Charting the course: exploring the changing terrain of online shopping and future directions for research

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Abstract: The COVID-19 pandemic's pernicious consequences are characterised as quintessential disruptors that have inflicted widespread havoc upon human, social, and economic spheres globally, leading to a surge in online shopping and underscoring the significance of its examination. This study comprehensively investigates online shopping research by scrutinising 410 publications between 2002 and 2022 sourced from the dimensions AI database, revealing China's preeminent position in the field, followed closely by the USA and India, with US publications demonstrating high citation rates and formidable collaborative networks. Utilising the TCCM framework, this study performs a systematic review of selected articles and identifies the most popular constructs, theories, contexts, and methodologies employed in extant studies, yielding profound insights that have the potential to inform policymakers' and businesses' policies and strategies aimed at fostering sustainable and profitable online commerce that meets the dynamic and evolving needs of consumers, while also suggesting future research avenues.

Keywords: online shopping; buying behaviour; TCCM framework; bibliometric analysis; future research.

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1 Introduction and background

The global economy has already borne witness to the deleterious effects of the COVID-19 pandemic, as evidenced by scholarly research (Kumar et al., 2020; Donthu and Gustafsson, 2020). A multitude of nations have resorted to drastic measures, such as closing stock exchanges, corporate offices, and small businesses, as well as cancelling major social events, all of which have contributed to the overall economic downturn. The reduction in consumption and investment has had reverberating consequences in various sectors, each of which is reliant upon a thriving economy (Ozili and Arun, 2020). The food industry, in particular, has experienced considerable socio-economic repercussions, as revealed by recent research (Nicola et al., 2020). In many countries, the food supply chain has been disrupted, leading to panic buying and, subsequently, labour shortages and health concerns. During times of crisis, it is not uncommon for consumer behaviour to shift in significant ways, including changes to what, where, and how often items are purchased (Kusuma et al., 2022; Nie et al., 2002). Given the ongoing COVID-19 pandemic, it is likely that consumers will adopt new purchasing patterns, as highlighted by scholarly research (Bashar et al., 2022; Roggeveen and Sethuraman, 2020).

The ability of a company to persevere through challenging times is contingent upon their capacity to scrutinise customer purchasing behaviour (Sharma and Sonwalkar, 2013; Dickson, 1992). The decision-making processes and behavioural patterns of consumers are shaped by a combination of internal and external factors when it comes to customer purchasing behaviour (Sharma and Sonwalkar, 2013). During times of uncertainty, consumer behaviour is swayed by a plethora of factors, whereby risk and uncertainty play a pivotal role in the decision-making process (Pennings et al., 2002). Amalia and Ionut (2009) observed that apprehensive shoppers are more likely to severely curtail their spending, while cautious shoppers are prone to adhering to a budget and delaying major purchases. While judicious consumers are eager to explore novel and innovative products, they methodically budget their expenses and exhibit brand loyalty in the face of adversity. In contrast, discerning purchasers are undeterred by risk and adhere to a routine. The year 2020, characterised by tremendous fear and heightened vigilance, holds the potential to dramatically transform consumer behaviour.

It has been observed through an investigation undertaken by Grashuis et al. (2020) that online grocery shopping preferences may be swayed by COVID-19 conditions and online purchasing variables. The expectations of consumers regarding home delivery versus other methods of shopping were lower in regions where COVID-19 was spreading at a slower pace. This led the researchers to conclude that consumers' online purchasing behaviour is influenced at least in part by their apprehensions about in-store grocery shopping. It is expected that many online shoppers will revert to traditional methods of shopping once the current pandemic subsides. Goolsbee and Syverson (2021) propose that an upsurge in online sales during the initial phases of the COVID-19 outbreak may have been prompted by consumer anxieties related to the pandemic and a decline in food-away-from-home purchases. In the wake of the unprecedented disruptions wrought by the COVID-19 pandemic, businesses have had to implement innovative strategies to connect with their loyal offline customers (Jaiswal et al., 2023; Carnevale and Hatak, 2020). Indeed, the pandemic has fundamentally transformed the consumption patterns of customers, leading to the imposition of strict lockdown restrictions and social distancing protocols that have severely constrained purchasing habits (Sheth, 2020). Against this backdrop, companies are compelled to devise novel approaches to entice customers who are unable to leave their homes, as customers' day-to-day activities and behaviours shift towards more advanced digital tools and technologies (Bucko et al., 2018). The profound and far-reaching societal and economic implications of the global COVID-19 pandemic are unequivocal, impacting a diverse range of industries and fundamentally reshaping the ways in which individuals and businesses interact and communicate (Jaiswal et al., 2023). Emerging evidence suggests that customers around the world are eagerly anticipating the brand and products offered by new platforms in the post-pandemic era (Kohli et al., 2020). As researchers have noted, the COVID-19 pandemic has resulted in significant alterations in the purchasing patterns of consumers (Ahmed et al., 2020; Iyer et al., 2020).

In recent years, the emergence of e-commerce has resulted in a significant shift in consumer behaviour towards online shopping (Pouti et al., 2022; Luu et al., 2021). The COVID-19 pandemic further accelerated this trend, leading to a surge in online shopping worldwide. As a result, there has been a growing interest in understanding the factors that influence consumers' online shopping behaviour, and how businesses and policymakers can adapt to this changing landscape. Bibliometric analysis has emerged as a powerful tool for analysing research trends, identifying key authors and publications, and tracking

the evolution of research over time. By conducting a bibliometric analysis of online shopping behaviour research spanning two decades, researchers can gain insights into the intellectual structure of this field and identify emerging trends and areas for future research. Moreover, such an analysis can provide policymakers and businesses with valuable insights into the factors that influence consumer behaviour, as well as the impact of emerging trends such as social media and mobile commerce on online shopping. Ultimately, this can help inform the development of policies and strategies to better support online businesses and ensure that consumers have a positive online shopping experience.

Furthermore, this study is unique in the sense as it utilises the TCCM framework to perform the selected studies focused on online shopping. The TCCM framework affords researchers a holistic comprehension of the research phenomenon under scrutiny, the contextual background in which it manifests, the distinctive characteristics of the phenomenon, and the methodology employed to investigate it. This methodical approach facilitates the identification of research lacunae, the extension of established inquiries, and the formulation of fresh theories and methodologies to foster deeper insights into the research phenomenon. Therefore, the current study endeavours to attain the following research objectives (ROs):

RO1   To discern the preeminent authors, institutions, countries, and journals that have contributed to the sphere of online shopping research.

RO2   To appraise the intricacies of the collaborative networks between authors, countries, institutions, and sources that have contributed to online shopping research.

RO3   To identify the salient theories, methodologies, and characteristics that feature in highly cited documents through content analysis, utilising the TCCM framework.

RO4   To present future research avenues in the realm of online shopping research.

Through the utilisation of this investigation, one may be bestowed with a more profound comprehension of the impacts of online shopping on customer behaviour. The discoveries of this study can be utilised to create novel marketing strategies that are tailored to accommodate the psychological demands and sentiments of actual patrons. This is an attainable feat. The scholarly inquiry on consumer behaviour concentrates on the mechanisms through which consumers discern, evaluate, and repudiate the products and services that they procure. The ensuing sections of the paper are organised in the subsequent manner. Section 2 provides an elaborate exposition of the methods and data employed in the study. Section 3 entails a detailed analysis and discussion of bibliometric results and reviews using the TCCM framework. Section 4 is devoted to a discourse on the implications, constraints, and future research opportunities of the study. Finally, the ultimate section proffers a conclusive summary of the study's findings.

2   Research methods

The present study employs a quantitative bibliometric methodology to scrutinise bibliometric and bibliographic data, a scientific method for comprehending the gradual

pattern, scope, time evolution, and coverage of multidisciplinary perspectives and aspects, originally introduced by Pritchard in 1969 (Khanra et al., 2021).

Figure 1 Flow diagram of analytical procedures for selecting publications for review
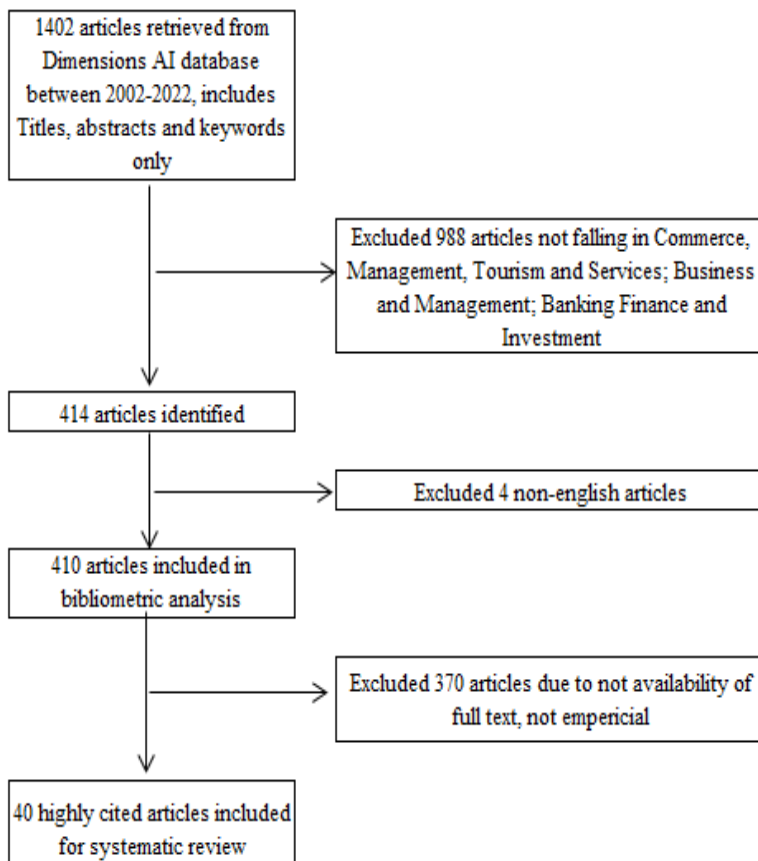
The dimensions AI repository, one of the largest and most accessible databases at present, is available free of charge to members of the academic and research communities. Its utility has been extensively harnessed by researchers across a spectrum of research domains (Kuriawan et al., 2022; Jaiswal et al., 2022; Jaiswal and Kumar, 2022). Notably, the dimensions AI repository boasts a dearth of literature on online shopping and consumer behaviour. Furthermore, it houses numerous publications from esteemed academic publishers and leading journals across diverse academic domains. Hence, researchers favour it as the preferred database for bibliometric analysis. A retrospective search utilising the search terms 'online shopping and purchasing behaviour' in the title and abstract was conducted while confining the scope of the study to articles, proceedings, chapters, and edited volumes published between 2002 and the first quarter of 2022. To construct and visualise network analysis, VOSviewer was employed (Jaiswal et al., 2022; Jaiswal and Kumar, 2022; Van Eck and Waltman, 2010). The 2022 publication period was initially excluded from the study, but due to the emergence of 90 publications in the first quarter of 2022, which surpassed the 67

publications of the first quarter of 2017 and was in close proximity to the 90 publications of the first quarter of 2016, the authors decided to include it. This was done to apprehend the publication trend over the past three years and capture the gradual increase.

Finally, authors wish to do systematic review using the TCCM framework. The theory-context-characteristics-method (TCCM) framework is a salient tool for scrutinising research articles, facilitating a comprehensive grasp of the underlying theories, contextual factors, defining characteristics, and methodological approaches adopted in a given study (Paul and Rosado-Serrano, 2019). The comprehensive methodological framework is illustrated in Figure 1, which lucidly explicates the intricate procedures adopted for comprehending the data, establishing the inclusion and exclusion criteria, and undertaking systematic review steps.

3 Results and discussion

3.1 Bibliometric analysis results

#### 3.1.1 Publication output and growth trend

In this section, the authors present their findings with regard to publications, periods, authors, and various aspects of their investigation, all of which have been analysed using a rigorous bibliometric methodology. Specifically, a total of 410 publications on the online buying behaviour of consumers during COVID-19 (including journal articles, conference papers, books, and book chapters) were scanned in the dimension AI academic database. Findings suggest that the number of publications in this domain has been gradually increasing since 2002, indicative of a growing research interest in this area. Moreover, the analysis identified 151 distinct authors who contributed to the works from 21 different journals and books. The scanned sources exhibited an average citation count of 34.92 per document, underscoring the scholarly impact and relevance of this body of work. Additionally, the average number of documents produced by each author was found to be 2.68, highlighting the diverse contributions made by individual researchers to this growing field of inquiry. It was found that the publications are distributed across diverse research categories. It is apparent that commerce, management, tourism, and service have emerged triumphant, producing 410 documents, followed by information and computing sciences with 360 documents, and medical and health sciences with 195 documents. This incontrovertibly underscores the fact that a multifarious array of publication categories has embarked upon investigating the intricacies of online consumer buying behaviour.

3.1.2 Top universities affiliations by documents

Table 1 provides a comprehensive analysis of the top 10 universities that are most associated with the authors of the publications related to 'online consumer buying behaviour'. The minimum number of documents required for an author to qualify is set to 2 and the minimum number of citations to 5. Out of 883 organisations, only 140 meet this threshold. The University of Duisburg-Essen stands at the top by producing nine documents in this field, followed by the University of Science Malaysia and Beijing University of Posts and Telecommunication with 9 documents each, while Wuhan

University produced the least number of documents. Remarkably, Florida State University, ranking 7th with six documents, has the highest number of total citations with 264, followed by the University of Duisburg-Essen with 259, and National Yang Ming Chiao Tung University with 258 total citations. Florida State University also boasts the highest average citations with 44, followed by National Yang Ming Chiao Tung University with 36.85 and the University of Burgos with 29.67.

Figure 2   Collaboration/networking documents among the organisations/institutions (see online version for colours)
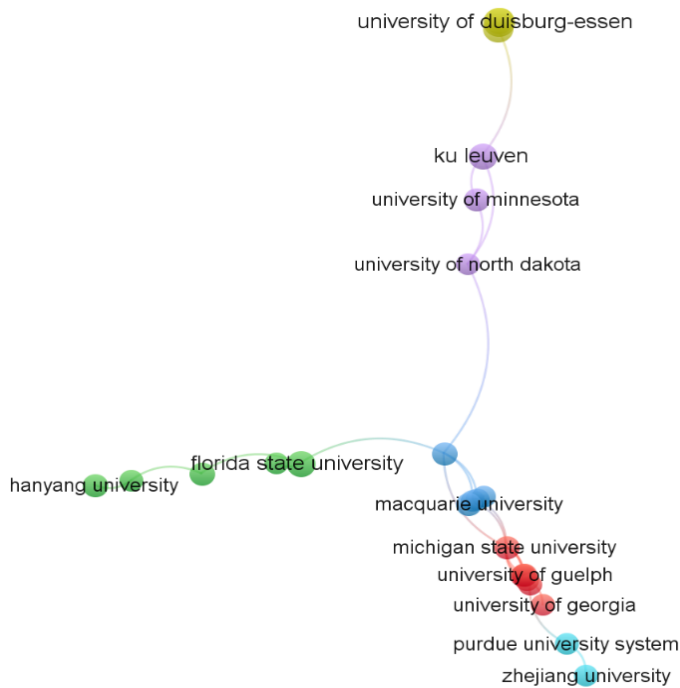
The University of Duisburg-Essen holds 12.16% of total publications, while Wuhan University's contribution stands at 8.10%. Moreover, the University of Duisburg-Essen enjoys the highest total link strength (TLS) of 80, indicating that they have collaborated with 80 other organisations on this specific topic (Figure 2). The Qatar University ranks second, with 65 TLS, followed by Beijing University of Posts and Telecommunication with 36 TLS. Hannover Medical School boasts the highest number of links with 21, indicating their connections to other organisations, while the University of Duisburg-Essen ranks second with 17 links. In contrast, Qatar University has the lowest connection with only three links out of the top 10 universities. Furthermore, cluster 4 comprises the University of Science Malaysia, National Yang Ming Chiao Tung University, and Wuhan University, which work closely together. Cluster 3 comprises the University of Duisburg-Essen and Hannover Medical School. Table 1 also provides additional information, including the total production (TP), total citation (TC), average citation (AC), and total link strength (TLS) of the top 10 universities.

Table 1 Top universities affiliations by documents (2002–2022)

Organisation	TP	TC	AC	% TP	TLS	Links	Cluster
University of Duisburg Essen	9	259	28.77	12.16	80	17	3
University of Science Malaysia	9	107	11.88	12.16	7	6	4
Beijing University of Posts and Telecommunications	9	79	8.77	12.16	36	15	1
Hannover Medical School	8	154	19.25	10.81	80	21	3
National Yang Ming Chiao Tung University	7	258	36.85	9.45	9	8	4
Chaoyang University of Technology	7	14	2	9.45	12	6	7
Florida State University	6	264	44	8.1	12	12	2
University of Burgos	6	178	29.67	8.1	9	8	8
Qatar University	6	150	25	8.1	65	3	9
Wuhan University	6	26	4.33	8.1	14	8	4

Notes: TP = total publication, TC = total citation, AC = average citation, and TLS = total link strength.

Table 2 Top 10 contributing authors based on number of published articles

Author	TP	TC	AC	% TP	TLS	Links	Cluster
A. Müller	9	156	17.3	14.28	93	20	3
U. Akram	8	95	11.9	12.69	70	15	11
M. Brand	7	116	16.6	11.11	88	17	3
M.S. Allahyari	6	149	24.8	9.52	46	6	12
P. Hui	6	72	12	9.52	63	15	11
M.K. Khan	6	72	12	9.52	63	15	11
S. Prashar	6	14	2.33	9.52	17	8	7
M. Dijst	5	460	92	7.93	35	7	9
S. Farag	5	460	92	7.93	35	7	9
R.E. Goldsmith	5	243	48.6	7.93	11	8	1

Notes: TP = total number of publications, TC = total number of citation, AC = average number of citation, and TLS = total link strength.

3.1.3 Most prolific authors

Table 2 lays bare the most productive authors, whose works exceed two in quantity, and have garnered no less than ten citations between the years of 2002 to 2022. Filtering out the unworthy, 151 authors out of 3,135 have risen to the challenge. Müller, with a TC score of 156, reigns supreme in the number of publications, while Akram, with a score of 95, takes second place. As for Prashar, he languishes at the bottom of the citation score hierarchy. Notably, Müller boasts the highest total link strength, standing tall at 93, followed by Brand at 88, and Akram at 70, with Goldsmith taking up the rear. The total link strength metric signifies the extent of the co-authorship links established with other researchers. Müller also claims the highest number of links, a hefty 20, with Brand not far behind at 17, Akram at 15, and Allahyari coming in dead last at a mere 6. Remarkably,

Akram, Hui, and Khan are part of cluster 11, evidence of their collaboration, while Müller and Brand find themselves in cluster 3, standing as a testament to their fruitful teamwork.

Figure 3, we observe the centrality betweenness, which epitomises the frequency with which a node traverses the shortest path between two other nodes. This configuration illustrates the degree of an author's significance in networking with others. Set at a minimum of 10 citations, out of the 410 scrutinised papers, 16 were linked, with centrality spanning from 0 to 10. However, after filtering authors with a minimum of two documents and five citations, 151 authors remained, who were all interconnected. Exquisitely, Müller shines in the limelight with the highest TLS and links among them all.

Figure 3   Intermediation as betweenness centrality (see online version for colours)
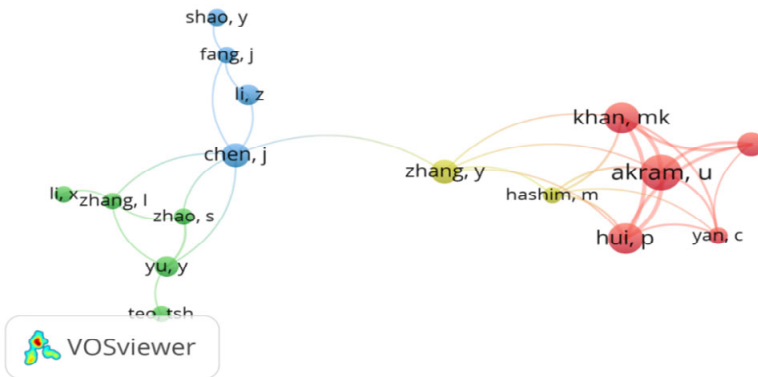
3.1.4   *Most productive countries*

In terms of publication productivity, China, the land of the rising sun, reigns supreme with a staggering 120 published works, earning them 975 citations and an average citation rate of 8.12. Second, on the list is the USA, with an impressive 117 publications, 4,904 citations, and a striking average citation rate of 41.91. Meanwhile, India places third with 95 publications, 692 citations, and a notable average citation rate of 7.28. Among these nations, the US boasts the highest total link strength, with a commanding 52 links, while Indonesia languishes in last place with a mere 4 links. China, with 15 links, commands the most connectivity, while Indonesia trails at the rear with a paltry 4 links. Interestingly, Indonesia and Malaysia have been classified as part of cluster 2, while the US and South Korea have been relegated to cluster 4. It is noteworthy that by applying the minimum threshold of 5 documents and 20 citations per country, this study discovered 43 nations that contributed to this field of research.

The entanglement of publications can likewise be ascertained through the application of bibliometric analysis, as exemplified in Figure 4. The magnitude of a node is gauged by its citation count, whereupon the network is constructed by assigning the node's degree to each citation. The centrality degree of a node, as determined by its size, is indicative of its weight and impact within the network. The interconnections among the nodes connote the flow of direct citations, thereby underscoring the intrinsic interdependence among publications.

Table 3   Most-productive countries based on total publications

Country	TP	TC	AC	% TP	TLS	Links	Cluster
China	120	975	8.12	19.73	45	15	6
USA	117	4,904	41.91	19.24	52	18	4
India	95	692	7.28	15.62	12	7	8
Indonesia	72	76	1.05	11.84	4	4	2
Taiwan	51	1,164	22.82	8.38	17	8	6
Germany	36	624	17.33	5.92	14	10	1
UK	35	1,236	35.31	5.75	24	16	1
Malaysia	33	289	8.75	5.42	12	10	2
Spain	25	474	18.96	4.11	8	5	5
South Korea	24	655	27.29	3.94	15	7	4

Notes: TP = total number of publications, TC = total number of citations, AC = average
number of citations, and TLS = total link strength.

Figure 4   Network visualisation of the centrality of countries' citations (see online version
for colours)
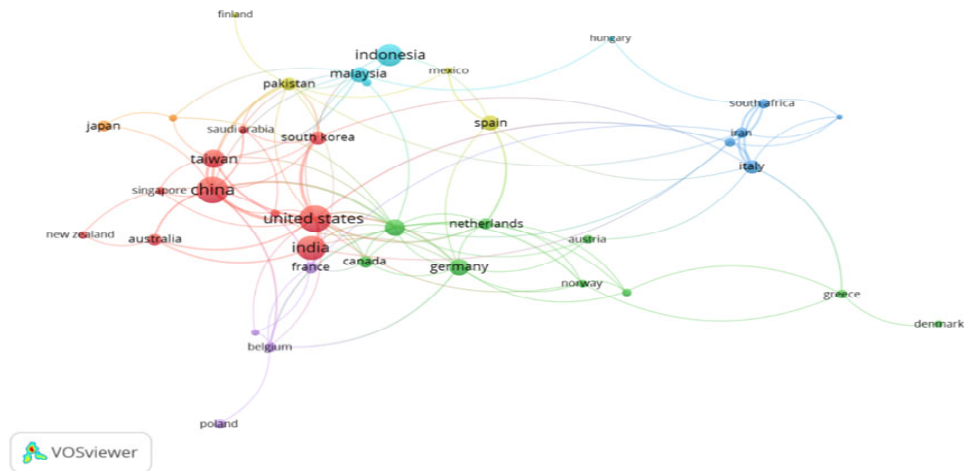
3.1.5 Most productive journals

This particular segment furnishes exhaustive intelligence regarding the preeminent
scholarly journals (Table 4) exhibiting a high level of research productivity. Eliminating
those journals that did not align with the domain of consumer behaviour and stipulating
the minimum number of documents to be 5 and the minimum number of citations to be 2,
40 sources emerged as meeting the selection criteria. At the pinnacle of the list,
Developments in Marketing Science: A Proceeding of the Academy of Marketing Science
outshines all other publications in the arena of online buying behaviour research with a
TP value of 30 and garners the highest average citation value. In contrast, *Electronic
Commerce Research and Applications* exhibits the lowest TC value in the top ten
sources. The *Journal of Retailing and Consumer Services* takes the runner-up position

with a TP value of 21 and secures the most significant number of TCs, i.e., 907, trailed by the *International Journal of Retail & Distribution Management*, which registers a TC value of 713. *Internet Research* clinches the third rank with a TC value of 378. The contribution of *Developments in Marketing Science: Proceedings of the Academy of Marketing Science* to the body of publications, which stands at 20.54%, is the highest, with the *Journal of Retailing and Consumer Services* claiming the second position at 14.38%. *Electronic Commerce Research and Applications*, with a contribution of 4.79%, comes in last. *Sustainability* commands the most substantial number of TLS at 44, along with the highest number of links. *IOP Conference Series: Materials Science and Engineering*, on the other hand, posts the lowest TLS value at a meagre 2 and has only one link, a record low. The association between *Advances in Intelligent Systems and Computing* and *Electronic Commerce Research and Applications* is discernible through their clustering in group 4, signifying a potential collaborative synergy. The clustering of *Lecture Notes in Computer Science* and *Internet Research* in group 12, similarly, indicates an association between them. Figure 5 represents the network visualisation of the centrality of source's citations.

**Table 4**   Most productive journals

Source	TP	TC	AC	% TP	TLS	Links	Cluster
Developments in Marketing Science: Proceedings of the Academy of Marketing Science	30	15	2	20.54	2	2	11
Journal of Retailing and Consumer Services	21	907	0	14.38	40	28	8
Lecture Notes in Computer Science	19	208	0.1	13.01	5	4	12
International Journal of Retail & Distribution Management	14	713	0	9.58	40	26	11
Internet Research	12	378	0	8.21	23	16	12
Sustainability	12	316	0	8.21	44	30	10
IOP Conference Series Materials Science and Engineering	11	19	0.6	7.53	2	1	6
Advances in Intelligent Systems and Computing	10	13	0.8	6.84	10	7	4
Frontiers in Psychology	10	78	0.1	6.84	13	12	3
Electronic Commerce Research and Applications	7	312	0	4.79	22	13	4

Notes: TP = total number of publications, TC = total number of citation, AC = average number of citation, and TLS = total link strength.

3.2   *Systematic review using TCCM framework*

This section represents a deep-dive into the systematic review methodology utilising the TCCM framework to analyse selected empirical papers.

Figure 5 Network visualisation of the centrality of source' citations (see online version for colours)
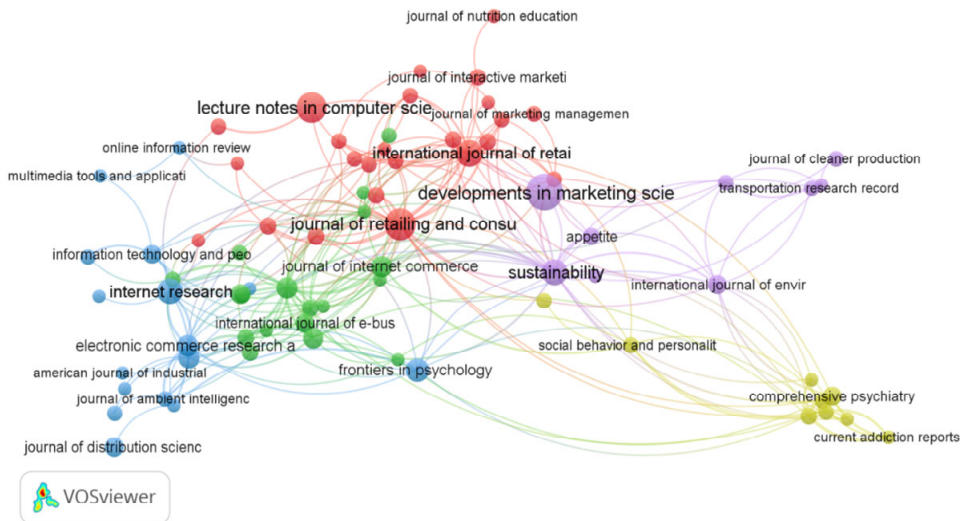
3.2.1 Theory-based clustering of the literature for online shopping

Per Table 5, it can be inferred that theory of planned behaviour (TPB), technology acceptance model (TAM), and unified theory of acceptance and use of technology (UTAUT) are popular theories in online shopping behaviour studies because they provide a comprehensive framework for understanding consumer behaviour in the context of technology. The TPB theory explains how consumers' attitudes, subjective norms, and perceived behavioural control influence their intentions to engage in a specific behaviour. The TAM theory is concerned with the factors that influence individuals' acceptance and use of technology, including perceived usefulness and ease of use. The UTAUT theory builds upon the TAM theory by including additional factors such as social influence, facilitating conditions, and user experience. These theories have been applied to online shopping behaviour studies because they provide a systematic way of examining the factors that influence consumers' intentions to shop online and their actual behaviour. In addition, these theories have been extensively researched and validated, providing a solid foundation for understanding consumer behaviour in the context of online shopping. Researchers can use these theories to design effective interventions to promote online shopping behaviour or to identify the factors that may impede it.

3.2.2 Context-based clustering of the literature for online shopping

Per Table 6, online shopping studies are typically context-specific to individual and country-specific levels because they are concerned with understanding consumer behaviour and preferences. Online shopping is primarily driven by individual consumer behaviour, which is influenced by a variety of factors such as personal attitudes, values, and perceptions. These factors can vary significantly across individuals and cultural contexts, making it important to study online shopping behaviour on an individual and country-specific level. Furthermore, online shopping studies are typically focused on

understanding consumer behaviour within a specific context or market. This means that they are often designed to examine the preferences, attitudes, and behaviours of consumers within a particular country or region, rather than at the organisational or institutional level. For example, a study of online shopping behaviour in the US would be primarily concerned with understanding how American consumers behave and make decisions when shopping online.

Table 5   Theory-based clustering of the literature for online shopping

Theory/model	Documents
Theory of planned behaviour	Chou et al. (2018), Lee (2009), Yang (2012), Hajiheydari and Ashkani (2018), Larios-Gómez et al. (2021), Guo et al. (2021), George (2004), Hua and Wang (2019), Liang and Lim (2011) and Almajali (2022)
Theory of reasoned action	Hajiheydari and Ashkani (2018) and Almajali (2022)
Technology acceptance model (TAM)	Law et al. (2016), Driediger and Bhatiasevi (2019), Peña-García et al. (2020), Agrebi and Jallais (2015), Liébana-Cabanillas et al. (2017a, 2017b), Chou et al. (2018), Zhang et al. (2012), Hajiheydari and Ashkani (2018) and Hua and Wang (2019)
Unified theory of acceptance and use of technology (UTAUT)	Dakduk et al. (2020), Gao et al. (2015), Abrahão et al. (2016), Verkijika (2018), Yahia et al. (2018) and Liébana-Cabanillas et al. (2017a, 2017b)
Social identity theory	Forman et al. (2008)
Stimulus-organism-response	Laato et al. (2020)
RANAS model	Gamma et al. (2017, 2020)
Protection motivation theory	Sharifirad et al. (2014), Timpka et al. (2014) and Laato et al. (2020)
Theory of fear appeal	Truong and Truong (2022)
Theory of favourable decision	Larios-Gómez et al. (2021)
Theory of perceived risk	Doolin et al. (2005)
Agency theory	Yeh et al. (2012)
Uncertainty theory	Yeh et al. (2012)
Push-pull-mooring theory	Puengwattanapong and Leelasantitham (2022)

Table 6   Context-based clustering of the literature for online shopping

Context	Documents
Individual/ consumers	Forman et al. (2008), Laato et al. (2020), Doolin et al. (2005), Kamalul Ariffin et al. (2018), Ebrahimi et al. (2021), Guo et al. (2021), Patil et al. (2022), Chen and Barnes (2007), Chiu et al. (2012), George (2004), Hua and Wang (2019), Liang and Lim (2011), Yeh et al. (2012), Puengwattanapong and Leelasantitham (2022), Kim and Eastin (2011) and Almajali (2022)
Country	Cui et al. (2020), Ali Taha et al. (2021), Larios-Gómez et al. (2021), Qureshi et al. (2009), Gu et al. (2021) and Wojciechowska-Solis et al. (2022)

In contrast, studies focused on the organisational or institutional level tend to be concerned with different types of research questions, such as how companies can improve their e-commerce operations or how government policies can support online

businesses. These studies are often more concerned with practical or policy implications and may require a different methodology or theoretical framework than studies focused on individual and country-specific online shopping behaviour.

3.2.3 *Methodology-based clustering of the literature for online shopping*

Per Table 7, structured equation modelling (SEM) is particularly popular in online shopping studies due to its ability to assess multiple relationships simultaneously, including the relationships between latent constructs (unobservable variables) and observed variables. Online shopping behaviour involves various latent constructs, such as attitudes, perceptions, and intentions, which are not directly observable but can be inferred through multiple observed variables. SEM allows researchers to assess these latent constructs and their relationships with other variables, which is particularly useful for understanding the underlying factors that drive online shopping behaviour. Additionally, SEM can handle a large number of variables simultaneously, making it a useful tool for analysing large datasets, which is common in online shopping research. Moreover, SEM can be used to test complex models that include multiple mediators and moderators, allowing researchers to explore how different factors influence online shopping behaviour.

Table 7 Methodology-based clustering of the literature for online shopping

Methodology	Documents
Regression	Forman et al. (2008), and Truong and Truong (2022)
SEM	Laato et al. (2020), Petcharat and Leelasantitham (2021), Larios-Gómez et al. (2021), Ebrahimi et al. (2021), Guo et al. (2021), Qureshi et al. (2009), Chen and Barnes (2007), Chiu et al. (2012), Hua and Wang (2019), Yeh et al. (2012), Puengwattanapong and Leelasantitham (2022) and Almajali (2022)
Correlation	Gu et al. (2021), Liang and Lim (2011) and Kim and Eastin (2011)

3.2.4 *Characteristics-based clustering of the literature for online shopping*

Per Table 8, perceived usefulness, perceived ease of use, perceived trust, attitude, and psychological factors are popular constructs in online shopping studies because they help researchers to understand consumers' perceptions and attitudes towards online shopping.

Perceived usefulness refers to the degree to which consumers believe that online shopping will help them achieve their goals, while perceived ease of use refers to the degree to which consumers believe that online shopping is easy to use. These constructs are important because consumers are more likely to adopt new technologies, such as online shopping, if they perceive them as useful and easy to use. Perceived trust is another important construct in online shopping studies because consumers are more likely to engage in online shopping if they perceive the online shopping environment to be secure and trustworthy. Attitude is also a crucial construct because it reflects consumers' overall evaluations of online shopping, including their emotional responses and preferences. Finally, psychological factors such as motivation, emotion, and personality traits can also affect consumers' online shopping behaviour. These factors can help explain why some consumers are more likely to engage in online shopping than others and can provide insights into how to better target and market to these consumers.

Table 8   Characteristics-based clustering of the literature for online shopping

Characteristics/ constructs/variables	Documents
Online word of mouth	Forman et al. (2008), Tran (2020), Zhao et al. (2020), Meilatinova (2021), Branco Oliveira and Soares (2016), Ebrahimi et al. (2021) and Puengwattanapong and Leelasantitham (2022)
Perceived severity	Ling et al. (2019) and Laato et al. (2020)
Purchase self-efficacy	Ling et al. (2019), Laato et al. (2020) and George (2004)
Self-isolation	Ling et al. (2019) and Laato et al. (2020)
Perceived usefulness	Law et al. (2016), Peña-García et al. (2020), Liébana-Cabanillas et al. (2017a, 2017b), Chou et al. (2018), Zhang et al. (2012), Bhattacherjee et al. (2012), Lee (2009), Kim and Kim (2008), Al-Hattami (2021), Chen and Barnes (2007), Chiu et al. (2012), Hua and Wang (2019) and Puengwattanapong and Leelasantitham (2022)
Perceived ease of use	Law et al. (2016), Peña-García et al. (2020), Liébana-Cabanillas et al. (2017a, 2017b), Chou et al. (2018), Zhang et al. (2012), Bhattacherjee et al. (2012), Lee (2009), Kim and Kim (2008), Alaimo et al. (2020), Hua and Wang (2019) and Puengwattanapong and Leelasantitham (2022)
Perceived trust	Dakduk et al. (2020), Liébana-Cabanillas et al. (2017a, 2017b), Gao et al. (2015), Zhao et al. (2020), Tran (2020), Meilatinova (2021), Chen et al. (2015), Pascual-Miguel et al. (2015), Al-Hattami (2021), Qureshi et al. (2009), Chiu et al. (2012), George (2004) and Almajali (2022)
Perceived risk	Doolin et al. (2005), Kamalul Ariffin et al. (2018), Prasad and Srivastava (2021), Alhaimer (2021) and Almajali (2022)
Perceived privacy	Gao et al. (2015), Chen and Barnes (2007), Puengwattanapong and Leelasantitham (2022) and Almajali (2022)
Perceived security	Gao et al. (2015), Alhaimer (2021), Chen and Barnes (2007) and Almajali (2022)
Social influence	Ali Taha et al. (2021) and Puengwattanapong and Leelasantitham (2022)
Hedonic motivation	Koch et al. (2020) and Kim and Eastin (2011)
Attitude	Zhang et al. (2012), Peña-García et al. (2020), Law et al. (2016), Darley et al. (2010), Zhao et al. (2020), Karimi et al. (2018), George (2004), Hua and Wang (2019) and Liang and Lim (2011)
Psychological factor	Lien and Cao (2014), Shaouf et al. (2016), Larios-Gómez et al. (2021), Torales et al. (2020), Sheth (2020), Schewe and Meredith (2004)

4   Implications, limitations and future research avenues

4.1   Policy implications

To capitalise on the growth of online shopping, policymakers must develop regulations and policies that promote e-commerce while also safeguarding consumer privacy and security. Furthermore, policymakers must develop policies that address the digital divide, ensuring that all consumers have access to online shopping. Businesses must also adapt to

emerging trends in online shopping, such as the increasing use of mobile devices and the growing popularity of social media as a shopping channel. Moreover, policymakers and businesses must also pay attention to emerging trends in online shopping, such as the shift towards sustainable and ethical consumer behaviour. Policymakers can incentivise businesses to adopt environmentally-friendly practices, while businesses can develop sustainable supply chains and production processes. Additionally, policymakers and businesses can work together to address issues such as online fraud, intellectual property theft, and the exploitation of workers (Jaiswal et al., 2023) in the online gig economy.

4.2   Managerial implications

Businesses need to adapt to changing consumer preferences by embracing digital technologies, such as mobile applications, social media, and personalised marketing strategies. This involves investing in robust e-commerce platforms that offer secure payment options, fast and reliable delivery services, and user-friendly interfaces. Second, businesses need to leverage collaborative networks and partnerships to enhance their reach, reduce costs, and improve service quality. This involves forging strategic alliances with other businesses, suppliers, and logistics providers to create a seamless and efficient value chain that meets consumer needs. Third, businesses need to adopt a customer-centric approach that emphasises personalised experiences, customisation, and innovation. This involves using data analytics and artificial intelligence to understand consumer behaviour, preferences, and needs and tailoring products and services to meet these needs.

4.3   Social implications

Online shopping has become more convenient, faster, and accessible to a broader range of consumers. This trend has transformed the way people interact with retail stores and has significant social implications for individuals and society as a whole. Firstly, the trend towards online shopping has the potential to change the nature of work, with more people working in the digital economy. This shift could lead to significant changes in the labour market and have broader social implications, including changes to employment patterns, working conditions, and wages. Secondly, online shopping can increase the digital divide, as those without access to the internet or digital technologies are left behind. Thirdly, online shopping can exacerbate existing social inequalities, such as income disparities, by providing greater access to goods and services to those who can afford it. Lastly, online shopping can have environmental implications, including increased packaging waste and carbon emissions associated with the shipping of goods.

4.4   Practical implications

The practical implications of emerging trends in online shopping are multifaceted. Firstly, businesses need to adapt to changing consumer behaviour and preferences by providing convenient and user-friendly online shopping platforms. Secondly, businesses need to leverage collaborative networks to enhance the online shopping experience for consumers. Thirdly, policymakers need to ensure that regulations and guidelines are in place to protect consumers' privacy and security when shopping online. Fourthly,

cross-cultural research is needed to understand the influence of cultural factors on online shopping behaviour, which can inform businesses' strategies in different regions. Finally, businesses and researchers should utilise bibliometric analysis in combination with other qualitative and quantitative research methods to gain a more comprehensive understanding of online shopping behaviour, which can help them, make informed decisions and develop effective strategies.

4.5   Limitations

The dimensions database served as the primary source for the present analysis, future bibliometric inquiries may benefit from the exploration of alternative databases such as Science Direct, Web of Science, or Scopus. Given that the study focused solely on analysing published literature, inherent biases towards particular topics, authors, or geographic regions may have skewed the overall results, thereby failing to provide a complete overview of research in the field. Moreover, the study's reliance solely on English-language articles may have constrained the analysis due to potential language barriers arising from database and tool availability in specific languages, while simultaneously excluding publications in other languages, exacerbating the limitations.

4.6   Future research avenues

Future research should explore the following FRQs:

FRQ1   How can emerging trends in online shopping be translated into actionable insights for businesses and policymakers?

FRQ2   What factors contribute to the success of collaborative networks in online shopping, and how can they be leveraged to enhance consumer experience?

FRQ3   What role does culture play in shaping online shopping behaviour, and how can it be accounted for in cross-cultural research?

FRQ4   How can bibliometric analysis be combined with other qualitative and quantitative research methods to gain a more comprehensive understanding of online shopping behaviour?

FRQ5   What are the ethical considerations surrounding the use of bibliometric data in analysing online shopping behaviour, and how can they be addressed?

FRQ6   How can the TCCM framework be adapted to better suit the specific research needs of different regions or cultural contexts?

FRQ7   Are there any other relevant constructs or factors that should be considered in online shopping research, beyond those identified in the popular TPB, TAM, and UTAUT theories?

FRQ8   How can the TCCM framework be used to better understand the impact of emerging technologies, such as virtual and augmented reality, on online shopping behaviour?

FRQ9   How can the TCCM framework be used to explore the impact of different types of online shopping platforms, such as social media or mobile commerce, on consumer behaviour?

FRQ10 Can the TCCM framework be used to identify specific interventions or strategies that businesses or policymakers can use to promote ethical consumer behaviour in online shopping?

FRQ11 How can the TCCM framework be used to identify opportunities for cross-disciplinary research collaborations and partnerships in the study of online shopping behaviour?

5   Conclusions

This study has provided a valuable and comprehensive understanding of the phenomenon of online shopping research by examining 410 publications sourced from the dimension database published from 2002 to 2022. The empirical evidence supports China's dominance in this field, followed closely by the USA and India, as the most influential countries in terms of research output and impact. It is notable that publications emanating from the USA enjoy a high citation rate and demonstrate a robust network of collaborations and partnerships with other nations.

Moreover, this study identified that perceived usefulness, perceived ease of use, perceived trust, attitude, and psychological factor constructs are popular among online shopping studies. These constructs offer valuable insights into the factors that influence consumers' online shopping behaviour and can assist researchers, businesses, and policymakers in better understanding and addressing these factors. Additionally, the TPB, TAM, and UTAUT are the most popular among online shopping studies, with most studies utilising SEM. This technique enables researchers to gain a deeper understanding of the complex relationships and underlying factors that drive online shopping behaviour.

This study can assist researchers in identifying gaps in the literature, building on existing research, and developing new theories and methodologies to further understand the research phenomenon. Furthermore, this study provides a crucial contribution to the understanding of the dynamic determinants of consumer behaviour in the realm of online shopping, while simultaneously shedding light on the burgeoning impact of emergent trends such as social media and mobile commerce on this sphere.

The valuable insights garnered from this comprehensive analysis may be employed to furnish policymakers and businesses with a strategic advantage, facilitating their capacity to formulate effective policies and strategies that bolster online commerce and guarantee a seamless and satisfactory shopping experience for consumers. By developing policies that promote e-commerce, safeguard consumer rights, and address emerging trends such as sustainability and ethical consumer behaviour, policymakers and businesses can ensure that online shopping continues to grow while also benefiting society as a whole. This study further advises that businesses must be agile, flexible, and innovative to succeed in the dynamic and competitive online shopping environment. They must keep up with emerging trends, embrace digital transformation, and build strong collaborative networks to remain competitive and meet the evolving needs of consumers. Ultimately, this study offers valuable insights that can inform policies and strategies to foster sustainable and

profitable online commerce, thereby contributing to the growth and success of businesses and the satisfaction of consumers.

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