CHANGES IN CONSUMER BEHAVIOR IN THE MICROECONOMY IN THE DIGITAL AGE: A SYSTEMATIC LITERATURE REVIEW ON THE IMPACT OF E-COMMERCE PLATFORMS, SOCIAL COMMERCE, AND ARTIFICIAL INTELLIGENCE

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Abstract
Rapid advancements in digital technology have driven significant transformations in consumer behavior across various economic sectors. This study aims to conduct a systematic synthesis to identify patterns, trends, and implications of changes in consumer behavior within the microeconomy in the digital age. The methodology employed is qualitative, utilizing a Systematic Literature Review (SLR) approach to articles from DOAJ, Scopus, and Google Scholar spanning the period 2016–2025. The results indicate that digital transformation through machine learning and Artificial Intelligence enhances efficiency, personalization, and user experience. Psychological factors such as perceived usefulness, perceived risk, and consumer engagement also influence consumer decisions. Additionally, social commerce and the dominance of Generation Z reinforce interactive consumption patterns. These findings confirm that consumer behavior is multidimensional and influenced by the interplay of technology, psychology, and the digital ecosystem.
Keywords: *digital consumer behavior, microeconomics,e-commerce and social commerce,artificial intelligence.*

Abstrak
Kemajuan pesat dalam teknologi digital telah mendorong transformasi signifikan dalam perilaku konsumen di berbagai sektor ekonomi. Penelitian ini bertujuan untuk melakukan sintesis sistematis guna mengidentifikasi pola, tren, dan implikasi perubahan perilaku konsumen dalam mikroekonomi di era digital. Metodologi yang digunakan bersifat kualitatif, dengan memanfaatkan pendekatan Tinjauan Literatur Sistematis (SLR) terhadap artikel-artikel dari DOAJ, Scopus, dan Google Scholar yang diterbitkan pada periode 2016–2025. Hasil penelitian menunjukkan bahwa transformasi digital melalui pembelajaran mesin dan Kecerdasan Buatan meningkatkan efisiensi, personalisasi, dan pengalaman pengguna. Faktor psikologis seperti persepsi kegunaan, persepsi risiko, dan keterlibatan konsumen juga memengaruhi keputusan konsumen. Selain itu, perdagangan sosial dan dominasi Generasi Z memperkuat pola konsumsi interaktif. Temuan ini menegaskan bahwa perilaku konsumen bersifat multidimensi dan dipengaruhi oleh interaksi antara teknologi, psikologi, dan ekosistem digital.
Kata kunci: perilaku konsumen digital, mikroekonomi, e-commerce dan perdagangan sosial, kecerdasan buatan.

1. Introduction

The development of the digital economy is a logical consequence of the information and communication technology revolution, which has fundamentally transformed the structure of the microeconomy [1]. Digitalization changes the patterns of interaction among market participants through disintermediation, increased price transparency, and expanded access to information for consumers [2]. Digital platforms then emerge as dominant actors that mediate economic transactions more efficiently and flexibly. Consumers no longer act as passive buyers but have become active decision-makers who leverage data and information. The study of consumer behavior is crucial for comprehensively understanding the dynamics and complexity of contemporary microeconomics.

E-commerce, as one of the main pillars of the digital economy, has driven significant changes in consumer behavior at the micro level [3]. Characteristics that emphasize ease of access, product diversity, and time and cost efficiency have become key factors accelerating its adoption by the general public [4]. The decision-making process is now influenced by user reviews, rating systems, and product recommendations available online [5]. This phenomenon has given rise to new consumption patterns such as impulse buying and a tendency to compare prices intensively. E-commerce also contributes to shaping consumer loyalty to brands and preferences in determining product choices.

The growth of social commerce and the adoption of Artificial Intelligence are further driving shifts in consumer behavior within the digital economy [6]. Social commerce leverages social interactions through digital media including the role of influencers and user-generated content to shape perceptions and purchasing decisions [7]. Artificial Intelligence enables the personalization of the consumer experience through recommendation algorithms, chatbots, and predictive analytics capable of anticipating user needs more accurately [8]. The integration of e-commerce, social commerce, and Artificial Intelligence forms a consumption ecosystem that is adaptive, dynamic, and oriented toward an increasingly personalized user experience [9].

Previous studies have examined the impact of e-commerce, social commerce, and artificial intelligence on consumer behavior using a variety of approaches. A study of 251 respondents in Croatia using non-parametric statistical tests (chi-square, Mann-Whitney, etc.) showed that the internet significantly influences purchasing decisions, particularly in the categories of clothing, technology, and travel, with approximately 65–75% of respondents "always or almost always" searching for information online before making a purchase, while for food and hygiene products, the influence is lower (around 30–40%), thereby confirming that e-commerce enhances transaction efficiency while simultaneously altering decision-making patterns based on digital information [10]. Research on social commerce highlights the importance of trust, social interaction, and community influence in shaping consumers' purchase intentions [11]. Quantitative studies show that AI-enabled personalization significantly increases perceived usefulness ($\beta \approx 0.35$–0.40, $p < 0.001$) and perceived enjoyment ($\beta \approx 0.30$, $p < 0.001$) as mediators that subsequently lead to increased user satisfaction, thereby confirming that Artificial Intelligence contributes to the user experience indirectly through perceptions of benefit and enjoyment in personalized services[12]. Various methods have been employed, ranging from quantitative approaches to big data analysis, yielding diverse findings that have not yet been fully integrated[13].

The existing literature still shows limitations in holistically examining changes in consumer behavior from a digital microeconomic perspective. The integration of e-commerce, social commerce, and artificial intelligence within a single analytical framework has not been widely explored, particularly through a systematic literature review approach. The interdependent relationship among these three factors has also not been comprehensively understood in shaping modern consumer behavior. This study aims to conduct a systematic synthesis of various relevant studies to identify patterns, trends, and implications of changes in consumer behavior within the digital microeconomy in a more structured and in-depth manner.

3. Research Methodology

This research method employs a qualitative approach using a Systematic Literature Review (SLR) design, beginning with the problem formulation stage, which involves defining the focus of the study regarding changes in consumer behavior in the microeconomy during the digital era due to the influence of e-commerce, social commerce, and Artificial Intelligence. Next, in the determination of inclusion and exclusion criteria stage, inclusion criteria were established in the form of scientific studies relevant to digital consumer behavior in the context of microeconomics, as well as exclusion criteria that eliminated studies that were irrelevant, had not undergone a peer-review process, or were not based on empirical or conceptual data. In the literature search and data selection stage, a literature search was conducted using the Google Scholar, DOAJ, and Scopus databases with predetermined keywords, limited to the publication years 2016–2025, followed by a step-by-step selection process to identify articles aligned with the research focus.

The next stage is the extraction and analysis process, which involves extracting key data from the selected articles including variables, methods, and main findings and then analyzing them using a thematic approach to identify patterns and relationships among concepts. Next, in the data interpretation and synthesis stage, the analysis results are comprehensively interpreted to identify trends and the implications of changes in consumer behavior within the microeconomy in the digital era. The final stage is conclusions, which involves formulating conclusions based on the systematic synthesis of findings, thereby yielding a more structured and in-depth understanding of the dynamics of consumer behavior amid the development of digital technology.

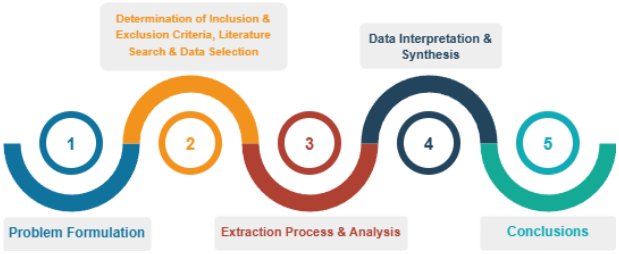

Figure 1. Stages of the Research Process

4. Results & Discussion

The literature selection process in this study was conducted in stages and systematically to ensure the quality and relevance of the articles analyzed. The initial database search yielded 12,074 documents, which were then filtered based on the publication period over the last 10 years (2016–2025), resulting in 10,894 documents. Subsequent filtering based on publication type (article) yielded 3,545 articles, and after focusing on open access publications, 2,002 articles remained. Through a further selection process based on established inclusion and exclusion criteria, 18 articles qualified for in-depth analysis. These articles were then classified based on similar fields or research focuses to identify patterns of findings and variables studied, as shown in Table 1.

Table 1. *Research Classification by Focus, Authors, and Variables*

No	Field / Focus	Authors	Research Insights / Variables
1	Digital Transformation & Technology	Theodorakopoulos & Theodoropoulou (2024); Kumar et al. (2021); Kaponis et al. (2025)	Machine learning, recommendation systems, service personalization, real-time data analytics, marketing efficiency, shift in consumption orientation
2	Risk, Privacy, and Trust	Marriott et al. (2017); Makki et al. (2016); Beke et al. (2018)	Data privacy, transaction security, perceived risk, consumer trust, information transparency
3	Cognitive Determinants of Consumer Behavior	Park & Lee (2018); Abdul-Rahim et al. (2022); Pappas (2017)	Perceived usefulness, perceived risk, behavioral intention, rational decision-making
4	Artificial Intelligence & Personalization	Ashrafuzzaman et al. (2025); Oualid et al. (2024); Acatrinei et al. (2025)	Artificial Intelligence (AI), personalized recommendations, consumer engagement, user experience, long-term relationships
5	Social Commerce & Branding	Yadav & Rahman (2018); Firdaus (2025)	Social commerce, user-generated content, brand image, influence of reviews and social interaction
6	Service Quality in Digital Platforms	Androutsopoulou et al. (2019)	Service quality, responsiveness, user experience, digital communication
7	Generation Z Consumer Behavior	Chang & Chang (2023); Ofordi et al. (2024); Razak (2022)	Generation Z, digital natives, visual content preference, digital interaction, active participation, content creation
8	Digital Platform Ecosystem	Synthesis of multiple studies	Platform ecosystem, co-creation of value, socio-economic interaction, integration of technology and consumer behavior

Table 1 presents a classification of research articles based on similar fields/focuses, author names, and variables or insights studied, thus providing a structured overview of the scientific landscape in the study of consumer behavior in the digital era. This grouping demonstrates that the analyzed studies can be categorized into several main focuses, such as digital transformation, psychological determinants, Artificial Intelligence, and digital platform ecosystems, which are interconnected in explaining the dynamics of consumer behavior comprehensively. This classification not only shows dominant topic tendencies but also reveals the interrelationships between variables that form the research conceptual framework more systematically. To strengthen this analysis, bibliometric visualization was also performed using VOSviewer software to map the relationships between keywords and research clusters, as shown in Figure 2.

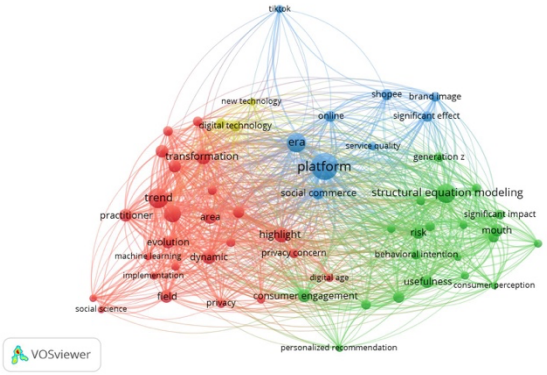

Figure 2. Visualization Network of Keywords

Based on the visualization in Figure 1, three main clusters (red, green, and blue) are visible, each representing a distinct yet interconnected thematic focus within the context of changing consumer behavior in the digital era. The red cluster is dominated by keywords such as transformation, trend, digital technology, machine learning, privacy, evolution, and implementation. Conceptually, this cluster represents the digital transformation process as a structural change in the microeconomic system triggered by technological developments. This transformation includes the adoption of new technologies, the integration of machine learning, and changes in business practices and consumer interactions. Furthermore, the emergence of privacy concerns indicates that technological developments are also accompanied by ethical and data security challenges. Interpretatively, this cluster emphasizes that changes in consumer behavior do not occur instantly, but rather are the result of continuous technological evolution, where consumers are increasingly adapting to digital innovations while still considering risk aspects such as privacy and security.

The green cluster contains keywords such as structural equation modeling, behavioral intention, usefulness, consumer perception, risk, consumer engagement, and personalized recommendation. This cluster describes the psychological and behavioral aspects of consumers in responding to digital technology. The use of a structural equation modeling (SEM) approach shows that research in this cluster focuses on the causal relationship between variables such as perceived usefulness, perceived risk, and behavioral intention. Furthermore, the concept of personalized recommendation emphasizes the role of Artificial Intelligence in shaping a more individualized user experience. The interpretation is that changes in consumer behavior in the digital era are heavily influenced by subjective perceptions of value and risk, where technology functions not only as a tool but also as a factor in shaping consumer decisions and satisfaction.

The blue cluster includes keywords such as platform, online, social commerce, Shopee, TikTok, brand image, service quality, and generation Z. This cluster represents the digital platform ecosystem as the primary space for modern microeconomic interactions. Platforms such as marketplaces and social media have become the primary medium for information seeking, social interaction, and transactions. The presence of generation Z indicates a demographic shift toward more digital-native users, while brand image and service quality are important factors in building consumer trust. The interpretation is that digital platforms act as the primary catalyst connecting technology with consumer behavior, where purchasing decisions are increasingly influenced by social interactions, digital content, and integrated user experiences. Therefore, the following discussion will further elaborate on digital transformation, consumer psychological determinants, and the role of platforms in shaping the dynamics of consumer behavior in the digital era.

1. Digital Transformation and the Evolution of Consumer Behavior

The role of digital technology and machine learning in changing consumption is reflected in the increasing integration of intelligent systems into consumer decision-making processes, particularly through features such as product recommendations, service personalization, and real-time user behavior analysis[14]. This technology enables companies to understand consumer preferences more accurately, thereby improving marketing efficiency and the relevance of product offerings[15]. Shifting consumption patterns are also evident in the shift in consumer orientation, which is no longer solely based on needs but increasingly shifts toward experiences and ease of access, facilitated by developments in digital technology and machine learning algorithms[16].

The adoption of digital technology also raises privacy and risk issues that are a concern in modern consumer behavior. Concerns about the misuse of personal data and the lack of transparency in information management affect consumer trust in digital platforms[17]. Perceived risks related to transaction security and data protection also act as inhibiting factors in the use of technology-based services, especially among consumers with limited digital literacy[18]. Consumer trust in technology is greatly influenced by the service provider's ability to guarantee user security and privacy on an ongoing basis[19].

Interpretation of the findings shows that digital transformation is not only technological, but also includes psychological and behavioral dimensions,

where the integration of machine learning creates a consumption environment that is increasingly responsive and adaptive to individual preferences so that consumers tend to make decisions more quickly and based on system recommendations, while the shift towards experience-based consumption indicates a change from utilitarian values to hedonic and emotional values; on the other hand, increased dependence on technology is accompanied by increased consumer sensitivity to risks, especially related to privacy and data security, which indicates the duality of digital transformation as an enabler and source of uncertainty in consumer behavior, and evaluation of various studies shows that although there is consistency in placing technology as a major factor in behavioral change, there are still limitations in integrating aspects of benefits and risks in a balanced way because many studies emphasize efficiency and personalization more than the dimensions of ethics, privacy, and digital literacy, and tend to be partial so that they are not fully able to describe the complexity of the interaction between technology, consumer perceptions, and social context, which ultimately opens up space for the development of a more holistic approach in understanding the dynamics of consumer behavior in the digital era.

2. Psychological Determinants in Digital Consumer Decisions

The influence of perceived usefulness and risk on behavioral intention is a key determinant in understanding consumer behavior in the digital era. High perceptions of usefulness of a technology drive increased usage intentions because consumers perceive the technology to be able to increase efficiency and effectiveness in meeting their needs[20]. On the other hand, perceived risks such as potential financial loss, data breaches, or uncertainty of outcomes can decrease consumer interest in adopting digital technology[21]. The interaction between these two variables indicates that consumer decisions are the result of rational considerations between the benefits obtained and the risks that may be faced in using technology [22].

The role of Artificial Intelligence in personalized recommendations and consumer engagement further strengthens the relationship between technology and consumer experience. AI-based systems are capable of analyzing user behavioral data to generate relevant recommendations tailored to individual preferences, thereby increasing user satisfaction and engagement[23]. High levels of personalization encourage consumers to interact more actively with platforms, whether through information searches, reviews, or transactions[24]. This increase in consumer engagement demonstrates that AI functions not only as an analytical tool but also as a strategic mechanism in building long-term relationships between consumers and digital platforms[25].

Interpretation of the findings shows that psychological determinants in digital consumer decisions are not only cognitive, but also include affective and relational dimensions, where perceived usefulness represents a rational assessment of the benefits of technology, while perceived risk reflects an evaluation that contains elements of uncertainty and caution, and the presence of Artificial Intelligence through a personalized recommendation system presents an affective dimension in the form of convenience, pleasure, and relevance of the user experience, which is then strengthened by increased consumer engagement as a form of emotional attachment and continuous interaction between consumers and platforms, so that all these dimensions indicate that digital consumer decisions are the result of a complex and multidimensional psychological process; however, an evaluation of the research results shows that although there is consistency in placing perceived usefulness and perceived risk as the main determinants, some studies still separate these variables from the development of cutting-edge technologies such as Artificial Intelligence, so that the integration between classical approaches such as the Technology Acceptance Model with AI-based approaches is not yet fully comprehensive, in addition, research tends to focus on direct relationships between variables without exploring long-term dynamics such as consumer engagement and loyalty, and is limited to the context of a particular platform or region so that generalization of the findings still requires caution.

3. The Role of Digital Platforms in the Microeconomic Ecosystem

Social commerce plays a crucial role in shaping brand image and service quality through social interactions within digital platforms. The integration of social media and commerce activities allows consumers to share experiences, reviews, and recommendations, which directly influence brand perceptions[26]. Brand image is no longer solely built by companies, but also by user-generated content, which is perceived as more authentic and trustworthy [27]. Service quality is also undergoing a transformation, with responsiveness, ease of communication, and user experience becoming key indicators in assessing digital platform performance[28].

Generation Z's platform-based consumer behavior demonstrates a strong tendency toward the use of digital technology in daily activities. This group is known as digital natives, who have a high level of adaptability to

technological innovation and rely more on information from social media and digital platforms in making purchasing decisions[29]. Their preference for visual content, fast information access, and personalized interactions make digital platforms a primary space for consumption activities[30]. This behavioral pattern indicates that Generation Z is not only a user but also an active actor shaping the dynamics of the digital market through participation, interaction, and content production [31].

Interpretation of the findings shows that digital platforms do not merely function as a transaction medium, but rather as an interactive ecosystem that integrates social, economic, and technological dimensions, where social commerce expands the concept of traditional markets into a digital space that allows for co-creation of value between consumers and companies, and brand image and service quality are no longer fully controlled by producers, but are formed collectively through user interactions; the dominance of Generation Z has accelerated this transformation due to its adaptive, interactive, and participatory characteristics, making digital platforms a space that connects information, experiences, and consumer preferences in forming more dynamic and real-time consumption patterns, however, an evaluation of the research results shows that although most studies have identified the important role of digital platforms in shaping consumer behavior, there are still limitations in examining the integration between ecosystem elements as a whole because research tends to separate aspects of technology, consumer behavior, and demographic characteristics without developing a truly holistic model, and the dominant focus on Generation Z has the potential to ignore the contributions of other consumer groups, coupled with variations in platform contexts and research regions that require caution in generalizing findings, especially regarding cultural differences and levels of digital literacy.

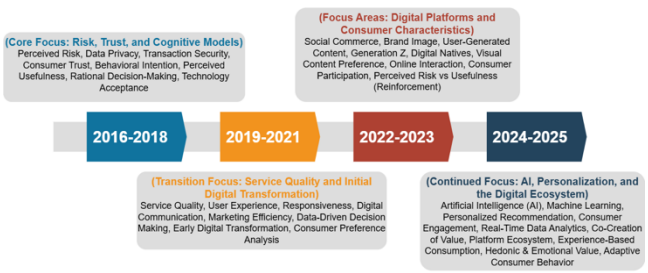

Figure 3. Temporal Evolution of Research Variables in Digital Consumer Behavior within the Microeconomic Context (2016–2025)

Figure 3 illustrates the evolution of research variables in digital consumer behavior studies during the 2016–2025 period, demonstrating a gradual shift in focus from a basic approach to a more complex and integrative approach. In the initial period (2016–2018), research was dominated by cognitive variables such as perceived risk, perceived usefulness, and consumer trust, emphasizing technology acceptance and rational decision-making. The subsequent period (2019–2021) demonstrated a transition toward aspects of service quality and user experience as digital transformation progressed. Furthermore, in the 2022–2023 period, the research focus shifted to the role of digital platforms, social commerce, and the characteristics of Generation Z as key actors in the digital ecosystem. The most recent period (2024–2025) demonstrated the dominance of advanced technologies such as Artificial Intelligence and machine learning, which drive personalization, consumer engagement, and the formation of an experience-based platform ecosystem. Overall, this mindmap reflects the increasingly dynamic, multidimensional development of research, oriented toward the integration of technology, consumer psychology, and digital interactions within a microeconomic context.

5. Conclusion

The overall evaluation results conclude that digital transformation has significantly altered consumer behavior in the micro-economy through the integration of intelligent technology, the strengthening of psychological determinants, and the dominance of digital platforms as interactive ecosystems. The evolution of consumer behavior is no longer linear, but rather multidimensional, influenced by a combination of perceived benefits, perceived risks, affective experiences, and consumer engagement within the platform. Technologies such as machine learning and Artificial Intelligence play a role in increasing efficiency, personalization, and the quality of experiences, while social commerce and the characteristics of Generation Z accelerate the formation of participatory and interaction-based consumption patterns. However, the evaluation shows a tendency for research to remain fragmented, not fully integrating technological, psychological, and social dimensions within a single, coherent conceptual framework, and still limited in examining the balance between benefits and risks, particularly regarding issues of privacy, ethics, and digital literacy.

The emerging research gap lies in the lack of a holistic approach capable of integrating technological variables (AI, digital platforms), psychological determinants (perceived usefulness, perceived risk, engagement), and

socio-demographic factors (across generations and cultural contexts) in a single comprehensive model. Furthermore, most studies still focus on specific contexts and have not explored long-term dynamics such as loyalty, ongoing trust, and the ethical impacts of smart technology use. Based on this gap, urgent research topics for future study include the development of an integrative model of digital consumer behavior based on Artificial Intelligence that simultaneously combines cognitive, affective, and relational aspects; a cross-generational analysis of the adoption and response to digital technology; and an in-depth study of ethics, privacy, and digital literacy in building consumer trust in platform ecosystems. This approach is expected to provide a more comprehensive and contextual understanding of the dynamics of consumer behavior in the ever-evolving digital era.

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