

PAPER

Toward Seamless Shopping: A Bibliometric Journey of Unraveling UTAUT in the Digital Marketplace

Sujana Shafi¹, Wan
Norhayati Mohamed¹,
Indriana Damaianti²,
Hayatul Safrah Salleh¹(✉)

¹Universiti Malaysia
Terengganu, Terengganu,
Malaysia

²Universitas Insan Cendekia
Mandiri, Bandung, Indonesia

hayatul@umt.edu.my

ABSTRACT

The application of the Unified Theory of Acceptance and Use of Technology (UTAUT) in online shopping research has gained significant attention from scholars aiming to understand consumer behavior in digital retail environments. This study conducts a bibliometric analysis to systematically explore the literature on UTAUT in the context of online shopping. By examining bibliographic data from academic databases, the research investigates publication trends, authorship patterns, institutional affiliations, geographical distributions, document types, journal publications, citation patterns, keyword usage, bibliographic coupling networks, and key thematic formations. Using VOSviewer Version 1.16.20, the study identifies key research trends, influential authors and institutions, geographical hotspots, prominent journal publications, highly cited articles, frequently used keywords, and bibliographic coupling networks among authors, sources, themes, and countries. These findings contribute to shaping the application of UTAUT in online shopping. By synthesizing and visualizing these insights, this bibliometric analysis enhances understanding of how UTAUT has been utilized and studied in the online shopping domain, offering valuable perspectives for researchers, practitioners, and policymakers.

KEYWORDS

Unified Theory of Acceptance and Use of Technology (UTAUT), online shopping, consumer behavior, bibliometric analysis, Scopus

1 INTRODUCTION

Online shopping has become a significant aspect of modern retail, offering convenience, a wide range of products, and competitive pricing [1, 2]. The rise of online shopping highlights the importance of understanding consumer behavior across age groups, as technological advancements increasingly influence preferences [3]. The internet has played a central role in this shift, with both sellers and consumers turning to digital platforms for marketing and shopping, particularly among younger demographics and those with limited time for in-person shopping [4, 5]. While the

Shafi, S., Mohamed, W.N., Damaianti, I., Salleh, H.S. (2025). Toward Seamless Shopping: A Bibliometric Journey of Unraveling UTAUT in the Digital Marketplace. *International Journal of Interactive Mobile Technologies (iJIM)*, 19(9), pp. 107–121. <https://doi.org/10.3991/ijim.v19i09.52625>

Article submitted 2024-10-01. Revision uploaded 2025-01-20. Final acceptance 2025-01-21.

© 2025 by the authors of this article. Published under CC-BY.

benefits of online shopping, such as convenience, time-saving, better information, and cost savings, are well-documented [6], challenges such as security concerns and delivery issues remain, emphasizing the need for ongoing improvements in this area [7].

The acceptance and use of IT innovations have been studied through models like the Theory of Reasoned Action [8], Technology Acceptance Model [9], Theory of Planned Behavior [10], and Model of Personal Computer Utilization [11]. Building on these, the Unified Theory of Acceptance and Use of Technology (UTAUT) has become a widely adopted framework, though it has limitations, such as omitted constructs and non-universal relationships [12].

UTAUT provides insights into online shopping adoption, with key determinants including performance expectancy, where consumers view online shopping as efficient and convenient [13], and effort expectancy, related to ease of navigation and purchase completion [14]. Social influence from peers and family shapes attitudes [15], while facilitating conditions like internet access, secure payments, and delivery services affect usage behavior [16].

This paper presents a unique bibliometric analysis of UTAUT in online shopping, using VOSviewer to explore co-authorship patterns and keyword dynamics. It highlights emerging trends, interdisciplinary applications, and the impact of advanced technologies such as AI and blockchain on sustainability-focused platforms.

2 LITERATURE REVIEW

Online shopping has surged during the COVID-19 pandemic, with UTAUT frequently applied to study consumer acceptance [17]. Core constructs like performance expectancy, effort expectancy, social influence, and facilitating conditions account for 64.9% of purchasing decisions [17]. Expanded models, including factors such as delivery efficiency, cost-saving efficiency, and online purchase experience, further shape satisfaction and willingness to pay. Context-specific variables such as website performance, trialability, and perceived risk also influence shopping intentions [18].

UTAUT's adaptability is evident across various contexts. In Palestine, performance expectancy and social influence drive intentions [18]; in Taiwan, virtual community building and trialability are key [19]. India emphasizes website design and cash-on-delivery [20], while in Nigeria, awareness and mobile skillfulness are critical [21]. These findings highlight UTAUT's effectiveness in understanding diverse consumer behaviors.

UTAUT and its extensions, such as UTAUT2, have been applied to analyze factors such as user acceptance, satisfaction, and sustainability intentions in e-commerce platforms such as Paylater and Shopee [22]. Variables such as effort expectancy, performance expectancy, social influence, and facilitating conditions shape behavioral intentions, with social factors and habits playing key roles [23].

Enhanced UTAUT models address specific contexts, such as e-grocery services, incorporating perceived risk, time pressure, and innovativeness [24]. UTAUT2 has also been applied to cashback programs, demonstrating the impact of performance expectations, hedonic motivation, and habits on user loyalty [25]. Studies in MSMEs in non-OECD countries emphasized UTAUT constructs over UTAUT2 [26], while bibliometric analyses highlighted its widespread use in various business systems [27, 28].

While UTAUT has been widely applied in technology adoption studies, its bibliometric mapping in the online shopping context remains underexplored, with

limited focus on geographical disparities and institutional collaborations. This study addresses these gaps by analyzing co-authorship networks and thematic evolutions, offering insights into collaborative research dynamics and technological advancements in online shopping.

Through bibliometric analysis, this study explores UTAUT’s application by addressing key questions: emerging trends (RQ1), prolific authors (RQ2), prevalent document types (RQ3), and frequently cited authors (RQ4). It examines co-authorship networks (RQ5), commonly used keywords (RQ6), international collaborations (RQ7), co-citation networks (RQ8), and primary themes influencing online shopping adoption (RQ9).

3 METHODOLOGY

Bibliometrics systematically organizes and analyzes bibliographic data from scientific publications, using methods like co-citation analysis and descriptive metrics such as publication years and author classifications [29, 30, 31]. A thorough literature review involves identifying keywords, conducting searches, and performing meticulous analysis for reliable results [32]. This study focused on reputable peer-reviewed journal articles from the Scopus database to ensure reliable, high-quality insights into theoretical frameworks. Books and lecture notes were excluded to maintain scholarly rigor [33, 34, 35]. In addition to employing VOSviewer for keyword co-occurrence and co-authorship mapping, this study incorporates advanced clustering techniques to identify thematic evolutions in UTAUT research.

3.1 Strategy for data retrieval

The study devised a screening sequence to establish search terms for retrieving articles. Initially, a search was conducted online, querying the Scopus database, resulting in 219 publications. The initial search phrases included “Unified Theory of Acceptance and Use of Technology” or “UTAUT” combined with “Online shopping” or “e-commerce.” Subsequently, the query string was adjusted accordingly. Following the refinement process, a total of 126 articles were utilized for bibliometric analysis. All publications relevant to the topic found in the Scopus database up to 2023 were included in the analysis. The search string and criteria are given in Tables 1 and 2.

Table 1. The search string

Scopus	TITLE-ABS-KEY (“Unified theory of Acceptance and use of technology” OR “UTAUT”) AND (“Online Shopping” OR “e-commerce”) AND (LIMITTO (DOCTYPE, “ar”)) AND (LIMIT-TO (LANGUAGE, “English”)) AND (LIMIT-TO (PUBSTAGE “final”))
--------	--

Table 2. The selection criterion

Criterion	Inclusion	Exclusion
Language	English	Non-English
Document Type	Article	Non-Article
Source type	Journal (Article)	Proceeding, Book, Review
Publication Stage	Final	In Press

3.2 Data analysis

VOSviewer, developed by Nees Jan van Eck and Ludo Waltman at Leiden University [36, 37], is widely used for visualizing and analyzing scientific literature, offering insights into co-authorship, co-citation, and keyword co-occurrence networks. Its ability to compute metrics, customize visualizations, and integrate with bibliometric data makes it invaluable for exploring research landscapes.

Using datasets from the Scopus database (2010–2023) in PlainText format, VOSviewer version 1.6.19 facilitated the clustering and mapping of research trends. Unlike Multidimensional Scaling (MDS), VOSviewer positions items in low-dimensional spaces to accurately represent relatedness and similarity [37].

4 RESULTS AND DISCUSSIONS

4.1 Publication year

Table 3. Number of publications by year

Year	Number of Publications	Percentage
2023	26	19.85
2022	20	15.27
2021	16	12.21
2020	18	13.74
2019	15	11.45
2018	6	4.58
2017	5	3.82
2016	6	4.58
2015	5	3.82
2014	2	1.53
2013	1	0.76
2011	1	0.76
2010	3	2.29
2008	1	0.76
2007	1	0.76

Table 3 highlights the publication trends for UTAUT in online shopping. 2023 recorded the highest number of publications (26, 19.85%), followed by 2022 (20, 15.27%). Significant contributions were also noted in 2020 and 2021, with 13.74% and 12.21%, respectively. Earlier years (2013–2018) accounted for less than 5% annually, with minimal publications in 2007, 2008, 2010, 2013, and 2014. This trend reflects growing recognition of UTAUT's relevance to understanding online shopping behavior.

4.2 Publications by author

Table 4. Author-wise publication count

ID	Author	Documents	Percentage (%)
1	Mensah, Isaac Kofi	7	20.59
2	Kiran, Ravi	3	8.82
3	Luo, Chuanyong	3	8.82
4	Zeng, Guohua	3	8.82
5	Al-Gasawneh, Jassim Ahmad	2	5.88
6	Al-Qeed, Marzouq Ayed	2	5.88
7	Campy, Kathryn S.	2	5.88
8	Kong, Nan	2	5.88
9	Nusairat, Nawras M.	2	5.88
10	Ong, Ardvin Kester S.	2	5.88
11	Persada, Satria Fadil	2	5.88
12	Prasetyo, Yogi Tri	2	5.88
13	Zhou, Min	2	5.88

The bibliometric analysis in Table 4 highlights key contributors to UTAUT and online shopping research. Isaac Kofi Mensah leads with seven publications (20.59%), followed by Ravi Kiran, Chuanyong Luo, and Guohua Zeng with three publications each (8.82%). Nine other authors, including Jassim Ahmad Al-Gasawneh and Marzouq Ayed Al-Qeed, contributed two publications each (5.88%), reflecting a collaborative and distributed effort among researchers in the field.

4.3 Documents by subject area

Table 5. Documents by subject area

Subject Area	Number of Publications	Percentage
Business, Management and Accounting	72	27.7
Computer Science	48	18.5
Social Sciences	43	16.5
Decision Sciences	16	6.2
Economics, Econometrics and Finance	16	6.2
Environmental Science	13	5
Engineering	11	4.2
Psychology	10	3.8
Mathematics	8	3.1
Energy	7	2.7

Table 5 highlights the distribution of documents on UTAUT's application in online shopping, with Business, Management, and Accounting leading at 27.7%. Computer Science and Social Sciences follow at 18.5% and 16.5%, respectively, while Decision Sciences and Economics each contribute 6.2%. Smaller contributions from fields such as Environmental Science, Engineering, Psychology, and Mathematics (2.7%–5%) emphasize the interdisciplinary nature of this research, showcasing diverse approaches to studying online shopping behavior through UTAUT.

4.4 Most cited papers

Table 6. Top 10 cited papers

Sl No	Authors	Title	Year	Source Title	Cited By
1	Chao C.-M.	An application and extension of the UTAUT model	2019	<i>Frontiers in Psychology</i>	440
2	Dwivedi Y.K.; Rana N.P.; Jeyaraj A.; Clement M.; Williams M.D.	Re-examining the Unified Theory of Acceptance and Use of Technology (UTAUT): Towards a Revised Theoretical Model	2019	<i>Information Systems Frontiers</i>	835
3	Yeo V.C.S.; Goh S.-K.; Rezaei S.	Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services	2017	<i>Journal of Retailing and Consumer Services</i>	482
4	Amaro S.; Duarte P.	An integrative model of consumers' intentions to purchase travel online	2015	<i>Tourism Management</i>	381
5	Bonsón Ponte E.; Carvajal-Trujillo E.; Escobar-Rodríguez T.	Influence of trust and perceived value on the intention to purchase travel online: Integrating the effects of assurance on trust antecedents	2015	<i>Tourism Management</i>	464
6	Williams M.D.; Rana N.P.; Dwivedi Y.K.	The unified theory of acceptance and use of technology (UTAUT): A literature review	2015	<i>Journal of Enterprise Information Management</i>	626
7	Venkatesh V.; Thong J.Y.L.; Xu X.	Unified theory of acceptance and use of technology: A synthesis and the road ahead	2016	<i>Journal of the Association for Information Systems</i>	1114
8	Pappas I.O.; Woodside A.G.	Fuzzy-set Qualitative Comparative Analysis (fsQCA): Guidelines for research practice in Information Systems and marketing	2021	<i>International Journal of Information Management</i>	549
9	Wong L.-W.; Leong L.-Y.; Hew J.-J.; Tan G.W.-H.; Ooi K.-B.	Time to seize the digital evolution: Adoption of blockchain in operations and supply chain management among Malaysian SMEs	2020	<i>International Journal of Information Management</i>	367
10	Khalilzadeh J.; Ozturk A.B.; Bilgihan A.	Security-related factors in extended UTAUT model for NFC based mobile payment in the restaurant industry	2017	<i>Computers in Human Behavior</i>	385

Table 6 highlights influential research articles on UTAUT, showcasing their authors, publication details, and citation impact. Notable works include Chao C.-M.'s 2019 study on extending UTAUT (440 citations), Dwivedi Y.K. et al.'s 2019 revision of UTAUT in *Information Systems Frontiers* (835 citations), and Yeo V.C.S. et al.'s 2017 study on online food delivery services in *Journal of Retailing and Consumer Services* (482 citations). Venkatesh V. et al.'s 2016 article in *Journal of the Association for Information Systems* leads with 1114 citations, reflecting its significant influence. These contributions collectively advance knowledge in UTAUT research and inform future studies.

4.5 Network visualization map of author contributions and co-authorship networks

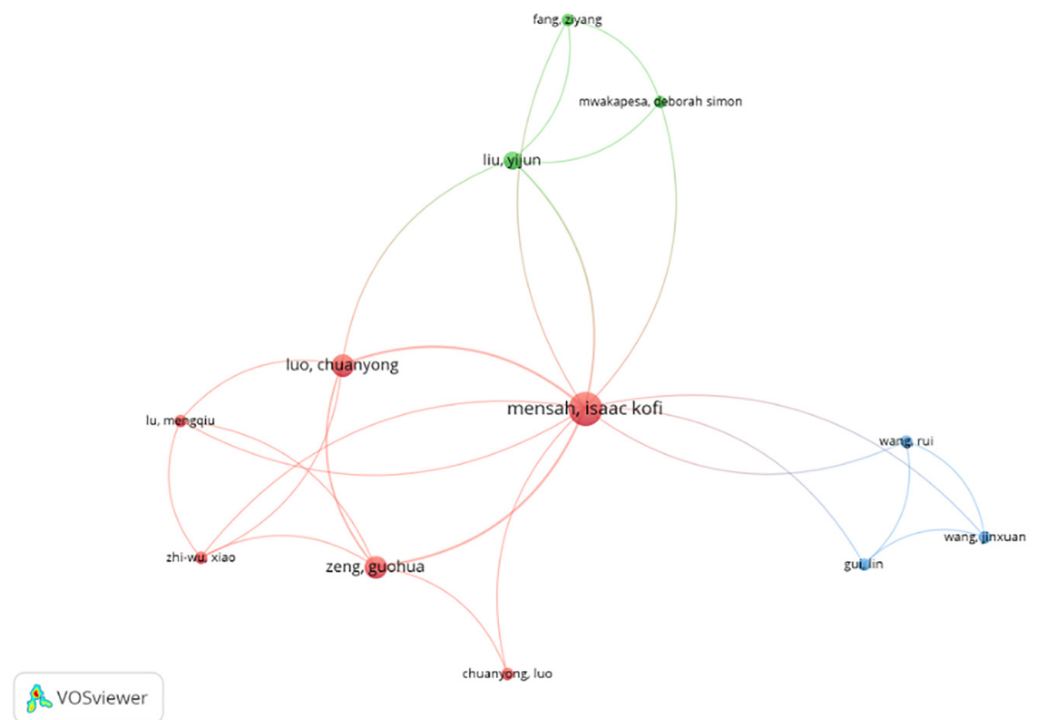


Fig. 1. Co-authorship network visualization of key authors in UTAUT research

The co-authorship network map in Figure 1 further illustrates the collaborative dynamics among authors. For instance, Chuanyong Luo and Guohua Zeng are positioned close to Isaac Kofi Mensah, reflecting interconnected research efforts. Smaller clusters, such as the group involving Yijun Liu, Deborah Simon Mwakesa, and Fang Yang, indicate localized collaborations contributing to the field. Additionally, the network highlights a distinct group led by Jinxuan Wang and Rui Wang, emphasizing the diversity in research focus and geographical contributions. This analysis underscores the importance of collaboration and co-authorship in advancing the understanding of UTAUT in online shopping.

The bibliometric analysis shown in Figure 3 of country contributions to UTAUT research in online shopping highlights global scholarly output and impact. The United States leads with 10 documents and 1003 citations, reflecting significant influence, while Malaysia stands out with 30 documents and 553 citations, indicating strong research productivity. These findings underscore diverse geographical representation and collaboration, though disparities in link strength suggest opportunities to enhance global interconnectedness. This analysis offers insights into advancing theoretical understanding and practical implications for e-commerce stakeholders through increased collaboration and knowledge exchange.

4.8 Co-citation of cited authors

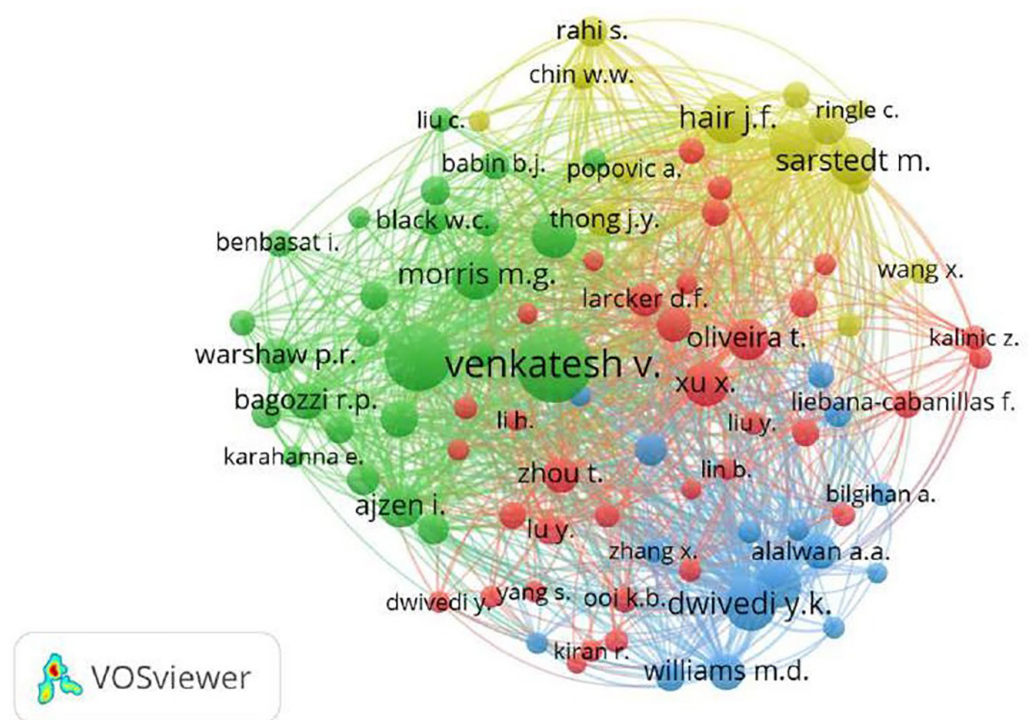


Fig. 4. Co-citation of cited authors

The co-citation analysis in Figure 4 highlights pivotal scholars shaping UTAUT research in online shopping. Venkatesh V. stands out with 338 citations and a link strength of 12,292, demonstrating his significant influence on advancing theoretical frameworks and empirical insights. Other notable contributors, such as Davis F.D., Davis G.B., and Sah A.N., also show substantial citation counts and link strengths, reflecting the multidisciplinary nature of this research spanning psychology, information systems, and marketing. These contributions provide a comprehensive view of current knowledge and guide future research to enhance scholarly and practical impacts.

4.9 Text-based term co-occurrence mapping

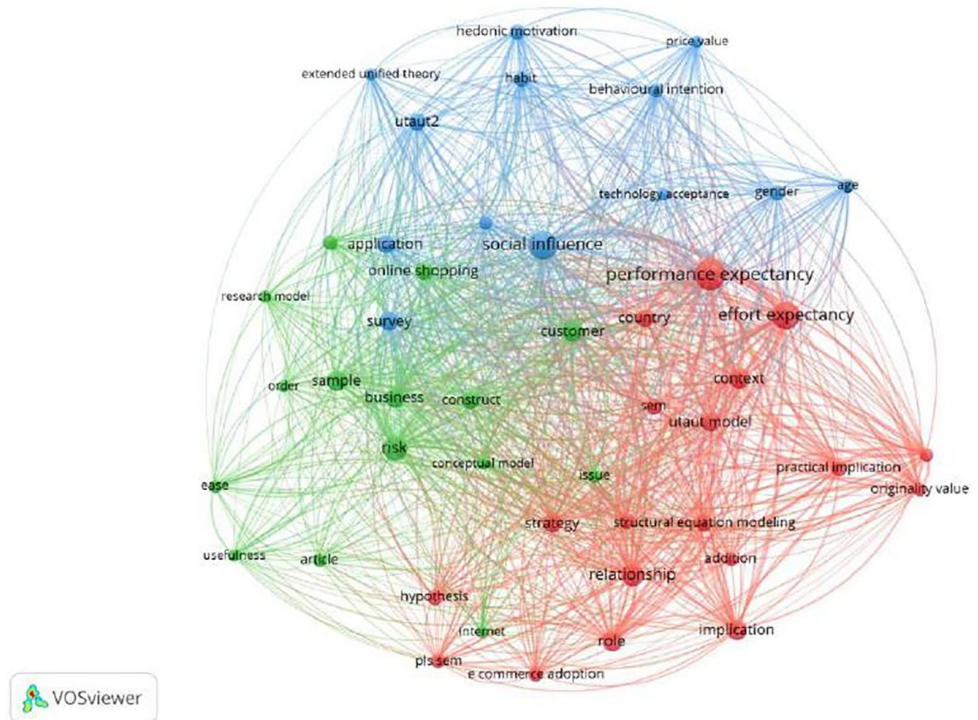


Fig. 5. Text-based term co-occurrence mapping

The VOSviewer analysis in Figure 5 highlights key terms related to the UTAUT in online shopping, such as “effort expectancy,” “ease,” “habit,” “hedonic motivation,” “performance expectancy,” “social influence,” and “UTAUT2.” These terms emphasize critical factors influencing consumer behavior and technology acceptance. The prominence of “UTAUT” and “UTAUT2” underscores the importance of established theoretical frameworks in studying online shopping adoption. This analysis offers valuable insights for researchers leveraging UTAUT to explore consumer behavior and technology acceptance in online shopping contexts.

This Table 7 provides a comprehensive overview of the main themes derived from the analysis of keywords related to the application of the UTAUT in studies of online shopping, each accompanied by brief explanations.

Table 7. Themes formation process

Theme	Keywords	Description
User Acceptance Factors	Effort expectancy, ease, usefulness, performance expectancy, habit, hedonic motivation, social influence, UTAUT model, UTAUT2	This theme covers factors influencing online shopping acceptance, such as ease of use, perceived usefulness, social influence, habit formation, and the application of UTAUT and UTAUT2 to understand acceptance behavior.
Online Shopping Behavior	Customer, online shopping, e-commerce adoption, order, price value, risk, relationship	This theme explores online shopping behavior, including customer preferences, e-commerce adoption, purchase decisions, perceived value, risk perception, and online customer relationships.
Theoretical Framework	Conceptual model, extended unified theory, research model	This theme covers theoretical, conceptual, and research models guiding user behavior and acceptance in online shopping.
Demographic Factors	Age, gender, country	This theme explores demographic factors such as age, gender, and socio-cultural variations in online shopping behavior and technology acceptance.

The findings from Table 7 highlight the interplay between user acceptance factors, online shopping behaviors, theoretical frameworks such as UTAUT, and demographics in shaping online shopping adoption. Key factors include perceived ease of use, usefulness, social influence, habit formation, and hedonic motivation. Customer preferences, perceived value, and risk perception further impact adoption decisions. Demographic factors such as age, gender, and cultural background moderate these relationships, emphasizing the need for tailored strategies. These findings underscore the multidimensional nature of technology adoption in online shopping.

5 DISCUSSION AND FINDINGS

This study uniquely explores the application of the UTAUT in online shopping through an extensive bibliometric analysis using the latest 2010–2023 data. Unlike previous works, it identifies emerging themes, such as the integration of advanced technologies like artificial intelligence (AI), augmented reality (AR), and blockchain, and their influence on UTAUT constructs like performance expectancy, trust, and behavioral intention. By leveraging co-authorship network mapping and keyword co-occurrence analysis, the study reveals critical research clusters and collaborative patterns, providing a deeper understanding of the evolving research landscape.

Additionally, the interdisciplinary scope distinguishes this work by examining diverse subject areas such as business, computer science, and social sciences, while highlighting geographical disparities in research contributions. This study also introduces actionable insights into how advanced technologies reshape consumer behavior and technology adoption frameworks, offering a modernized perspective for both academia and practitioners. These findings contribute significantly to advancing theoretical and practical understanding of UTAUT in the digital marketplace.

Emerging technologies such as AI, AR, VR, and blockchain are redefining the online shopping landscape and advancing the application of UTAUT [38]. These innovations enhance performance expectancy by offering real-time personalized experiences, such as AI-driven recommendations and AR virtual try-ons [39]. They also address trust and security concerns through blockchain's transparent, decentralized transaction systems [40]. By incorporating these technologies, future research can expand UTAUT constructs to explore their impact on consumer behavior, ultimately modernizing theoretical frameworks to align with evolving digital trends.

UTAUT has been modified extensively to suit diverse contexts, highlighting its adaptability across various cultural, industrial, and demographic settings. For example, UTAUT2, developed for consumer technology acceptance, incorporates constructs such as habit, hedonic motivation, and price value while retaining core variables such as effort expectancy and performance expectancy [41, 42]. In education, UTAUT was adapted during the COVID-19 pandemic with constructs like system flexibility and interactivity to better understand e-learning adoption [43]. Cultural and geographical modifications have also been employed to account for regional differences, such as integrating variables reflecting local cultural influences in India and China [42].

Industry-specific adaptations further showcase UTAUT's versatility. In healthcare, telemedicine research incorporated perceived security and product advantage to evaluate patient acceptance of telehealth services [44]. In logistics, researchers added factors such as perceived risk and organizational readiness, providing insights into technology adoption in supply chain management [45, 46]. These examples illustrate how UTAUT's modifications enhance its predictive power and relevance, making it a valuable framework for understanding technology adoption in diverse scenarios.

6 CONCLUSION

This bibliometric analysis provides a comprehensive overview of UTAUT's application in online shopping, uncovering emerging trends, key contributors, and interdisciplinary applications across business, computer science, and social sciences. Using VOSviewer and Scopus data, it highlights the integration of advanced technologies such as AI, AR, blockchain, and VR into UTAUT frameworks, transforming constructs such as performance expectancy, trust, and behavioral intention.

The study emphasizes addressing geographical and institutional disparities through collaborative research to enhance global contributions. It also calls for future research to explore how emerging technologies redefine UTAUT constructs, offering innovative frameworks to understand and predict consumer behavior. These insights enrich theoretical discourse and provide practical guidance for optimizing e-commerce strategies.

7 REFERENCES

- [1] H. Kashyap and A. Gupta, "Online shopping is a recent phenomenon in the field of e-business," *International Scientific Journal of Research in Engineering and Management*, vol. 9, no. 4, 2025. <https://doi.org/10.55041/IJSREM34550>
- [2] S. Shafi, W. N. Mohamed, I. Damaianti, and H. S. Salleh, "Environmental consciousness in the digital era of online shopping: A systematic and bibliometric review," *International Journal of Design & Nature and Ecodynamics*, vol. 19, no. 3, pp. 971–984, 2024. <https://doi.org/10.18280/ijdne.190327>
- [3] W. Rachbini, S. Y. Soeharso, H. Wulandjani, M. A. Fathoni, and E. Rahmawati, "From boomers to millennials: Unraveling the complexities of online shopping behavior in Indonesia," *Innovative Marketing*, vol. 20, no. 3, pp. 144–157, 2024. [https://doi.org/10.21511/im.20\(3\).2024.12](https://doi.org/10.21511/im.20(3).2024.12)
- [4] S. Karpagam and V. S. Rajakrishnan, "Consumer attitude towards online shopping," *Quing: International Journal of Commerce and Management*, vol. 2, no. 1, pp. 1–6, 2022. <https://doi.org/10.54368/qijcm.2.1.0003>
- [5] S. Shafi, H. S. Salleh, and W. N. Mohamed, "Digital marketing innovation in managerial practices: A systematic literature review," *Corporate Governance and Organizational Behavior Review*, vol. 6, no. 4, pp. 64–79, 2022. <https://doi.org/10.22495/cgobrv6i4p6>
- [6] S. Sajannavar, J. Dharwad, and P. G. Tandale, "Online shopping – an overview," *International Journal of Computer Engineering and Applications*, vol. XV, no. XII, p. 79, 2022. <https://doi.org/10.30696/IJCEA.XV.XII.2021.79-84>
- [7] K. Shrivastava, "An approach of shopping in 21st century: Online shopping," *SIJ Transactions on Computer Science Engineering & Its Applications*, vol. 1, no. 4, pp. 23–25, 2013. <https://doi.org/10.9756/SIJCSEA/V1I4/0104560401>
- [8] M. Fishbein and I. Ajzen, *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley, 1975.
- [9] F. D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *Management Information Systems Quarterly*, vol. 13, no. 3, pp. 319–340, 1989. <https://doi.org/10.2307/249008>
- [10] I. Ajzen, "The theory of planned behavior," *Organizational Behavior and Human Decision Processes*, vol. 50, no. 2, pp. 179–211, 1991. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- [11] R. L. Thompson, C. A. Higgins, and J. M. Howell, "Personal computing: Toward a conceptual model of utilization," *Management Information Systems Quarterly*, vol. 15, no. 1, pp. 125–143, 1991. <https://doi.org/10.2307/249443>

- [12] V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, "User acceptance of information technology: Toward a unified view," *Management Information Systems Quarterly*, vol. 27, no. 3, pp. 425–478, 2003. <https://doi.org/10.2307/30036540>
- [13] R. Piarna, F. Fathurohman, and N. N. Purnawan, "Understanding online shopping adoption: The unified theory of acceptance and the use of technology with perceived risk in millennial consumers context," *Jema: Jurnal Ilmiah Bidang Akuntansi Dan Manajemen*, vol. 17, no. 1, pp. 51–66, 2020. <https://doi.org/10.31106/jema.v17i1.5050>
- [14] M. A. Albugami and A. Zaheer, "Measuring e-commerce service quality for the adoption of online shopping during COVID-19: Applying Unified Theory and Use of Technology Model (UTAUT) model approach," *International Journal of Technology*, vol. 14, no. 4, pp. 705–712, 2023. <https://doi.org/10.14716/ijtech.v14i4.5407>
- [15] M. Zhou, J. Huang, K. Wu, X. Huang, N. Kong, and K. S. Campy, "Characterizing Chinese consumers' intention to use live e-commerce shopping," *Technology in Society*, vol. 67, p. 101767, 2021. <https://doi.org/10.1016/j.techsoc.2021.101767>
- [16] J. Erjavec and A. Manfreda, "Online shopping adoption during COVID-19 and social isolation: Extending the UTAUT model with herd behavior," *Journal of Retailing and Consumer Services*, vol. 65, p. 102867, 2022. <https://doi.org/10.1016/j.jretconser.2021.102867>
- [17] R. D. Octaviani, H. Prabowo, and D. Sari, "Exploring the Unified Theory of Acceptance and Use of Technology (UTAUT) in consumer purchase decision (The case of online ticket purchasing in Indonesia during COVID-19)," *Central European Management Journal*, vol. 30, pp. 352–358, 2022. <https://doi.org/10.57030/23364890.cemj.30.4.29>
- [18] H. H. Chang, C. S. Fu, and H. T. Jain, "Modifying UTAUT and innovation diffusion theory to reveal online shopping behavior," *Information Development*, vol. 32, no. 5, pp. 1757–1773, 2015. <https://doi.org/10.1177/0266666915623317>
- [19] J. S. A. Musleh, G. Marthandan, and N. Aziz, "An extension of UTAUT model for Palestine e-commerce," *International Journal of Electronic Business*, vol. 12, no. 1, pp. 95–115, 2015. <https://doi.org/10.1504/IJEB.2015.068318>
- [20] U. Tandon, R. Kiran, and A. N. Sah, "Understanding online shopping adoption in India: Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) with perceived risk application," *Service Science*, vol. 8, no. 4, pp. 420–437, 2016. <https://doi.org/10.1287/serv.2016.0154>
- [21] U. M. Umar and A. M. Ibrahim, "Intention toward acceptance of online shopping among consumers in Kano, Nigeria: Application of UTAUT model approach in a Nigerian context," *International Journal of African and Asian Studies*, vol. 64, pp. 1–9, 2020. <https://doi.org/10.7176/JAAS/64-01>
- [22] A. A. Bakri, N. Darwis, A. B. Wandanaya, V. Violin, and T. R. Fauzan, "The application of UTAUT modified model to analyze the customers use behavior of Shopee Paylater," *Jurnal Sestim Informasi Dan Teknologi*, vol. 5, no. 1, pp. 96–101, 2023. <https://doi.org/10.37034/jsisfotek.v5i1.210>
- [23] L. Setiyani, I. Natalia, and G. T. Liswadi, "Analysis of behavioral intentions of e-commerce shopee users in Indonesia using UTAUT2," *ADI Journal on Recent Innovation/ADI Journal on Recent Innovation (AJRI)*, vol. 4, no. 2, pp. 160–171, 2023. <https://doi.org/10.34306/ajri.v4i2.861>
- [24] E. Van Droogenbroeck and L. Van Hove, "Adoption and usage of e-grocery shopping: A context-specific UTAUT2 model," *Sustainability*, vol. 13, no. 8, p. 4144, 2021. <https://doi.org/10.3390/su13084144>
- [25] R. B. Ikhsan, E. Sudirman, D. Andaresta, N. Helen, R. A. Pradhani, and N. Hardiyansyah, "The implementation of UTAUT-2 in cashback program on e-commerce platform," in *5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI)*, Yogyakarta, Indonesia, 2022, pp. 71–76. <https://doi.org/10.1109/ISRITI56927.2022.10053074>

- [26] Y. Lee, W. Lim, and H. S. Eng, "A systematic review of UTAUT2 constructs' analysis among MSMEs in non-OECD countries," *Journal of Science and Technology Policy Management*, vol. 15, no. 4, pp. 765–793, 2024. <https://doi.org/10.1108/JSTPM-08-2022-0140>
- [27] M. D. Williams, N. P. Rana, and Y. K. Dwivedi, "A bibliometric analysis of articles citing the unified theory of acceptance and use of technology," in *Integrated Systems Theory. Integrated Series in Information Systems*, Y. Dwivedi, M. Wade, and S. Schneberger, Eds., vol. 28, Springer, New York, 2012, pp. 37–62. https://doi.org/10.1007/978-1-4419-6108-2_3
- [28] M. D. Williams, N. P. Rana, and Y. K. Dwivedi, "The unified theory of acceptance and use of technology (UTAUT): A literature review," *Journal of Enterprise Information Management*, vol. 28, no. 3, pp. 443–488, 2015. <https://doi.org/10.1108/JEIM-09-2014-0088>
- [29] A. Verbeek, K. Debackere, M. Luwel, and E. Zimmermann, "Measuring progress and evolution in science and technology – I: The multiple uses of bibliometric indicators," *International Journal of Management Reviews*, vol. 4, no. 2, pp. 179–211, 2003. <https://doi.org/10.1111/1468-2370.00083>
- [30] D. S. Assyakur and E. M. Rosa, "Spiritual leadership in healthcare: A bibliometric analysis," *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, vol. 7, no. 2, pp. 355–362, 2022. <https://doi.org/10.30604/jika.v7i2.914>
- [31] J. L. Alves, I. B. Borges, and J. De Nadae, "Sustainability in complex projects of civil construction: Bibliometric and bibliographic review," *Gestão & Produção*, vol. 28, no. 4, 2021. <https://doi.org/10.1590/1806-9649-2020v28e5389>
- [32] B. Fahimnia, J. Sarkis, and H. Davarzani, "Green supply chain management: A review and bibliometric analysis," *International Journal of Production Economics*, vol. 162, pp. 101–114, 2015. <https://doi.org/10.1016/j.ijpe.2015.01.003>
- [33] G. Di Stefano, M. A. Peteraf, and G. Verona, "Dynamic capabilities deconstructed: A bibliographic investigation into the origins, development, and future directions of the research domain," *Industrial and Corporate Change*, vol. 19, no. 4, pp. 1187–1204, 2010. <https://doi.org/10.1093/icc/dtq027>
- [34] A. Al-Khoury et al., "Intellectual capital history and trends: A bibliometric analysis using scopus database," *Sustainability*, vol. 14, no. 18, p. 11615, 2022. <https://doi.org/10.3390/su141811615>
- [35] D. Gu, T. Li, X. Wang, X. Yang, and Z. Yu, "Visualizing the intellectual structure and evolution of electronic health and telemedicine research," *International Journal of Medical Informatics*, vol. 130, p. 103947, 2019. <https://doi.org/10.1016/j.ijmedinf.2019.08.007>
- [36] N. J. Van Eck and L. Waltman, "Citation-based clustering of publications using CitNetExplorer and VOSviewer," *Scientometrics*, vol. 111, no. 2, pp. 1053–1070, 2017. <https://doi.org/10.1007/s11192-017-2300-7>
- [37] N. J. Van Eck and L. Waltman, "Software survey: VOSviewer, a computer program for bibliometric mapping," *Scientometrics*, vol. 84, no. 2, pp. 523–538, 2009. <https://doi.org/10.1007/s11192-009-0146-3>
- [38] C. Wang et al., "An empirical evaluation of technology acceptance model for Artificial Intelligence in E-commerce," *Heliyon*, vol. 9, no. 8, p. e18349, 2023. <https://doi.org/10.1016/j.heliyon.2023.e18349>
- [39] C. Guo and X. Zhang, "The impact of AR online shopping experience on customer purchase intention: An empirical study based on the TAM model," *PLoS ONE*, vol. 19, no. 8, p. e0309468, 2024. <https://doi.org/10.1371/journal.pone.0309468>
- [40] D. Ambolis, "How the amazing immersive technology, blockchain, and AI are converging to transform the global market in 2024," *Blockchain Magazine*, Sep. 11, 2024. [Online]. Available: https://blockchainmagazine.com/immersive-technology-blockchain-and-ai/?utm_source=chatgpt.com

- [41] G. B. Batucan, G. G. Gonzales, M. G. Balbuena, K. R. B. Pasaol, D. N. Seno, and R. R. Gonzales, "An extended UTAUT model to explain factors affecting online learning system amidst COVID-19 pandemic: The case of a developing economy," *Frontiers in Artificial Intelligence*, vol. 5, 2022. <https://doi.org/10.3389/frai.2022.768831>
- [42] L. Xue, A. M. Rashid, and S. Ouyang, "The Unified Theory of Acceptance and Use of Technology (UTAUT) in higher education: A systematic review," *SAGE Open*, vol. 14, no. 1, 2024. <https://doi.org/10.1177/21582440241229570>
- [43] A. Schmitz, A. M. Díaz-Martín, and M. J. Y. Guillén, "Modifying UTAUT2 for a cross-country comparison of telemedicine adoption," *Computers in Human Behavior*, vol. 130, p. 107183, 2022. <https://doi.org/10.1016/j.chb.2022.107183>
- [44] A. Mujica, E. Villanueva, and M. L. Lodeiros-Zubiria, "Micro-learning platforms brand awareness using socialmedia marketing and customer brand engagement," *International Journal of Emerging Technologies in Learning (ijET)*, vol. 16, no. 17, pp. 19–41, 2021. <https://doi.org/10.3991/ijet.v16i17.23339>
- [45] N. Pinyanitikorn, W. Atthirawong, and W. Chanpuypetch, "Examining the intention to adopt an online platform for freight forwarding services in Thailand: A modified Unified Theory for Acceptance and Use of Technology (UTAUT) Model approach," *Logistics*, vol. 8, no. 3, p. 76, 2024. <https://doi.org/10.3390/logistics8030076>
- [46] R. Obiedat, "Impact of online consumer reviews on buying intention of consumers in UK: Need for cognition as the moderating role," *International Journal of Advanced Corporate Learning (ijAC)*, vol. 6, no. 2, pp. 16–21, 2013. <https://doi.org/10.3991/ijac.v6i2.2910>

8 AUTHORS

Sujana Shafi is a Ph.D (Marketing) student at the Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, Terengganu, Malaysia. She has a Bachelor of Business Administration from East West University, Bangladesh and Master of Science degree from Universiti Malaysia Terengganu, Malaysia.

Dr. Wan Norhayati Mohamed is currently working as a Senior Lecturer at the Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, Terengganu, Malaysia. She has a Ph.D. in Management from Universiti Malaysia Terengganu, Malaysia.

Indriana Damaianti is currently working as an Assistant Professor, Faculty of Economics, Universitas Insan Cendekia Mandiri, Bandung 40162, Indonesia, and also a Ph.D (Marketing) student at the Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, Terengganu, Malaysia.

Dr. Hayatul Safrah Salleh is currently working as an Associate Professor of Marketing at the Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, Terengganu, Malaysia. She has a Doctor of Business Administration from Universiti Utara Malaysia, Malaysia (E-mail: hayatul@umt.edu.my).