

Looking at two Decades of OTA Research: A Bibliometric Approach

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Abstract: Online Travel Agencies (OTAs) have profoundly influenced the hospitality and tourism industry, necessitating an understanding of the evolution of OTA research. This study employs bibliometric analysis to examine the progression, thematic structure, and future directions of OTA research from 2000 to February 2024. By analyzing publication trends, the study illustrates the increasing significance of OTA research, evidenced by its growing volume and acceleration rate. Three dominant themes—satisfaction, management and service quality, and consumer behavior—were identified, alongside five key co-citation clusters, including online reviews and eWOM, research methods and theory development, and channel distribution strategies. Co-word analysis revealed shifting focal points in OTA research, transitioning from loyalty (2005) to trust (2012) and behavior (2021). Co-word analysis further revealed shifting trends in OTA research, from loyalty (2005-2012) to trust (2012-2021) and behavior (mid-2021 onwards). Thematic analysis identified pivotal intellectual milestones, with revenue management and pricing strategy emerging as themes of high centrality but low knowledge development, emphasizing their importance yet underdeveloped state. This research recommends exploring collaborations between OTAs and hospitality stakeholders, including contracts, commissions, convergent marketing, and co-branding, while incorporating advancements in artificial intelligence and digital transformation. Therefore, future studies are recommended to incorporate these advanced analytical methods to present the most up-to-date ideas. In light of changing consumer behaviors driven by trends like post-COVID-19 risk aversion, digital transformation, and health consciousness, this study encourages research into subthemes such as solo travel and smart purchasing. This comprehensive analysis synthesizes two decades of OTA literature, offering a holistic view of its knowledge structure and progression. It provides valuable insights for both academia and practitioners by presenting an integrated overview of OTA research, identifying gaps, and proposing strategic directions. This study advances OTA research in hospitality and tourism, paving the way for future investigations of its industry impact.

Keywords: Online travel agencies, Bibliometric analysis, Consumer behavior, Digital transformation, Revenue management

1. Introduction

OTAs have transformed hospitality through technology investments and a focus on hotels (Lv et al, 2020). By 2022, online channels generated \$475 billion in travel revenue, projected to surpass \$1 trillion by 2030. Booking Holdings and Expedia reported 2022 revenues of \$17 billion and \$12 billion, respectively, with hotels as the main product (Statista, 2024). OTA research covers hotel partnerships (Chen, 2023; Abdullah et al, 2021), pricing strategies (Alderighi et al, 2022), consumer behavior (Zhu et al, 2023; Talwar et al, 2020), and service quality (Khan et al, 2023). However, systematic reviews and bibliometric analyses of OTA research remain scarce (Garcia et al., 2022). Existing reviews focus on online booking (Li & Zhu, 2022), social media (Azazi & Shaed, 2020), and broader technological trends (Shin et al., 2022), but lack a dedicated synthesis of OTA research. This absence limits understanding of how OTA research has evolved in terms of publication growth, shifting thematic priorities, and methodological developments. Without such an analysis, researchers and practitioners lack insights into key intellectual milestones, underexplored areas, and emerging trends shaping OTA scholarship. Therefore, given OTAs' dynamic impact on the industry, a structured overview is essential for guiding future studies and practice. Addressing such a gap, this study aims to: 1) signify the growing importance of OTA research, 2) analyzing publication trends and growth patterns, 3) identifying thematic shifts over time, 4) mapping methodological advancements, and 5) propose future research directions. Using comprehensive bibliometric analyses—descriptive, citation, co-citation, bibliographic coupling, co-word, and thematic mapping—it synthesizes two decades of research to provide insights for future studies and evidence-based guidance for industry practitioners.

2. Methodology

This study employs a two-step scoping review approach, integrating bibliometric analysis and qualitative synthesis to examine the evolution of OTA research (Munn et al, 2018). Bibliometric analysis maps publication trends, intellectual structures, and thematic progressions, using bibliographic clustering to identify research themes (Pournader et al., 2020), which has been used in hospitality research domains (Shin et al, 2022). A qualitative synthesis refines these findings, ensuring validity by having both the author and a tourism and hospitality professor from the University of Guelph independently review and discuss the top five most-cited articles per cluster (Arksey & O'Malley, 2005). Following PRISMA framework (Figure 1), data was extracted from Web of Science using specific keywords ("Online Travel Agency" OR "Online Travel Agencies") and refined

through inclusion criteria (peer-reviewed, 2000–2024, reputable publishers) (Mariani & Baggio, 2021). The initial search on February 22, 2024, retrieved 365 articles. After applying criteria like reputable publishers (Mokhtari et al, 2020) and filtering for full-length English articles from 2000-2024 (Garcia et al, 2022), the dataset was refined. After excluding irrelevant fields and content, 108 articles were finalized for analysis. While reliance on Web of Science may limit comprehensiveness, future studies could incorporate Scopus or Google Scholar for broader coverage.

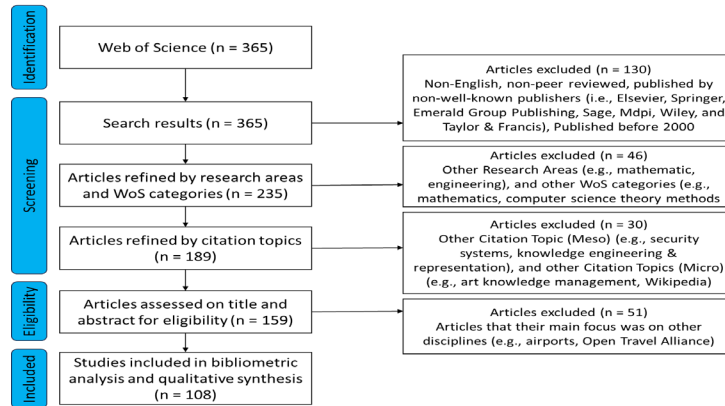


Figure 1: PRISMA Flowchart

3. Overall Description of OTA Research

OTA research grew steadily from 2005-2023, peaking in 2010 and 2016. The 2024 decline is likely due to early-year data collection. Tourism Management leads journal contributions (10%), followed by International Journal of Hospitality Management (7.4%), Sustainability (6.5%), International Journal of Contemporary Hospitality Management (5.5%), and Journal of Vacation Marketing (5.5%).

Law is the most productive and locally cited author, with Guo and Ling following. Globally, Ye et al (2011) is the most cited study on user-generated content's impact on tourism, while Kim et al (2007) leads locally, followed by Ling et al (2014) and Chang et al (2019). Key topics include OTA attributes and consumer perception (Pan et al, 2012), pricing strategies (Ling et al, 2014), OTA quality (Chang et al, 2019), hotel-OTA cooperation (Ling et al, 2014; Chang et al, 2019), barriers to purchase intentions (Talwar et al, 2020), and consumer behavior (Pan et al, 2013). OTA research citations peaked in 2011 and 2020, with 2011 seeing the highest numbers. China leads contributions, followed by the U.S. and Spain.

4. Science Mapping and Coupling Analysis

A coupling map has two axes: centrality (x-axis) and impact (y-axis). Centrality, measured by Callon’s Centrality index, identifies influential clusters, while impact is assessed using Mean Normalized Local Citation Score. The coupling analysis revealed three research themes: satisfaction (moderate centrality and impact), management (high centrality and impact), and service quality and behavior (low centrality and impact), as depicted in Figure 2. These themes encompass various subthemes.

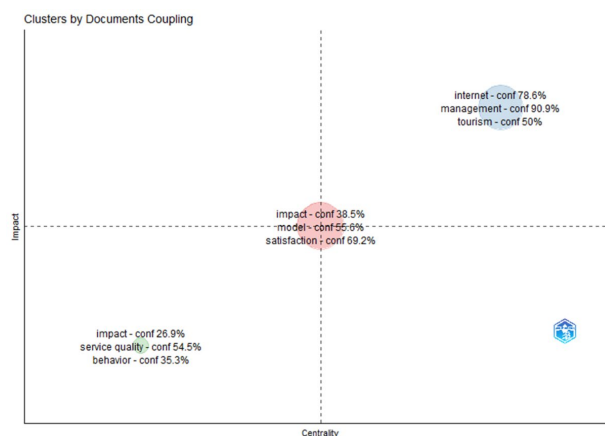


Figure 2: Coupling Map

4.1 Satisfaction

OTA satisfaction is determined by meeting online consumers' expectations for convenient travel service purchases (Table 1). Key subthemes include customer perception, value co-creation, innovation, brand perception, and loyalty. Subthemes were identified through qualitative analysis of clustered documents, focusing on the top influential papers in each cluster. Talwar et al (2020) and Chang et al (2019) provide the most notable contributions to understanding OTA satisfaction.

Table 1: The top ten influential papers in the Satisfaction theme

Study	Publication source	Local citation score	Purpose	Author Keywords	Key findings
Talwar et al. (2020)	International Journal of Hospitality Management	4.58	To extend the innovation resistance theory (IRT) to examine the barriers to positive purchase intentions toward OTAs	Consumer barriers; Hygiene consciousness; Innovation resistance theory (IRT); Purchase intentions; Resistance; Visibility	The benefits barrier primarily inhibits purchase intentions, while privacy and security concerns, along with the vulnerability barrier, positively influence them. Visibility moderates the relationship between the benefits barrier and purchase intentions, with this effect varying across age groups.
Chang et al. (2019)	Tourism Management	4	To investigate how OTAs and hotels cooperate and compete with each other at the same time in the multichannel environments.	Cooperation; competition; Online travel agency; hotel; O2O commerce	OTAs can attract new and returning customers through website service quality, while hotels rely on perceived value to attract returning customers. However, OTA website service quality negatively impacts the intention to rebook through hotel websites, and the intention to rebook through OTA and hotel websites is negatively correlated. Thus, these two channels compete for customers' future visits.
Chen & Kao (2010)	The Service Industries Journal	1.6	To conceptualizes e-service quality process quality and outcome quality - and explores the relationships between process quality, outcome quality, satisfaction, and behavioural intentions in the context of online travel agencies.	process quality; outcome quality; satisfaction; behavioural intentions; online travel agency	Process quality and outcome quality have significantly direct and positive effects on satisfaction. In addition, there exists a significant influence of satisfaction on behavioural intentions
Tsang et al. (2010)	Journal of Travel & Tourism Marketing	1.07	To explore the underlying dimensions used by online customers to evaluate the e-service quality of online travel agencies	E-service quality; online travel agency; website; perception	Factor analysis identifies six dimensions of e-service quality: Website Functionality, Information Quality and Content, Fulfillment and Responsiveness, Safety and Security, Appearance and Presentation, and Customer Relationship. Among these, Website Functionality, Information Quality and Content, Safety and Security, and Customer Relationship significantly influence overall satisfaction and repurchase intentions. Multiple regression analysis reveals that Website Functionality is the strongest predictor of customer satisfaction and repurchase intentions.
Liu et al. (2023)	SUSTAINABILITY-BASEL	1	To reveal the impact of tourist operant resources on online citizenship behavior from the perspective of interactions between tourists and online travel agencies (OTAs).	sustainable tourism; tourist operant resources; online citizenship behavior; knowledge distance; resource integration capability; value co-creation	Tourist operant resources are positively linked to online citizenship behavior, with perceived value (functional and emotional) partially mediating this relationship. Knowledge distance between tourists and OTA service personnel has an inverted U-shaped moderating effect on the link between tourist operant resources and functional value but does not affect the relationship with emotional value. Resource integration capability positively moderates the impact of tourist operant resources on both functional and emotional values.
Chen et al. (2023)	Journal of Theoretical and Applied Electronic Commerce Research	1	To explore the effect of price discrimination on the fairness perception toward reservation intentions. Also, to examine the interaction effects of the brand familiarity and the type of consumers on the fairness perception.	online hotel booking; fairness perception; price discrimination; brand familiarity; regulatory focus	Advantaged-price discriminations had higher fairness perceptions than equal-price discriminations, and that higher fairness perceptions had higher reservation intentions. The interaction effect of brand familiarity showed no significant impact on the fairness perceptions, while the regulatory focus had a mitigating effect on the price discrimination and on the fairness perceptions
Chu (2023)	Journal of the Knowledge Economy	1	To develop an academic framework for identifying the impact of business innovation practices on performance and firm survival strategies, and to understand the role of new technologies in mitigating the pandemic's effects and fostering sustainable business performance.	Innovative practices; Survival strategy; New technology adoption (digital transformation); Online travel agency (OTA); Coronavirus crisis	OTAs fill the gap in the free travel market with live-stream conferences offering flexible, innovative, and content-driven approaches. They can form strategic partnerships during crises to strengthen their competitive edge. Additionally, integrating AR/VR, AI, and big data enhances service quality, reduces information gaps, boosts travel security, and supports industry decentralization.
Kumar & Shankar (2023)	Australasian Marketing Journal	1	To investigate how consumers respond to online recovery strategies in response to a service failure in the OTAs context, and to examine the role of justice and forgiveness in the online service recovery process.	service failure; online travel agencies (OTA); justice; forgiveness; online service recovery strategies; repatronage behaviour	Response speed, explanation, courtesy and problem-solving are crucial online recovery strategies. Consumers' perceived justice and forgiveness play a crucial role in the online recovery process; Five solutions (i.e. various combinations of causal antecedents) could facilitate the formation of repatronage intention.
Li et al. (2023)	Heliyon	1	To investigate the experience and attention distribution of outbound tourists based on the two-factor theory.	Grounded theory; Hygiene factors; Motivational factors; Outbound tourists; Tourism experience	Outbound tourists prioritize motivational factors, such as interpersonal service attributes and inherent emotional components. These factors play a crucial role in stimulating travel motivation and crafting memorable experiences. Moreover, hygiene factors, like infrastructure and security conditions, also impact tourists' experiences and are crucial for reducing dissatisfaction among outbound travelers.
Khan et al. (2023)	Sustainability	1	To ascertain the leading attributes of selected travel websites based on sustainable e-service quality.	e-service quality; sustainable e-services; tourism websites; AHP; TOPSIS; sensitivity analysis	Security, hedonic value, and efficiency were the most important drivers of SESQ that influenced customers' selection of travel websites, and makemytrip.com was the most preferred travel website by customers.

4.1.1 Customer perception and satisfaction

E-service quality significantly influences OTA customer satisfaction, with website functionality emerging as the strongest predictor (Tsang et al., 2010). While service quality (Khan et al., 2023), perceived value (Liu et al., 2023), and website interactivity (Talwar et al., 2020) enhance customer perception, the role of service recovery (Kumar & Shankar, 2023) remains underexplored. Price and security are critical attributes (Kim et al., 2007), but evolving digital behaviors suggest a growing need to integrate hedonic and epistemic values beyond utilitarian benefits (Chen et al., 2022). Future research should examine how AI-driven personalization and omnichannel strategies shape OTA service experiences.

4.1.2 Value co-creation and innovation

Value co-creation in OTAs relies on stakeholder resource integration (Hughes et al., 2018), where tourists' functional and emotional value perceptions shape online engagement (Liu et al., 2023). While interpersonal service and hygiene factors remain priorities (Li et al., 2023), emerging technologies like AR/VR, AI, and big

data are redefining service quality and security (Chu, 2023). However, research lacks clarity on how these innovations reshape consumer expectations and long-term loyalty. Future studies should explore the balance between technology adoption and human interaction in value co-creation.

4.1.3 Brand perception and loyalty

Brand selection in OTAs is shaped by self-perception (Belanche et al., 2021) and familiarity (Chen et al., 2023), with sentiment playing a crucial role in brand attitudes (Chen et al., 2022). Factors like education, tourism spending, and travel frequency influence logo recognition (Godlewski & Zalech, 2022), while celebrity endorsements enhance trust (Qiu et al., 2021). However, fairness perceptions in price discrimination vary based on regulatory focus (Chen et al., 2023), raising questions about ethical pricing and long-term brand loyalty. Future research should examine sentiment-driven brand loyalty, cultural variations in celebrity endorsements, regulatory focus in pricing fairness, and the role of AI application in OTAs' brand loyalty.

4.2 Management

This theme (Table 2) explores the relationships between OTAs, hotels, and travel suppliers, focusing on pricing, revenue management, and distribution strategies that impact operations and profitability (Long & Shi, 2017; Kim et al, 2019).

Table 2: The top ten influential papers in the Management theme

Publication source	Local citation score	Purpose	Author Keywords	Key findings
Tourism Management	2.33	To study the optimal pricing strategies of a tour operator (TO) and an OTA when they achieve the O2O model through online sale and offline service cooperation.	Cooperation; Pricing strategies; O2O model; Tour operator; Online travel agency	Service level, unit sale commission, service cost coefficient and unit service compensation coefficient have different influences on the TO's and OTA's pricing decisions. When the unit sale commission is greater than the threshold, the TO's and OTA's pricing in the Bertrand game are higher than in the Stackelberg game. Being a leader is the dominant strategy for the TO.
Journal of Travel Research	2.08	To examine the effect of wide (vs. narrow) price dispersion on hotel preference, and to investigate two boundary conditions for this effect: salience of external regular price and perception of destination uncertainty.	price dispersion; reference pricing; online travel; online travel agent; hotel choice	Travelers prefer a hotel option featuring wide price dominance dispersion. Additionally, both the presence of an external regular price and the level of uncertainty associated with the hotel destination act as moderating influences.
Journal of Travel & Tourism Marketing	2	To examine the relationship status of leading OTAs with the hotel industry in the Asia Pacific (APAC) region along with future trends in hotel distribution channels.	Asia Pacific tourism intermediaries; inter-organizational relationship; online marketing distribution; online travel agents; travel market intermediaries	Building a long-term sustainable relationship with the hotel industry requires OTAs to be innovative and capable of enhancing their value to hotels. Moreover, the future of the hotel distribution landscape in the APAC region is expected to become increasingly complex.
Tourism Review	2	To determine whether different scales and ways to collect reviews and ratings found on OTAs can affect hotels, and whether hotels obtain the same or different evaluations.	Reviews; Hotel; Scores; Scale; Online travel agency (OTA)	Booking.com (2.5-10) and Agoda (2-10) give higher ratings than Atrapalo (1-10), Travel Republic (0-10), and hotel reservation service (1-10). When rescaled to 0-10, Booking.com and Agoda have the worst ratings. Customers often aren't aware of the rating scales, leading to lost information for hotels and OTAs. Overrated hotels can create unrealistic expectations for potential customers.
International Journal of Hospitality Management	1.96	To investigate how many channels hotels in Austria, Germany and Switzerland choose and what role the various channels play.	Distribution; Multi-channels; Internet distribution systems; Online travel agencies; Cluster analysis; Distribution strategy	Traditional channels like walk-ins and telephone remain important, but about one-fifth of bookings are made online. On average, 3.61 OTAs are used. The OTA market is oligopolistic, with Swiss and German hotels more dependent on OTAs than Austrian hotels. Cluster analysis identifies four distribution portfolio groups: multi-channel, electronic, real-time, and traditional distributors. These profiles help hotels learn from strategies based on characteristics like target group and star-rating.
Journal of Hospitality & Tourism Research	1.89	To provide insights into the complex landscape of online advertising channels to support tourism organizations in formulating their marketing strategies through search engine advertising and OTAs.	cost per click; online travel agencies; search engine marketing; web marketing	An analytical model is introduced to compare the profits generated from online search engines and online travel agencies. Assuming a trade-off between different online marketing channels, the study suggests the maximum cost per click that a tourism organization should pay to benefit from search engine marketing as much as from online travel agencies.
Tourism Management	1.86	To study the optimal pricing strategy of a hotel that establishes an online distribution channel through cooperation with an OTA.	Hotel pricing management; Tourism supply chain management; Online marketplace; Online travel agencies	(1) occupancy rate of a hotel before opening online marketing is an important metric for securing cooperation with an OTA; that is, a hotel with lower occupancy rates is more inclined to cooperate with an OTA to achieve an improvement in profits; and (2) a hotel is inclined to establish an online channel through an OTA with many online customers and/or few listed hotels.
Cornell Hospitality Quarterly	1.82	To explore the complexities of the consumer decision process beyond mere page position, in which hotels that appear near the top of the list of search results or an OTA page usually get more attention and hits than those showing up lower on the page.	hotel decision making; eye-tracking; online travel agency; decision heuristics	Hotel rankings and web page position significantly influence attention. When overwhelmed by choices, people use price to narrow options. Including hotel images helps overcome information overload, making evaluations more thorough and enjoyable, and encouraging consideration of less prominent hotels. Recommendations include reducing options per page, using a nonlinear formula for conversion rates, and adding appealing images for hotels lacking other criteria.
International Journal of Contemporary Hospitality Management	1.68	To challenge the need for an over-optimization of channel strategy by proposing that the consumer, at the end, deals with a network of information presented on one networked environment, including the Web.	Hotels; Billboard effect; Multiple channel strategy; Online booking platforms; OTA	The estimated number of online bookings by the respondents in the hotels is a result of the number of channels, not the type of channel. This is particularly true for non-categorized establishments and one- and two-star hotels. The analyses do not confirm the billboard effect, according to which particular platforms (first-tier channels) increase the probability of bookings. Thus, the survival strategy is to maximize share of shelf and to build on interdependencies and network effects.
Tourism Management	1.6	To investigate various factors behind price discounts (as a type of price disparity) from a popular last-minute hotel deal app, HotelTonight, compared to major OTA websites for a better understanding of hotels' cross-channel pricing mechanisms.	Last-minute deal; Price disparity; Online reputation; HotelTonight	After controlling for other variables, price discounts are largely shaped by online reputation metrics (i.e., relative review valence and volume on TripAdvisor compared to on HotelTonight), complimentary access to services with high marginal variable costs, and uncertainty in the room type offered. However, hotels' market power does not explain price discounts.

4.2.1 OTAs' pricing strategies

OTA pricing strategies have evolved beyond simple discounts, incorporating price dispersion, external reference pricing, and time-limited offers (Choi & Mattila, 2017; Krishnan et al., 2013). Kim et al. (2019) argue that travelers prefer wide price dispersion when comparing hotels. Yet, the implications for perceived value and decision satisfaction remain underexplored. O2O collaborations show pricing variations based on service levels and commissions (Long & Shi, 2017). Higher reviews reduce last-minute discounts, while room type uncertainty increases discounts (Yang & Leung, 2018), but how these pricing mechanisms interact with consumer risk perceptions is not well understood. Price transparency remains a concern, as OTA prices fluctuate

near check-in and misalign with star ratings (Sun et al., 2015). While bundle pricing fosters loyalty, dynamic pricing reduces perceived fairness (Alderighi et al., 2022). Future research should explore how consumers navigate these complexities and how pricing transparency impacts decision confidence and brand loyalty.

4.2.2 Revenue management

Hotels balance direct bookings and OTA partnerships to manage room perishability (Hung et al., 2010), but the profitability of this reliance is debated. Cooperative strategies like demand forecasting and dynamic room availability improve revenue (Ling et al., 2015), though their long-term effects need further study. Hotels with lower occupancy rely more on OTAs, especially in markets with fewer listed hotels (Ling et al., 2014), yet the impact on brand positioning remains unclear. While optimal commission structures exist, research should further explore their influence on consumer trust, price fairness, and sustained revenue growth.

4.2.3 Distribution strategies

OTAs evolve distribution strategies through mobile platforms and hotel relationships (Yin et al, 2019). Online bookings grow, with 20% of bookings online. Distribution success depends on network effects, platform variety, and hotel ratings (Beritelli & Schegg, 2016), but the impacts of AI-driven pricing algorithms and personalized recommendations have not been explored. Consumers rely on visual cues and ratings (Pan et al., 2013; Leung et al., 2017), yet how these factors influence decision confidence and satisfaction remains debated. Further, the dominance of larger OTAs (Christodoulidou et al., 2010) underscores the necessity of effective channel coordination strategies to optimize cooperation and mitigate power asymmetries (Chen, 2023).

4.3 Service Quality and Consumer Behavior

The theme explores how OTAs' service quality impacts consumer perceptions, decision-making, and behavior. Table (3) showcases the top ten influential papers in this theme.

Table 3: Top ten influential papers in the Service Quality and Consumer Behavior theme

Study	Publication source	Local citation score	Purpose	Author Keywords	Key findings
Guo et al. (2022)	Current Issues in Tourism	1.89	To explore the relationship between OTA information and hotel room sales in the pandemic context (e.g. COVID-19), thereby promoting the recovery of hotel room sales.	COVID-19; crisis management; OTA information; room sales; quantile regression	The room sales of hotels with shorter operating years, higher quality amenities and services, and better brand image recovered faster during the pandemic. Moreover, the comparison between different types of cities suggests that hotels in tourism-oriented cities recovered faster than those in commerce-oriented ones, and the impacts of review rating of cleanliness and operating years have changed.
Hao et al. (2015)	Tourism Management	1.2	To understand customer preferences on different criteria for different segments, and to determine how customers obtain overall satisfaction across different criteria.	Genetic algorithm; Customer satisfaction; Online travel agency; Website evaluation; Smart tourism	Different customer segments have different opinions on the importance of various evaluation criteria. The results also reveal that customers tend to judge OTA websites in terms of certain important criteria, instead of by the weighted average of every factor concerned.
Ye et al. (2010)	Computers in Human Behavior	1.2	To identify the impact of online user-generated reviews on business performance using data extracted from a major online travel agency in China.	User-generated content; Traveler behavior; Hotel; Online bookings	Highlighting the importance of online user-generated reviews to business performance in tourism.
Rianthong et al. (2016)	Electronic Commerce Research and Applications	1.12	To develop a stochastic programming model to design the optimal sequence of hotels that enables customers to find hotels at the minimum search cost and maximum utility gained from hotels.	Hotel recommendation; Online hotel booking; Online review; Online travel agency; Multi-criteria decision; Multi-dimensional sequencing; Multi-preference consumer; Stochastic programming	A new approach called a two-stage stochastic programming (2SSP) model for solving the optimal sequencing problem under the uncertainty of the customers was proposed. Hotels with a higher net utility, review rating, star rating, and price should be ranked in the upper positions of the sequence. However, when considering one-dimensional hotel attributes, a hotel with a higher review rating should be considered in the upper position because its result is close to that of the optimal sequence. The optimal number of choices should be decided strategically together with the quality of choices to balance search cost and utility gained from available hotels. The combining of attributes such as price, hotel star rating, and review rating in the search filters, makes a hotel more attractive relative to other hotels and increases its room bookings.
Ahmad & Sharma (2023)	Journal of Quality Assurance in Hospitality & Tourism	1	To apprehend travelers using the internet to search and book hotels on the OTA, and to find user satisfaction and intention to book the hotel by extending the information system success model.	Hotel booking intention; information system success model; tourism and hospitality; online satisfaction	Information satisfaction and service satisfaction significantly influence the online booking intentions.
Wu et al. (2023)	Current Issues in Tourism	1	To mine and analyze online reviews from online travel agency websites and social networking sites to comprehend a specific event of tourists' environmentally irresponsible behaviour, the Lajun Mountain 'Instant Noodle Crisis' in China, which has triggered widespread online discussion	Tourist environmentally irresponsible behaviour; online travel agencies; social networking sites; sentiment analysis; event system theory	(1) the evolutionary mechanisms of 'Instant Noodle Crisis' differ between OTA websites and social networking sites. (2) reviews on OTA websites focused on travel experiences and sights, with tourists rarely mentioned their own behavior. In contrast, reviews on social networking sites concentrated on blame-assigning and cause-seeking. (3) tourists' environmentally irresponsible behavior decreased positive feelings and increased negative emotions among tourists and the public.
Son & Park (2023)	Current Issues in Tourism	1	To investigate which features contribute more to predicting the user engagement with OTAs' Instagram posts	Transfer learning; Machine learning; Instagram; Online travel shopping; Online travel agency (OTA)	OTAs should emphasize the travel related emotion, luxurious, outdoorsy, and celebration in the post wordings in captions but should avoid the big words (words with more than six letters). In terms of images, it is recommended to use the image with fewer lines, fewer parallel lines, but more corners. For an Instagram message-delivering strategy, uploading a post during the evening is recommended.
Oumayma & Ez-Zohra, (2023)	Scientific African	1	To evaluate consumers' purchasing behavior through Online Travel Agencies (OTAs).	Purchase behavior (PB); Purchase intention (PI); Partial least squares structural equation; modeling (PLS-SEM); Fuzzy set qualitative comparative analysis; (FSQCA); Online travel agencies (OTAs)	Consumers' attitude, perceived relative advantages, communicability, and personal innovativeness ensure the purchasing intention and behavior among OTAs; and purchasing intention is a necessary condition for purchasing behavior of travel from OTAs.
Kim et al. (2023)	Tourism Management	1	To examine the effect of product quality and price sorting (vs. non-sorting) on extreme option choice aversion and identify the moderating effect of displays that made it difficult to read information.	Price; Quality; Online travel agency (OTA); Sorting effect; Extremeness aversion; Compromise effect; Choice architecture	The tendency to choose the non-extreme or middle-attributed options was stronger when quality and price were displayed sorted (vs. non-sorted). It was theorized that easy comparison of multiple options leads to decision-making. The positive effect of quality and price sorting on extreme option choice aversion was significantly reduced when customers had difficulty reading the displayed information.
Sun et al. (2023)	Sustainability	1	To understand the factors that influence accommodation consumption after COVID-19.	COVID-19 pandemic; signaling theory; online travel agency; hotel consumption; pandemic tourism	(1) completeness of information, online hygiene rating and hygiene recommendation tags have a significant impact on hotel consumption; (2) online hygiene rating has a positively significant moderating effect on the relationship between information completeness and hotel sales; and (3) there is variability in the factors that influence the generation and growth of hotel sales.

4.3.1 Consumer evaluation of OTAs' service quality

Consumers evaluate OTAs based on convenience, financial security, and price comparisons (Hao et al, 2015), but the evolving evaluation criteria, like real-time customer support provided by AI-powered chatbots, can be explored. Also, the relationships between such factors and the continuance usage intention, switching costs, and billboard effect can be investigated. To mitigate choice overload, OTAs rank hotels based on reviews and ratings (Rianthong et al., 2016), but the effectiveness of this system when tailored to consumer profiles remains uncertain. Additionally, exploring how travelers respond to concerns about algorithmic bias and rating manipulation is critical. Review helpfulness varies based on location, service, and review length (Son et al., 2022), while booking intentions are shaped by information accuracy and service quality (Ahmad & Sharma, 2023). For social media, OTAs should leverage travel emotions, use simple language, and post evening images with uncomplicated designs (Son & Park, 2023). However, the interaction between visual aesthetics, cultural preferences, and consumer engagement remains underexplored.

4.3.2 Consumer Behavior and Decision-Making through OTAs

Consumers' OTA booking intentions are driven by attitudes, perceived advantages, and personal innovativeness (Oumayma & Ez-Zohra, 2023). Reviews significantly influence bookings by reducing cognitive load (Ye et al, 2011), but concerns over fake content and reviews source credibility raise questions about their reliability. Post-COVID, information completeness and hygiene ratings have become key decision factors (Sun et al., 2023), reflecting shifting risk perceptions. However, the sustainability ratings have become a critical factor to be explored. Shorter-operating hotels with strong brands rebounded faster during the pandemic (Guo et al, 2022), which indicates research opportunity on the relationship between brand equity and crisis recovery. OTA website sorting by quality and price improves decision-making (Kim et al., 2023). OTA reviews focus on travel experiences, while social media reviews tend to assign blame (Wu et al, 2023), which can be considered in future research on OTAs' communication strategies.

5. Co-Citation Analysis of OTA Research

Co-citation analysis identifies disciplinary structure in OTA research by analyzing frequently co-cited studies (Shin et al, 2022). Figure (3) shows the co-citation network analysis with five major clusters.

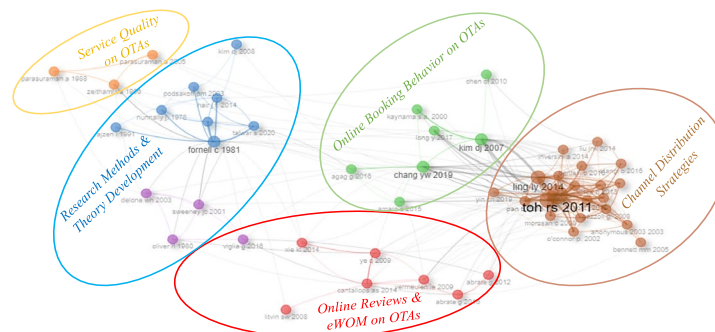


Figure 3: Co-citation network

Cluster 1. Online Reviews and eWOM on OTAs: Positive reviews boost online sales and hotel visibility (Ye et al, 2011). eWOM is a powerful, trusted marketing tool (Litvin et al, 2008). Both positive and negative reviews enhance awareness, requiring active reputation management (Vermeulen & Seegers, 2009). Loyalty programs and reviews foster repeat business (Xie et al, 2015). Review scores significantly impact occupancy rates, with each point increase contributing a 7.5% boost, though review impact diminishes over time (Viglia et al, 2016).

Cluster 2. Research Methods and Theory Development: Quantitative approaches like SEM (Fornell & Larcker, 1981; Anderson & Gerbing, 1988) and partial least squares are widely used. Consumer behavior studies employ theories of Planned Behavior, customer satisfaction, and Perceived Value. Critical focus areas include trust, perceived risk, security concerns, and user resistance to new technologies (Talwar et al, 2020).

Cluster 3. Online Booking Behavior on OTAs: Trust and user experience are critical, using Commitment-Trust Theory and Technology Acceptance Model to emphasize building trust and positive perceptions (Agag & El-Masry, 2016). Addressing security concerns and ensuring user-friendly interfaces reduce perceived risk (Chen & Chen, 2010). The E-QUAL framework helps assess service quality from the user's perspective (Kaynama & Black, 2000).

Cluster 4. Service Quality on OTAs: Studies represent service quality dimensions in the OTA context (Tsang et al, 2010). The SERVQUAL instrument assesses customer perceptions of service quality (Parasuraman et al., 1988). The link between service quality and customer loyalty is crucial for retention (Zeithaml et al, 1996). The E-S-QUAL and E-RecS-QUAL scales measure service quality on e-commerce sites and non-routine customer support needs (Parasuraman et al, 2005).

Cluster 5. Channel Distribution Strategies: Hotels benefit from multi-platform presence, enhancing visibility and consumer choice (Beritelli & Schegg, 2016). OTAs offer convenience and price comparison but impact profits due to commissions (Liu & Zhang, 2014). Social media and direct websites drive sales, requiring adaptation to new technologies and behaviors (Inversini & Masiero, 2014). Traditional intermediaries still serve certain segments (Law et al, 2015).

6. Co-Word Analysis of OTA Research

Co-word analysis in OTA research reveals evolving trends: "behavior", "trust", "satisfaction", and "loyalty" were key themes. Dominant trends included technology adoption, consumer perceptions, and service quality. "Consumer perceptions" and "service quality" gained attention from 2015-2020, while "experience" peaked during 2019-2021. "Behavior" emerged in 2013 and became a leading trend in 2022, with "trust" dominating from 2011-2021. Future research is expected to continue focusing on "behavior" and "trust".

7. Thematic Evolvement of OTAs Research

Themes are classified into motor, basic, emerging/declining, and niche groups (Cobo et al, 2011). As figure (4) illustrates, pricing strategy is a niche theme with practical relevance (Kim et al, 2019). Reviews and decision-making are motor themes, highlighting user reviews and persuasive content (Martin-Fuentes et al, 2021). Behavior, trust, and satisfaction are central topics in consumer research (Oumayma & Ez-Zohra, 2023). Distribution channels focus on consumer preferences and hotel-OTA strategies (Yang & Kim, 2022). Strategy and management are basic themes, important but underdeveloped, suggesting future research opportunities (Chu, 2023). Revenue management is fundamental, needing further exploration into hotel-OTA collaborations (Shi & Hu, 2021).

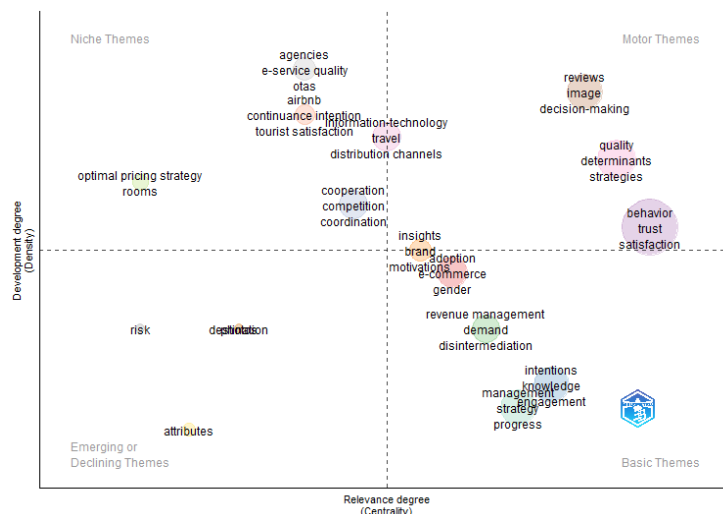


Figure 4: Thematic map

8. Limitations

The study's limitations include using only Web of Science, analyzing only reviewed articles, and focusing on English-language resources. Future research should use multiple data sources, include diverse publication types, evaluate resources in other languages, and explore specific OTA categories like flights, hotels, and tours.

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