarcity, and social influence can affect consumers' intentions and actual purchasing behavior. This stream demonstrates the continuing importance of psychological theories in consumer research while also showing how traditional psychological mechanisms are being expressed through new digital environments.

A further development involves socially responsible and sustainable consumer behavior. Growing awareness of environmental degradation, climate change, ethical production, and social responsibility has encouraged researchers to investigate how values and sustainability concerns influence consumption decisions. Sustainable consumption research increasingly examines the gap between consumers' environmental attitudes and their actual purchasing behavior, as well as the roles of social norms, perceived effectiveness, trust, product attributes, and corporate communication. This development broadens consumer behavior research from the traditional question of individual utility toward broader concerns regarding social and environmental consequences of consumption.

The literature also increasingly recognizes that consumer behavior is embedded within broader social and cultural contexts. Consumers' decisions can be influenced by online communities, social identity, cultural values, peer influence, influencers, and user-generated content. The emergence of social commerce has further blurred the boundaries between social interaction and commercial activity, enabling consumers to discover, evaluate, and purchase products within socially connected digital environments. Consequently, contemporary consumer behavior research increasingly incorporates perspectives

from psychology, sociology, information systems, communication, and marketing, reinforcing the interdisciplinary character of the field.

Despite these developments, the literature remains fragmented across numerous specialized research streams. Studies focusing on digital consumer behavior, consumer experience, social commerce, AI-enabled marketing, impulse buying, sustainability, online engagement, and consumer psychology often develop in parallel. This fragmentation creates a need to examine how these streams are interconnected and how the intellectual structure of the field has evolved over time. Bibliometric analysis provides an appropriate approach for addressing this issue because it enables researchers to systematically map large volumes of publications, identify influential themes, examine relationships among keywords, and detect emerging research directions (Donthu et al., 2021). Therefore, mapping consumer behavior research during 2020–2025 is particularly relevant for understanding the transition from traditional consumption research toward a more digital, technologically mediated, experiential, socially embedded, and sustainability-oriented research paradigm.

III. RESEARCH METHODOLOGY

This study employed a bibliometric analysis to examine the evolution, conceptual structure, thematic development, and emerging research frontiers of consumer behavior research during 2020–2025. Bibliometric analysis is particularly appropriate for this study because it enables the systematic examination of a large body of scientific literature and provides an objective approach for identifying publication patterns, influential research areas, relationships among concepts, and emerging themes (Donthu et al., 2021). The research process consisted of five main stages: database selection, search strategy, data screening, bibliometric analysis, and interpretation of research trends.

The bibliographic data were retrieved from the Scopus database, which was selected because of its broad multidisciplinary coverage and comprehensive bibliographic metadata. The search focused on publications related to consumer behavior published between 2020 and 2025. The search strategy was designed to capture literature directly addressing consumer behavior and its contemporary developments in digital and marketing environments. The primary search term was “consumer behavior”, with the publication period restricted to 2020–2025. The retrieved records were subsequently refined according to relevant subject areas,

document types, language, and other inclusion criteria established for the study. The final dataset constituted the basis for the descriptive and bibliometric analyses. The retrieved records were exported from Scopus together with relevant bibliographic information, including publication year, document title, authors, affiliations, countries, source titles, abstracts, author keywords, indexed keywords, citations, and references. The dataset was subsequently examined and prepared for analysis. Duplicate or inconsistent records were checked, while keywords with substantially similar meanings or different grammatical forms were standardized where necessary. This preprocessing stage was important for ensuring that variations in terminology did not artificially fragment the conceptual structure of consumer behavior research.

The analysis consisted of descriptive bibliometric analysis and science mapping. Descriptive analysis was conducted to identify publication trends, document types, leading countries, institutions, and other characteristics of the research landscape. For conceptual analysis, VOSviewer was used to construct keyword co-occurrence networks and visualize relationships among the most frequently occurring terms. VOSviewer is widely used in bibliometric research because it enables the construction and visualization of networks based on the relationships among publications, authors, keywords, and other bibliographic elements (van Eck & Waltman, 2010).

The keyword co-occurrence analysis was used to identify the dominant conceptual clusters within consumer behavior research. Keywords appearing frequently and demonstrating strong relationships with other terms were interpreted as central themes in the research field. The analysis was complemented by density visualization, which was used to identify areas with high concentrations of research activity, and overlay visualization, which enabled the identification of temporal changes in keyword prominence. The overlay analysis was particularly important for distinguishing established themes from relatively recent or emerging research topics during the 2020–2025 period.

In addition, Bibliometrix/Biblioshiny was employed to support the descriptive and thematic analysis. Bibliometrix provides a comprehensive framework for quantitative science mapping and enables researchers to examine publication growth, conceptual structures, collaboration patterns, and thematic evolution (Aria & Cuccurullo, 2017). The combination of VOSviewer and Bibliometrix allowed the study to examine consumer behavior research from complementary perspectives, with VOSviewer emphasizing visual networks and

conceptual relationships, while Bibliometrix supported descriptive statistics and thematic development.

The interpretation of the findings was organized around four analytical dimensions: (1) descriptive development of consumer behavior research, (2) geographical and institutional distribution, (3) conceptual and thematic structure, and (4) emerging research frontiers. Particular attention was given to the temporal development of keywords to determine how consumer behavior research has evolved during the study period. Emerging themes were identified based on their relatively recent appearance, increasing relevance, and connections with established research clusters. The analysis consequently sought to identify the transition from traditional consumer behavior topics toward contemporary areas such as digital consumer behavior, social commerce, artificial intelligence, personalization, consumer experience, sustainability, impulse buying, online engagement, and technology-mediated decision-making.

IV. RESULTS AND DISCUSSION

RESULTS

The Scopus search identified 4,925 documents addressing consumer behavior research published during the period 2020–2025. The dataset was refined using three subject areas—Social Sciences, Business, Management and Accounting, and Economics, Econometrics and Finance—and was restricted to journal articles, with all records at the final publication stage and classified as open access. The resulting dataset provides a focused representation of contemporary consumer behavior research within the social science, business, management, and economic domains.

The subject-area distribution demonstrates the strongly interdisciplinary character of consumer behavior research. Social Sciences represents the largest subject area, accounting for 2,657 documents (54.0%), followed closely by Business, Management and Accounting with 2,433 documents (49.4%). No documents were identified under Economics, Econometrics and Finance within the final filtered dataset. The fact that the combined subject-area counts exceed the total number of documents is expected because individual Scopus publications may be classified simultaneously into more than one subject area. The dominance of Social Sciences and Business, Management and Accounting indicates that contemporary

consumer behavior research is primarily situated at the intersection of social processes, marketing, management, consumer psychology, and organizational perspectives.

The absence of records under Economics, Econometrics and Finance after the specified filtering is also noteworthy. Although consumer behavior is fundamentally connected to economic decision-making and consumption, the present dataset suggests that research indexed under the selected criteria is predominantly framed through social science and business/marketing perspectives rather than conventional economic or econometric approaches. This finding may indicate a broader transformation in the field, where consumer behavior is increasingly examined through behavioral, technological, experiential, and managerial lenses rather than solely through models of rational economic choice.

With respect to document characteristics, the dataset consists entirely of journal articles (4,925; 100%). Similarly, all records are classified as journal sources, have reached the final publication stage, and are identified as open access. This composition provides a relatively homogeneous dataset for bibliometric analysis because the study does not combine articles with conference papers, book chapters, reviews, or other document types. The exclusive focus on journal articles also indicates that the analysis primarily captures peer-reviewed scholarly discussions of consumer behavior rather than broader academic or professional publications.

The geographical distribution demonstrates a strong concentration of consumer behavior research among several major research-producing countries. The United States ranks first with 1,606 documents, followed by China (1,415) and the United Kingdom (1,287). Australia contributes 698 documents, while India accounts for 692 documents. These five countries constitute the most prominent contributors in the dataset and demonstrate the geographically international nature of contemporary consumer behavior scholarship. The particularly strong representation of the United States reflects its longstanding position in marketing and consumer research, while the substantial contributions from China and India demonstrate the growing importance of Asian research communities in shaping contemporary consumer behavior scholarship.

The strong contribution of China is especially relevant given the rapid transformation of its digital consumption ecosystem, including e-commerce, mobile commerce, social commerce, livestream shopping, and platform-based

consumption. China's high publication output suggests that consumer behavior research is increasingly influenced by rapidly developing digital markets outside traditional Western contexts. Similarly, India's position among the five leading contributors highlights the growing research interest in consumer behavior within emerging economies characterized by rapid digital adoption, expanding middle-class consumption, and increasingly diverse online markets.

The United Kingdom also demonstrates a substantial contribution, with 1,287 documents, reinforcing the importance of European scholarship in the development of consumer behavior research. Australia, with 698 documents, further demonstrates the significant contribution of the Asia-Pacific region. Taken together, the country distribution suggests that contemporary consumer behavior research is shaped by a combination of established Western research centers and rapidly expanding Asian research communities.

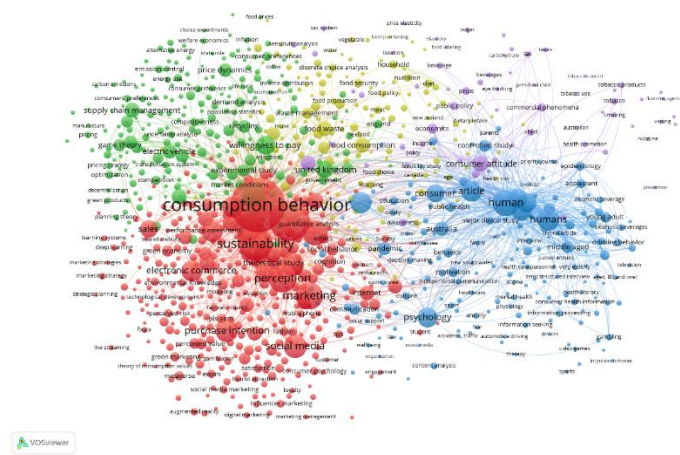


Figure 1. Network Visualization of Consumer Behavior Based on Scopus Database

Figure 1 presents the keyword co-occurrence network of consumer behavior research for the period 2020–2025, generated using VOSviewer. The visualization illustrates the conceptual structure of the field based on the frequency and co-occurrence relationships among keywords. In the network, node size represents the frequency of keyword occurrence, while the proximity and connecting lines between nodes indicate the strength of their relationships. Larger and more centrally positioned keywords represent concepts that have received

greater scholarly attention and function as important connecting themes within the research domain.

The network is strongly centered on “consumption behavior”, which appears as the most prominent keyword. Its central position indicates that consumer behavior remains the fundamental conceptual anchor of the literature. Closely connected keywords include sustainability, marketing, perception, purchase intention, electronic commerce, social media, consumer psychology, and sales. This configuration demonstrates that contemporary consumer behavior research is no longer limited to individual purchasing decisions but increasingly incorporates digital environments, marketing strategies, sustainability concerns, consumer perceptions, and technology-mediated consumption.

A prominent thematic concentration can be observed around the red cluster, which is strongly associated with marketing and digital consumption. Major keywords include consumption behavior, sustainability, marketing, perception, electronic commerce, purchase intention, social media, perceived value, customer satisfaction, consumer psychology, influencer marketing, digital marketing, live streaming, metaverse, augmented reality, and gamification. The concentration of these terms suggests that an important research stream examines how digital technologies and interactive marketing environments influence consumers' perceptions, attitudes, and behavioral intentions. The strong connection between electronic commerce, social media, purchase intention, perceived value, and satisfaction indicates that online consumption has become an important context for understanding contemporary consumer decision-making.

The green cluster reflects a second major research stream centered on sustainable consumption and resource-related behavior. Keywords such as supply chain management, recycling, reuse, food consumption, food waste, willingness to pay, electric vehicle, renewable energy, carbon emissions, environmental knowledge, green products, game theory, pricing, and sustainability appear prominently within this cluster. This pattern indicates a growing integration between consumer behavior and environmental sustainability. In particular, the relationships among willingness to pay, environmental preferences, recycling, food waste, green products, and energy consumption suggest that scholars increasingly investigate the behavioral determinants of environmentally responsible consumption. Consumer behavior is therefore being conceptualized

not only in terms of market exchange but also in relation to environmental consequences and sustainable lifestyles.

The blue cluster represents a health, psychological, and demographic dimension of consumer behavior research. Important keywords include human, humans, psychology, consumer article, public health, health, mental health, adolescent, young adult, middle aged, drinking behavior, consumer attitude, motivation, information seeking, and health literacy. This cluster demonstrates that consumer behavior research extends beyond commercial purchasing into health-related consumption and behavioral outcomes. The presence of demographic terms such as adolescent, young adult, and middle aged indicates considerable attention to differences in consumer behavior across population groups. Meanwhile, the relationship between psychology, motivation, perception, and consumer attitudes highlights the importance of individual-level psychological mechanisms in explaining behavioral outcomes.

A smaller but distinctive purple cluster is associated with tobacco, smoking, vaping, nicotine, alcohol, taxation, and health promotion. The presence of keywords such as tobacco products, tobacco use, smoking, vaping, nicotine, tax, taxation, and health promotion indicates a specialized research stream concerned with consumption behavior in the context of public health and regulated products. This stream illustrates how consumer behavior scholarship intersects with public policy, health promotion, and behavioral regulation. The appearance of tax and taxation alongside tobacco-related consumption suggests that researchers also examine how fiscal and regulatory interventions may influence consumption patterns.

Another important feature of the network is the strong relationship between consumer behavior and sustainability. The relatively large nodes for sustainability, food consumption, willingness to pay, recycling, food waste, and environmental knowledge indicate that sustainable consumption has become one of the central dimensions of contemporary consumer research. This suggests a shift from traditional questions concerning “what consumers buy” toward broader questions concerning why consumers make environmentally responsible or irresponsible choices and how these choices can be influenced.

The network also reveals the increasing importance of digitalization in consumer behavior research. Keywords such as electronic commerce, social media,

digital marketing, mobile phone, live streaming, metaverse, augmented reality, influencer marketing, and gamification demonstrate that consumer decision-making is increasingly examined within digitally mediated environments. The close proximity of these keywords to purchase intention, perceived value, satisfaction, and marketing suggests that digital platforms have become important mechanisms through which consumer perceptions and purchasing decisions are formed.

The co-occurrence structure demonstrates that consumer behavior research between 2020 and 2025 is multidimensional and increasingly interdisciplinary. The field can broadly be understood through four interconnected research orientations: (1) digital and marketing-driven consumption, (2) sustainable and environmentally responsible consumption, (3) psychological, demographic, and health-related behavior, and (4) regulated or risk-related consumption. The central position of consumption behavior, together with its strong connections to sustainability, marketing, electronic commerce, purchase intention, perception, and psychology, indicates that contemporary research is moving toward an integrated understanding of consumers as individuals whose decisions are simultaneously shaped by digital technologies, market environments, psychological factors, social contexts, and sustainability considerations.

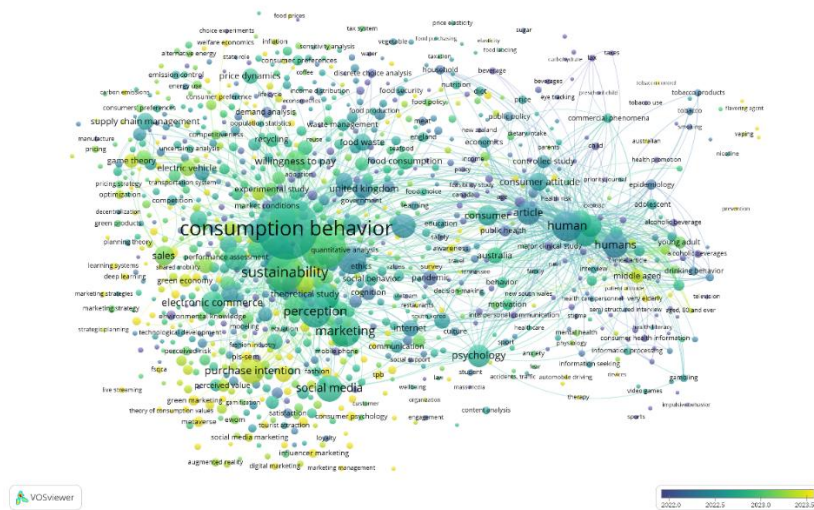


Figure 2. Overlay Visualization of Consumer Behavior Based on Scopus Database

Figure 2 presents the overlay visualization of consumer behavior research based on keyword co-occurrence analysis using VOSviewer. Unlike the network visualization, which emphasizes the structural relationships among keywords, the overlay visualization highlights the temporal evolution of research themes. The color scale ranges from blue/blue-green for earlier research (approximately 2022) to green and yellow for more recent research (approximately 2023–2023.5). Thus, the position of a keyword and, particularly, its color provide an indication of when specific topics became more prominent in the literature.

The visualization shows that “consumption behavior” remains the central conceptual theme and is surrounded by several established research topics, including marketing, perception, sustainability, electronic commerce, social media, purchase intention, and consumer psychology. These themes occupy the central part of the network, indicating their persistent importance throughout the observed period. However, the overlay colors suggest that the research focus has gradually expanded from conventional consumer behavior and marketing toward more contemporary issues related to sustainability, digitalization, technology, and changing consumption practices.

A relatively earlier research orientation can be observed around several blue and blue-green keywords, particularly those associated with human, humans, psychology, consumer article, public health, health, adolescent, middle aged, epidemiology, and controlled study. These terms indicate that part of the consumer behavior literature has traditionally been connected to health-related behavior, demographic characteristics, and psychological perspectives. The presence of these themes suggests that consumer behavior research has developed beyond purely commercial contexts and has increasingly considered consumption as a broader social and behavioral phenomenon.

In contrast, several green and yellow areas indicate more recent research attention. Particularly notable are sustainability, recycling, food waste, willingness to pay, food consumption, environmental knowledge, green economy, electric vehicle, renewable energy, and carbon emissions. The temporal positioning of these keywords suggests that sustainable consumption has become an increasingly prominent research frontier. This development reflects a shift toward

understanding how consumers respond to environmental challenges and how purchasing and consumption decisions can contribute to sustainability objectives.

The overlay visualization also highlights the continuing development of digital consumer behavior. Keywords such as electronic commerce, social media, digital marketing, live streaming, metaverse, augmented reality, influencer marketing, gamification, and mobile phone appear primarily within the contemporary part of the network. Their relatively recent coloration suggests that consumer behavior research is increasingly concerned with how digital technologies reshape consumer experiences, engagement, perceptions, and purchasing intentions. In particular, the connection between electronic commerce, social media, purchase intention, perceived value, and customer satisfaction indicates the growing integration of digital platforms into consumer decision-making.

An important emerging dimension is the relationship between technology and consumption experience. The presence of terms such as metaverse, augmented reality, live streaming, gamification, influencer marketing, and digital marketing suggests that recent scholarship is moving toward more immersive and interactive forms of consumer engagement. These themes potentially represent a transition from studying consumers as passive recipients of marketing stimuli toward understanding them as active participants in digitally mediated consumption environments.

The visualization also reveals the continued development of research concerning food consumption and consumer preferences. Keywords including food consumption, food waste, food security, food purchasing, dietary intake, nutrition, food policy, willingness to pay, consumer preferences, and price dynamics indicate a strong intersection between consumer behavior and food-related economic and social issues. The presence of newer terms associated with sustainability and environmental concerns suggests that food consumption is increasingly examined not only from the perspective of consumer choice but also in relation to health, affordability, environmental impact, and sustainability.

Another temporal stream concerns environmental and energy-related consumption. Keywords such as alternative energy, energy use, emission control, carbon emissions, electric vehicle, transportation system, green products, and green economy demonstrate an expansion of consumer behavior research toward energy and mobility choices. This suggests that scholars are increasingly interested

in the behavioral mechanisms underlying consumers' adoption of environmentally friendly technologies and products.

The overlay map further indicates that traditional marketing themes remain important but are increasingly connected with emerging digital and sustainability-oriented concepts. Marketing, sales, purchase intention, consumer perception, and customer satisfaction continue to function as central themes, but they increasingly intersect with social media, electronic commerce, influencer marketing, sustainability, and green marketing. This pattern indicates that the evolution of the field is not characterized by the replacement of traditional consumer research but rather by its extension into new technological, environmental, and social contexts.

The temporal visualization suggests three broad stages in the development of consumer behavior research during the observed period. First, established research concentrated on consumer psychology, attitudes, health-related behavior, and conventional purchasing decisions. Second, the field increasingly incorporated digital commerce, social media, electronic commerce, and technology-mediated consumer experiences. Third, more recent research demonstrates growing attention to sustainable consumption, environmental responsibility, green products, food waste, renewable energy, electric vehicles, and emerging digital technologies. This temporal transition indicates that contemporary consumer behavior research is becoming increasingly digital, sustainable, experiential, and interdisciplinary.

Importantly, the yellow and yellow-green keywords should be interpreted as relatively newer themes within the dataset rather than automatically as the most important themes. Their significance derives from their temporal position and their connections with established central concepts. Consequently, themes such as sustainable consumption, green economy, food waste, electric vehicles, live streaming, metaverse, augmented reality, and digital marketing can be identified as promising areas for further investigation and may constitute important research frontiers in consumer behavior scholarship.

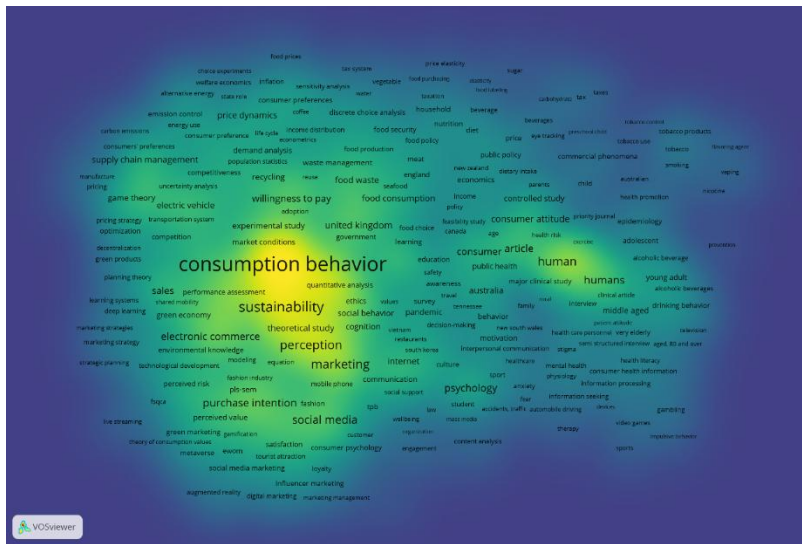


Figure 3. Density Visualization of Consumer Behavior Based on Scopus Database

Figure 3 presents the density visualization of consumer behavior research generated using VOSviewer. This visualization illustrates the concentration of research activity across different thematic areas. In the density map, yellow areas represent the highest concentration of frequently occurring and strongly interconnected keywords, followed by green areas indicating moderate research density, while blue areas represent relatively lower concentrations. Therefore, the visualization helps identify the established core themes, well-developed research areas, and comparatively peripheral topics within consumer behavior research during 2020–2025.

The most prominent density is concentrated around “consumption behavior”, which appears at the center of the visualization and represents the principal knowledge domain of the dataset. Its close association with sustainability, perception, marketing, electronic commerce, purchase intention, social media, and consumer psychology indicates that these themes constitute the core intellectual structure of contemporary consumer behavior research. The strong yellow-green concentration surrounding these terms suggests that scholars frequently investigate consumer behavior in relation to market exchange, consumer perceptions, purchasing decisions, sustainability, and digital environments.

One of the strongest research concentrations is observed around sustainability. The high-density area surrounding sustainability is connected with

keywords such as green economy, environmental knowledge, green marketing, recycling, reuse, food waste, willingness to pay, green products, electric vehicles, carbon emissions, and energy use. This pattern indicates that sustainable consumption has become a highly developed component of consumer behavior research. The density of these terms suggests that environmental considerations are no longer a peripheral issue but have become closely integrated with mainstream discussions of consumer decision-making.

Another major concentration is located around marketing, perception, purchase intention, social media, and electronic commerce. These terms form a dense conceptual area that reflects the strong connection between consumer behavior and contemporary marketing practices. In particular, purchase intention is closely surrounded by perceived value, satisfaction, consumer psychology, social media, digital marketing, influencer marketing, and electronic commerce. This configuration indicates that researchers continue to examine the mechanisms through which marketing stimuli and digital interactions shape consumers' perceptions and ultimately influence purchasing decisions.

The density surrounding electronic commerce and social media is particularly important because it reflects the increasing digitalization of consumption. Related terms such as live streaming, influencer marketing, digital marketing, augmented reality, metaverse, gamification, mobile phone, and social media marketing appear around this central area. Although some of these concepts have lower density than the established terms marketing and purchase intention, their presence indicates the expansion of consumer behavior research toward interactive, immersive, and technology-mediated consumption environments. These emerging topics may therefore represent areas where the field is currently developing rather than fully consolidated.

A further high-density region can be observed around food consumption, food waste, willingness to pay, recycling, waste management, consumer preferences, and sustainability. This concentration indicates a substantial research stream examining consumption from the perspective of food systems, environmental responsibility, and consumer choice. The connection between willingness to pay and sustainable consumption is particularly relevant because it reflects scholarly interest in whether consumers are prepared to accept economic

costs for environmentally friendly products, sustainable production, or socially responsible consumption.

The visualization also reveals a distinct concentration around human, humans, psychology, consumer article, public health, adolescent, young adult, middle aged, health, and drinking behavior. Compared with the central marketing-oriented area, this region is characterized by somewhat lower density but remains structurally important. It demonstrates the interdisciplinary nature of consumer behavior research, particularly its connection with psychology, public health, demographic characteristics, and health-related consumption. Consumer behavior is consequently investigated not only as a market phenomenon but also as a broader behavioral and social phenomenon.

A relatively lower-density area is visible around tobacco, smoking, vaping, nicotine, tobacco products, taxation, tax, and health promotion. Although these keywords are less densely connected to the central consumer behavior literature, their presence represents a specialized research domain concerning regulated consumption and public health policy. The association between tobacco-related behavior and taxation suggests that some consumer behavior studies focus on how government intervention and fiscal policies influence consumption decisions.

The density visualization further highlights the importance of consumer preferences and economic decision-making. Keywords such as price dynamics, demand analysis, price elasticity, income distribution, discrete choice analysis, game theory, pricing, competitiveness, market conditions, and willingness to pay occupy the upper and left portions of the map. These themes indicate that an important component of consumer behavior research remains concerned with the relationship between consumer preferences, prices, market structures, and economic choices. This stream provides a bridge between behavioral research and economic analysis.

From a structural perspective, the visualization suggests that the consumer behavior literature can be divided into several levels of research maturity. Highly dense areas—particularly consumption behavior, sustainability, marketing, perception, purchase intention, electronic commerce, and social media—represent well-established research cores. Moderately dense areas, such as green marketing, food waste, recycling, willingness to pay, consumer preferences, and electronic commerce, represent strongly developing thematic domains. Meanwhile, topics such as metaverse, augmented reality, live streaming,

influencer marketing, gamification, and digital marketing appear in comparatively less dense regions, suggesting that they are emerging or expanding research areas that have not yet achieved the same level of conceptual consolidation as traditional consumer behavior themes.

The density visualization confirms that contemporary consumer behavior research is dominated by the intersection of marketing, sustainability, digital commerce, consumer psychology, and purchasing behavior. The strongest concentration around consumption behavior and sustainability demonstrates that the field is increasingly concerned with both how consumers make decisions and the broader consequences of those decisions. At the same time, the presence of lower-density but increasingly visible topics such as metaverse, augmented reality, influencer marketing, live streaming, and green consumption technologies points toward opportunities for future research.

Thus, the density map provides an important complement to the network and temporal visualizations. While the network map demonstrates how themes are structurally connected, and the overlay map illustrates when particular themes have gained prominence, the density visualization identifies where the intellectual concentration of the field currently lies. Taken together, the three visualizations suggest that consumer behavior research during 2020–2025 has evolved from a predominantly traditional focus on perception, marketing, and purchase intention toward a more integrated research agenda encompassing digital transformation, sustainable consumption, social media, immersive technologies, environmental responsibility, and changing consumer lifestyles.

DISCUSSION

The bibliometric findings demonstrate that consumer behavior research during 2020–2025 has evolved into a highly interdisciplinary field, positioned at the intersection of marketing, psychology, digital commerce, sustainability, public health, and economic decision-making. The centrality of consumption behavior, together with its strong connections to marketing, perception, purchase intention, sustainability, electronic commerce, and social media, indicates that the field has moved beyond a narrow examination of purchasing decisions toward a broader understanding of how consumers interact with changing technological, social, and environmental contexts. This development is consistent with recent consumer

research, which increasingly conceptualizes consumption as a dynamic process influenced by digital environments, social interactions, technological mediation, and societal challenges.

One of the most prominent findings is the strong position of marketing, perception, purchase intention, and perceived value in the conceptual structure. These themes indicate that traditional consumer behavior questions remain highly relevant, particularly the mechanisms through which consumer perceptions and evaluations translate into behavioral intentions. However, the bibliometric structure also shows that these established concepts are increasingly connected to digital contexts. Research on social media demonstrates, for example, that consumer–brand interactions can strengthen purchase intention, although privacy concerns remain an important limitation (Gutiérrez et al., 2023). Similarly, social commerce research has increasingly emphasized the roles of trust, perceived value, privacy, security, and consumer motivation in explaining online purchase behavior (2024). This suggests that contemporary purchase intention research is shifting from a relatively linear stimulus–response perspective toward a more complex model in which trust, interaction, platform characteristics, and perceived value jointly shape consumer decisions.

The strong emergence of electronic commerce and social media in the network further confirms the digital transformation of consumer behavior. The proximity of electronic commerce, social media, social media marketing, live streaming, influencer marketing, and digital marketing to purchase intention indicates that digital platforms have become important environments for consumer decision-making. This transformation accelerated during and after the COVID-19 pandemic, when consumers increasingly adopted online channels and retailers expanded their digital engagement strategies. Post-pandemic research indicates that social commerce purchase behavior is influenced by consumer attitudes and trust, demonstrating that digital consumption has continued to develop beyond the exceptional conditions of the pandemic (2024). Thus, COVID-19 should not merely be interpreted as a temporary disruption in consumer behavior; rather, it appears to have contributed to a longer-term restructuring of how consumers search, evaluate, interact, and purchase products.

The appearance of live streaming and influencer marketing as emerging themes further illustrates the transformation of the digital consumer journey. Live streaming combines entertainment, interaction, product demonstration, and social

presence within a single consumption environment. Evidence from Indonesian social commerce, for example, indicates that different forms of perceived shopping value during live streaming can influence consumer trust, engagement, and purchase intention (Yasser & Gayatri, 2023). Similarly, recent influencer research demonstrates that source credibility and content characteristics can affect consumer engagement and purchase intention, with engagement functioning as an important mechanism linking influencer characteristics to behavioral outcomes (Sardar et al., 2024). The bibliometric emergence of these terms therefore reflects a broader transition from static digital advertising toward interactive and socially embedded forms of consumption.

The role of influencer marketing is particularly significant because it changes the traditional relationship between consumers, brands, and information sources. Influencers function not merely as advertising channels but also as sources of credibility, inspiration, social comparison, and identity formation. Ooi et al. (2023) found that influencer credibility and mobile convenience are important components of influencer marketing effectiveness, while the effects of influencer marketing may differ across consumer groups. At the same time, Pradhan et al. (2023) demonstrate that Gen Z consumers may also avoid influencers and endorsed brands under certain conditions, suggesting that influencer effectiveness cannot be assumed to be universally positive. These findings help explain why influencer marketing appears as a developing rather than completely dominant theme in the temporal visualization: the field is moving toward more nuanced questions concerning authenticity, credibility, trust, consumer skepticism, and the conditions under which social influence produces behavioral responses.

Another major finding is the increasing prominence of sustainability. In the network and density visualizations, sustainability occupies a highly central and dense position, closely connected with green economy, recycling, reuse, food waste, environmental knowledge, willingness to pay, green marketing, electric vehicles, and carbon emissions. This indicates that sustainability is no longer a peripheral topic in consumer behavior research. Instead, it has become one of the principal dimensions through which contemporary consumption is understood. Recent research confirms this development. Santos-Corrada et al. (2024) emphasize the importance of consumer awareness and attitudes in sustainable purchasing and ethical consumption within the circular economy. Similarly, Schiaroli et al. (2024) identify price, skepticism, knowledge, availability, and access

as important barriers to sustainable consumption, while social media and emerging technologies can support the diffusion of sustainable consumption practices.

The strong relationship between willingness to pay, consumer preferences, sustainability, and environmental knowledge is particularly noteworthy. It suggests that current research is increasingly concerned with the gap between consumers' environmental attitudes and their actual purchasing behavior. Consumers may express strong environmental concerns but still be reluctant to pay higher prices or change established consumption habits. This issue is important because it shifts the research question from whether consumers care about sustainability to under what economic, psychological, social, and contextual conditions sustainable attitudes become actual behavior. Moreover, sustainability does not always generate positive consumer responses. Acuti et al. (2022) demonstrate that sustainability initiatives can produce unintended negative effects on consumer behavior, indicating that sustainable positioning may sometimes create skepticism, trade-offs, or unfavorable perceptions. Therefore, future research should investigate sustainability not only as a positive behavioral driver but also as a potentially complex and sometimes contradictory consumption stimulus.

The appearance of food consumption, food waste, nutrition, food security, price dynamics, and willingness to pay further expands the sustainability dimension. Consumer behavior research increasingly connects individual consumption decisions with broader food-system challenges. The coexistence of food consumption with food waste, food security, food policy, price elasticity, and consumer preferences indicates that food-related consumption is being studied simultaneously as an economic, behavioral, environmental, and public-policy issue. This interdisciplinary orientation is important because consumer choices are influenced not only by preferences but also by income, prices, availability, information, social norms, and policy interventions.

A further important development concerns the growing relationship between consumer behavior and technology, particularly artificial intelligence (AI). Although AI is not yet as dominant as traditional concepts such as marketing or purchase intention, its presence alongside digital marketing, social media, electronic commerce, and emerging digital technologies suggests that AI is becoming an important research frontier. Hermann and Puntoni (2024) argue that

consumer research has moved from examining predictive algorithms and automated decision-making toward the emerging implications of generative AI, creating new questions concerning consumer reactions, decision-making, personalization, and human–AI interaction. The bibliometric findings support this transition by demonstrating that technology-related concepts are increasingly embedded within the broader consumer behavior research structure.

The emergence of metaverse, augmented reality, gamification, and immersive consumption further indicates that consumer research is beginning to examine environments in which the boundary between physical and digital consumption becomes increasingly blurred. Kaur et al. (2024), for example, demonstrate that consumer behavior in the metaverse involves awareness, information search, engagement, and post-engagement evaluation, while also highlighting the need to understand consumer engagement with immersive technologies. These findings correspond with the bibliometric appearance of metaverse and augmented reality as relatively peripheral but emerging themes. Their lower density compared with established concepts suggests that the research area is still developing, but their temporal position indicates potential for substantial future growth.

The bibliometric structure also highlights psychology as an important connecting domain. The presence of perception, consumer psychology, motivation, cognition, attitude, perceived value, and satisfaction demonstrates that technological and environmental transformations have not displaced psychological explanations of consumer behavior. Rather, these traditional psychological concepts continue to function as mechanisms through which new stimuli—such as social media, sustainability initiatives, influencers, AI, and immersive technologies—affect consumers. This suggests a theoretical continuity within the field: although the contexts of consumption are changing rapidly, psychological mechanisms remain fundamental to explaining consumer responses.

The health-related cluster provides another indication of the interdisciplinary expansion of consumer behavior research. Keywords such as human, humans, public health, adolescent, young adult, middle aged, drinking behavior, tobacco, smoking, vaping, and health promotion demonstrate that consumer behavior is increasingly studied in contexts where consumption has direct consequences for individual and population health. This is particularly

evident in research on regulated consumption, where taxation, public policy, and health promotion intersect with consumer choice. The existence of this cluster reinforces the argument that consumer behavior should not be understood solely from a commercial perspective; it is also relevant to public policy, health intervention, risk behavior, and social welfare.

The temporal visualization provides an additional insight into the evolution of the field. Earlier themes appear more strongly associated with consumer psychology, human behavior, health, and conventional consumer attitudes, whereas relatively newer themes include sustainability, green economy, recycling, food waste, electronic commerce, social media, influencer marketing, live streaming, metaverse, and augmented reality. This pattern suggests a gradual movement from individual-centered explanations of consumer choice toward context-sensitive explanations involving technology, sustainability, and social interaction. Importantly, this should not be interpreted as a complete replacement of traditional research. Instead, established concepts such as perception, purchase intention, satisfaction, and consumer attitude are increasingly being used to explain how consumers respond to new digital and sustainability-related environments.

The bibliometric findings suggest that the evolution of consumer behavior research can be conceptualized as a movement across three interconnected transformations. First is the digital transformation, reflected in electronic commerce, social media, influencer marketing, live streaming, AI, and immersive technologies. Second is the sustainability transformation, reflected in green consumption, recycling, food waste, electric vehicles, environmental knowledge, and willingness to pay. Third is the interdisciplinary transformation, reflected in the integration of psychology, economics, public health, technology, and marketing. These transformations indicate that contemporary consumers are increasingly understood as actors operating within complex ecosystems rather than as isolated decision-makers.

From a theoretical perspective, these findings suggest the need for consumer behavior research to integrate traditional behavioral theories with digital, technological, and sustainability perspectives. Models centered on attitude, perceived value, trust, motivation, and purchase intention remain relevant, but they need to account for new variables such as algorithmic personalization, platform affordances, influencer credibility, social presence, privacy, AI

interaction, immersive experience, and environmental identity. From a managerial perspective, firms should recognize that consumer engagement increasingly depends on the ability to combine digital convenience, trust, personalization, authenticity, social interaction, and sustainability rather than relying solely on traditional promotional strategies.

The bibliometric structure identifies several promising research frontiers. Future research could investigate the intersection of generative AI and consumer decision-making, AI-powered personalization and consumer trust, influencer and virtual-influencer credibility, live-streaming commerce and impulse buying, metaverse-based consumer experiences, and sustainable consumption in digital marketplaces. Particularly promising is research that connects these themes rather than examining them independently. For example, the combination of AI, influencer marketing, social commerce, and sustainability could provide a more comprehensive understanding of how emerging technologies reshape consumer preferences and consumption values. In this sense, the future of consumer behavior research appears increasingly oriented toward understanding how consumers navigate digitally mediated, socially connected, technologically intelligent, and sustainability-conscious consumption environments.

V. CONCLUSION AND RECOMMENDATION

This bibliometric analysis mapped the evolution of consumer behavior research during 2020–2025 based on 4,925 Scopus-indexed articles. The findings indicate that consumer behavior has developed into a highly interdisciplinary research domain, connecting marketing, sustainability, psychology, public health, environmental studies, digital commerce, and economics. The strong prominence of consumption behavior, sustainability, marketing, perception, purchase intention, and social media demonstrates that contemporary research increasingly views consumers not merely as purchasers but as actors influenced by social, technological, environmental, and psychological contexts.

The keyword networks further reveal several major research streams. First, digitalization and electronic commerce have become important components of consumer behavior research, particularly through social media, digital marketing, influencer marketing, mobile technology, and online purchasing. Second, sustainable consumption represents a major research frontier, incorporating green

marketing, environmental knowledge, recycling, food waste, willingness to pay, and sustainable consumption practices. Third, the strong connection between consumer behavior and psychology highlights growing interest in perception, motivation, satisfaction, consumer psychology, decision-making, and behavioral responses. Meanwhile, the emergence of food consumption, public health, tobacco, alcohol, and health-related topics indicates that consumer behavior research is increasingly extending beyond commercial markets toward broader societal and well-being issues.

The overlay visualization suggests a movement from established themes toward newer research interests, particularly social media marketing, influencer marketing, digital marketing, electronic commerce, sustainability, green marketing, gamification, augmented reality, and emerging digital consumption environments. Overall, the results demonstrate that consumer behavior research is shifting from traditional explanations of purchasing decisions toward a more complex understanding of how digital transformation, sustainability concerns, social influence, psychological processes, and public policy shape contemporary consumption. Future research should therefore strengthen interdisciplinary approaches and examine how these dimensions interact across different consumer groups, cultures, technologies, and socioeconomic contexts.

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