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Mapping the Evolution of Online Review Research: A Comprehensive Bibliometric Analysis (1990–2024)

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رسم تطوّر بحوث المراجعات الإلكترونية: تحليل ببليومتري شامل (1990–2024)

خديجة حسن محرز
قسم الإدارة والتسويق، كلية الأعمال، جامعة جازان، المملكة العربية السعودية

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Abstract:

This study provides a comprehensive bibliometric analysis of scholarly literature on online reviewing from 1990 to 2024. Based on 701 peer-reviewed journal articles indexed in Scopus, the study maps publication trends, key contributors, and the intellectual structure of the field. Various techniques were applied using Biblioshiny and the Bibliometrix R-package, including performance analysis, co-citation and co-word mapping, and thematic evolution. Findings show that online reviewing has evolved into a multidisciplinary domain, intersecting marketing, information systems, hospitality, and data science. A marked rise in scholarly output occurred post-2010, with China and the United States leading in volume and citations. Key themes have shifted from traditional word-of-mouth to AI-driven trust and sentiment analysis. This work offers insights for researchers and practitioners seeking to harness the potential of user-generated content in the digital era.

Keywords: Online Reviews, Bibliometric Analysis, Sentiment Analysis, User-Generated Content, Thematic Evolution.

الملخص:

تقدّم هذه الدراسة تحليلًا ببليومتريًا شاملًا للأدبيات العلمية حول المراجعات عبر الإنترنت خلال الفترة من 1990 إلى 2024. استنادًا إلى701 مقالة علمية محكمة ومفهرسة في قاعدة بيانات سكوبس. ترسم الدراسة خريطة لـ اتجاهات النشر، والمؤلفين البارزين، والبنية الفكرية لهذا المجال. تم استخدام أداة Biblioshinyوحزمة Bibliometrix بلغة R لتطبيق تقنيات تحليل متعددة، مثل تحليل الأداء، وتحليل الاستشهادات المشتركة، وتحليل الكلمات المفتاحية، وتطور الموضوعات. تُظهر النتائج أن المراجعات عبر الإنترنت قد تطورت لتصبح مجالًا متعدد التخصصات يجمع بين التسويق، ونظم المعلومات، والضيافة، وعلوم البيانات. وقد لوحظ ارتفاع كبير في الإنتاج العلمي بعد عام 2010، حيث تصدرت الصين والولايات المتحدة من حيث عدد المنشورات والاستشهادات. كما شهدت تحليلات مدفوعة بالذكاء الاصطناعي ومرتبطة بالثقة والمصداقية. وتقدم هذه الدراسة رؤى مهمة للباحثين والممارسين الراغبين في الاستفادة من محتوى المستخدمين في العصر الرقمي.

الكلمات المفتاحية: المراجعات عبر الإنترنت، التحليل الببليومتري، تحليل المشاعر، صناعة المحتوى، التطور الموضوعي.

1. Introduction

Online reviewing has become an integral part of the digital information ecosystem, influencing a wide range of decisions across industries and domains. From product evaluations on e-commerce platforms to service assessments in tourism and education, online reviews now shape how individuals form judgments and make choices. These reviews, typically generated by users, serve as publicly visible, often persuasive content that affects not just consumer decisions but also organizational strategies and reputations. This rising prominence has drawn the attention of scholars across multiple disciplines, giving rise to a growing body of literature exploring the evolution, function, and future of online reviewing (Garg et al., 2024; Muritala et al., 2020; Pocchiari et al., 2024).

Over the last two decades, the volume of academic work in this area has grown exponentially. In the apparel industry alone, research publications on online reviews have increased steadily between 2002 and 2022, indicating a strong upward trend in scholarly interest (Garg et al., 2024). In the tourism and hospitality sectors, the number of studies surged between 2005 and 2019, driven by the sector's reliance on customer feedback and user-generated content (Muritala et al., 2020). In parallel, the field of education has seen dramatic growth in research exploring online learning emotions and self-regulation, where the influence of peer feedback and reviews has become central, especially in the wake of the COVID-19 pandemic (Syafia, 2024; Zhang & Xiao, 2023).

This pandemic marked a pivotal moment in the evolution of online reviewing research. As physical interactions declined, users increasingly turned to digital platforms for information, guidance, and reassurance. This shift accelerated interest in emotionally driven and trust-sensitive reviews, particularly in education, healthcare, and e-commerce. Consequently, researchers began focusing on themes such as emotional engagement, misinformation detection, and credibility assessment. Recent studies reflect this reorientation, showing how the pandemic catalyzed the adoption of AI-supported content verification and user emotion analysis. These developments underscore the expanding societal relevance of online reviews as both information sources and psychological anchors during crises.

These bibliometric analyses have employed a variety of methodologies to uncover thematic and structural developments in online review research. Performance analysis has been widely used to measure publication trends, identify prolific authors, and assess the impact of journals(Garg et al., 2024; Mehrez, 2024; Muritala et al., 2020) . Science mapping has visually represented the intellectual and conceptual frameworks of the field, revealing dominant topics and their historical shifts. Co-word analysis has allowed scholars to examine keyword co-occurrence in the literature, identifying core research foci such as "consumer behavior," "Trust," "Internet," and "user behavior."

(Valderrama-Zurián et al., 2017). Social network analysis has further deepened our understanding by mapping collaborations among researchers and institutions (Zhang & Xiao, 2023).

Findings from these studies show that online reviewing is not only a multidisciplinary domain but also one with increasing global engagement. For instance, Corbos et al. (2022) revealed that the United States contributed the highest number of articles on consumer reviews of home appliances, with "quality" and "impact" emerging as dominant keywords. Zhang and Xiao (2023) found that research in online learning shifted from addressing negative emotions to more positive engagement outcomes, especially during the pandemic. Meanwhile, Lazarides et al. (2023) emphasized the classification of bibliographic material to provide a clearer understanding of scholarly communication patterns. These studies collectively underscore the wide applicability and methodological richness of bibliometric approaches in analyzing online reviewing.

Alongside quantitative growth, thematic expansion is evident. Key research themes include the influence of reviews on consumer decision-making, the role of trust and credibility, and the technological dimensions shaping review creation and evaluation. Online reviews significantly influence perceived product quality and purchase intentions, particularly when accompanied by detailed feedback and multimedia content (Ali & Hussain, 2023) . Both positive and negative reviews serve as credibility cues; the presence of negative reviews, in moderation, can increase the perceived authenticity of feedback (Krasnostavskaia et al., 2022; Zhou, 2022). The increasing sophistication of review platforms has also sparked interest in how review formatting, algorithmic sorting, and user interface design affect user engagement and perceptions (Pocchiari et al., 2023; Widyaputri, 2025).

Technology continues to reshape the landscape of online reviewing. The integration of artificial intelligence and machine learning has enabled automated sentiment analysis and fake review detection, and even review generation (Monisha & Nayak, 2024; Penelitian et al., 2023). These innovations improve the quality and relevance of reviews but also introduce ethical and methodological challenges. The growing reliance on digital reviews has made questions around data authenticity, review manipulation, and platform responsibility more urgent, demanding further interdisciplinary investigation and practical frameworks for responsible reviewing practices.

Despite the benefits and expanding research, significant challenges persist. The authenticity of reviews is frequently compromised by deceptive or incentivized content, undermining trust in platforms (Monisha & Nayak, 2024). Cognitive biases, such as anchoring or confirmation bias, affect how users perceive and interpret reviews, while the overwhelming volume of content can lead to decision fatigue (Pocchiari et al., 2024). These issues highlight the need for more user-centric design and enhanced filtering systems to support

informed decision-making. Moreover, the diversity of user motivations and cultural influences on reviewing behaviour remains underexplored, suggesting rich avenues for future research.

In light of these developments, this study sets out to provide a bibliometric analysis of online reviewing with three key objectives. First, it aims to understand the changing trends in research themes over time and to highlight the evolving knowledge base in this domain. Second, it investigates shifts in authorship patterns, institutional affiliations, and global research contributions over the last three decades. Third, it identifies emerging and underexplored themes that may offer future research opportunities. In doing so, the study builds upon existing bibliometric efforts and seeks to consolidate fragmented knowledge into a coherent narrative. By drawing upon extensive bibliometric techniques and synthesizing existing studies, this analysis contributes to a deeper understanding of how online reviewing has developed as an academic field and practical tool. The outcomes of this research will serve as a roadmap for scholars, practitioners, and digital platform designers who wish to harness the power of online reviews ethically and effectively. As user-generated content continues to redefine digital interactions, tracking its scholarly evolution becomes essential to navigate the complexities and potential of this ever-expanding domain.

2. Materials And Methods:

To address the research questions outlined in this study, a bibliometric analysis was employed. This structured methodological approach involves the systematic collection, extraction, and refinement of metadata from a scientific literature database. It enables both network analysis and descriptive analysis, providing insights into patterns such as the annual growth rate of publications, the most prolific authors, leading affiliations, country-level contributions, and overall research productivity (Passas, 2024). This iterative and data-driven process offers a comprehensive overview of the scholarly landscape related to online reviewing.

The metadata for this study was retrieved from the Scopus database using the keyword “online reviews” in a title-abstract-keyword search

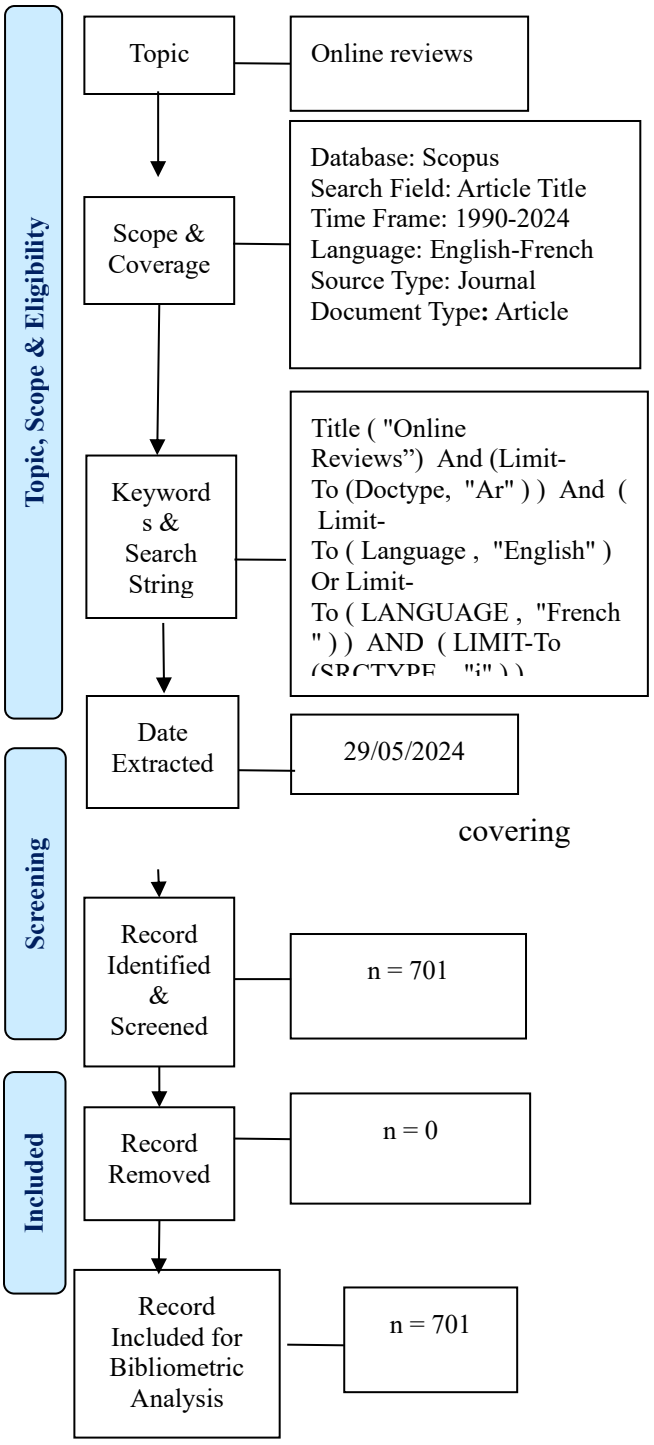


Figure 1*: Flow diagram of the search strategy*

Source:(Zakaria et al., 2021)

the period from 1990 to 2024. Before the analysis, specific inclusion and exclusion criteria were applied to enhance the relevance and quality of the dataset. Non-article documents such as books, reviews, editorial materials, conference proceedings, notes, and meeting abstracts were excluded. Only journal articles written in English or French were included in this analysis to ensure consistency in metadata extraction, as the bibliometric software (Biblioshiny) used in this study is optimized for Latin-script languages and may not support multilingual data processing (Ghorbani, 2024).

After the application of these criteria and preliminary data cleaning, the initial number of retrieved records was refined and reduced to a final dataset of 701 articles (Figure 1). The bibliometric analysis was conducted using Biblioshiny, a web interface built on the Bibliometrix R package (Aria & Cuccurullo, 2017)(http://www.bibliometrix.org). This tool facilitated the extraction of key bibliographic indicators and enabled the visualization and interpretation of the intellectual and thematic structure of the field.

3. Analysis And Results

3.1 Descriptive Analyses and Visualization

This study examined scholarly output on online reviews published between 1990 and 2024. A total of 701 articles were analyzed, spanning 322 different journals and authored by 1,529 researchers over 34 years. On average, each document received 22 citations, with 2.18 authors per article and a collaboration index of 2.32. Notably, 96% of publications were co-authored, while only 4%—involving 60 authors—were single-authored studies (Table 1).

Figure 2 illustrates the annual distribution of publications and corresponding citations across the observed period. Early academic interest in online reviewing emerged in the 1990s, with steady growth leading to 21 publications by 2011. One of the earliest and most impactful studies, published in 2008, has garnered nearly 1,000 citations, indicating strong foundational influence. From 2012 to 2018, publication output surged dramatically, multiplying nearly 15-fold to reach 301 papers, signaling the beginning of a more mature and prolific phase in the field. The momentum continued, with 420 papers published between 2019 and 2024 alone.

The citation analysis further underscores the scholarly impact of this field. The peak occurred in 2015, with 2,303 total citations, an average of over 59 citations per article and 9 citations per year, highlighting not only growing interest but also the increasing quality and relevance of the research being produced.

Table 1 : *Main Information*

Description	Results	Description	Results
Main information about data		Main information about the data	
Timespan	1990:2024	Authors	
Sources (Journals, Books, etc)	322	Authors	1529
Documents	701	Author Appearances	2158
Average years from publication	3.1	Authors of single-authored documents	60
Average citations per document	22.13	Authors of multi-authored documents	1469
Average citations per year per doc	3.906	Authors Collaboration	
References	32908	Single-authored documents	69
Document Types		Documents per Author	0.458
article	701	Authors per Document	2.18
Keywords Plus (ID)	1892	Co-Authors per Documents	3.08
Author's Keywords (DE)	1935	Collaboration Index	2.32

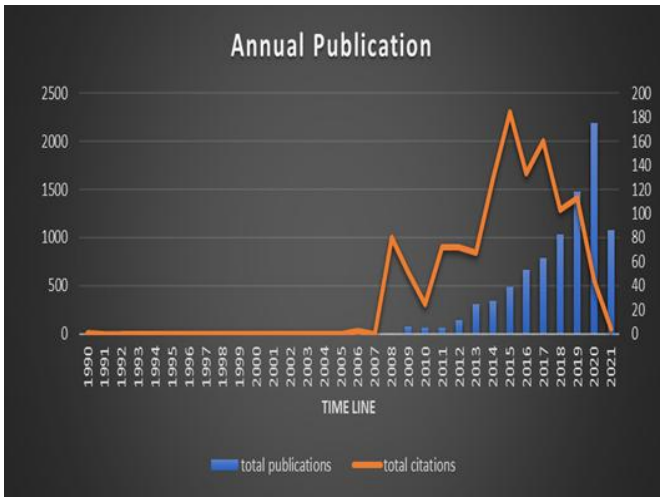


Figure 2: *Yearly publication and time trend*

3.1.1. Most productive authors

The top 10 authors in terms of total publications are listed in the table below (Table 2). Law R, Fan ZP, Wang H, and Liu Y are the top four authors, collectively they published 36 (5%) papers in online reviewing analysis. Dens N, Mattila AS, and Moro S contributed to seven research studies each. The rest of the authors show six studies each.

Table 2: *Most impactful authors*

N*	***Authors***	***Articles***	***Articles Fractionalized***
1	*Law r*	*10*	*2.78*
2	*Fan zp*	*9*	*2.70*
3	*Wang h*	*9*	*3.58*

4	*Liu y*	*8*	*5.27*
5	*Dens n*	*7*	*2.17*
6	*Mattila as*	*7*	*2.17*
7	*Moro s*	*7*	*2.87*
8	*Bi jw*	*6*	*1.83*
9	*De Pelsmacker*	*6*	*2.17*
10	*Nilashi m*	*6*	*1.02*

The co-authorship network displayed in Figure 3 illustrates collaborative relationships among leading authors in the field of online reviewing. The network comprises two distinct clusters, represented by blue and red nodes, indicating two major research communities. Each node represents an author, while the connecting edges signify co-authorship links. The red cluster, prominently centered around authors such as Zhang, Liu, Lee, and Wang, exhibits dense interconnections and the highest level of collaboration, suggesting a strong cohesive research community (Lee et al., 2020; Liu & Park, 2015; Wang, 2018). In contrast, the blue cluster, anchored by authors like Mudambi, Dellarocas, and Chevalier, also shows internal cohesion but appears to operate somewhat independently from the red group (Chevalier & Mayzlin, 2006; Dellarocas, 2003; Mudambi & Schuff, 2010). Despite the robust collaboration within each cluster, minimal cross-cluster interaction reflects a fragmented authorship landscape. This lack of interconnectivity presents an opportunity for greater interdisciplinary and cross-regional collaboration across research networks in the online reviewing field. The size of each node reflects the author's productivity or influence, with Zhang, Liu, and Hu standing out as the most central and prolific contributors. Overall, the network highlights both the strength of intra-group collaboration and the need to bridge structural gaps between major clusters to foster more integrated research development in online reviewing.

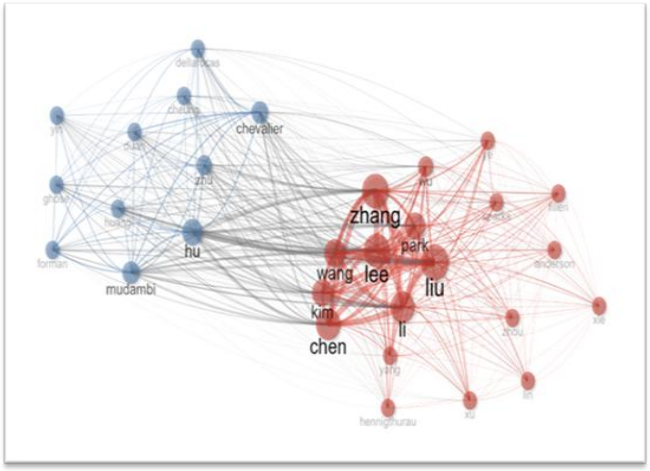


Figure 3: *Authors Collaboration Network (30 nodes, 1 minimum edge)*

3.1.2: Most cited papers

Bibliometric indicators such as total citations (TC) and citations per year (TC/year) are often used to identify pioneering or highly influential research within a given field. As shown in Table 3, the most cited papers in the domain of online reviewing reflect key contributions that have shaped academic discourse and practical understanding. Leading the list is Duan et al. (2008), whose empirical study on the relationship between online reviews and product sales has received 996 citations, marking it as the most influential work in this area.

Notable contributions also include Sparks & Browning (2011), who explored the impact of reviews on hotel booking intentions, and Filieri &

McLeay (2014), who examined trust factors in electronic word-of-mouth (e-WOM) in the accommodation sector. Ye et al. (2009) is another significant work, focusing on sentiment classification to forecast product success. These studies have each accumulated several hundred citations, reflecting their sustained relevance in academic and industry research. Interestingly, the most recent influential work in the sample comes from Cheng & Jin (2019), who have already received 643 citations. This rapid citation growth indicates the study's high impact and emerging significance in current scholarly discussions. Overall, the high citation counts and consistent annual citation rates of these works demonstrate their foundational role in advancing the study of online reviews.

Table 3: *Most cited papers*

Authors	Articles	TC	TC /Year	Normalized TC
Duan et al. (2008)	Do online reviews matter? An empirical investigation of panel data.	996	71.14	1
Sparks & Browning (2011)	The impact of online reviews on hotel booking intentions and perception of trust.	714	64.91	3.97
Cheng & Jin (2019)	What do Airbnb users care about? An analysis of online review comments	643	54.63	4.56
Ye et al. (2009)	Sentiment classification of online reviews to travel destinations by supervised machine learning approaches.	388	29.85	3.66
Filieri & McLeay (2014)	E-WOM and Accommodation: An Analysis of the Factors That Influence Travelers' Adoption of Information from Online Reviews.	363	45.38	6.07
Liu & Park (2015)	What makes a useful online review? Implications for travel product websites.	357	51	6.05
Hu et al. (2012)	Manipulation of online reviews: An analysis of ratings, readability, and sentiments.	273	27.3	3.33
Xiang et al. (2017)	A comparative analysis of major online review platforms: Implications for social media analytics in hospitality and tourism.	268	53.6	8.42
Schuckert et al. (2015)	Hospitality and Tourism Online Reviews: Recent Trends and Future Directions.	244	34.86	4.14
Filieri (2015)	What makes online reviews helpful? A diagnosticity-adoption framework to explain informational and normative influences in e-WOM.	236	33.72	3.4
Zhang et al. (2014)	Examining the influence of online reviews on consumers' decision-making: A heuristic–systematic model.	209	26.13	3.5

3.1.3: Most Productive Affiliations

Figure 4 illustrates the most relevant affiliations contributing to research on online reviewing. The top 20 institutions collectively account for over

30% of the total publication output in this field, highlighting the concentration of scholarly activity within a relatively small number of academic centers. The top five institutions alone are responsible for approximately 14.3% of the total articles (100 papers), showcasing their leadership in shaping this domain.

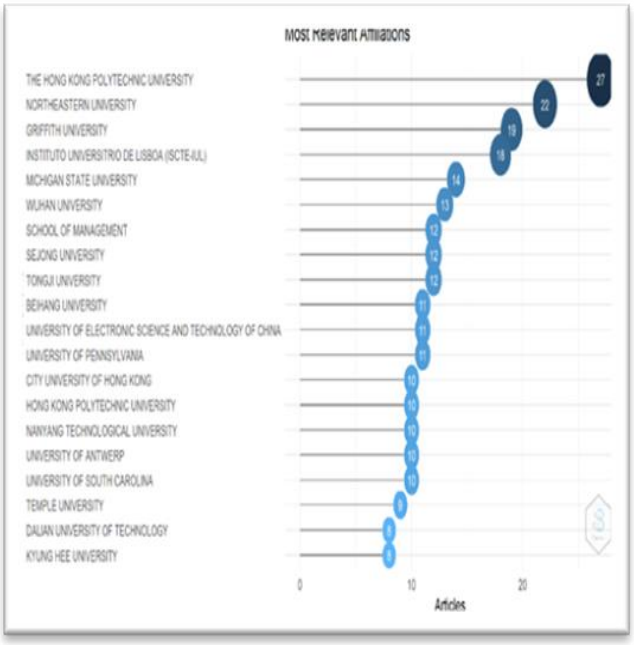


Figure 4: *Most Relevant Affiliations*

The most prolific institution is the Hong Kong Polytechnic University, contributing 27 articles (≈4%). It is followed by Northeastern University in the United States with 22 publications (≈3.2%), Griffith University in Australia with 19 (≈3%), the University Institute of Lisbon in Portugal with 18 (≈2.7%), and Michigan State University with 14 (≈2%). This geographic diversity across China, the USA, Australia, and Portugal reflects the global interest and collaborative nature of online review research.

Among the most active countries, the United States ranks first in terms of total citations (3,958), followed by China with 3,294 citations (Figure 5). In terms of research productivity, however, China leads with 173 publications, while the U.S. follows with 149. Together, these two countries account for nearly 46% of the total scholarly output on online review analysis, underscoring their dominant role in advancing the field.

The country collaboration network (Figure 6) further reveals a strong triangular partnership among institutions in China, the United States, and Hong Kong. The most active bilateral collaborations are between the U.S. and China (41 co-authored papers), followed by China and Hong Kong (28), and the U.S. and Hong Kong (16). This pattern reflects a robust and growing network of international cooperation in online review research.

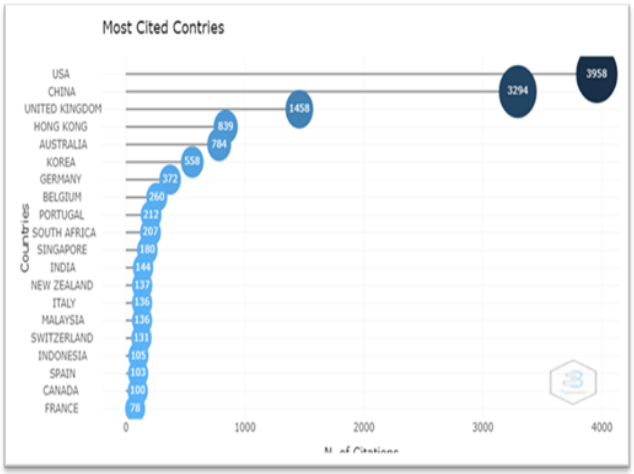


Figure 5: *Most cited countries*

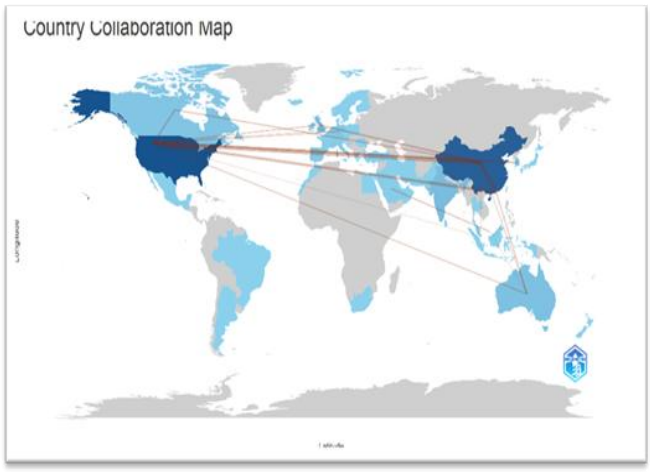


***Figure 6**: Countries' collaboration network*

3.1.4 Most frequent journals

The sample of 701 articles on online reviews was published across 322 academic journals, highlighting the field's broad interdisciplinary reach. Notably, nearly 20% of these publications appeared in just 10 journals (Table 4), indicating a concentration of influential research within a select group of outlets. Leading the list is Decision Support Systems, which published 23 articles (3.28%) and holds the highest citation count at 2,468 total citations. This journal also featured the field's most cited paper, Duan et al. (2008), which alone accounts for nearly 1,000 citations, establishing it as a foundational study on the significance of online reviews.

Other high-impact journals, though each with fewer than 20 articles, have played key roles in advancing the literature. These include Tourism Management (17 papers), International Journal of Hospitality Management (18), Journal of Business Research (13), Journal of Interactive Marketing (10), and Journal of Travel Research (8). Collectively, these outlets represent the core publication platforms for research on online reviews, spanning disciplines such as marketing, tourism, information systems, and hospitality. In contrast, the remaining journals contributed smaller volumes and together accounted for fewer than 500 total citations, suggesting a more peripheral impact on the field.

Table 4: *Most relevant publication outlets*

R	Journal	N*	R (TC)	H_index	PY_start
1	Decision Support Systems	23	2468	17	2008
2	International Journal of Hospitality Management	18	584	12	2015
3	Tourism Management	17	1977	13	2011
4	Journal of Business Research	13	672	11	2015
5	International Journal of Contemporary Hospitality Management	12	321	10	2015
6	Journal of Retailing and Consumer Services	12	242	8	2014
7	Journal of Interactive Marketing	10	609	9	2009
8	Electronic Commerce Research	9	344	8	2013
9	Online Information Review	9	93	6	2014
10	Journal of Travel Research	8	545	5	2014

3.1.5 Most frequent keywords

The word cloud image visualizes the most frequent keywords used in publications related to online reviews (Figure 7). Dominating the visual are terms like "online review," "sentiment analysis," and "text mining," indicating these are central themes in the literature. Other prominent keywords such as "social media," "customer satisfaction," "user-generated content," "eWOM," and "review helpfulness" highlight the interdisciplinary nature

of the field, intersecting with marketing, data science, and consumer behavior.

Emerging analytical approaches are reflected in keywords like “machine learning,” “opinion mining,” and “big data,” signaling the growing use of computational methods in analyzing online reviews. The presence of terms such as “trust,” “purchase intention,” and “TripAdvisor” points to real-world applications, particularly in hospitality, e-commerce, and digital marketing contexts.

Figure 7*: World Cloud of Keywords Plus*

Overall, the keyword cloud captures both the thematic diversity and methodological evolution in online review research.

3.2 Network analysis

3.2.1. Co-citation analysis

To identify the foundational literature in the field of online reviewing, a co-citation network was constructed using the top 20 most co-cited articles, with a citation threshold set at 29 (Liu & Park, 2015). As shown in Figure 8, each node represents a highly influential publication, while the size of the node indicates its co-citation frequency. The thickness and proximity of links between nodes reflect the strength of their intellectual connection, suggesting how often these works are cited together within the same studies (Aria & Cuccurullo, 2017).

The network reveals two distinct clusters, visually distinguished by color. The red cluster represents a dominant core of foundational works, tightly interconnected, with Chevalier and Mayzlin (2006) and Forman et al. (2008) occupying central positions. These papers, often cited together, are key references in understanding the economic impact and trust dynamics of online reviews. Also notable in this cluster are influential contributions from Dellarocas (2003), Sen and Lerman (2007), and Mudambi and Schuff (2010) , all of whom focus on themes like review helpfulness, credibility, and consumer behavior in digital contexts.

In contrast, the blue cluster is more loosely connected but represents a distinct research trajectory, emphasizing tourism, hospitality, and sentiment analysis. Authors such as Sparks and Browning (2011), Ye et al. (2009, 2011) , Xiang and Gretzel (2010), and Litvin et al. (2008) are central here, focusing on how online reviews influence travel decisions, hotel bookings, and destination perception. This division suggests a disciplinary divergence, with the red cluster rooted in information systems and e-commerce and the blue cluster emerging from tourism and service management literature.

An important observation is the limited linkage between the two clusters, indicating that while both

groups of studies are influential; they may exist somewhat independently in terms of research conversation. This presents an opportunity for cross-disciplinary integration, where future research could bridge these streams by combining consumer behavior models from tourism with algorithmic and credibility frameworks from e-commerce and information systems.

Overall, the co-citation network map effectively highlights the intellectual structure of the field, showing how clusters of thought have developed and identifying which works serve as cornerstones for ongoing research in online reviewing. The central position and dense connections of certain papers underscore their paradigm-shaping influence, making them essential references for scholars entering or expanding within this domain.

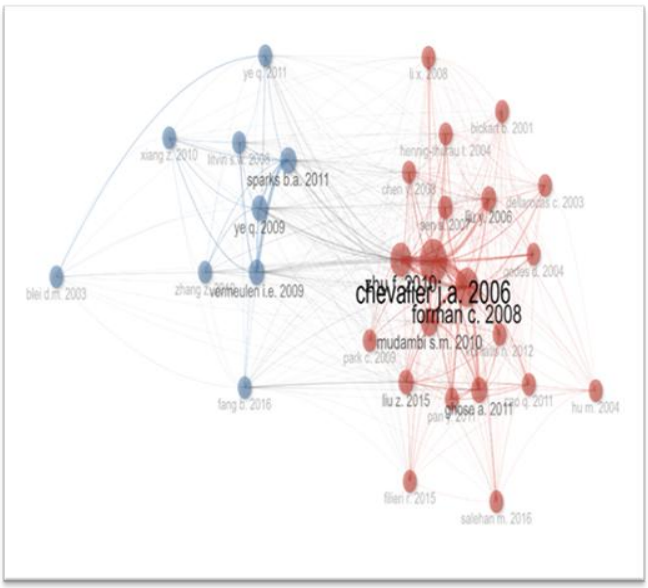


Figure 8: *Co-Citation network of papers*

3.2.2. Co-word analysis

The co-word network analysis provides a thematic mapping of the most frequently co-occurring keywords in online review research (Figure 9). The network is divided into two major clusters: the red cluster, which is more densely connected, centers on technical and analytical themes such as "online reviews," "sentiment analysis," "data mining," "customer satisfaction," "text mining," and "sales." This cluster represents the computational and decision-making dimension of the field, emphasizing machine learning techniques, predictive analytics, and their applications in e-commerce and consumer behavior.

In contrast, the blue cluster focuses on broader social and human-centric concepts, with dominant terms like "internet," "human," "perception," and "patient satisfaction." This side of the network reflects research grounded in psychology, healthcare, and communication studies, exploring how individuals interact with digital information, particularly in the context of online platforms and information systems.

The central bridging nodes, such as “decision making” and “electronic commerce”, suggest a convergence between technical and human-oriented studies. Overall, the map reveals a bifurcated structure of the literature, where computational methods intersect with user-centric concerns, highlighting the interdisciplinary nature of online review research.

Figure 9: *Co-word Network Analysis*

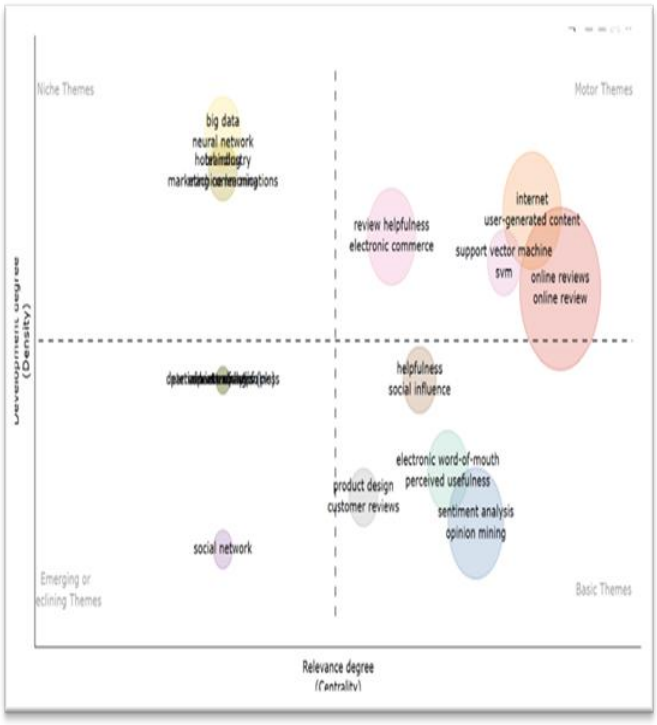
The co-citation and co-word networks reveal thematic clusters centered on “trust”, “AI-enhanced analysis”, and “consumer behavior”. These clusters reflect how research has grown from isolated

computational models to integrated frameworks that combine behavioral insight and algorithmic precision.

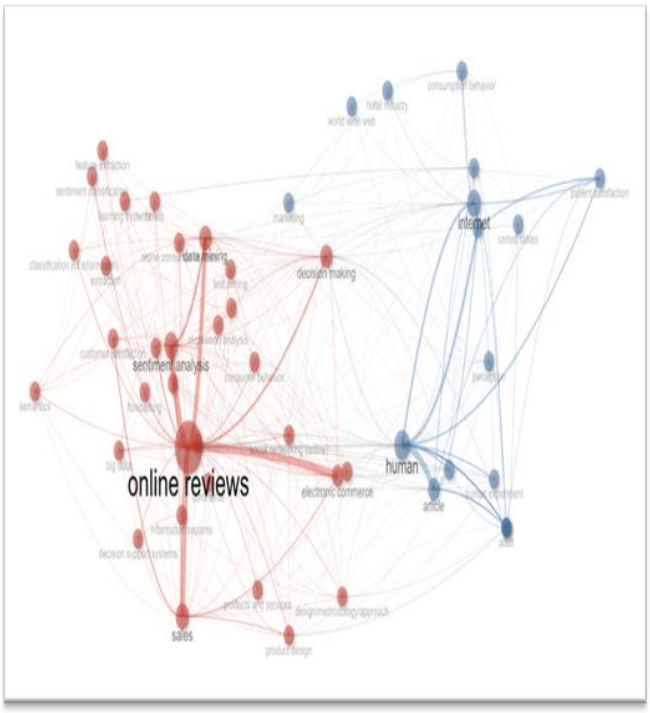
3.2.3: Thematic Evolution:

Thematic evolution analysis provides insight into how the field of online review research has developed over time, revealing shifts in focus, maturity of subfields, and the introduction of new methodologies and perspectives. The strategic diagrams for the periods 1990–2010, 2011–2020, and 2021–2024 illustrate this progression using two key dimensions: centrality (relevance within the field) and density (degree of development) (Figures 10-12). Themes are mapped accordingly into four quadrants, Motor Themes (central and well-developed), Basic Themes (central but underdeveloped), Niche Themes (well-developed but peripheral), and Emerging or Declining Themes (both peripheral and underdeveloped) (Khazaneha et al., 2022; Singh et al., 2023).

In the foundational period of 1990–2010 (Figure 10), research was primarily exploratory, laying the groundwork for what would become core themes. Keywords like "online reviews," "sentiment analysis," and "user-generated content" appeared prominently in the Motor and Basic Themes quadrants, indicating their early emergence as essential concepts. Technical terms such as "support vector machine (SVM)," "big data," and "neural network" surfaced as niche themes, reflecting early experimentation with computational approaches to textual data. Meanwhile, keywords like "social network" and



"product design" remained in the lower-left



quadrant, suggesting that while present, they were either nascent or losing momentum during this phase.

Between 2011 and 2020 (Figure 11), the field entered a phase of thematic diversification and

theoretical consolidation. “Online reviews” and “social media” became dominant Motor Themes, solidifying their role as pillars of the field. New research directions emerged around marketing and

Figure 10: *Thematic Evolution Time Slice 1990-2010*

consumer behavior, with “brand equity,” “purchase intention,” “consumer emotion,” and “electronic word-of-mouth (eWOM)” gaining relevance. Sentiment analysis, while still highly central, remained a Basic Theme, indicating continued use but less theoretical innovation. Meanwhile, latent semantic analysis, managerial response, and topic modeling began to appear as emerging or marginal areas, signaling methodological exploration. This period also witnessed the integration of psychological and cultural dimensions, suggesting a more human-centered focus in online review research.

Figure 11: *Thematic Evolution Time Slice 2011-2020*

In the most recent period, 2021–2024 (Figure 12), the “COVID-19 pandemic” catalyzed a notable shift in research priorities, with a surge in studies addressing emotional engagement and digital trust. Themes such as misinformation, authenticity, and review manipulation gained prominence as user reliance on online reviews intensified during lockdowns. Simultaneously, AI-based methods like deep learning and natural language processing became central, reflecting a methodological leap. Specialized areas such as “extreme rating” and “review helpfulness” have developed into Niche Themes, while earlier topics such as “customer satisfaction” and “online consumer reviews” have shifted toward the Emerging or Declining quadrant, possibly due to conceptual saturation or shifting research priorities.

Taken together, the thematic evolution from 1990 to 2024 demonstrates a clear trajectory in online review research, from foundational exploration and descriptive studies to methodologically sophisticated, interdisciplinary, and ethically engaged inquiries. The field has matured from a focus on the mechanics of review systems to encompassing machine learning techniques, psychological drivers, credibility concerns, and real-world implications. This evolution not only underscores the depth and breadth of research in the domain but also highlights the growing importance of integrating technology, human behavior, and trust mechanisms in understanding the role and impact of online reviews across industries.

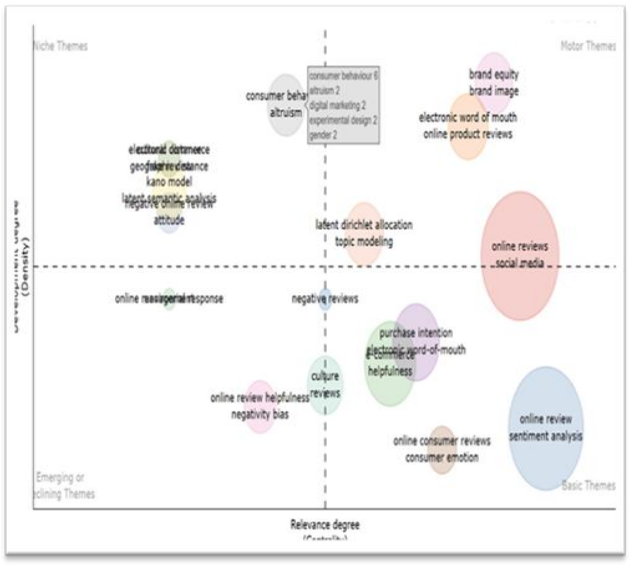


Figure 12: *Thematic Evolution Time Slice 2021-2024*

4. Conclusion

This study presents a comprehensive bibliometric analysis of scholarly research on online reviews spanning the period from 1990 to 2024. Drawing upon a dataset of 701 journal articles from the Scopus database, the analysis systematically mapped the intellectual structure, thematic evolution, and collaborative patterns within this increasingly significant field. The findings underscore online review research's dynamic and multidisciplinary nature, situated at the intersection of marketing, information systems, hospitality, and data science.

The analysis identified several pivotal contributions that have shaped the trajectory of the field, including foundational studies by Duan et al. (2008), Sparks & Browning (2011), and Filieri & McLeay (2014). Co-citation and keyword analyses revealed a field characterized by both thematic richness and structural fragmentation, with limited cross-pollination between distinct author clusters. While computational approaches—such as sentiment analysis, machine learning, and natural language processing—have gained prominence, themes related to trust, credibility, and user behavior continue to anchor the discourse, reflecting a synthesis of technical and behavioral perspectives.

The thematic evolution mapping highlights a clear shift over time: from exploratory and technical emphases in the early decades to theory-driven and applied research in consumer behavior and tourism during the mid-2010s and, more recently, to trust-oriented and AI-enhanced approaches. The rise of topics such as online review authenticity, deep learning, and review helpfulness reflects the field's response to contemporary challenges surrounding information credibility and digital influence.

Despite its comprehensive scope, the study acknowledges certain limitations. The reliance on a single database (Scopus) and the exclusion of non-journal publications and non-English/French literature may constrain the generalizability of the findings. Furthermore, while robust for mapping research trends and structures, bibliometric techniques do not capture the nuanced content and theoretical contributions of individual studies.

Future research would benefit from expanding the data sources to include additional databases such as Web of Science or Google Scholar, incorporating qualitative content analysis, and exploring cross-linguistic and cross-cultural dynamics in online reviewing behavior.

To address the methodological and ethical gaps identified in the literature, future studies should aim to bridge gaps in institutional collaboration and develop cross-disciplinary methodologies. In particular, integrating blockchain technologies for review authentication, multilingual sentiment analysis, and ethics-centered AI models will be vital in addressing the next generation of research challenges in online reviewing (Hakim et al., 2024; Hakim & Bahari, 2021). These directions align with emerging innovations such as generative AI and personalized recommender systems, which promise to further shape the future of user-generated content analysis.

In conclusion, this study contributes to the literature by offering a holistic overview of the development, diversification, and maturation of online review research. It serves as a valuable reference for scholars seeking to navigate the field's intellectual terrain and for practitioners aiming to harness the power of online reviews for strategic decision-making in an increasingly digital and data-driven world.

Ethical Statement

This study is based entirely on secondary data retrieved from the Scopus database. All bibliometric data used, including publication metadata, citations, author affiliations, and keywords, were obtained from publicly accessible sources in accordance with Scopus's terms of use. No human subjects, personal data, or confidential information were involved in this research.

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