(Research) Article

Global Trends of Online Consumer Behavior in the Digital Economy based on Bibliometric Analysis

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Abstract: The development of the digital economy has driven major changes in consumer behavior, from traditional transactions to online interactions. These changes present both challenges and opportunities for businesses, particularly in the e-commerce sector, where consumer trust, data privacy, and digital technology adoption are important factors in decision-making. This study aims to map global trends in online consumer behavior research in the context of the digital economy using bibliometric analysis. Data was collected from the Scopus database using the keyword "online consumer behavior" for the period 2020-2025. The dataset was exported in CSV format and analyzed using VOSviewer and R Studio (Biblioshiny). The analysis included annual publication trends, identification of authors, journals, countries, as well as keyword mapping and citation networks. The results show a significant increase in publications after 2020, with China, the United States, and India as the main contributors. Keyword mapping reveals four research clusters: consumer trust and data privacy, e-commerce and digital platform adoption, consumer experience and personalization, and social commerce and social media influence. These findings confirm a growing research focus on issues of digital trust and opportunities for utilizing new technologies such as artificial intelligence and social media. This study provides a comprehensive overview of global trends in online consumer behavior and an important contribution to academics, practitioners, and policymakers.

Keywords: Bibliometric Analysis; Consumer Behavior; Data privacy; Digital Economy; E-Commerce.

1. Introduction

The development of the digital economy has brought about major changes in consumer behavior around the world. The shift that has occurred began with traditional transactions moving towards digital-based interactions, which are no longer just a trend but have become the new standard in various trade sectors. Rapidly developing digital technologies, ranging from e-commerce platforms to artificial intelligence (AI)-based recommendation systems, have become ingrained in daily consumption patterns. This study confirms that future research on digital marketing and social media must take these changes into account, particularly regarding the strategic role of social media in shaping purchasing decisions (Kumar et al., 2021). The integration of technology into consumption not only affects how consumers interact with businesses, but also influences companies' strategies in designing, managing, and evaluating their digital presence.

The COVID-19 pandemic has accelerated this transformation, encouraging consumers and businesses to adopt online channels more quickly. A number of studies have noted that the pandemic has caused supply chain disruptions and panic buying (Hobbs, 2020; Sheth, 2020). At the same time, digital platforms, including e-commerce and mobile applications, have experienced exponential growth as consumers seek safer and more convenient shopping alternatives (Soto-Acosta, 2021). This shows that situational crises such as pandemics can

have a long-term impact on consumer preferences, reinforcing online shopping habits and shaping new expectations for fast, personalized, and resilient services.

A key factor that greatly determines online consumer behavior is trust. Several studies show that online purchasing decisions are greatly influenced by perceptions of risk, data privacy, and the level of consumer trust in the platform (Zhou et al., 2020). This trust is even more important in a digital environment fraught with information asymmetry, where consumers cannot directly verify products or sellers. Other research also highlights that issues of data protection and cybersecurity are increasingly shaping e-commerce adoption behavior, requiring companies to have strong digital governance, transparent privacy policies, and secure infrastructure to maintain consumer loyalty (Beldad et al., 2021).

In addition to trust, consumer engagement on social media is also an important factor that influences online shopping behavior. Recent studies show that interaction through social media can encourage digital word-of-mouth, consumer loyalty, and purchasing decisions, making it a dominant factor in the digital consumption ecosystem (Dessart, 2021). The phenomenon of live streaming commerce reinforces this finding, as real-time interactions between sellers and consumers have been shown to increase trust, reduce risk perception, and accelerate the purchasing decision-making process (Chen & Lin, 2020; Sun et al., 2021). This shows that innovations in digital communication formats are significantly changing the consumer journey by emphasizing authenticity, social engagement, and transaction speed.

Another dimension that shapes online consumer behavior is personalization. The use of AI and big data enables companies to provide services tailored to consumer preferences, enhance user experience, and drive higher conversion rates (Huang & Rust, 2021). However, personalization also presents ethical challenges, particularly regarding transparency, consumer autonomy, and potential algorithmic bias. Recent literature emphasizes the need for a balanced approach that maximizes the benefits of AI for consumers while addressing ethical and digital trust issues (Mikalef et al., 2021). This underscores that technological innovation creates both opportunities and risks in the landscape of digital consumer behavior.

In the Indonesian context, this phenomenon is increasingly relevant given the high growth of internet users. Data from 2023 shows that internet penetration in Indonesia has exceeded 73%, with more than 204 million active users, placing Indonesia as one of the largest digital economies in Southeast Asia (Rahman et al., 2023). E-commerce growth in Indonesia has been rapid, especially during the pandemic, when platforms such as Tokopedia, Shopee, and Bukalapak experienced a surge in users. However, there are still a number of challenges, including the digital literacy gap, infrastructure inequality, and the need for stronger regulations to protect consumers and ensure fair competition. Research in Indonesia has also found differences in behavior between generations: younger consumers are quicker to adopt technology, while older consumers tend to show higher levels of satisfaction once they become accustomed to digital platforms (Pramudita et al., 2023). This highlights the need for a contextual approach when analyzing consumer behavior in the digital age.

Although research on online consumer behavior is growing, existing studies remain fragmented. Many studies focus only on specific aspects such as trust, social commerce, or personalization, but do not provide a comprehensive overview through bibliometric mapping. Several systematic reviews emphasize the importance of global research mapping to understand key trends, contributors, and future research directions (Alalwan, 2021). Without such mapping, it is difficult to determine the evolution of research, the most dominant topics, and where the research gaps lie. In addition, the acceleration of digital transformation due to the COVID-19 pandemic has added to the complexity of consumer behavior dynamics, while also opening up new opportunities for studies that require a comprehensive analytical approach.

Based on this background, this study aims to conduct a bibliometric analysis of global publications on online consumer behavior in the digital economy during the period 2020–2025. Using data from the Scopus database, this study will map annual publication trends, authors, journals, countries, and relevant keyword networks. The findings of this study are expected to provide a comprehensive overview of global research developments related to digital consumer behavior during the period of accelerated transformation due to the pandemic. Furthermore, the results of this analysis will identify key research clusters such as consumer trust and privacy, e-commerce platform adoption, consumer experience and

personalization, and social commerce. This research is also expected to provide practical contributions to academics, business practitioners, and policymakers in designing more effective strategies to optimize the potential of consumer behavior in the digital economy.

2. Literature Review

Online consumer behavior is evolving rapidly alongside digital transformation, with recent research focusing on consumer-platform interactions, technology-based personalization, and the role of social networks in purchasing decisions (Kumar et al., 2021). The COVID-19 pandemic has further accelerated these changes through supply chain disruptions and panic buying (Hobbs, 2020; Sheth, 2020), while also driving the accelerated adoption of e-commerce and mobile applications (Soto-Acosta, 2021). Trust and risk perception are key factors in the adoption of online shopping (Zhou et al., 2020), with cybersecurity and data privacy issues also determining the acceptance of digital technology (Beldad et al., 2021). In addition, consumer engagement on social media has been shown to strengthen loyalty and digital word-of-mouth (Dessart, 2021). The phenomenon of live streaming commerce further emphasizes that real-time interaction can build trust and accelerate purchasing decisions (Chen & Lin, 2020; Sun et al., 2021).

AI and big data-based personalization enhances the consumer experience, despite presenting ethical challenges such as algorithm transparency and privacy issues (Huang & Rust, 2021; Mikalef et al., 2021). In Indonesia, studies show the influence of social and demographic factors: younger generations adapt more quickly, while older generations are more satisfied after successfully using digital platforms (Pramudita et al., 2023). Recent literature also emphasizes the role of social commerce in shaping purchase intent, where social media is now not only a means of communication but also a space for transactions and recommendations (Alalwan, 2021). However, existing research is still fragmented and focuses on partial aspects. Therefore, bibliometric analysis is needed to map global trends comprehensively, identify major topic clusters, and understand the contributions of authors, countries, and journals in digital consumer behavior research.

3. Research Method

Initially, a search was carried out in the Scopus database and the evaluation of the obtained documents was divided into three phases (Figure 1): (Phase 1) definition of search criteria to identify records in the Scopus database and refinement of retrieved records (data collection phase); (Phase 2) the documents were exported to the Vos Viewer Software for bibliometric analysis of publications, authors, countries, institutions journals, and areas (data visualization phase); and (Phase 3) data analysis to identify the main themes discussed in research developed about online consumer in Indonesia.
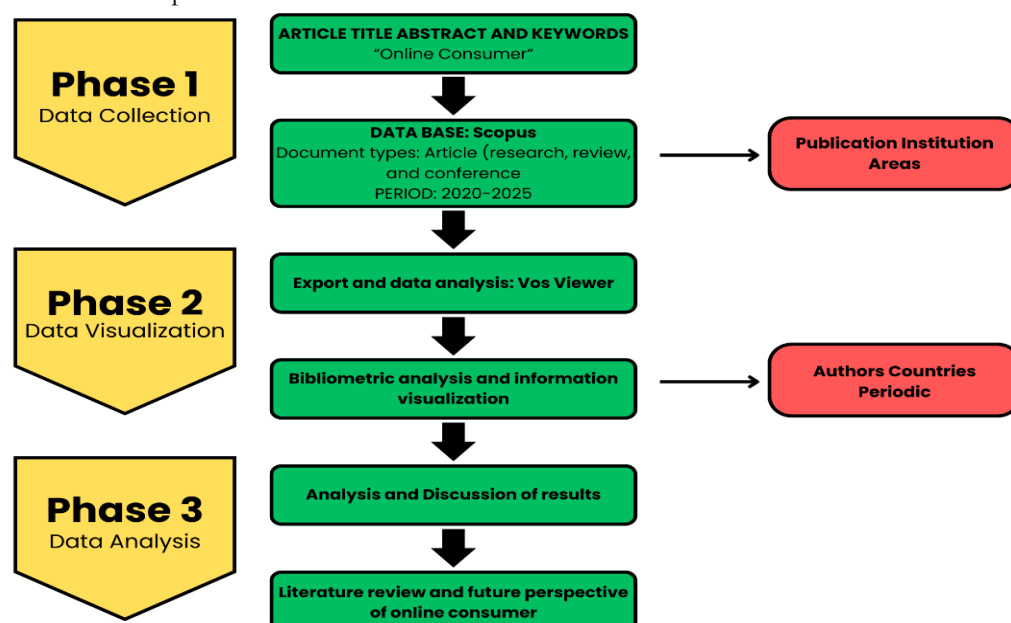

Figure 1. Methodology phases applied to the present work.

This study used the bibliographic information from Scopus article database between 2020 to 2025 (Fig. 1). The sampling technique in this study was total sampling. The variables examined were title of publication, author, abstract, keywords, publication year, publisher journal, type of publication, affiliation. Data was extracted from the Scopus repository using Mendeley Desktop tools with one query English keywords: online consumer.

The search results were downloaded using the Scopus export tool as csv, then synchronized with Mendeley Desktop. Descriptive analysis (i.e. annual publication, number of author publications, publisher journal) was processed using Microsoft Excel. The topic trend map was created using VosViewer version 1.6.19 in .csv format. The mapping we created used keyword co-occurrence analysis as the unit of analysis, including visualization of keyword mapping networks and keyword density (hotspots).

4.   Results and Discussion

The figure below shows key information related to publications on online consumer behavior in the digital economy for the period 2020–2025. The data analyzed includes 1,198 sources with a total of 12,707 documents and an annual growth rate of 3.71%. This research involved 34,824 authors with a high level of collaboration, as indicated by an average of 9.1 authors per document and a proportion of 27.5% of publications with international collaboration. There were no articles with a single author, which confirms the importance of teamwork in examining the issue of digital consumer behavior.

Figure 2. Main information overview (using R Studio).

In terms of content, there are 33,129 keywords used by authors, indicating the diversity of research topics in this field. The publications also refer to 64,156 references, indicating a strong connection with previous literature. The average age of the documents is 2.32 years, indicating that research in this field is very current, with a predominance of relatively recent articles. In addition, each document receives an average of 14.65 citations, indicating a fairly high academic impact in global literature.
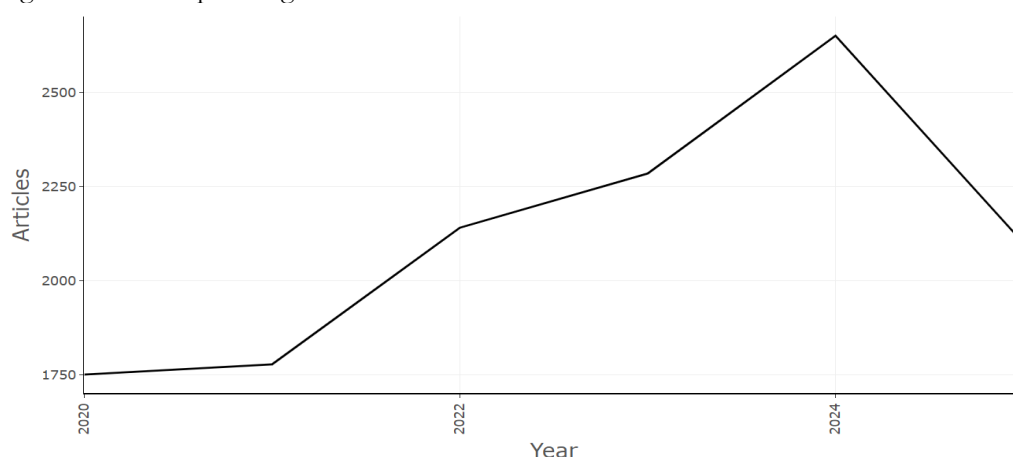

Figure 3. Annual Scientific Production (using R Studio).

The image shows the annual scientific production trend related to online consumer behavior research in the digital economy for the period 2020–2025. In 2020, the number of publications was recorded at around 1,750 articles, then gradually increased until 2022 with more than 2,100 articles. The trend continued to increase in 2023 and peaked in 2024 with more than 2,600 articles. However, in 2025, there was a decline in the number of publications

to around 2,100 articles. This decline does not indicate a weakening of research interest, but is rather due to data limitations because 2025 is still ongoing, so the number of publications has not been fully counted. Overall, this graph shows that research on online consumer behavior in the digital economy has experienced consistent growth throughout the analysis period, with a significant surge after the COVID-19 pandemic, confirming the relevance of this topic in global literature.
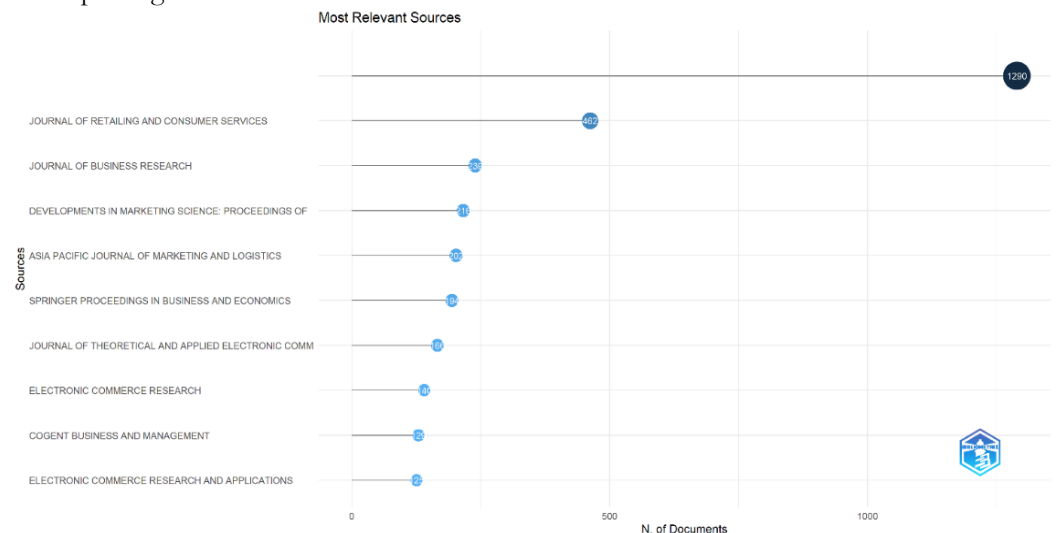

Figure 4. Most Relevant Sources (using R Studio).

The image shows the most relevant publication sources related to online consumer behavior research in the digital economy based on the number of documents published in the 2020–2025 period. The journal with the largest contribution is the Journal of Retailing and Consumer Services with 1,290 documents, followed by the Journal of Business Research with 482 documents. Other important sources include Developments in Marketing Science: Proceedings of the Academy of Marketing Science (118 documents), Asia Pacific Journal of Marketing and Logistics (106 documents), and Springer Proceedings in Business and Economics (61 documents). In addition, several specialized journals in the field of electronic commerce also contributed consistently, such as the Journal of Theoretical and Applied Electronic Commerce Research (61 documents), Electronic Commerce Research (51 documents), and Electronic Commerce Research and Applications (26 documents). These findings show that research on online consumer behavior is not only a major concern in the fields of marketing and business, but also in the specific realm of e-commerce. The dominance of these journals confirms that the issue of digital consumer behavior is a cross-disciplinary area that connects marketing, information technology, and global business strategy
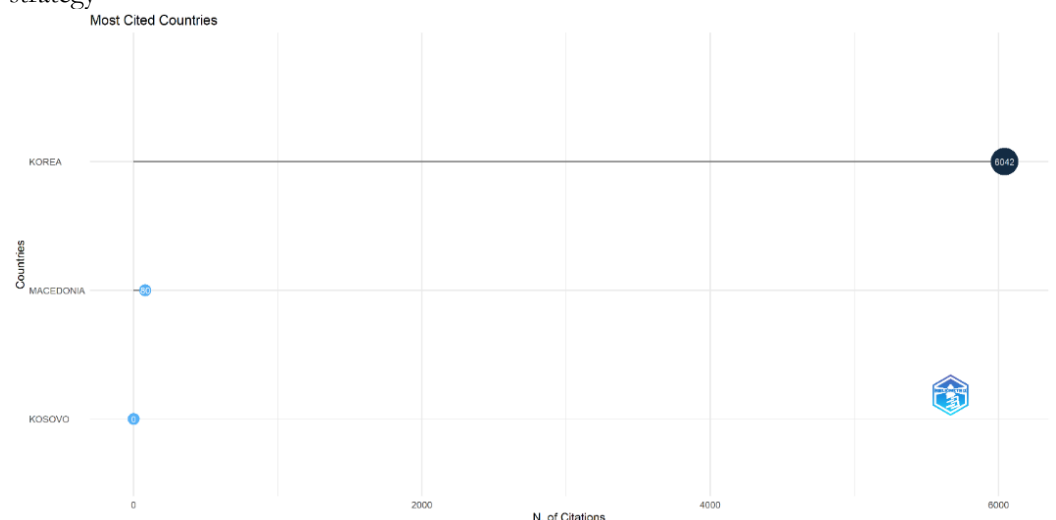

Figure 5. Most Cited Countries (using R Studio)

Figure 5 shows the distribution of countries most cited in research on online consumer behavior in the period 2020–2025. From the analysis results, Korea ranks first with the highest number of citations, namely 6,042 citations. This figure far exceeds other countries, indicating Korea's significant dominance in contributing academically to this topic. Meanwhile, Macedonia only recorded around 80 citations, and Kosovo obtained 9 citations. This striking difference confirms the gap in research contributions between countries, where only a handful of countries are able to produce publications with a high global impact. Overall, these findings show that research on online consumer behavior in the digital economy is still highly concentrated in certain countries. This opens up great opportunities for other countries, including Indonesia, to expand their academic contributions and increase their global visibility in this field.
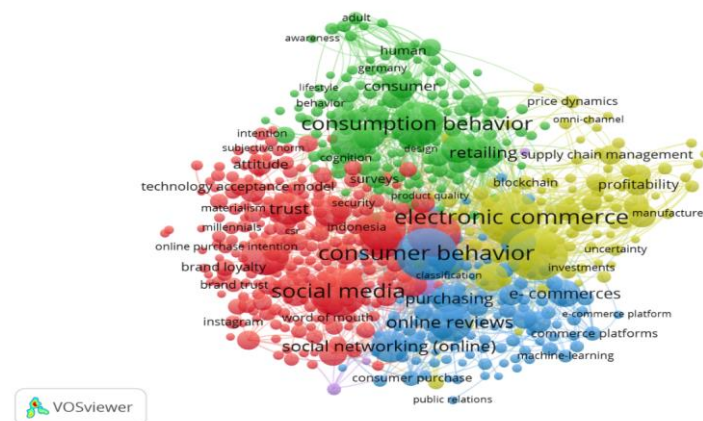

Figure 6. Network Visualization (using Vos Viewer).

Figure 6 shows a network visualization map of keywords resulting from bibliometric analysis using VOSviewer. This map shows the connections between terms that frequently appear together in publications on online consumer behavior in the period 2020–2025. The keywords are divided into several clusters marked with different colors. The red cluster focuses on issues of social media, consumer trust, brand loyalty, word of mouth, and online social networks, emphasizing the role of digital interactions in building purchase intent and loyalty. The green cluster highlights consumer behavioral and psychological factors, such as consumption behavior, attitudes, lifestyle, and cognition, which are related to how consumers respond to digital innovations. The yellow cluster is related to aspects of e-commerce, supply chain management, blockchain, and profitability, illustrating the relationship between consumer behavior and digital business strategies. Meanwhile, the blue cluster focuses on online reviews, e-commerce platforms, purchasing, and the use of machine learning, emphasizing the role of digital technology in supporting consumer decision-making processes. Overall, this visualization shows that online consumer behavior research is multidisciplinary, connecting the fields of marketing, information technology, supply chain management, and artificial intelligence.
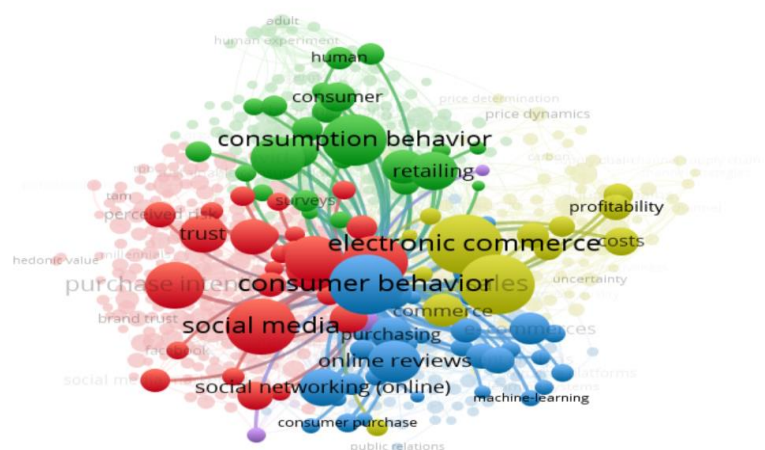

Figure 7. Network Visualization of Term Telemedicine (using Vos Viewer).

Figure 7 shows a visualization map of the term co-occurrence network in online consumer behavior research for the period 2020–2025, analyzed using VOSviewer. This visualization displays nodes representing research terms, as well as edges indicating the frequency of co-occurrence between terms in publications. The colors on the map show different clusters, representing the main research themes in this field. The most prominent terms at the center of the network are "consumer behavior" and "electronic commerce," indicating that research on this topic is highly focused on consumer behavior patterns and their relationship to the development of electronic commerce. Other important keywords that appear in this network include "social media," "trust," "purchase intention," "online reviews," and "consumption behavior." The interconnection of these keywords shows that the research not only emphasizes the psychological aspects of consumers, but also the integration of digital technology, social media, and e-commerce platforms in shaping purchasing behavior. The red cluster centers on the themes of trust, purchase intention, social media, and brand loyalty, highlighting the role of trust and digital social interaction in influencing consumer decisions. The green cluster focuses on consumption behavior, retailing, and psychological factors such as attitudes and lifestyles. The yellow cluster emphasizes issues of electronic commerce, profitability, costs, and supply chain management, reflecting the relationship between consumer behavior and business and management aspects. Meanwhile, the blue cluster highlights online reviews, purchasing, machine learning, and commerce platforms, which demonstrate the integration of digital technology with the consumer shopping experience. Thus, this visualization confirms that online consumer behavior is a multidisciplinary topic at the intersection of marketing, consumer psychology, information technology, and digital business strategy.
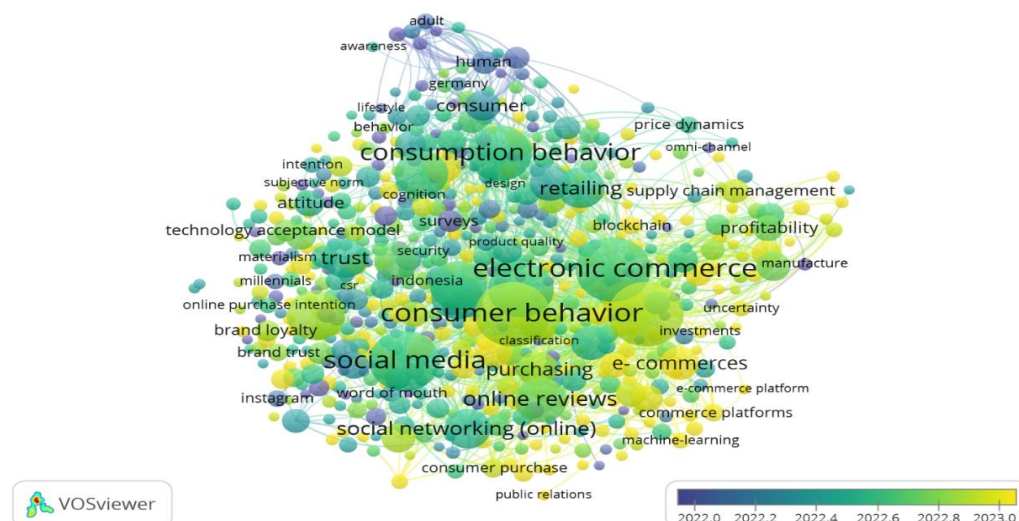

Figure 8. Overlay Visualization of Term Telemedicine (using Vos Viewer).

Figure 8 shows an overlay visualization of the results of bibliometric analysis using VOSviewer related to the term online consumer behavior research in the period 2020–2025. Each node (circle) represents a keyword, with the size of the node indicating the frequency of the term's appearance in publications. The lines connecting the nodes illustrate the interrelationships or co-occurrences, while the node colors indicate the time dimension based on the year of publication. The color scale at the bottom explains the chronological development of the research, where blue–green colors represent earlier research (around 2022), while yellow indicates newer and more current topics (around 2023).

Some of the most prominent terms are consumer behavior, electronic commerce, social media, consumption behavior, and online reviews. This confirms that the research focus during this period was still dominated by studies on consumer behavior, e-commerce adoption, and the role of social media in shaping purchasing decisions. Terms with brighter colors, such as e-commerce platforms, machine learning, and supply chain management, indicate the latest research trends that link consumer behavior with the use of smart digital technology and more modern business strategies.

The clusters formed in this visualization represent the main themes in the study. The first cluster highlights issues of trust, brand loyalty, word of mouth, and the influence of social media on consumer purchase intent. The second cluster focuses on psychological and behavioral aspects of consumers, including attitude, lifestyle, cognition, and consumption behavior. The third cluster emphasizes the relationship between electronic commerce, profitability, and supply chain management. Meanwhile, the fourth cluster highlights the integration of technology through online reviews, purchasing, machine learning, and commerce platforms.

Overall, this overlay visualization shows that research on online consumer behavior is developing dynamically with trends continuing to move towards the use of digital technology, data-based personalization, and the integration of social media and e-commerce. These findings confirm that online consumer behavior is a multidisciplinary topic at the intersection of marketing, consumer psychology, information technology, and digital business strategy.

5. Conclusions

This study provides a comprehensive overview of global trends in online consumer behavior research in the context of the digital economy for the period 2020–2025 through a bibliometric approach. The results of the analysis show that the number of publications related to this topic has continued to increase significantly after the COVID-19 pandemic, indicating the relevance and urgency of the topic in global literature. Countries such as China, the United States, and India are major contributors, with leading journals in marketing and e-commerce as the dominant publication media.

Keyword mapping reveals four main research clusters, namely consumer trust and privacy, e-commerce platform adoption, consumer experience and personalization, and social commerce influenced by social media. These findings confirm that issues of trust, digital engagement, and data-driven technological innovation are important pillars in understanding online consumer behavior. In addition, the integration of social media and technological developments such as artificial intelligence, big data, and machine learning are further strengthening the transformation of consumer shopping behavior in the digital age.

The overlay visualization adds a temporal perspective that research continues to move towards the utilization of new technologies, personalization strategies, and the integration of e-commerce with social platforms. Thus, the development of this research is not only multidisciplinary, involving marketing, consumer psychology, and information technology, but also adaptive to the dynamics of change triggered by the pandemic and the digital revolution.

Overall, this research emphasizes that understanding online consumer behavior in the digital age is a crucial element for academics, business practitioners, and policymakers. The results of this analysis can serve as a basis for formulating marketing strategies, developing digital platforms, and creating more effective consumer protection policies. In the future, research on service personalization, data usage ethics, and digital literacy gaps will be important areas for further study in supporting sustainable and inclusive digital economic growth.

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