
Editorial: The *Journal of Hospitality and Tourism Technology* (JHTT): a retrospective review using bibliometric analysis

Editorial

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Introduction

Information and communication technologies are an integral part of the hospitality and tourism field. By transforming industry practices, strategies and structures, information and communication technologies have been renovating the tourism sector since the 1980s (Porter, 2001; Bulchand-Gidumal *et al.*, 2011). In addition, new technologies have been aiding in creating new business models in the hospitality and tourism business. Consumers presently rely on online consumer-produced content while making choices and opinions about destinations, hotels and restaurants (Cobanoglu, 2010). In response to the escalating involvement and need for information and communication technologies, the *Journal of Hospitality and Tourism Technology* (JHTT) was launched in 2010 under Prof Cihan Cobanoglu from the University of South Florida. The journal aims to bridge the space between academia and industry and explicitly provide a pedagogic platform to hospitality and tourism information technology and e-business. Currently, JHTT is among the premier sources in this domain. The journal broadly focuses on the impact of information and communication technologies on the hospitality and tourism industry covering prominent and contemporary topics such as artificial intelligence, automation and robotics, blockchain/cryptocurrencies, chatbots, digital marketing, e-marketing, e-word of mouth, internet of things, the service-oriented architecture of business systems, smart tourism and smart destinations, technologies for sustainable hospitality and tourism and so forth.

JHTT has been continuously growing since 2010 and has succeeded in achieving a higher stature as a global academic research platform. Various metrics of the scholarly world reflect the progression and repute of JHTT. Among the quantitative measures, the journal has a five-year impact factor of 4.566 (as per Clarivate Analytics). The journal articles published between 2015 and 2019 have received an average of 4.566 citations in 2020. Moreover, the CiteScore of 5 reflects that articles published between 2017 and 2020 are credited with an average of five citations in 2021. The journal is ranked “B” by the Australian Business Deans Council (ABDC) Journal Quality List as a qualitative measure. It is also acknowledged by the Chartered Association of Business Schools (CABS, UK) Academic Journal Guide for its original and high-quality peer-reviewed content. It is abstracted and indexed in many databases, including Scopus and Web of Science.

Acknowledging the JHTT's growth as a regarded source and the importance of information and communication technologies in hospitality and tourism as a topic, this study aims to provide a retrospection of JHTT since its inception. It is essential to study its publications and citations as a whole so that the productivity and impact of a scientific source can be understood. This article offers an insightful understanding of the authors' publication, citation, collaboration and methodological choices in JHTT. The article uses various methods to provide the publication and citation structure of the journal, trends of



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contributions among research constituents, i.e. at author, institutional and country levels. It also studies the methodological distribution among *JHTT* articles. Also, the study takes to study the thematic structure of the *JHTT* corpus using bibliographic coupling analysis. It studies the progression of different themes in the journal across time. In addition, the study also explores the various factors explaining the impact (citation) of the journal. Regression analysis is used as drivers of the journal's citations. It brings forth four research questions (*RQs*):

RQ1. What is the trend of development among *JHTT*'s research constituents?

RQ2. What is the methodological distribution among the *JHTT* corpus?

RQ3. What thematic structure is evident in the *JHTT* corpus, and the themes have evolved?

RQ4. What factors influence the *JHTT* citations?

The study will aid in understanding the productivity and impact of the *JHTT* over time. Also, the knowledge of the most frequently applied methodologies can be connected with the recognition of a scholar in the scientific field (Hanson and Grimmer, 2007). *JHTT* being a leading outlet in hospitality and tourism, the thematic analysis of the journal will provide the scholars with a comprehensive overview of the field. It will also help them develop the field further. The insight about the drivers of citation will guide the researchers toward the improved impact of their work.

Further, it is the first study to apply bibliometrics and objectively assess the *JHTT* corpus. For the remainder of the paper, a brief review of the related literature is provided in second section, followed by the data and methodology in the third section. Next, the results of the bibliometric and thematic analysis are discussed in fourth and fifth sections. Finally, sixth section presents the results of regression analysis, and seventh section concludes the study.

Related literature

Compared to other literature review methods, bibliometrics has developed as a trusted method in handling a large volume of bibliographic data (Donthu *et al.*, 2021a, 2021b; Baker *et al.*, 2021; Ramos-Rodrigue and Ruiz-Navarro, 2004). It systematically and empirically reviews the data using scientific mapping techniques and provides an objective evaluation (Andersen, 2019). It is widely used in several research fields, including the marketing field, to assess a journal. Some articles exploring the marketing field with bibliometrics include Malhotra *et al.* (2005), Backhaus *et al.* (2011); Stremersch *et al.* (2015), Sureka *et al.* (2020); Martinez-Lopez *et al.* (2020); Kumar *et al.* (2021), Pattnaik *et al.* (2021); and Donthu *et al.* (2021b, 2021c). Talking about hospitality and tourism field literature has several studies applying a similar methodology. For instance, Bhowmik (2021) offers a bibliometric overview of the heritage tourism research field. Sigala *et al.* (2021) provide a retrospection of the *Journal of Hospitality and Tourism Management*. Kumar *et al.* (2020) present a bibliometric overview of the *Journal of Heritage Tourism* for its publications between 2006 and 2019. Singh *et al.* (2021) for the *Journal of Ecotourism* and Sharma *et al.* (2021) for the *Journal of Teaching in Travel and Tourism*.

Data and methodology

The bibliographic data of *JHTT* was extracted from the Scopus database. Scopus is the most extensive databank of peer-reviewed literature, and also it is widely used for similar

studies (Norris and Oppenheim, 2007; Bartol *et al.*, 2014; Donthu *et al.*, 2021b, 2021c; Siagla *et al.*, 2021; Pattnaik *et al.*, 2021; Prakash *et al.*, 2021). The journal name was searched under the “source title” head of Scopus in early October 2021. After the exclusion of editorials, the final data set extracted was 291 *JHTT* documents.

Bibliometrics is primarily a segment of library sciences, but the scholarly literature shows its application in various other fields (Ellegaard and Wallin, 2015), including management (Hota *et al.*, 2020). It analyses the bibliographic data using quantitative techniques to derive meaningful insights. This methodology carries four advantages over other review methods (Byington *et al.*, 2019), making it suitable for this study. First, bibliometrics supports analyzing a large corpus of data and thus offers a broader scope. Second, the technique involves various bibliographic tools to study bibliographic metrics, thus assisting in a more detailed analysis. Third, the quantitative nature of the method leads to unbiased results. Fourth, networks and graphs give readers higher visibility of the data points (Donthu *et al.*, 2021c). However, the methodology is not free from limitations as well. One major limitation is making qualitative statements about research using quantitative results (Wallin, 2005), making the qualitative results debatable. Because the results are dependent on the bibliographic data, data’s faults may hinder the study findings. Thus, drawing upon its advantages, this study uses bibliometrics to analyze the *JHTT* corpus and content analysis to support some qualitative pronouncements.

The performance of *JHTT* in terms of productivity (publications), influence (citations) and authorship structure were explored using various study matrixes. The matrixes include total publications (TP), total citations (TC), number of cited publications (NCP), total citations per publication (TC/TP), number of active years (NAY), productivity per active year (PAY), number of contributing authors (NCA) and h and g indexes. The calculation for all these variables was carried using MS Excel. Further, following Martinez-Lopez *et al.* (2018); Mukherjee *et al.* (2021), Kumar *et al.* (2020); Donthu *et al.* (2021a); and Sureka *et al.* (2020), the pattern in research constituents of *JHTT* were also explored. It includes the study of contributions from authors, institutions and countries to get a detailed understanding of the publication and citation outline of *JHTT* publications. Furthermore, the methodology is a critical determinant of an article’s impact (Dang and Li, 2018; Valtakoski, 2019); the methodological distribution in the *JHTT* corpus was also explored (Mukherjee *et al.*, 2021; Rao *et al.*, 2021). To avoid any bias, two authors independently coded each article based on the research method, research design, data collection method and statistical analysis technique, and the results were then triangulated.

The thematic structure analysis of the journal was carried out by studying the pattern in references in the *JHTT* publications between 2010 and 2021. The pattern in references was studied using bibliographic coupling analysis (Kessler, 1963). Documents sharing two more common references from bibliographic couples (Kessler, 1963). Such documents are intellectually associated with each other (Donthu *et al.*, 2021a; Kumar *et al.*, 2020) and share a high degree of thematic similarity (Wallin, 2005). Bibliographic coupling is a superior method (Boyack and Klavans, 2010) because it facilitates the study of themes (Andersen, 2019). Following Andersen (2019), Kumar *et al.* (2020) and Kumar *et al.* (2021), Vosviewer was used to conduct data analysis. Further, using the algorithm given by Newman and Girvan (2004), the documents forming bibliographic coupling were grouped into clusters and were studied using content analysis.

Additionally, negative binomial regression was used to explore the factors driving the citations of the *JHTT* corpus. This regression model is best suited for the highly dispersed dependent variable with many zeros (Baker *et al.*, 2021; Stremersch *et al.*, 2007; Valtakoski, 2019). Citations being an objective measure of an article impact (Pieters and Baumgartner, 2002), count

of citations were used to measure the impact of an article. Citations of *JHTT* articles range from 0 to 105. Therefore, a negative binomial regression model was used to study the determinants of *JHTT* impact.

Bibliometric results

Performance analysis

Figure 1 presents the trend of *JHTT* publications and citation counts over the years. The count of publications represents the academic contributions (Gleanzel, 2003) or productivity of a journal, and the count of citations depict the academic influence and impact (Meyer et al., 2018). The graph shows that *JHTT* has been continuously growing both in terms of productivity and impact. For example, the average number of publications between 2010 and 2015 was 16.17, which grew to 32.33 average publications between 2016 and 2021. Likewise, the average cites have increased from 66.83 average cites between 2010 and 2015 to 628.5 average between 2016 and 2021. Thus, it represents the journal's possibilities toward unceasing service and development.

Table 1 presents a descriptive summary of *JHTT* productivity, influence and authorship structure through various variables. Statistics suggest that the analysis has taken 265 *JHTT* articles and 26 *JHTT* reviews. NCP is the count of influential articles representing that 86.6% of (TP 291) *JHTT* research is impactful. The journal has published an average of (PAY = 24.25) articles each active year. *JHTT* is cited (TC = 4,145) times in the academic community. TC/TP indicates that each *JHTT* article is cited 14.24 times on average. The journal's academic influence is also apparent in its *h*-index and *g*-index. The *h*-index suggests that 33 of *JHTT* articles are cited at least 33 (Hirsh, 2005), and the *g*-index suggests the impact extended by the journal's 47 highly cited articles (Egghe, 2006).

Descriptive statistics and temporal evolution of the contributing authors, institutions and countries to Journal of Hospitality and Tourism Technology

Tables 2–4 list the most prolific authors, institutions and countries for *JHTT*, respectively. As shown in Table 1, Anil Bilgihan is the most prolific author with nine contributions and 356 citations, followed by Meong Jeong and Christian Morosan with seven publications each. Faizan Ali, Mehmet Erdem, Natasa Christodoulidou, Xi Leung and Agnus DeFranco are also among the most contributing authors for *JHTT*. Okumus F. has the highest (TC/TCP)

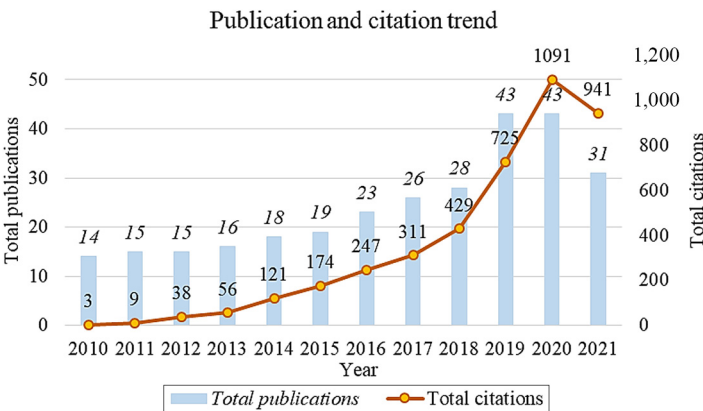


Figure 1.
Publication and
citation trend of *JHTT*
over years

Measures	Metric	
<i>Journal productivity statistics</i>		
Total publications (TP)	291	
Number of publications cited (NPC)	252	
Number of active years (NAY)	12	
Productivity per active year (PAY)	24.25	
Article	265	
Review	26	
<i>Journal influence statistics</i>		
Total citations (TC)	4,145	
Cites per publication (TC/TP)	14.24	
Cites per cited publication (TC/NCP)	16.45	
Average cites per active year (C/Y)	345.42	
<i>h</i> -index	33	
<i>g</i> -index	47	
<i>Authorship structure</i>		
Sole-authored article	35	
Co-authored article	256	
Authors in total publications	789	
Number of unique authors (excluding repetitions)	668	
Collaboration index	1.71	

Table 1.
Publication and
citation statistics
of *JHTT*

Author	TP	SoA	CoA	TCP	TC	TC/TP	TC/CP	NAY	PAY	H
Bilgihan A.	9	1	8	9	356	39.56	39.56	9	1.00	8
Jeong M.	7	0	7	4	88	12.57	22.00	4	1.75	4
Morosan C.	7	2	5	5	51	7.29	10.20	5	1.40	3
Ali F.	6	1	5	4	172	28.67	43.00	3	2.00	3
Erdem M.	6	0	6	6	116	19.33	19.33	6	1.00	4
Christodoulidou N.	6	6	0	6	53	8.83	8.83	6	1.00	3
Leung X.Y.	6	1	5	3	46	7.67	15.33	4	1.50	3
DeFranco A.	6	0	6	3	21	3.50	7.00	4	1.50	2
Okumus F.	5	1	4	3	142	28.40	47.33	4	1.25	3
Hua N.	5	1	4	2	23	4.60	11.50	3	1.67	1
Gretzel U.	4	0	4	3	104	26.00	34.67	3	1.33	3
Jiang L.	4	0	4	4	70	17.50	17.50	3	1.33	4
Hancer M.	4	0	4	3	59	14.75	19.67	3	1.33	3
Gil-Saura I.	4	0	4	4	50	12.50	12.50	4	1.00	3
Reino S.	4	0	4	4	40	10.00	10.00	4	1.00	4
Lee M.	4	0	4	3	23	5.75	7.67	3	1.33	2

Notes: TP = total publications; SoA = sole authored publications; CoA = coauthored publications; CP = total cited publication; TC = total citations; TC/TP = average citations per publication; TC/CP = average citations per cited publication; NAY = number of active years; PAY = productivity per active year; h = *h*-index

Table 2.
Top contributing
authors in *JHTT*

ratio indicating that the three cited publications contributed by the author carry an average of 47.33 citations. Anil Bilgihan has been active (NAY) in the journal for nine years and has the highest *h*-index. According to Table 2, most contributions in the journal have come from the authors affiliated to the University of Central Florida (25), followed by the

Institution/University	TP	CP	TC	TC/TP	TC/CP	NAY	PAY	H
University of Central Florida	25	18	493	19.72	27.39	12	2.08	11
University of Nevada	18	17	221	12.28	13.00	9	2.00	9
University of South Carolina	10	7	95	9.50	13.57	4	2.50	6
University of Houston	10	6	53	5.30	8.83	6	1.67	3
Texas Tech University	9	9	207	23.00	23.00	6	1.50	8
Taylor's University Malaysia	8	7	118	14.75	16.86	5	1.60	4
University of North Texas	8	4	68	8.50	17.00	4	2.00	4
Purdue University	7	6	131	18.71	21.83	5	1.40	4
Florida Atlantic University	6	6	175	29.17	29.17	5	1.20	6
Instituto Universitário de Lisboa	6	5	84	14.00	16.80	4	1.50	5
Kent State University	6	5	52	8.67	10.40	5	1.20	4
Ohio State University	5	4	178	35.60	44.50	5	1.00	4
Oklahoma State University	5	4	47	9.40	11.75	3	1.67	4
Sejong University	5	2	22	4.40	11.00	3	1.67	2
Universitat de València	4	5	107	26.75	21.40	5	0.80	4

Table 3.
Top contributing
institutions in *JHTT*

Notes: TP = total publications; CP = total cited publication; TC = total citations; TC/TP = average citations per publication; TC/CP = average citations per cited publication; NAY = number of active years; PAY = productivity per active year; h = *h*-index

Country	TP	CP	TC	TC/TP	TC/CP	NAY	PAY	H
USA	140	119	2,357	16.84	19.81	12	11.67	27
Spain	21	19	171	8.14	9.00	9	2.33	7
Turkey	20	14	95	4.75	6.79	8	2.50	6
Australia	16	10	117	7.31	11.70	7	2.29	6
Italy	15	14	271	18.07	19.36	8	1.88	8
Malaysia	14	13	214	15.29	16.46	7	2.00	6
Portugal	14	13	167	11.93	12.85	6	2.33	8
UK	11	11	290	26.36	26.36	5	2.20	9
China	11	6	120	10.91	20.00	4	2.75	4
India	7	7	89	12.71	12.71	4	1.75	6
South Korea	8	4	44	5.50	11.00	4	2.00	3
Taiwan	7	6	51	7.29	8.50	2	3.50	4
Greece	6	5	67	11.17	13.40	5	1.20	5
Thailand	6	5	64	10.67	12.80	5	1.20	3
Austria	5	5	153	30.60	30.60	4	1.25	4

Table 4.
Top contributing
countries in *JHTT*

Notes: TP = total publications; CP = total cited publication; TC = total citations; TC/TP = average citations per publication; TC/CP = average citations per cited publication; NAY = number of active years; PAY = productivity per active year; h = *h* index

University of Nevada Las Vegas (18), the University of South Carolina and the University of Houston. Also, most citations to the journal are credited by the publications from the University of Central Florida. Finally, looking upon the top contributing countries, nearly half of the *JHTT* publications have come from the USA (140), which credits nearly half of the total *JHTT* citations (2,357). Countries contributing to the other half of *JHTT* publications include Spain, Turkey, Australia, Italy, Malaysia and Portugal.

To understand the progression of contributing authors, institutions and countries, top contributors are studied temporally. [Figures 2–4](#) present the temporal evolution of authors,

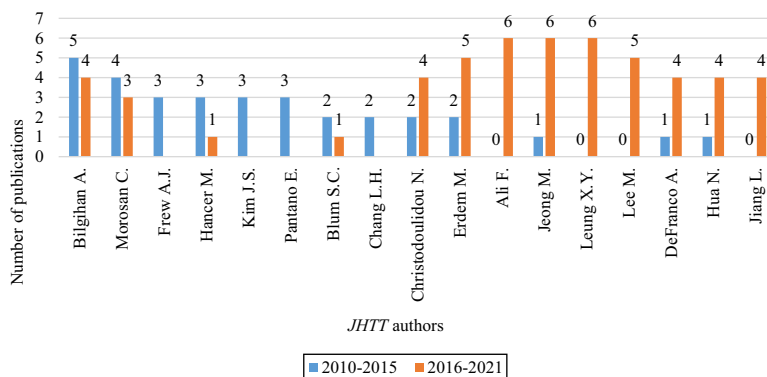


Figure 2.
Temporal evolution of
most contributing
author in *JHTT*

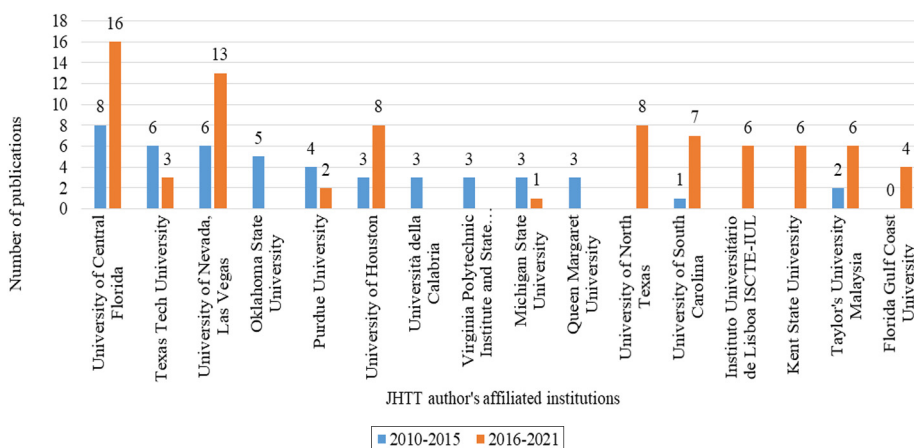


Figure 3.
Temporal evolution of
most contributing
institutions in *JHTT*

institutions and countries, respectively. On examination, Anil Bilgihan emerged as the most contributing author from 2010 to 2015, while, between 2016 and 2021 most publications have come from Meong Jeong, Xi Leung and Faizan Ali. The University of Central Florida consistently provided the highest number of articles to the journal in both periods, followed by Texas Technical University in 2010–2015 and the University of Nevada in 2016–2021. The USA remains consistent with the number of publications through both periods. It is in line with the authors from the University of Central Florida being the most significant contributors.

Coauthorship structure authors and nations in Journal of Hospitality and Tourism Technology

Figures 5 and 6 show the coauthorship network among the authors and countries contributing in *JHTT*, respectively. Figures show Faizan Ali is the most central node in the network, indicating the highest coauthorship links with other authors in the journal. Other prominent coauthorship groups include authors such as Anil Bilgihan, Yan Wang, Xi Cia and Khaldoon Nusair. Again, authors sharing the same color node and lines are grouped to each other.

Among countries, the USA is the most central node sharing maximum coauthorship links with other countries. A strong coauthorship link is evident among the authors from the

Figure 4.
Temporal evolution of
most contributing
countries in *JHTT*

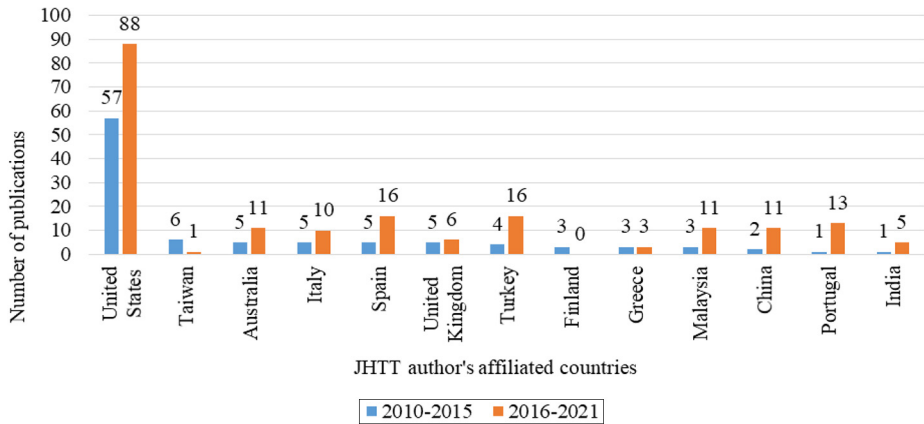
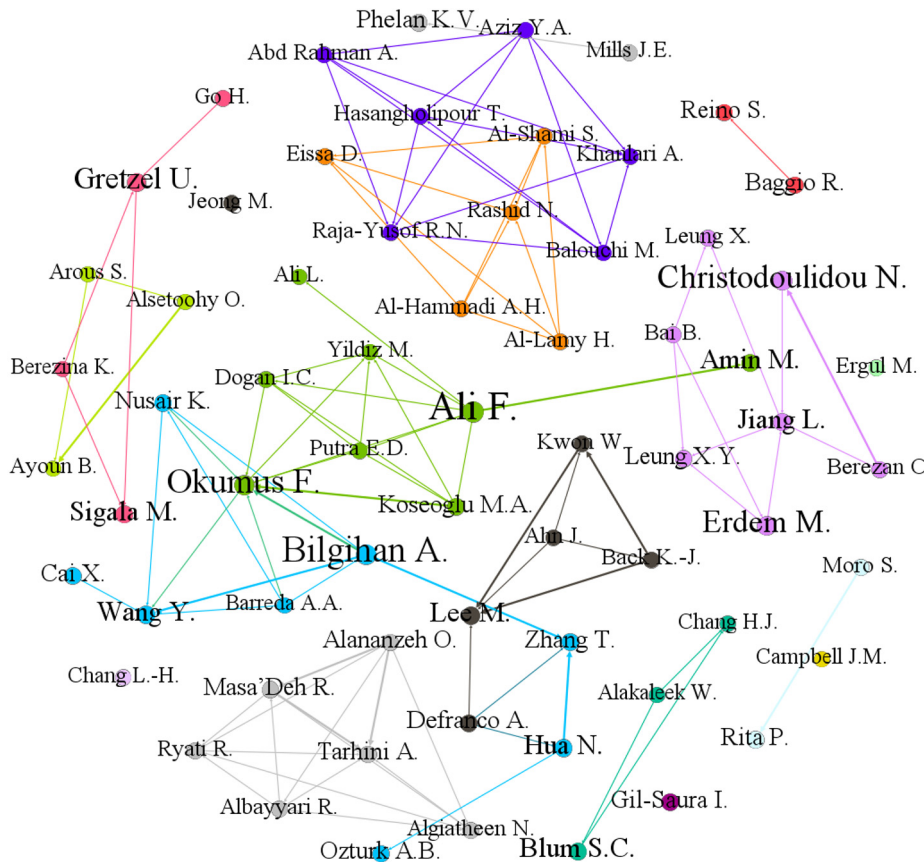


Figure 5.
Collaboration network
among *JHTT* authors



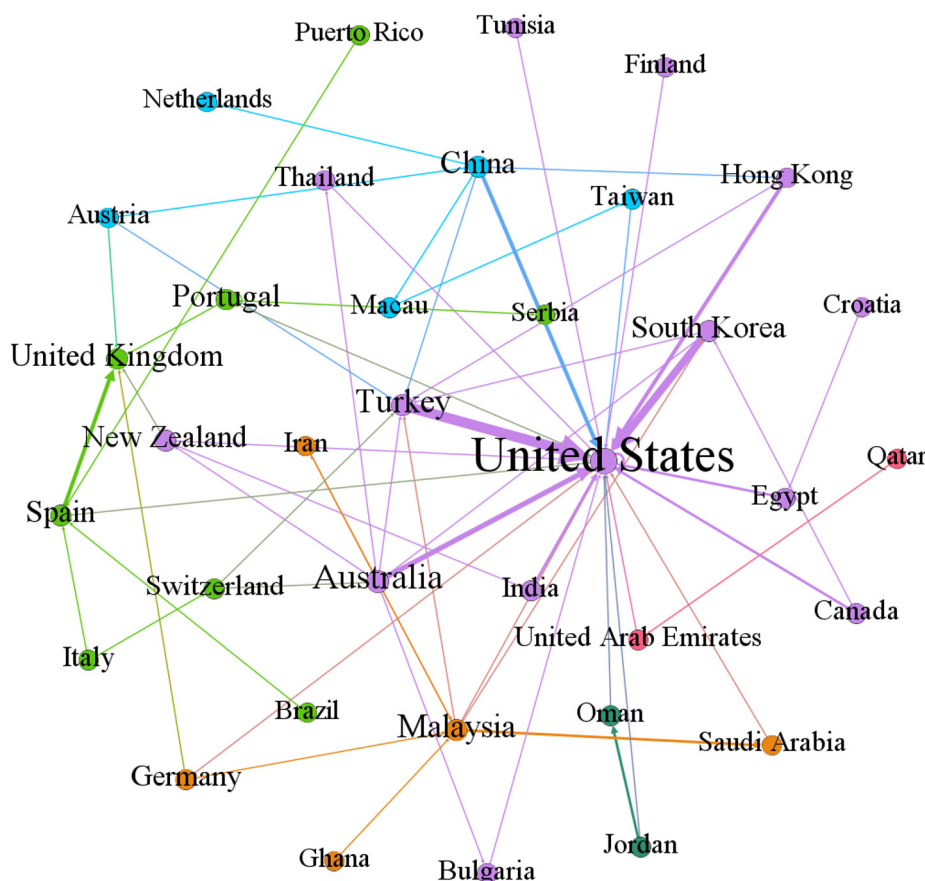


Figure 6.
Collaboration network
among countries
contributing in *JHTT*

USA, Turkey, Korea, Australia and Hong Kong. Authors of the UK and Spain also share strong collaboration links, and also, the authors affiliated to the institutes of China, Macau, Austria, The Netherlands and Taiwan often collaborate.

Most influential Journal of Hospitality and Tourism Technology publications

Table 5 lists the most influential *JHTT* works in terms of citations. As evident, Pan *et al.* (2012), titled, "Forecasting hotel room demand using search engine data," is the most influential *JHTT* publication. Their study investigates whether search query volume data helps predict the hotel room demand. Other most cited works include Di Pietro *et al.* (2012), Barreda and Bilgihan (2013) and Ali (2016). However, Progress on Airbnb: a literature review by Guttentag (2019) is the fastest growing article in terms of influence with an average of 36.00 cites per year (C/Y).

Methodological distribution in Journal of Hospitality and Tourism Technology corpus

Table 6 portrays the distribution research methods in the *JHTT* corpus over two periods, 2010–2015 and 2016–2021. Panel 1 presents the distribution among research methods. The

Table 5.
Most influential
JHTT publications
between 2010 and
2021

Title	Authors	Year	TC	C/Y
Forecasting hotel room demand using search engine data	Pan B., Wu D.C., Song H.	2012	105	11.67
Social network for the choice of tourist destination:	Di Pietro L., Di Virgilio	2012	98	10.89
Attitude and behavioral intention	F., Pantano E.			
An analysis of user-generated content for hotel experiences	Barreda A., Bilgihan A.	2013	90	11.25
Hotel website quality, perceived flow, customer satisfaction and purchase intention	Ali F.	2016	87	17.40
Online social networking: Redefining the human web	Kasavana M.L., Nusair K., Teodosic K.	2010	82	7.45
Information technology applications and competitive advantage in hotel companies	Bilgihan A., Okumus F., Nusair K.K., Kwun D.J.-W.	2011	81	8.10
Progress on Airbnb: A literature review	Guttentag D.	2019	72	36.00
Mapping requirements for the wearable smart glasses augmented reality museum application	Tom Dieck M.C., Jung T., Han D.-I.	2016	66	13.20
A comparative study of web site performance	Lee J.K., Morrison A.M.	2010	65	5.91
What determines tourist adoption of smartphone apps?	Gupta A., Dogra N.,	2018	63	21.00
An analysis based on the UTAUT-2 framework	George B.			
The influence of social media on the consumers' hotel decision journey	Varkaris E., Neuhofer B.	2017	62	15.50
Progress on robotics in hospitality and tourism: a review of the literature	Ivanov S., Gretzel U., Berezina K., Sigala M., Webster C.	2019	61	30.50
Mobile applications in the hospitality industry	Kwon J.M., Bae J.-I.S., Blum S.C.	2013	58	7.25
Proposing a model to test smartphone users' intention to use smart applications when ordering food in restaurants	Okumus B., Bilgihan A.	2014	57	8.14
Online impulse buying of tourism products: The role of web site personality, utilitarian and hedonic web browsing	Rezaei S., Ali F., Amin M., Jayashree S.	2016	56	11.20

Notes: TC = total citations; C/Y= cites per year

statistics show that more than 80% of research was empirical in both periods. It evidentially affirms modeling and analytics as future scope of research. Among research designs (panel 2), quantitative research design exponentially dominants in both periods. Future endeavors can adopt more mixed designs and qualitative designs. Next, on examination of data collection methods (panel 3), it was found that *JHTT* publications mainly adopt survey and archival methods of data collection. There is a dearth of studies using experimental and case study methods. Regression and factor analysis are primarily used in both periods (panel 4). However, in recent times (2016–2021), an exponential upsurge has been seen in structural equation modeling (SEM). Descriptive analysis and analysis of variance/covariance (ANOVA/ANCOVA) experienced a decline in recent times. It shows that the preference for more sophisticated analysis methods among the scholarly community.

Thematic analysis

Bibliographic coupling analysis was used with the help of VOSviewer software to identify the thematic structure of the *JHTT* corpus. It is built on the assumption that the articles forming bibliographic couples share similar intellectual content. The analysis provided that out of 291 *JHTT* publications, 287 share some standard literature references and are

Table 6.
Methodological
distribution of *JHTT*
corpus

Year	2010–2015 (%)	2016–2021 (%)
<i>Panel 1: Research methodology</i>		
Empirical	83.51	81.44
LR survey and review	11.34	4.12
Conceptual	5.15	10.82
Modeling and analytical	0.00	4.63
<i>Panel 2: Research design</i>		
Quantitative	91.46	84.62
Qualitative	4.88	13.02
Mixed	3.66	2.37
<i>Panel 3: Data collection technique</i>		
Case study	3.23	3.11
Qualitative	12.90	7.77
Archival/secondary	24.73	34.20
Survey	51.61	48.70
Experimental	7.53	6.22
<i>Panel 4: Data analysis approach</i>		
Descriptive	15.56	7.78
Correlations	8.89	3.33
ANOVA	11.11	5.56
<i>t</i> -test	4.44	7.78
Chi-square test	2.22	1.11
Regression	31.11	17.78
Structural equation modeling	4.44	31.11
Factor analysis	15.56	13.33
Discriminant analysis	2.22	2.22
Cluster analysis	4.44	5.56
Simulation/mathematical model	–	4.44

connected through bibliographic coupling. These 287 publications are classified into five thematic clusters. Table 7 provides a brief overview of the clusters.

Cluster 1: Cluster 1 is the largest cluster consisting of 84 publications cited over 1,330 times. The publications under this cluster focus on various issues related to information and communication technologies in the hospitality and tourism industry. It centers on varied aspects of information and communication technology from the perspective of marketing, revenue, consumer, employee, image building and operations. In addition, this cluster highlights issues like progress and use of technology in the hospitality and tourism industry, consumer behavior toward technology, websites, search engine data, in-room technology as amenities, use of Wi-Fi, green supply management, etc.

Cluster 2: With 60 articles, Cluster 2 exclusively focuses on customer service, customer satisfaction, customer retention, customer engagement, customer relations and related issues of the hospitality and tourism sector. The cluster credits 785 citations to the journal. It involves studies discussing the role of website quality, perceived flow, customer satisfaction and purchase intention, online impulse buying of tourism products, the role of e-servicescape on consumer's experiences, online co-innovation communities, consumer engagement, relationship commitment, etc.

Cluster 3: Cluster 3 consists of 57 *JHTT* publications and credits 722 citations to the journal. The cluster primarily focuses on social media marketing. It involves prominent issues like user-generated content or review for a hotel, restaurant and tourism experiences; the influence of social media on the consumers' hotel decision; tourists' online reviews; social

Table 7.
Bibliographic
coupling cluster
overview

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Theme	Information and communication technology	Customer satisfaction, retention, engagement and relations	Social media-marketing, reviews	Mobile application and technologies	Virtual reality, augmented reality, smart tourism and sustainability
TP	84	60	57	47	39
TC	1,330	785	722	758	435
NCP	75	51	47	42	33
APY	2015,21	2017,05	2018,16	2015,94	2018,64
Most cited articles	Pan <i>et al.</i> (2012) Kasavana <i>et al.</i> (2010) Bilgihan <i>et al.</i> (2011) Lee and Morrison (2010) Okumus (2013)	Ali (2016) Rezaei <i>et al.</i> (2016) Lee and Jeong (2012) Zhang <i>et al.</i> (2015) Isacsson and Grétzel (2011)	Barreda and Bilgihan (2013) Varkaris and Neuhofer (2017) Pantano and Pietro (2013) Song and Yoo (2016) Parikh <i>et al.</i> (2014)	Di Pietro <i>et al.</i> (2012) Gupta <i>et al.</i> (2018) Kwon <i>et al.</i> (2013) Okumus and Bilgihan (2014) Rivera <i>et al.</i> (2015)	Guttentag (2019) Tom Dieck <i>et al.</i> (2016) Ivanov <i>et al.</i> (2019) Lalicic and Weismayer (2018) Wei (2019)

Notes: TP = total publications; TC = total citations; NCP = number of cited publications; APY = average publishing year

media during the prepurchasing stage; marketing through social media; social media marketing tools; brand image; green hotel practices; management, etc. The *JHTT* authors in this cluster have enriched the understanding of the role of social media in the hospitality and tourism sector.

Cluster 4: The central focus of Cluster 4 is mobile applications and technologies. The cluster comprises 47 publications and 758 citations. It primarily discusses mobile technologies and their impact on customer satisfaction, brand image, hospitality management, marketing and operations. Major subthemes discussed in this cluster are the adoption of smartphone apps in the hospitality industry, technology experience, the usefulness of smartphone applications, task-technology fit, technology, mobile augmented reality, interactive mobile technologies in hotels and mobile electronic tourist guides, smartphone advertising and m-learning.

Cluster 5: With 39 publications, Cluster 5 is the smallest among all clusters. These 39 publications credit 435 citations to *JHTT*. The major of the cluster is virtual reality, augmented reality, smart tourism and tourism sustainability. It also includes contemporary topics like wearable smart glasses, augmented reality, robotics and artificial intelligence in hospitality and tourism, cultural transferability, block(chain) and bit(coin)s for sustainable tourism development.

Cluster evolution

Figure 7 shows the temporal evolution of publications among clusters. As evident in the figure, during the inaugural years of the journal, most publications have come into cluster 1. It is not surprising because the information and communication technologies in the hospitality and tourism industry are the core attention of the journal. Also, Cluster 4 discussing mobile phone applications and technology showed some publications during the beginning years and progressed consistently with minor dips. Clusters 2, 3 and 5 developed majorly from 2015. It is in line with the extensive growth in researcher's interests and practitioner's focus toward contemporary topics like robotics, artificial intelligence, virtual reality, augmented reality, sustainability and social media. Topics relating to website quality, perceived flow, purchase intention, online impulse buying, e-service scape and online co-innovation communities have shown their presence since 2010 but experienced extensive attention in publications in 2018. As the figure shows, during 2017, 2019 and 2020, authors of *JHTT* have primarily focused on the issues relating to social media marketing

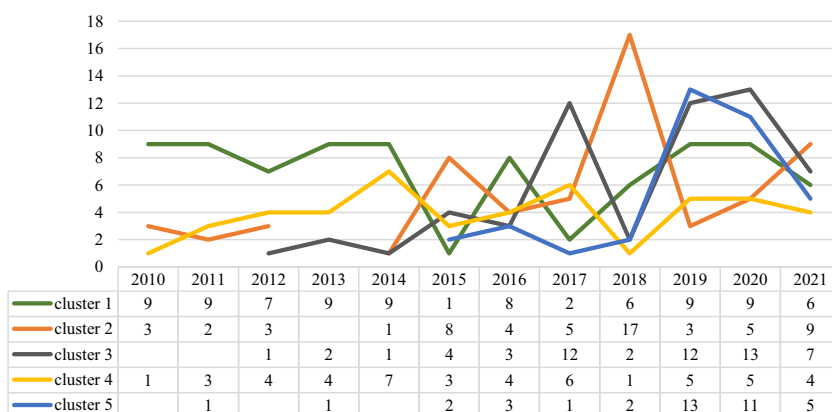


Figure 7.
Temporal evolution of
bibliographic coupling
clusters of *JHTT*
articles

(Cluster 3) 2017, 2019 and 2020. Cluster 5, the latest cluster, began in 2011 with one publication but showed an average of two publications only every year. Development in this area of research primarily boosted from 2019. It shows that the topics like augmented reality, robotics, artificial intelligence, sustainability, block(chain) and a bit(coin)s in hospitality and tourism are still in their emerging state. Future scholars of information and communication technologies and the authors of *JHTT* can take this as an opportunity and develop research in this redirection.

Determinants of *Journal of Hospitality and Tourism Technology* impact: regression analysis

Citation is the most objective measure of an article's impact (Hota *et al.*, 2020). Therefore, it is vital to study the factors contributing to the citation count of *JHTT* publications. Taking citation count as the dependent variable, this study explores the impact of 18 independent variables through negative binomial regression procedures. Negative binomial regression is the aptest regression model when the dependent variable is a count variable and is overly dispersed (Stremersch *et al.*, 2007; Valtakoski, 2019). Following Schwert (1993), Stremersch *et al.* (2007); Stremersch *et al.* (2015), Rosenzweig *et al.* (2016); Dang and Li (2018); Valtakoski (2019); and Donthu *et al.* (2020a), various exploratory variables relating to the content, methodology, presentation and affiliations of an article were identified. Table 8 informs about the definitions of the variables.

Dependent variable: Count of citations is taken as the dependent variable because of its objectivity (Hota *et al.*, 2020) and the wide use for the same in the scientific community (Meyer *et al.*, 2018; Stremersch *et al.*, 2015; Stremersch *et al.*, 2007; Valtakoski, 2019; Donthu *et al.*, 2020a). Citation counts vary among primary databases like Google Scholar, Web of Science and Scopus. Although the count provided by Scopus infers the expert judgments more powerfully (Li *et al.*, 2010), Thus, Scopus data was used to identify the citation count of *JHTT* articles.

Independent variables: Following Stremersch *et al.* (2007), Meyer *et al.* (2018), Dang and Li (2018) and Kumar *et al.* (2021), various exploratory variables were identified. It includes variables relating to the affiliation contents of an article. It is in line with the argument that the author's reputation impacts the article citation count (Stremersch *et al.*, 2007; Dang and Li, 2018; Meyer *et al.*, 2018). It involves variables such as the count of authors, affiliation of US institutions and references. A higher number of authors will bring higher reputability to the article and more social connectivity, which brings higher chances of being cited. The presentation of an article also influences the citation count (Meyer *et al.*, 2018). It considers the title and keywords involved in an article. The variables relating to the methodology used in an article and themes discussed in an article constitute the domain and content part, which are also the influencers of citation count (Meyers *et al.*, 2018). In methodology, both research design and research method are considered. Variables like quantitative studies, qualitative studies and empirical and LR/conceptual were used. Studies opting mixed methods were included in both quantitative and qualitative list because the number of articles opting mixed methods were very few. Articles appearing in the special issues or the lead articles of all issues might get higher reachability and readability (Stremersch *et al.*, 2007). Thus, special issues and lead articles are taken to explore against citation counts. For the content of the *JHTT* articles, all the articles were manually coded under five major categories based on the article's focus. The categories are "Hotel and accommodation," "Food and beverage," "Tourism," "Travel and leisure" and "Restaurants." All five topics were studied to explore their impact on the citation count of *JHTT* publications.

Table 8.

Variable definitions
and descriptive
statistics

Variable	Definition	Type	Min	Max	Mean	SD
<i>Dependent variable</i>						
Total citation	Total count of citations	C	0	105	13.92	18.115
<i>Independent variable</i>						
Lead paper	1 if article is the first paper of an issue, otherwise 0	D	0	1	0.117	0.322
Special issue	1 if article appeared in a special issue, otherwise 0	D	0	1	0.213	0.410
Number of Authors	Count of number of authors in the article	C	1	6	2.711	1.079
Number of keywords	Count of number of keywords in the article	C	2	12	5.570	1.428
Article age	2021 minus publishing year of the article	C	0	11	4.258	3.312
Article length	Page count involved in the article	C	7	57	16.419	5.015
Number of references	Count of number of references in the article	C	10	173	59.794	25.405
Title length	Count of the number of words in the article title	C	0	19	1.938	4.730
USA	1 if any of the authors is affiliated to a US institution, otherwise 0	D	0	1	0.481	0.501
Quantitative	1 if research design of the article is quantitative, otherwise 0	D	0	1	0.766	0.424
Qualitative	1 if research design of the article is qualitative, otherwise 0	D	0	1	0.093	0.291
Empirical	1 if research design of the article is empirical, otherwise 0	D	0	1	0.852	0.355
Review and conceptual	1 if research method of the article is review or conceptual, otherwise 0	D	0	1	0.155	0.362
Hotel and accommodation	1 if the article focuses on hotel and accommodation, otherwise 0	D	0	1	0.402	0.491
Food and beverage	1 if the article focuses on food and beverage, otherwise 0	D	0	1	0.079	0.270
Tourism	1 if the article focuses on tourism, otherwise 0	D	0	1	0.271	0.445
Travel and leisure	1 if the article focuses on travel and leisure, otherwise 0	D	0	1	0.196	0.398
Restaurants	1 if the article focuses on restaurants, otherwise 0	D	0	1	0.089	0.286

Notes: C = count variable; D = dichotomous variable; Min = minimum value; Max = maximum value; SD = standard deviation

Results: Table 9 presents the results of the negative binomial regression analysis. The model shows that the age of the article, length of the article title and the number of documents referred to in an article are the most vital drivers of the *JHTT* article citation. The coefficients of article age ($b = 0.213, p = 0.000$) depict a positive and highly significant connection with the citation count. The reason may be that academic articles take time to get readership and popularity. They also involve a substantial amount of turnaround time from submission to publication. Moreover, older and already cited articles gain a sense of confidence and dependability among scholars. It might bring higher citations to the older articles. For title length, the coefficients are ($b = -0.130, p = 0.000$). It shows a negative and highly significant relation between title length and citation count. It might be because shorter titles attract more attention and create more curiosity among readers. It probably brings higher readership and citations to the articles with shorter titles. The coefficient of the number of references is ($b = 0.010, p = 0.004$), indicating a positive and strong influence of the number of references on the citation count. It might be because a higher number of

Table 9.
Results of negative
binomial regression
analysis

Independent variables	B	Std. error
(Intercept)	−0.041	1.1952
Lead paper	−0.049	0.207
Special issue	0.143	0.163
Number of authors	0.011	0.061
Number of keywords	−0.034	0.050
Article age	0.213	0.027***
Article length	0.012	0.019
Number of references	0.010	0.004***
Title length	−0.130	0.021***
USA	0.200	0.138
Quantitative	−0.172	0.538
Qualitative	−0.147	0.515
Empirical	1.099	0.930
LR and conceptual	1.012	1.053
Hotel and accommodation	−0.009	0.297
Food and beverage	−0.508	0.324
Tourism	−0.032	0.314
Travel and leisure	−0.286	0.297
Restaurants	−0.161	0.344
(Scale)		1 ^a
(Negative binomial)		1 ^a
N		291
AIC		1,962.339
Log likelihood		−962.169

Note: *** $p < 0.01$

references indicates intellectual connectivity to a high number of other documents. Surprisingly, both research design and research method do not significantly influence citation, so is the focus of the articles. It signifies that the citation count or influence of an article is neutral regarding the methodology and focus of the paper.

Conclusion

Using several bibliometrics techniques, this study explores the progress, major research constituents, methodological distribution, collaboration structure and thematic structure of the *JHTT* corpus. The examination of publication and citation matrixes confirms that the journal has progressed extensively and consistently in terms of productivity and influence. Findings show that majority of the contributions came from the authors based in the USA. The authors from the University of Central Florida (USA) have been most active in the journal throughout the years. Analysis of the methodology used in the *JHTT* corpus shows that empirical works and quantitative research designs dominate the journal. Among statistical techniques, regression analysis, factor analysis and structural equation modeling dominate the *JHTT* corpus. It provides room for the upcoming scholars to fill up the gap and improve the research field. The bibliographic coupling analysis provided five major distinct themes in the journal. Among all five themes, Cluster 5 discussing robotics, artificial intelligence, bitcoin, cryptocurrency, augmented reality, smart tourism and sustainability is the most recently evolved theme and is still in its emerging state.

Despite the rigorous analysis and objectivity of bibliometric methodology, this study is not free from limitations. Because the study is based on the data obtained from the Scopus

database, any limitation of Scopus is inevitable to affect the analysis and the results. However, steps are taken to clean the data and minimize the errors. Also, as discussed in the methodology section, the limitations of the bibliometrics as a review methodology are sustained. The content analysis of clusters is undertaken to reduce the objectivity and form qualitative pronouncements. Regardless of the limitations, this study will benefit the scholars of information and communication technology in the hospitality and tourism field, the readers and the editorial board of *JHTT*. The analysis of the significant contributors informs about the source and trends of significant contributors. It will guide the editorial board in identifying potential areas to expand its readership and contributions. The methodological distribution and the thematic analysis inform the significant themes and dominant methods used in the *JHTT* corpus. It will serve as a guide to the upcoming contributors to the journal. Also, the editorial board can promote the themes and methods not gained much attention in the journal and develop information and communication technology in the hospitality and tourism research field. The scholars of the relating domain can find potential future opportunities to explore. Finally, the study of citation drivers will provide knowledge about what drives a journal's citation. Both upcoming authors and the editorial board of the journal can benefit from it and make an effort accordingly to increase the impact of their works and journal. A potential extension of this study could be the analysis of *JHTT* and other major related journals to get a comprehensive overview of the thematic structure of the field.

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