The following publication Denizci Guillet, B. (2020), "An evolutionary analysis of revenue management research in hospitality and tourism: Is there a paradigm shift?", International Journal of Contemporary Hospitality Management, Vol. 32 No. 2, pp. 560-587 is published by Emerald and is available at https://doi.org/10.1108/IJCHM-06-2019-0515.

An Evolutionary Analysis of Revenue Management Research in Hospitality and Tourism: Is There a Paradigm Shift?

Basak Denizci Guillet, PhD
Associate Professor
School of Hotel and Tourism Management, The Hong Kong Polytechnic University
17 Science Museum Road, TST East, Kowloon, Hong Kong SAR, China
Tel: + 852 3400 2173
Fax: + 852 2362 9362
E-mail: basak.denizci@polyu.edu.hk

An Evolutionary Analysis of Revenue Management

Research in Hospitality and Tourism: Is There a Paradigm Shift?

Abstract

Purpose: The purpose of this study is to examine the evolution of revenue management research's intellectual structure in hospitality and tourism in an effort to initiate a creative discourse for revenue management scholars.

Methodology: Co-citation analysis was used to examine the reference list of 343 articles over a 35-year period (1983–2018). Co-citation analysis focused on subject clustering and source knowledge evolution. Five periods were created to investigate the evolution of the RM field in the hospitality and tourism industry. The paradigm shift approach was adopted to acquire a better understanding of scientific evolution.

Findings: Findings indicated that from a Kuhnian perspective, revenue management research in hospitality and tourism did not go beyond the normal science phase. There is no current indication of anomalies in the form of conflict or questioning of the existing paradigms in revenue management research in hospitality and tourism. This might change as the research in this realm develops further and evolves.

Research implications: This study identified issues related to research themes that have the potential of moving RM research in hospitality and tourism to the next level, enabling the paradigm shift in this discipline.

Originality: This study is instrumental in its outlook on the evolution of revenue management research's intellectual structure in hospitality and tourism. In addition, it is the first study that considers the concept of paradigm shift in revenue management research context in hospitality and tourism.

Keywords: revenue management, co-citation analysis, paradigm shift.

An Evolutionary Analysis of Revenue Management

Research in Hospitality and Tourism: Is There a Paradigm Shift?

1. Introduction

The purpose of this study is to examine the evolution of revenue management (RM) research's intellectual structure in hospitality and tourism in an effort to initiate a creative discourse for RM scholars. The RM concept was initiated in the airline industry and has been a subject of interest to hospitality and tourism researchers mainly since the 1990s. In her seminal work, Kimes (1989) defined RM in the hospitality and tourism context as "the process of allocating the right type of capacity to the right kind of customer at the right price so as to maximize revenue or yield" (p. 15). Important additions to this definition are "at the right time" and "through the right distribution channel" (Hayes & Miller, 2011; Kimes, 2000). RM research integrates with various fields, including economics, marketing, strategy, finance, and consumer behavior (Cross, Higbie, & Cross, 2011; Ivanov, 2014). Denizci Guillet and Mohammed (2015) extended the framework for hospitality RM developed by Noone, McGuire, and Rohlfs (2011). In their framework, core RM processes were specified as business analysis, pricing strategy, demand modeling and forecasting, inventory and price optimization, setting booking controls, distribution channel management, and performance analysis and evaluation.

The present study focuses on the RM knowledge domain in hospitality and tourism, which is affected directly by political, economic, sociocultural, and technological changes. Therefore, RM is a good example to examine using evolutionary analysis. Compared to some other fields, such as finance or human resources management, the RM field is new and still developing. In addition, it is reasonable to argue that technological advances influence this field more than some

other fields. For example, in a white paper by Quanovo (2018), the RM field is identified as one of the main areas on which advancements in big data and machine learning technology will have the greatest impact.

The term "intellectual structure" refers to the knowledge base and origins of a discipline (Zupic & Čater, 2015), which is consistent with the theories, approaches, and methods used to enable knowledge creation (Lin & Kaid, 2000). Shafique (2013) defines intellectual structure as a "set of salient attributes of the knowledge base that can provide an organized and holistic understanding of the chosen scientific domain" (p. 63). Identification of the intellectual structure of RM research in hospitality and tourism enables the identification of major source knowledge domains that have informed RM knowledge production since its initiation in 1980s. The interrelationships among the research themes, along with the characteristics of influential studies, are also identified. This study also intends to identify whether there has been a paradigm shift in RM research in hospitality and tourism. This study adopts Kuhn's (1970) theory of scientific change to examine the changes and paradigm shifts in RM in hospitality and tourism. The specific objectives of this research are to

- explore the intellectual structure of RM research through co-citation analysis;
- identify the research themes that establish the intellectual structure of RM research in hospitality and tourism; and
- explore how the growth of research evolved over time through the research themes identified.

2. Literature Review

2.1 Defining Revenue Management

The initial formation period of the RM intellectual structure and its application occurred from the late 1980s to the late 1990s with around a hundred research studies (Jiang, Zhong, & Hu, 2010). In this period, scholars used different definitions of RM. Originating from the airline industry, American Airlines, as one of the leading practitioners of RM, conceptualized RM as "to maximize passenger revenue by selling the right seats to the right customers at the right time" (American Airlines, 1987, p. 22). At that time, RM was coined "yield management" by the airline industry (Kimes, 1989), and its purpose was to maximize yield per available seat (Cross et al., 2009; Donaghy, McMahon, & McDowell, 1995). The airline industry's great success triggered the expansion of yield management practices to a broader range of businesses where the concept evolved into the new term "revenue management" (Jerenz, 2008). Although similar, RM has a broader spectrum than yield management in that it includes ancillary revenue and costs associated with the sale (Denizci Guillet & Mohammed, 2015).

The industry characteristics required to implement RM include fixed capacity, segmented markets, perishable inventory, advance selling, and fluctuating demand. Essentially, these characteristics make many capacity-constrained service industries appropriate candidates for RM (Anderson & Xie, 2010; Wang, 2012). Examples of such service industries include car rental services (e.g., Anderson & Blair, 2004; Geraghty & Johnson, 1997), restaurants (e.g., Kimes, Barrash, & Alexander, 1999), cruise lines (e.g., Hoseason, 2000), and information technology (IT) services and Internet services (e.g., Nair & Bapna, 2001). Weatherford and Bodily (1992) proposed a new term—Perishable-Asset Revenue Management (PARM)—based on traditional RM that aimed to be meaningful to all applicable industries. PARM referred to "the optimal

revenue management of perishable assets through price segmentation" (Weatherford & Bodily, 1992, p. 833).

As mentioned earlier, in the hotel industry, Kimes (1989) defined RM as "the process of allocating the right type of capacity to the right kind of customer at the right price so as to maximize revenue or yield" (p. 15), based on which "at the right time" (Kimes, 2000) and "through the right channel" (Hayes & Miller, 2011) were later added to the definition. To date, this is the most popular RM definition in the hospitality industry context. As hotel RM grew rapidly over the years, the RM concept also evolved. Compared to the traditional inventory-centric RM that aims to optimize inventory, the evolved customer-centric RM focuses on filling demand continuously and cost effectively by analyzing customer data and targeting the most valuable customers (Noone et al., 2011).

2.2 RM research in service industries

The fast development of RM as a discipline aroused an increased number of scientific publications, which created the need for review studies to interpret the scientific knowledge in the field. In this study, the hospitality and tourism sector is defined as including hotels, restaurants, cruises, casinos, attractions and theme parks, meeting and function spaces, spas, golf courses, and travel/tour agencies. Airlines are excluded because this industry was usually studied separately in most RM-related research (e.g., Chiang, Chen, & Xu, 2007; McGill & van Ryzin, 1999). Table 1 shows that common research interests include the RM classification, the evolution of RM research, the RM application to different service sectors, and the gap between the RM conceptual framework and actual industry practice.

*** Please insert Table 1 about here***

2.3 Review of RM literature studies in hospitality and tourism

Kimes (2003) reviewed her 11 RM research studies published in *Cornell Hospitality Quarterly* (CHQ) and divided them into three streams: descriptive research, which describes RM application in various industries; pricing control research, which explains the development and improved management of pricing strategies; and inventory control research, which discusses the improved management of customer arrival and use patterns. Similarly, two other review studies also focused on publications from CHQ and its predecessor, *Cornell Hotel and Restaurant Administration Quarterly* (CHRAQ). Anderson and Xie (2010) aggregated the 25 years of published RM research on CHRAQ. In the study, the RM research themes were proved and extended from airlines and hotels to additional hospitality venues. Thompson (2010), on the other hand, emphasized the restaurant RM research and provided a decision-based framework to classify the publications in CHQ.

Ivanov and Zhechev (2012) reviewed the RM research based on structure, which includes the elements of hotel RM systems (hotel RM centers, RM data and information, pricing and non-pricing RM tools, RM software, and RM team) and the stages of the RM process (goal setting, collecting data and information, analyzing data, forecasting, decision-making, implementing, and monitoring). In this study, Ivanov and Zhechev (2012) made an important note regarding ethical considerations in RM practice, the connections between RM and customer relationship management, and the legal aspects of RM. Another framework was proposed by Denizci Guillet and Mohammed (2015) to trace RM literature and identify the research gaps, comprising the core activities of the hospitality RM process (business analysis, pricing strategy, demand modeling

and forecasting, inventory and prize optimization, setting booking controls, distribution channel management, and performance analysis and evaluation) and factors influencing the RM practice (business strategy; employees; competition; legal, economic, and sociocultural issues; technology; and customers). By adopting the framework, this study referenced 163 publications in the hospitality RM domain from 2004 to 2013 and discussed the following emergent RM issues, in order of importance: pricing, customer and distribution channel management, inventory optimization, forecasting, and application of RM in hospitality industries.

Wang, Heo, Schwartz, Legohérel, and Specklin (2015) evaluated the latest nine major advancements in hotel RM since 2004 and categorized them into eight areas of possible management shifts, including implications of future trends in RM practice. The suggested eight shifts are as follows: (1) from revenue maximization to profit optimization, (2) from a revenue-centric approach to a customer-centric approach, (3) from demand-driven pricing to reputation- and value-based pricing, (4) from short-term tactical RM to long-term strategic RM policies, (5) from focusing on room revenue to total revenue from all yieldable sources, (6) from distribution management to channel management, (7) from relying on historical and predicted demand analysis to capitalizing on the opportunities offered by big data, and (8) from educating RM leaders to fostering a RM culture throughout the organization. Focusing on the RM research after 2000, Erdem and Jiang (2016) examined 70 hotel RM research articles and found that hotel RM had become more strategic, technology-driven, and customer-centric, which was consistent with the findings of Denizci Guillet and Mohammed (2015) and Wang et al. (2015).

More recently, 293 RM research papers between 1989 and 2013 in tourism were reviewed by Domingo-Carrillo, Chávez-Miranda, and Cubiles-de la Vega (2017) and Domingo-Carrillo, Chávez-Miranda, and Escobar-Pérez (2019) for two different purposes. Domingo-Carrillo et al.

(2017) first used the research papers to establish the editorial profile of relevant journals according to the way they respond to the applied research methodology, RM topics, and RM strategies. The purpose of this study was to guide scholars to define their publication strategy and editors to determine their journals' unique position among the others. Next, Domingo-Carrillo et al. (2019) extended the study to examine the tourism RM study's evolution and trend, publication origin (by countries, authors, universities, and companies, as well as the collaboration between them), journals, and content (research method and RM strategies), which facilitate the future research design and help form the collaboration strategies of authors and institutions. Based on their content analysis, the topics most commonly examined by the researchers in order of importance were capacity management, pricing, forecasting, overbooking, segmentation, channel management, and auctions.

The previous review studies are instrumental in tracing the evolution of RM research in the hospitality and tourism sector and in predicting the direction of future research. However, most of these studies have limited study time scope, resulting in very fragmented findings. Unlike these past studies, the current research focuses on an extended time period (up to the end of 2018) to explore how the overall theoretical foundation of RM research evolved over time through co-citation analysis.

2.4 Co-citation analysis

The purpose of using bibliometric methods such as co-citation analysis is to construct structural images of the scientific disciplines based on bibliometric data from publication databases (Zupic & Cater, 2015). These structural images are called science maps and the method is called science mapping. Five bibliometric methods include citation analysis, co-citation analysis, bibliographical coupling, co-author analysis and co-word analysis (Cobo, Lopez-Herrera,

Herrera-Viedma, & Herrera, 2011). In this study, co-citations analysis is utilized. Co-citation is defined as the frequency with which two units are cited together in one article (Small, 1973), indicating a commonality between these two units. In other words, co-citation analysis examines the relationships among citations in source articles (McCain, 1990). It is a method to filter the most important works in a discipline, based on the assumption that citation is a measure of influence. Co-citation has been proven useful for describing the intellectual structure of disciplines. Co-citation network analysis makes the assumption that the more often the two documents are co-cited, the more likely their ideas relate to each other (Borgman, 1990; White, 2000). When the same pairs of articles are co-cited by a number of authors, clusters of research begin to form. In general, co-cited articles in the same cluster share some common theme. According to Zupic and Cater (2015), co-citation analysis is the most used and validated bibliometric method. In examination of the paradigm shifts and schools of thought, co-citation analysis over time is helpful (Pasadeos, Phelps, & Kim, 1998). In this study, network analysis was employed to analyze and visualize co-citation networks. Networks can be defined as visualizations of scientific fields. Network ties represent similarity connections. "Network analysis provides tools to visually represent and examine ecologies of large and complex networks such as academic research communities" (Racherla & Hu, 2010, p. 1016). In this research, network analysis enables the visualization of the intellectual connections and the progression of the revenue management source domains in hospitality and tourism research.

2.5 Kuhn's theory of scientific revolutions

Kuhn's seminal approach in scientific evolution (1970) approach dates back more than 50 years, but it is the most well-known theory of scientific change (Burmaoglu & Saritas, 2019) used by many scholars (De Langhe, 2017). According to Kuhn (1970), a paradigm refers to knowledge,

rules, and methods commonly accepted and regularly used by scientists within a discipline. Rees (2012) posited that a paradigm shift is a philosophical shift rather than a scientific one due to the incommensurable nature of paradigms. This means that there is no position from which one can be shown to be superior to another. Focusing on social sciences, Rees (2012) stated that Kuhn's perspective on scientific evolutions is embraced by social scientists despite these critics. Polsby (1998) also supported this perspective by arguing that Kuhn's scientific evolutions approach is more appropriate and viable in social sciences in comparison to hard sciences.

In his book on the structure of scientific evolutions, Kuhn (1970) considered scientific change and progress as an iterative progress through four phases: pre-science, normal science, crises, and revolutions. At the pre-science phase, there are no agreed-upon theories and concepts; rules and methods that constitute rules of science do not exist yet, and formation of these rules is in progress. At the normal science phase, scientists deepen the paradigm by establishing the rules of science that help them perform research within available frameworks to expand the knowledge base. Scientists feel comfortable carrying out their research in this phase. "Normal science is characterized by very clear research questions, methodology, and expectations. Papers in such a context are expected to share more common reference pairs than expected by chance" (De Langhe, 2017, p. 508). Eventually, anomalies occur to challenge the existing paradigm, which leads to the crisis phase. Different from the normal science phase, at the crisis phase, disagreements evolve into questions regarding the existing paradigm (Kuhn, 1970). New concepts and theories are used to answer the questions related to the anomalies, and science returns to its normal phase. At the revolutionary phase, competing paradigms become developed enough to conquer the existing paradigm, allowing the new paradigm to become the norm.

Kuhn (1970) developed this perspective on natural sciences, which is different from management paradigms (Clarke & Clegg, 2000). Clarke and Clegg (2000) argued that unlike natural sciences, where one paradigm may hold its unquestioned influence for some years, "frequent paradigm shifts are essential for survival in a business context of constant innovation" (p. 45). Because the RM discipline is within the management domain, multiple competing paradigms may exist at the same time, and paradigm shifts may occur as the managerial and organizational world evolves. In their citation analysis of innovation policy research using Kuhn's approach, Burmaoglu and Saritas (2019) stated that "… the interdisciplinary characteristics of innovation policy make this evaluation process even harder for experts because of the interactions between different domains and concepts" (p. 839). Similar to innovation policy research, RM is also an interdisciplinary field which incorporates teachings from various domains such as economics, consumer behavior, statistics and strategic management. An important point to address is how to examine the four phase transitions in RM research. The following quote from Kuhn (1962) provides perspective on how to examine the phase transitions: "… if I am right that each scientific revolution alters the historical perspective of the community that experiences it, then that change of perspective should affect the structure of post-revolutionary textbooks and research publications. One such effect – a shift in the distribution of the technical literature cited in the footnotes to research reports – ought to be studied as a possible index to the occurrence of revolutions" (p.172). In line with Kuhn's statement, Sullivan, Koester, White and Kern (1979) argued that co-citation patterns can be used to recognize the scientific revolution and the development of a new paradigm within a research field.

De Langhe (2017) suggested a method to operationalize Kuhn's scientific evolution approach. He explained that paradigms can be identified as clusters of papers that have overlapping reference pairs. Evolution of these paradigms can be detected in observable changes or dissolutions of the overlapping reference pairs. Citation data was not available in Kuhn's time although he argued that occurrence of scientific revolutions can be studied and detected through a shift in the distribution of the references (Kuhn, 1970).

3. Methodology

3.1 Data collection

In line with the purpose of this research, the following three major online databases were used that are frequented by hospitality and tourism researchers (Denizci Guillet & Mohammed, 2015): EBSCOhost, ProQuest Business, and ScienceDirect. Similar to their study, the search was limited to publications in hospitality and tourism journals identified in McKercher, Law and Ram's (2006) study. The following keywords were used with the keyword search method to locate the research publications in the hospitality and tourism RM field: "capacity control, capacity management, competition, competitive set, distribution channel, distribution management, demand forecasting, duration control, inventory control, inventory management, market share, overbooking, price, pricing, rate, revenue management, revenue manager, segmentation, and yield management" (Denizci Guillet & Mohammed, 2015, p. 530). These keywords were combined with subindustry segments of the hospitality and tourism industry, including hotels, restaurants, cruises, casinos, attractions and theme parks, meeting and function spaces, spas, golf courses, and travel/tour agencies. The study examined articles published until the end of 2018. Only articles written in English were included. Data collection was completed in April 2019.

The 829 articles were identified in the preliminary research. Each full-length research article was examined for its relevancy to hospitality and tourism RM by the author and two hired research assistants. Because it was essential for the main focus of the article to be RM, the RM process developed by Denizci Guillet and Mohammed (2015) was used as a reference point. At the initial selection process, the author and two research assistants independently evaluated the articles on whether they should be included for the final selection or not. At the second stage, three researchers met to review the articles and discuss their relevance. Finally, articles selected by all three researchers were included for further analysis. There was 100% consensus in the articles selected. This method was followed to avoid personal biases during the selection of articles. Following this criteria, 343 articles were retained for further analysis. These research articles were published in 24 hospitality and tourism journals (Table 2). The five leading hospitality and tourism journals in the RM research context are *Cornell Hospitality Quarterly*, *International Journal of Hospitality Management*, *International Journal of Contemporary Hospitality Management*, *Tourism Management*, and *Journal of Travel Research*. Fluctuations in the number of RM-related articles published in hospitality and tourism journals between 1983 and 2018 are presented in Figure 1. A clear increase in the number of RM-related articles in hospitality and tourism journals occurred between 2008 and 2018. This increase might be attributed to the advancements in IT and the increasing importance of the Internet as a distribution channel.

*** Please insert Figure 1 about here***

*** Please insert Table 2 about here***

3.2 Data analysis

The bibliometric analysis technique used in this study is co-citation analysis. The reference lists of the articles were retrieved manually from 343 articles and saved in a Microsoft Excel spreadsheet. Prior to data analysis, data cleaning was performed to sort out the discrepancies or mismatches due to spelling errors. Errors uncovered were corrected. BibExcel bibliometric software was used to identify the co-occurrence among references to prepare the network analysis. Similar to other bibliometric studies (Koseoglu, Okumus, Dogan, & Law, 2018; Leung, Sun, & Bai, 2017), data were divided into different periods to examine whether there is evolution in the field. Five periods were created to investigate the evolution of the RM field in the hospitality and tourism industry: pre-1998, 1999–2003, 2004–2008, 2009–2013, and 2014–2018. Figures 2 to 7 are VOSViewer diagrams to visualize source knowledge networks that is revealed as a result of co-citation analysis for each time period. Each circle represents a reference. The size of the circle refers to normalized number of citations received by the article. The strength of the co-citation connections is represented by the thickness of the lines. Leung et al. (2017) stated that circle colors show the cluster that a reference belongs to. Circles in this study were labeled by the code given by the researcher for a reference entry. The paradigm shift approach was adopted to acquire a better understanding of scientific evolution. The word "paradigm" comes from the Greek word *paradeigma* and literally means model, framework, pattern, or example (Clarke & Clegg, 2000). To determine whether there is a paradigm shift in RM research in hospitality and tourism, this study is guided by Kuhn's (1970) seminal approach in scientific evolution.

4. Findings

4.1 Co-citation analysis

The sample for this study contained 11,953 citations. Similar to the co-citation studies in the past (Koseoglu et al., 2018; Leung et al., 2017; McCain, 1990), this study used a cutoff point to select the most influential papers. Different studies used different cutoff points that ranged from citations cited at least three times and at most 20 times (Koseoglu et al., 2018; Leung et al., 2017). Citations cited at least six times were selected in this study to enable proper visualization of the networks. Two books that have been very influential in RM research in hospitality and tourism were included in the co-citation analysis. The most influential book in this context is *Yield Management: Strategies for Service Industries* by I. Yeoman and A. Ingold, which was published in 1997. The second-most influential book is *The Strategy and Tactics of Pricing* by T. T. Nagle and R. K. Holden, which was published in 1995.

Co-citation analysis for each period was performed to cluster the selected citations through the smart local moving algorithm as the method of cluster analysis (Waltman & Van Eck, 2013). Co-citation networks for each separate period and for the entire period were visualized through VOSviewer software. The size of each bubble indicates the normalized number of citations received for the articles. The thickness of the lines is related to the strength of the co-citation links (Leung et al., 2017). The co-citation relationship is represented by the link and the proximity between two cited articles. The color of each bubble indicates the cluster that the article belongs to. Each bubble is labeled with the code generated by the author (Koseoglu et al., 2018). The code list is available in the appendix. From a data analysis perspective, a qualitative approach was used to identify the stages of scientific evolution in RM research in hospitality and tourism. High citation scores were linked to emerging research (Burmaoglu & Saritas, 2019) for the observation period of 1983–2018.

4.2 Intellectual structure of RM research in hospitality and tourism: pre-1998

The co-citation network of most frequently cited works by RM research in hospitality and tourism during the pre-1998 period is presented in Figure 2. This time period represents the initiation of RM research in hospitality and tourism. Five clusters in red, green, blue, yellow, and purple were generated. Cluster 1 (red) is mostly dominated by articles that focus on the transition of RM from the airline to the hotel industry. For example, Kimes (1989b) (A13) explains how yield management can be implemented by capacity-constraint service firms following the example of airlines. Another influential article is related to the application of RM in the airline industry (A32). Hanks, Cross, and Noland (1992) (A2) examines discounting in the RM context in the hotel industry. It is important to note that A2 was published again in CHRAQ in 2002 (refer to the appendix). Cluster 2 (green) is related to the basics of hotel RM. The most prominent articles in this cluster are A3 and A7. Kimes (1989a) (A3) and Orkin (1988) (A7) laid down the basics of RM in the hotel industry. Cluster 3 (blue) includes articles on hotel inventory management with a specific focus on overbooking (A92, A184, A162). Cluster 4 (yellow) is governed by pricing-related research in the RM context. Relihan (1989) (A21) delved into hotel room pricing while Shaw (1992) examined price in relation to positioning. Cluster 5 (purple) includes A33 and A96, which are about developing a RM framework. For instance, Jones and Hamilton (1992) (A33) developed a seven-stage revenue management model, and Donaghy, McMahon, and McDowell (1995) (A96) presented an operational RM framework focusing on 10 key areas.

*** Please insert Figure 2 about here***

4.3 Intellectual structure of RM research in hospitality and tourism: 1999–2003

Figure 3 shows the co-citation network of the most frequently cited works related to RM research in hospitality and tourism during the 1999–2003 period. This analysis generated six clusters represented by red, yellow, green, light blue, dark blue, and purple. Cluster 1 (red) does not exhibit a dominant approach and is a mixed cluster. Specific topics in hotel RM include room pricing (A8, A21, A56, A178), overbooking (A8, A92), and segmentation (A171). Cluster 2 (yellow) is dominated by topics related to the RM application to the airline, hotel, and restaurant industries. A32 focuses on the airline industry; A2, A11, A42, and A57 focus on the hotel industry; and A78 focuses on the restaurant industry. Cluster 3 (green) mostly includes works from consumer behavior and behavioral economics. For instance, two of the most influential articles are by Thaler (2008) (A19) and Kahneman and Tversky (1979) (A24). Kahneman, Knetsch, and Thaler (1986) (A101) also focus on behavioral economics, specifically prospect theory, which is a hybrid of consumer behavior and microeconomics. This is a clear indication of the influence of behavioral economics on RM research in hospitality and tourism. An unexpected subcategory in this cluster, represented by A17 and A134, focuses on restaurant RM. Cluster 4 (light blue) is governed by RM pricing. A93 is the previously mentioned *The Strategy and Tactics of Pricing* textbook by Nagle and Holden (1995). A172 focuses on price and positioning. Cluster 5 (dark blue) represents customer perceptions on pricing. Similar to cluster 3, the majority of the articles included in this cluster are outside of hospitality and tourism. One of the most influential works is Zeithaml (1988) (A22), which is on the consumer perceptions of price, quality, and value. Monroe (1973) (A36) examined perceptions on price. Reference pricing is studied in A120. Cluster 6 (purple) is also dominated by customer perceptions on pricing (A26, A62, A151). This cluster includes articles mainly from outside of hospitality and tourism. Clusters 5 and 6 are very similar. Perhaps the difference between cluster 5 and cluster 6 is that

the main perception examined is fairness in cluster 6 while cluster 5 covers a wider spectrum of perceptions. It is surprising that these clusters 5 and 6 appeared as two separate clusters in the data analysis.

*** Please insert Figure 3 about here***

4.4 Intellectual structure of RM research in hospitality and tourism: 2004–2008

The co-citation network of the most frequently cited works by RM research in hospitality and tourism in the 2004–2008 period is presented in Figure 4. Eight clusters were generated in light blue, dark blue, purple, yellow, green, orange, red, and brown. Compared to the previous two periods analyzed (pre-1998 and 1999–2003), this period includes two more research themes. A new research theme emerging in this period is demand forecasting (cluster 1 in light blue). The most important work in this cluster is the previously mentioned Yeoman and Ingold's *Yield Management: Strategies for the Service Industries* book (A4). Hotel RM forecasting is at the core of this cluster (A29, A30, A60). Weatherford and Kimes (2003) (A29); Weatherford, Kimes, and Scott, (2001) (A30); and Schwartz and Hiemstra (1998) (A60) laid the groundwork in hotel demand forecasting. Cluster 2 (dark blue) is on hotel RM, and the most important works in this cluster are A79, A94, and A142. Donaghy, McMahon, and McDowell (1997) (A79) focused on the implementation of RM at the organizational level in the hotel industry. Choi and Cho (2000) (A94) adopted a rule-based framework to enable successful RM implementation in the hotel industry. Griffith (1995) (A142) examined the success factors in the hotel RM systems. Cluster 3 (purple) is dominated by developing a RM framework for the hotel industry. For example, A13 (Kimes, 1989) made recommendations on using RM as a tool to optimize revenues. Hanks, Cross and Noland (1992) (A2) continues to be a highly cited work in this period as well. Cluster 4 (yellow) is largely about restaurant RM (A17, A70, A134). This is the

first period that restaurant RM appears as a separate research stream within hospitality and tourism RM research. The most influential work in this cluster is by Kimes, Chase, Choi, Lee, and Ngonzi (1998) (A17) in which they explained how RM can be implemented in the restaurant industry. Cluster 5 (green) is governed by price fairness perceptions. Unlike the 1999–2003 period, there is a better balance of articles inside and outside of hospitality and tourism. For instance, A1, A6, A16, and A47 are inside hospitality and tourism, whereas A16, A19, A69, and A151 are outside the industry. The works outside of hospitality and tourism focus on consumer behavior research on fairness perceptions. Cluster 6 (orange) focuses on factors influencing hotel prices. The most influential work in this cluster is Schwartz (2000) (A37). He focused on customers' willingness to pay as the hotel check-in date approaches. Shapiro (2003) (A149) is a newspaper article on last-minute booking. Cluster 7 (red) is dominated by the reference pricing approach within the context of RM pricing. The reference price refers to an internal standard against which observed prices are compared (Kalyanaram & Winer, 1995). The most influential works in this cluster are from consumer behavior research (A65, A73). Winer (1986) (A65) and Kalyanaram and Winer (1995) (A73) stated that reference pricing is used by consumers to make purchase decisions. Cluster 8 (brown) is on pricing in general with a focus on service industries (A22, A93, A183). Nagle and Holden's (1995) (A93) book, *The Strategy and Tactics of Pricing*, maintains its importance as a source knowledge domain during this period as well. Shoemaker (2003) (A183) discussed the future of pricing in services. He introduced the concept of value-based pricing and stated that understanding prospect theory in the context of pricing is important when pricing services.

*** Please insert Figure 4 about here***

4.5 Intellectual structure of RM research in hospitality and tourism: 2009–2013

During the 2009–2013 period, the number of clusters decreased from eight to six (Figure 5), indicating that there is less fragmentation in the research themes. Six clusters are represented in light blue, dark blue, yellow, purple, red, and green. Cluster 1 (light blue) does not exhibit a dominant approach; therefore it is a mixed cluster. It includes works related to the customer relationship management integration with RM (A45, A85) and studies related to the implementation of RM in the hotel industry (A7, A126, A195). Yeoman and Ingold's book (A4) is also in this cluster. Cluster 2 (dark blue) is governed by price fairness perception studies. Most influential works are from the hospitality and tourism literature (A1, A6, A16), although the influence of consumer behavior research is still evident (A24, A36, A43, A175). For instance, Kimes (2002) (A1) examined customer perceptions of fairness on rate structures in airline and hotel industries. Kimes and Wirtz (2003) (A6) studied perceived fairness of rate fences in the restaurant industry across Singapore, Sweden, and the United States. Cluster 3 (yellow) is mainly on the application of RM to the hotel, golf, and restaurant industries. Cluster 4 (purple) is dominated by a new research theme—hotel distribution channel management—that was not existent in the prior periods examined. The primary focus is online distribution. The most influential articles that focus on hotel online distribution are A20 in which Carroll and Siguaw (2003) delved into the evolution of electronic distribution. Noone and Mattila (2009) (A27) examined the effects of online price presentation strategies on customers' willingness to book. Given the increasing importance of the Internet as a distribution channel for hotels worldwide, the emergence of this research theme during the 2009–2013 period is not surprising. Cluster 5 (red) is a mixed cluster and does not exhibit a dominant approach. Influential works include online pricing (A34, A46, A119), segmentation (A71), and distribution management (A64). In this large cluster, the most influential works are A10 and A46. In their revolutionary article,

Cross, Higbie, and Cross (2009) (A10) discussed RM's evolution and change since its initiation in the hotel industry. Connor (2003) (A46) focused on online pricing in the hotel industry. Cluster 6 (green) is governed by determinants of hotel pricing. Modeling hotel room rates was studied by multiple scholars (A5, A12, A14, A53, A68, A112). Espinet, Saez, Coenders, and Fluvià (2003) (A5) tested how different characteristics of holiday hotels influence the price in Spain. Israeli (2002) (A12) examined the influence of star ratings and corporate affiliation on room prices in Israel. Thrane (2017) (A14) studied the determinants of room rates in Norway.

*** Please insert Figure 5 about here***

4.6 Intellectual structure of RM research in hospitality and tourism: 2014–2018

The co-citation network of the most frequently cited works by RM research in hospitality and tourism in the 2014–2018 period is presented in Figure 6. Seven clusters are represented by orange, red, light blue, purple, green, yellow, and dark blue. Cluster 1 (orange) is dominated by hotel RM demand forecasting studies (A29, A30, A60, A76, A147). Kimes (1999) (A76) and Yuksel (2007) (A147) are the new influential works in this period. Although there is no dominant approach in cluster 2 (red), the works in this cluster are on the application and advancement of RM in the hospitality industry (but beyond the hotel industry) to include restaurants (A17, A106, A185) and spas (A176). The articles that focus on the advancement of RM practices in the hospitality industry include A10, A33, A45, and A89. The most influential sources in this cluster are A1 and A10. Kimes (2002) (A1) dealt with the perceived fairness concept in RM. Cross, Higby and Cross' (2009) (A10) article on the evolution of RM continues to be an important source from this period. Cluster 3 (light blue) is governed by price fairness perceptions (A16, A27, A31, A38). This research stream continues to be at the forefront of RM research since the 1999–2003 period. Another important observation is that the most cited works

in this period are price fairness perceptions research in hospitality and tourism rather than consumer behavior and behavioral economics. Cluster 4 (purple) is related to pricing and performance measurement. Within the same cluster, hotel pricing and performance measurement are placed in two different groups. This makes sense as pricing and performance measurement are two different topics. It is interesting that they appear in the same cluster which is an indication that they were cited together in the articles. The most influential works in this cluster are on hotel pricing (A28, A35, A68, A82) and performance measurement (A116, A140). Hung, Shang, and Wang (2010) (A28) examined the determinants of hotel pricing in the hotel industry. Becerra, Santaló, and Silva (2013) (A35) identified vertical and horizontal differentiation effects on hotel pricing in Spain. In terms of hotel performance, the most influential study was conducted by Ismail, Dalbor, and Mills (2002) who used revenue per available room to analyze hotel performance volatility. Cluster 5 (green) is dominated by hotel distribution channel management with a focus on online distribution (A55, A59, A95, A109, A145). For instance, Buhalis and Law (2008) (A55), in their review paper, discussed the progress in IT research in tourism. Similar to Cluster 3, Cluster 6 (yellow) also focuses on price fairness perceptions (A22, A36, A43, A54, A64, A105, A151). Price fairness perceptions studies continue to use consumer behavior research as a major source domain (A22, A36, A64, A151). It is interesting that price fairness perception studies appear as two different clusters, namely cluster 3 and cluster 6. A close observation of the studies listed in these clusters shows that majority of the studies in cluster 3 are in hospitality and tourism context while cluster 6 is a mix of studies from hospitality and mainstream marketing with marketing studies leading the cluster. Cluster 7 (dark blue) is related to modeling hotel room rates with an emphasis on a hedonic pricing approach. The works that focus on a hedonic pricing approach in the hotel industry include A5, A39, A52, A58, A77,

A112, and A113. Similar to the 2009–2013 period, modeling hotel room rates is a dominant research theme in this cluster (A5, A12, A14, A40, A41, A48, A87, A97, A98, A112, A177). As the largest cluster in this period with a number of very influential works, modeling hotel room rates is obviously a dominant source domain.

*** Please insert Figure 6 about here***

4.7 Intellectual structure of RM research in hospitality and tourism: 1983–2018

Figure 7 shows the co-citation network of the most frequently cited works by RM research in hospitality and tourism in the 1983–2018 period. Six clusters are represented by light blue, red, green, purple, yellow, and dark blue. Cluster 1 (light blue) is the smallest cluster, which is dominated by Yeoman and Ingold's (1997) book on yield management. Since its introduction, this book has been the most influential on RM in hospitality and tourism research. Cluster 2 (red) generally focuses on RM application in the hotel industry. With the exception of two articles in restaurant RM (A17, A47), all influential articles are on the application of RM in the hotel industry (A1, A2, A3, A7, A8, A10). Cluster 3 (green) focuses on price fairness perceptions and customer perceptions of RM strategies in general. In this cluster, the influence of consumer behavior research on fairness perceptions is evident (A19, A22, A26, A36, A101, A121, A154). Cluster 4 (purple) is governed by demand forecasting, and A29, A30, A60, A76, A124, A158, and A159 focus on hotel RM forecasting. Cluster 5 (yellow) is on modeling hotel room rates and online pricing, and A25, A34, A46, A5, A109, and A119 focus on online pricing. A56 and A130 are related to modeling hotel room rates. Cluster 6 (dark blue) is related to modeling hotel room rates with an emphasis on a hedonic pricing approach. This cluster is very similar to cluster 7 in the 2014–2018 period.

*** Please insert Figure 7 about here***

5. Discussion

This study offers a perspective on the interpretation of intellectual connections and evolution of RM studies in hospitality and tourism as a field. Discussing the evolution of RM in hospitality and tourism is not a simple task due to the complex nature of the scientific domains used in this discipline. The interdisciplinary characteristics of RM research in hospitality and tourism makes the evaluation process of scientific change challenging due to the interactions between different domains and concepts (Denizci Guillet & Mohammed, 2015). As a result of analyzing five time periods, the evolutions of source knowledge domains are summarized with an inferential perspective in Figure 8 in which lines represent discourses formulating such knowledge domains. Dotted lines represent that a knowledge domain skipped one period. Evolution of the source domains are presented in each source domain over time. In other words, evolution is explained horizontally rather than vertically. The first theme is the application of RM to the hospitality and tourism industry. Pre-1998 period represents the transition of RM from the airline to hotel industry. During this time, major source domains were articles related to airline RM and basic application of RM to the hotel industry. 1999-2003 period knowledge domain in this area evolved to include RM application to hotels and restaurants. Restaurant RM is a stand-alone cluster for the first time in 2004-2008 period which shows the evolvement of RM application research to a wider spectrum of hospitality industry. 2009-onwards RM application research is expanded to service industries such as golf courses and spas. The second theme is basics of RM which is later retitled as hotel RM as the research evolved over time. This source domain continues to exist throughout the data analysis period, sometimes as a stand-alone cluster and sometimes as blended in other clusters. The third theme, RM framework, is a source domain in pre-1998 and 2004-2008 periods. Articles listed in this domain are mostly those works that build

a basic structure underlying RM systems and application in the hospitality industry to facilitate an understanding of how RM works.

*** Please insert Figure 8 about here***

The fourth theme is pricing. This is a theme existent in all five time periods. It evolved to two separate source domains, namely factors influencing hotel prices and reference pricing, during 2004-2008 period. Two other source domains also evolved from pricing in 2014-2018 period are pricing and performance measurement and modelling hotel room rates. Hotel inventory management (theme five) appeared as a source domain only once in pre-1998 period. Theme six is consumer behavior and behavioral economics and appears as a source domain only in 1999-2003 period. However, these works are usually blended in other clusters such as Presence of this theme shows the influence of behavioral economics on RM research in hospitality and tourism. The seventh theme is customer perceptions on pricing. The source domain in this theme starts with articles from marketing in 1999-2003 period and continues all the way until 2014-2018 period. The evolvement in this theme is mostly related to source articles moving from mainstream marketing research to hospitality and tourism research. In addition, the research domain moved from customer perceptions on pricing to price fairness perceptions which made the focus 'fairness' perceptions above all other perceptions such as reasonabless, acceptability and justice. The eight theme is demand forecasting. This theme made its first appearance in 2004-2008 period and came back in 2014-2018 period. The last theme is hotel distribution channel management. This theme is dominant as a source domain in 2009-2013 and 2014-2018 periods. Much of the research in this theme focuses online distribution and management of online channels.

Kuhn's (1970) structure of scientific evolutions is used as a point of reference to guide the proceeding discussion.

The pre-1998 period is the initiation of RM research in hospitality and tourism with five clusters. These clusters center around topics that include the transition of RM from the airline industry to the hotel industry, basics of hotel RM, hotel inventory management, RM pricing, and RM frameworks. Using Kuhn's (1970) perspective, this period comes across as the pre-science phase in which the rules of science related to RM in hospitality and tourism were in the introductory and development stages. The clusters on the transition of RM from the airline industry to the hotel industry, basics of RM, and RM frameworks indicate that the general body of knowledge was being created during this period. However, there is no evidence that scientists deepened the existing RM paradigms by establishing the rules of science. During the 1999–2003 period, six clusters were generated: (1) hotel RM; (2) basics of RM in hotel, airline, and restaurant industries; (3) consumer behavior and behavioral economics; (4) RM pricing; and (5) customer perceptions on pricing. One cluster didn't exhibit a dominant approach. The contribution of two disciplines outside of hospitality and tourism—namely, consumer behavior/behavioral economics and customer perceptions on pricing—is evident during this period. Researchers continued to frequently cite works in hotel RM, and RM pricing.

Similar to the pre-1998 period, the 1999–2003 period is also in the pre-science stage. Clusters increased from six to eight during the 2004–2008 period. Demand forecasting appeared in this period as a new research domain within RM research. The customer perceptions on pricing cluster in the previous cluster is divided into two clusters in the 2004–2008 period, including price fairness perceptions and reference pricing. Concurrent research themes are hotel RM, RM framework, and RM pricing. Restaurant RM is a new cluster in this period. Elements of a normal

science phase are evident in this period from a Kuhnian perspective. The knowledge base expanded within well-defined scientific rules. Studies on hotel demand forecasting is a good example for such expansion in the knowledge base. These earlier studies on hotel demand forecasting (A29, A30 and A60) which were published in 2003, 2001 and 1997 became highly cited works in 2004-2008 period. This is an indication of the progression in the RM demand forecasting context. It also shows that researchers start building on these fundamental works of scholars that initiated forecasting research in RM context in hospitality and tourism. Six clusters appeared in the 2009–2013 period. Two clusters do not exhibit a dominant approach. However, these clusters include topics on customer relationship management integration with RM, implementation of RM in the hotel industry, online pricing, segmentation, and distribution management. Price fairness perceptions and RM pricing were concurrent research themes, whereas hotel distribution channel management appeared for the first time as a cluster. Application of RM expanded to other industries to include the golf industry in addition to the hotel and restaurant industries. Most cited works in this period included articles published both inside and outside of hospitality and tourism. Outside knowledge domains included works from consumer behavior. Part of this phase appeared to be a normal science phase as scientists continue their works on price fairness perceptions and RM pricing. Expansion of the knowledge base is evident from the size of the clusters in Figure 5. Compared to previous periods, the size of price fairness perceptions and RM pricing clusters are much larger indicating a growing research interest in these areas expanding the research themes. New and contemporary topics, such as customer relation management integration with RM, appeared for the first time in this period to show the rapidly growing profusion of RM ideas and concepts. Everything online such as online pricing and management of online distribution channels became important in this

period. Although these new domains and ideas surfaced in the literature, there is no evidence of the actual crisis or revolutionary phases where anomalies occur to challenge the existing paradigm.

During the 2014–2018 period, the concurrent research themes were price fairness perceptions, RM pricing, hotel distribution channel management, and the application and advancement of RM to the hospitality industry beyond the hotel industry. Demand forecasting is back in this period as a separate cluster. Modeling hotel room rates is a large cluster in this period. The main approach used for modeling hotel room rates was a hedonic pricing model. From a Kuhnian perspective, this phase comes across as the normal science phase. The knowledge base continued to expand, but there is no evidence of anomalies or crises that would then lead to the revolutionary phase. One of the reasons for this finding might be that RM is a relatively new discipline compared to other established disciplines, such as finance or management. Therefore, a crisis is not evident at this point of its development, although RM is a part of the management field where frequent paradigm shifts are essential as the businesses evolve and change (Clarke & Clegg, 2000).

One of the purposes of this study was to identify whether there is a paradigm shift in RM research in hospitality and tourism. After reviewing five periods of the co-citation network of the most frequently cited works by RM research in hospitality and tourism, it appears that scientific changes and progress in this field did not go beyond the normal science phase during the study period of 1983–2018. According to De Langhe (2017), one of the evidences of a normal science phase is that the papers share more common reference pairs than expected by chance. Indication of such a phenomenon is traceable from the frequency of the lines connecting the data sources in Figures 5 and 6 in the 2009–2013 and 2014–2018 periods, respectively. However, this evolutionary process does not yet seem to reach the crisis phase and later revolutionary phase.

There are traces of new thinking in the RM research in hospitality and tourism, particularly regarding the application and advancement of RM in nontraditional hospitality industries (e.g., restaurants, golf courses, and spas) and the integration of customer relationship management and RM. However, there is no current indication of anomalies in the form of conflict or questioning of the existing paradigms in RM research in hospitality and tourism. This might change as the research in this realm develops further and evolves.

None of the previous RM literature review studies in hospitality and tourism (Anderson & Xie, 2010; Denizci Guillet & Mohammed, 2015; Domingo-Carrillo et al., 2017; Domingo-Carrillo et al., 2019; Ivanov & Zhechev, 2012; Kimes, 2011; Wang et al., 2015) examined the evolution of RM research in hospitality and tourism using co-citation analysis on reference titles. In addition, none of the aforementioned studies investigated knowledge domains to depict the most influential scholarly and other works that enable knowledge transmission and transformation in RM research in hospitality and tourism.

Another framework was proposed by Denizci Guillet and Mohammed (2015) to trace RM literature and identify the research gaps, comprising the core activities of the hospitality RM process (business analysis, pricing strategy, demand modeling and forecasting, inventory and prize optimization, setting booking controls, distribution channel management, and performance analysis and evaluation) and factors influencing the RM practice (business strategy; employees; competition; legal, economic, and sociocultural issues; technology; and customers). By adopting the extended framework for hospitality RM, this study referenced 163 publications in the hospitality RM domain from 2004 to 2013 and discussed the following emergent RM issues, in order of importance: pricing, customer and distribution channel management, inventory optimization, forecasting, and application of RM in hospitality industries. Table 3 presents the

classification of most influential works in source domains according to extended framework for hospitality RM. The systematic presentation of the most influential works shows which works created the source knowledge of hospitality and tourism RM research. Although business analysis and setting booking controls are part of core RM process, they are not included in the table as they do not appear as source domains in the data analysis. Business analysis is related to the use of various techniques to gather and analyze internal and external data to implement RM properly (Denizci Guillet & Mohammed, 2015). Research related to determination and management of rate restrictions are related to setting booking controls. This table also shows which works were persistently influential over time as well as those disappeared after showing up once in the list during earlier periods.

*** Please insert Table 3 about here***

6. Conclusion

This study identified the major source knowledge domains that have informed RM knowledge production over a 35-year period (1983–2018) through citation subject clustering and source knowledge evolution. Co-citation analysis was used to visualize the findings over five time periods. From this analysis, the structural changes in the intellectual connections were identified as the RM research in hospitality and tourism evolved over a period of 35 years.

It is evident from the findings over five periods that source knowledge domains used to inform and support RM research in hospitality and tourism are diverse and dynamic while remaining similar and static at the same time. For example, source knowledge domains such as hotel RM and RM application to non-hotel hospitality and tourism industries remained throughout five observation periods. Over time, RM application to the non-hotel hospitality and tourism

industries source domain extended to include more industries, such as golf, spa, and restaurant. In contrast, hotel inventory management and consumer behavior and behavioral economics were source domains mainly in the 1999–2003 period. Another dominant major source domain is pricing, which evolved over time to include factors influencing hotel prices and reference pricing in the 2004–2008 period and performance measurement and modeling hotel room rates in the 2014–2018 period.

6.1 Theoretical implications

Denizci Guillet and Mohammed (2015) identified pricing, customer-related studies, and distribution channel management as the dominant topics for the period of 2004–2013. Customer-related studies refer to studies on customers' perceptions on demand-based pricing practices. Comparing the source knowledge domains to core RM processes defined by Denizci Guillet and Mohammed (2015), the common topics are pricing, demand modeling and forecasting, distribution channel management, and price fairness perceptions. Even though this study examined the source domains over the 1983–2018 period, which covers the 2014–2018 period that Denizci Guillet and Mohammed (2015) did not cover, the topics have not evolved within this time frame.

Although the findings of this study do not indicate a paradigm shift in RM research in hospitality and tourism yet, there are indications of a probable upcoming shift in the near future. The drivers of this possible shift are IT as the technical core and the Internet as the enabling mechanism (Clarke & Clegg, 2000). The hints are in source knowledge domains such as demand forecasting and hotel distribution channel management. Demand forecasting became a source domain in the 2004–2008 period and then skipped one period (2009–2013) and came back in the 2014–2018 period. Demand forecasting in the RM context requires large amounts of secondary data and

knowledge of big data analytics. The hotel distribution channel management source domain, which is present in two periods, namely, 2009–2013 and 2014–2018, mainly focused on the online distribution of hotel rooms. Even the discussion related to pricing matters has a focus on online pricing for the same two time periods.

6.2 Practical implications

RM researchers, journal editors, and practitioners should consider the following issues related to research themes that have the potential of moving RM research in hospitality and tourism to the next level, enabling the paradigm shift in this discipline.

Evolution of RM pricing strategies: RM pricing research has been at the center of RM research during all five observation periods in this study. Since the introduction of RM in the hotel industry, RM scholars have focused on best available rate (BAR) and demand-based/dynamic pricing, which is in line with the hotel industry's RM pricing practice. In recent years, two pricing techniques have been developed in the RM context: open pricing and attribute-based pricing (ABP). Open pricing refers to the pricing of all room types, channels, and dates independently of each other instead of setting tiered BAR prices (Duetto, 2019). The idea of open pricing was coined by Duetto in 2012 (Applegate, Piccoli, & Pigni, 2015). As mentioned, the other brand-new pricing method in the RM context is ABP. Current RM systems used in the industry are based on a room type/room price combo (Roukas, 2017). In the room type/room price combo format, the customer is presented with a list of room rates attached to room attributes. Room attributes are things such as room view, bed type, and room size. In the ABP pricing, rather than selecting a room that has given attributes, a customer starts with a base room price that has no attributes attached to it. Then, the customer adds the desired attributes to a virtual shopping cart that shows the total price of a room with these attributes (Roukas, 2017).

Although ABP pricing is a new concept in the hotel industry, hotel companies such as Intercontinental Hotel Group (IHG) and Marriott are testing this pricing method (Fox, 2019; OTAINSIGHT, 2018). As these new pricing techniques change the way RM is implemented by the hotel industry, RM researchers are expected to follow the developments in the industry and adapt these pricing techniques in their research.

Another important development related to pricing research is incorporating forward looking competitor rate projections into retail price optimization. Koushik, Higbie & Eister's (2012) study on retail price optimization at IHG is a very good example for that. Similar to first generation airline RM systems, first generation hotel RM systems are built on the assumption that demand by rate segment is independent of price and each other (for example Weatherford, Kimes, Scott, 2001). Koushik et al. (2012) utilized PERFORM, price optimization system of IHG, in their study. The price optimization module determined optimal room rates based on occupancy, price elasticity and competitive rates. They examined the change in revenue per available room between properties using price optimization and control properties not using it. They controlled for factors such as seasonality, brand, segmentation mix, hotel type and location. This study revealed 2.7% increase in revenue per available room for the test properties. On a separate note, Koushik, Higbie & Eister's (2012) important work is not yet a paper that was cited at least 6 times in hospitality and tourism journals during data collection period (until end of 2018). For that reason, it is not listed in 195 most cited articles in the RM research with hospitality and tourism focus. But it doesn't mean that it will not appear in future clusters. It is taking time for scholars to take notice of these important works and follow suit.

Major shift in modelling assumptions of RM demand forecasting: Demand forecasting was an important source domain in the 2004–2008 and 2014–2018 periods. Today it continues to be at

the core of RM research as accuracy of the demand forecast is very important for the implementation of RM. The most popular used models are times series, advance booking models and combined models. Data on advanced bookings has always been an essential component of RM demand forecasting due to its ability to provide insights on booking patterns and trends. Advance booking models are also called pick-up models where the forecast is computed by adding forecasted pick-up to the reservations on hand (Weatherford & Kimes, 2003). Classical pick-up models only use historical booking data whereas advance pick-up models use historical data as well as reservations on hand data. Time series models use time patterns in the form of trends and cycles. In hotel demand forecasting context, number of arrivals per night is used as a series of observations to model the patterns mathematically. For a very long time, RM forecasting research focused on these two modelling approaches along with historical and reservations on hand data to create forecasts. An important development that also triggered source domains such as online pricing and management of online distribution channels is about IT and the Internet, and how they change the way RM is implemented in hospitality businesses. This is reflected in source domains in the 2009–2013 and 2014–2018 periods. Today, customers use comparison websites to shop among different competitors and even within a specific property.

As it was explained in evolution of RM pricing strategies above, RM demand forecasting research started to deviate from the assumption of independent rate class. For example, Bodea, Ferguson and Garrow (2009) in introduced the concept of data set-choice based revenue management. Besides bringing attention to a model of customer behavior from classic approaches of models of product demand in hospitality RM, their study showed the challenges and complexities in extracting data from RM systems. On a more recent study, using real hotel

data, Weatherford and Zhang (2017) demonstrated that stochastic dynamic programming was empirically superior to a static optimization. Moreover, they demonstrated that the computing time of the dynamic program was fast enough for application.

More and more researchers consider these changes in their modeling assumptions for demand forecasting. Another important development is the incorporation of various important data points including historical and future data, competitor pricing and forward-looking market demand intelligence into RM demand forecasts. Through these developments, a paradigm shift can be triggered that will enable an entirely new frame of reference. However, progress takes time and the will be even longer for these contemporary studies and important developments to be reflected in co-citations in the source domain of demand forecasting.

Impact of IT and machine learning techniques in RM demand forecasting: Without question, demand forecasting is an essential element of hotel RM systems (Cross et al., 2009). However, the classic demand forecasting research studies in the RM context have not yet considered contemporary developments in machine algorithmic learning techniques and cloud technology. As explained by Quanovo (2018), RM systems that are properly trained are able to filter through the signals detected from forecasting data, discover patterns and anomalies, and then use that information to make predictions for arrivals and to calculate the optimum prices as the market changes. The beauty of machine learning models is their ability to capture complex and non-parametric relationships between historical bookings and hotel demand without the presence of rigorous statistical assumptions (Zhang, 2019). Different from classical demand forecasting models, machine learning models stimulate the function depending on the data structure used which allows for analysis of complex relations in a forecasting setting better. Zhang (2019) explained what machine learning can do over the classical demand forecasting models: “machine

learning models are capable of dealing with high dimensional data, and using booking curves to predict hotel demand is the perfect setting for machine learning to practice. When conducting forecasts, each reservation on hand can be regarded as an independent variable to model the trend in 2 booking patterns. However, this valuable information cannot be accommodated by pick-up based models or regression. Besides, using multiple reservations on hand in linear regression models can result in multicollinearity. In comparison, some machine learning algorithms can tackle high-dimension data easily. For instance, the K-Nearest Neighbor (K-NN) algorithm calculates the distances between the predicted target and a few neighbors, then takes the average of the nearest distances. This algorithm avoids the restrictions on dimensionality and can function well with long historical booking windows." (p. 2-3). These important developments related to RM forecasting should be incorporated into research.

Fragmented distribution channel management toward a unified, integrated, and customer-centric distribution channel management: Distribution channel management has been a major source domain in the 2009–2013 and 2014–2018 periods. The majority of the research during these time periods discussed electronic distribution, how fragmented it is, management of digital channels, and pricing these channels. Digital channels include the hotel website, online travel agencies, global distribution systems, social media, opaque channels, and review sites. A timely and relevant research theme around this topic is the development of a unified, integrated, and customer-centric distribution channel management approach that could enable integrated marketing communications across channels; integration of information systems across channels; linkages among online, traditional, and mobile channels; and sharing customer knowledge across all channels and touch points.

Rooms RM to total RM: Application of RM to non-hotel industries, including restaurants, spas, and golf courses, was a major source domain throughout five observation periods. However, these applications of RM in other revenue-generating departments in hotels were not aggregated to advance from rooms RM to total RM. Total RM refers to revenue management of all revenue sources in the hotel. These revenue sources include rooms, restaurant, function space, spa, and rental space. Research on the total RM approach should focus on the customer journey at the hotel to identify and map customers with high lifetime value. Research in this context would require a more strategic approach to RM. Research themes such as the integration of customer relationship management and RM, cultural integration of RM to the organization, and total RM performance measurement are examples of topical areas that could branch out from total RM.

Tactical RM to strategic RM: Hotel RM has been mostly studied from an operational perspective rather than as a strategic initiative that is part of the overall corporate strategy. As RM has become an increasingly important part of the hotel organization over the years, the RM position evolved from revenue analyst to revenue manager to director of revenue management to director of revenue strategy. This is a clear indication that RM is becoming more of a strategic initiative. For RM to become more strategic, it should not operate alone in a silo but should be integrated with sales and marketing and the customer engagement strategy. More research should be done to discuss how to develop RM from an operational and tactical level to a strategic level.

6.3 Limitations and future research

This study has several limitations. Citations cited at least six times were selected in this study, and those citations cited fewer times were not included in the analysis. This method was chosen to enable proper visualization of the networks. Future studies could consider including the less-often cited sources to provide a more comprehensive perspective of the development of

knowledge within this discipline. Another limitation is related to the subjectivity in interpreting the clusters that illustrate the intellectual structure of RM research in hospitality and tourism. Similar to past studies (Koseoglu, Okumus, Dogan, and Law, 2018; Koseoglu, Sehitoglu, Ross, and Parnell, 2016; Leung et al., 2017), five time periods were created to perform a revolutionary analysis of RM research. Findings could be different if the 35-year period analyzed is divided differently.

References

American Airlines. (1987). *American Airlines annual report (1987): The art of managing yield* (pp. 22–25).

Anderson, C. K., & Blair, M. (2004). Performance monitor: The opportunity costs of revenue management. *Journal of Revenue and Pricing Management, 2*(4), 353–367.

Anderson, C. K., & Xie, X. (2010). Improving hospitality industry sales: Twenty-five years of revenue management. *Cornell Hospitality Quarterly, 51*(1), 53–67.

Applegate, L. M., Piccoli, G., & Pigni, F. (2015). Duetto: Industry transformation with big data. *Harvard Business School Case*, 816–028. (Revised September 2016.)

Bodea, T., Ferguson, M. E., & Garrow, L.A. (2009). Data Set - Choice-Based Revenue Management: Data from a Major Hotel Chain. Manufacturing & Service Operations Management, 11, 356-361.

Borgman, C. L. (Ed.). (1990). *Scholarly communication and bibliometrics.* Newbury Park, CA: Sage.

Burmaoglu, S., & Saritas, O. (2019). An evolutionary analysis of the innovation policy domain: Is there a paradigm shift? *Scientometrics*, *118*, 823–847.

Chiang, W. C., Chen, J. C., & Xu, X. (2007). An overview of research on revenue management: Current issues and future research. *International Journal of Revenue Management, 1*(1), 97–128.

Clarke, T., & Clegg, S. (2000). Management paradigms for the new millennium. *International Journal of Management Reviews, 2*(1), 45–64.

Cobo, M. J., Lopez-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011). Science mapping software tools: Review, analysis, and cooperative study among tools. *Journal of the American Society for Information Science and Technology*, 62, 1382-1402.

Cross, R. G., Higbie, J. A., & Cross, D. Q. (2009). Revenue management's renaissance: A rebirth of the art and science of profitable revenue generation. *Cornell Hospitality Quarterly, 50*(1), 56–81.

Cross, R.G., Higbie, J.A. and Cross, Z.N. (2011). Milestones in the application of analytical pricing and revenue management. *Journal of Revenue and Pricing Management*, 10(1), 8-18.

De Langhe, R. (2017). Towards the discovery of scientific revolutions in scientometric data. *Scientometrics, 110*(1), 505–519.

Denizci Guillet, B., & Mohammed, I. (2015). Revenue management research in hospitality and tourism: A critical review of current literature and suggestions for future research. *International Journal of Contemporary Hospitality Management, 27*(4), 526–560.

Domingo-Carrillo, M. Á., Chávez-Miranda, E., & Cubiles-de la Vega, M. D. (2017). Journal segmentation and competitive position based on revenue management research publications. *Journal of Revenue and Pricing Management, 16*(5), 466–482.

Domingo-Carrillo, M. Á., Chávez-Miranda, E., & Escobar-Pérez, B. (2019). Scientific production on revenue management in tourism on Web of Science and SCOPUS. *Current Issues in Tourism,* 1–26.

Donaghy, K., McMahon, U., & McDowell, D. (1995). Yield management: An overview. *International Journal of Hospitality Management, 14*(2), 139–150.

Duetto. (2019). Open pricing. Retrieved from https://www.duettocloud.com/open-pricing

Erdem, M., & Jiang, L. (2016). An overview of hotel revenue management research and emerging key patterns in the third millennium. *Journal of Hospitality and Tourism Technology, 7*(3), 300–312.

Fox, L. (2019, February 27). IHG pilots attribute pricing as next stage of reservation system kicks in. Retrieved from https://www.phocuswire.com/IHG-guest-reservation-system

Geraghty, M. K., & Johnson, E. (1997). Revenue management saves national car rental. *Interfaces, 27*(1), 107–127.

Hayes, D. K., & Miller, A. A. (2011). *Revenue management for the hospitality industry.* Hoboken, NJ: John Wiley & Sons.

Hoseason, J. (2000). Capacity management in the cruise industry. In A. Ingold, U. McMahon-Beattie, & I. Yeoman (Eds.), *Yield management: Strategies for the service industries* (2nd ed.) (pp. 289–302). London, England: Continuum.

Ivanov, S. (2014). *Hotel revenue management: From theory to practice*. Varna, Bulgaria: Zangador.

Ivanov, S., & Zhechev, V. (2012). Hotel revenue management: A critical literature review. *Tourism, 60*(2), 175–198.

Jerenz, A. (2008). *Revenue management and survival analysis in the automobile industry* (1st ed.). Wiesbaden, Germany: Gabler.

Jiang, Q., Zhong, W., & Hu, Y. (2010). Revenue management in the service industry: Research overview and prospect. In *2010 International Conference on Management and Service Science* (pp. 1–5). Piscataway, NJ: IEEE.

Kalyanaram, G., & Winer, R. S. (1995). Emprical Generalizations from Reference Price Research. Marketing Science, 14(3), G161–G169.

Kimes, S. E. (1989). Yield management: A tool for capacity-considered service firms. *Journal of Operations Management, 8*(4), 348–363.

Kimes, S. E. (2000). A strategic approach to yield management. In A. Ingold, U. McMahon-Beattie, & I. Yeoman (Eds.), *Yield management: Strategies for the service industries* (2nd ed.) (pp. 3–14). London, England: Continuum.

Kimes, S. E. (2003). Revenue management: A retrospective. *Cornell Hotel and Restaurant Administration Quarterly, 44*(5), 131–138.

Kimes, S.E. (2011). The future of hotel revenue management", *Journal of Revenue and Pricing Management*, 10(1), 62-72.

Kimes, S. E., Barrash, D. I., & Alexander, J. E. (1999). Developing a restaurant revenue-management strategy. *Cornell Hotel and Restaurant Administration Quarterly, 40*(5), 18–29.

Koseoglu, M. A., Okumus, F., Dogan, I. C., & Law, R. (2018). Intellectual structure of strategic management research in the hospitality management field: A co-citation analysis. *International Journal of Hospitality Management*, https://doi.org/10.1016/j.ijhm.2018.09.006.

Koseoglu, M. A., Sehitoglu, Y., Ross, G., & Parnell, J. A. (2016). The evolution of business ethics research in the realm of tourism and hospitality: A bibliometric analysis. *International Journal of Contemporary Hospitality Management*, 28(8), 1598-1621.

Koushik, D., Higbie, J. A., & Eister, C. (2012). Retail Price Optimization at InterContinental Hotels Group. *INFORMS Journal on Applied Analytics*, 42(1), 45-57.

Kuhn, T. (1962/1970). *The structure of scientific revolutions*. Chicago: University of Chicago Press.

Leung, X., Sun, J., & Bai, B. (2017). Bibliometrics of social media research: A co-citation and co-word analysis. *International Journal of Hospitality Management*, *66*, 35–45.

Lin, Y., & Kaid, L. (2000). Fragmentation of the intellectual structure of political communication study: Some empirical evidence. *Scientometrics, 47*(1), 143–164.

McCain, K. W. (1990). Mapping scholars in intellectual space: A technical overview. *Journal of the American Society for Information Science*, *41*(6), 433–443.

McGill, J., & van Ryzin, G. (1999). Revenue management: Research overview and prospects. *Transportation Science, 33*(2), 233–256.

McKercher, B., Law, R. & Lam, T. (2006). Rating tourism and hospitality journals. *Tourism Management*, 27(6), 235-1252.

Nair, S. K., & Bapna, R. (2001). An application of yield management for internet service providers. *Naval Research Logistics, 48*(5), 348–362.

Noone, B. M., McGuire, K. A., & Rohlfs, K. V. (2011). Social media meets hotel revenue management: Opportunities, issues and unanswered questions. *Journal of Revenue and Pricing Management, 10*(4), 293–305.

OTAINSIGHT. (2018, November 8). How to orientate hotel operations in an attribute-based world. Retrieved from https://www.otainsight.com/resources/blog/how-orientate-hotel-operations-attribute-based-world

Quanovo. (2018). Machine learning technologies for the hospitality industry. Retrieved from http://www.quanovo.com/Content/Whitepapers/machine-learning-technologies-for-the-hospitality-industry.pdf

Pasadeos, Y., Phelps, J., & Kim, B. H. (1998). Disciplinary impact of advertising scholars: Temporal comparisons of influential authors, works and research networks. *Journal of*

Advertising, 27(4), 53-70.

Polsby, N. W. (1998). Social science and scientific change: A note on Thomas S. Kuhn's contribution. *Annual Review of Political Science,* 1, 199–210.

Racherla, P., & Hu, C. (2010). A social network perspective of tourism research collaborations. *Annals of Tourism Research, 37*(4), 1012–1034.

Rees, C. M. (2012). The structure of scientific revolutions at fifty. *The New Atlantis, 37,* 71–86.

Roukas, G. (2017, November 2). What does attribute-based shopping mean for hotels? Retrieved from https://www.hudsoncrossing.com/attribute-based-shopping/

Shafique, M. (2013). Thinking inside the box? Intellectual structure of the knowledge base of innovation research (1988–2008). *Strategic Management Journal*, *34*(1), 62–93.

Small, H. (1973). Co-citation in the scientific literature: A new measure of the relationship between two documents. *Journal of the American Society for Information Science, 24*(4), 265–269.

Sullivan, D., Koester, D., White, D., & Kern, R. (1979). Understanding rapid theoretical change in particle physics: A month-by-month co-citation analysis. In *Proceedings of the ASIS Annual Meeting*, *16*, 276-285, Minneapolis.

Thompson, G. M. (2010). Restaurant profitability management: The evolution of restaurant revenue management. *Cornell Hospitality Quarterly, 51*(3), 308–322.

Waltman, L., & Van Eck, N. (2013). A smart local moving algorithm for large-scale modularity based community detection. *The European Physical Journal B*, *86*(11), 1–14.

Wang, X. L. (2012). Relationship or revenue: Potential management conflicts between customer relationship management and hotel revenue management. *International Journal of Hospitality Management, 31*(3), 864–874.

Wang, X. L., Heo, C., Schwartz, Z., Legohérel, P., & Specklin, F. (2015). Revenue management:

Progress, challenges, and research prospects. *Journal of Travel & Tourism Marketing, 32*(7), 797–811.

Weatherford, L. R., & Bodily, S. E. (1992). A taxonomy and research overview of perishable-asset revenue management: Yield management, overbooking, and pricing. *Operations Research, 40*(5), 831–844.

Weatherford, L. R., & Kimes, S. E. (2003). A comparison of forecasting methods for hotel revenue management. *International Journal of Forecasting*, 19(3), 401–415.

Weatherford, L. R., & Zhang, D. (2017). Dynamic Pri cing for Network Revenue Management: A New Approach and Application in the Hotel Industry. *INFORMS Journal on Applied Analytics*, 29(1), 18-35.

Zhang, Y. (2019). Forecasting hotel demand using machine learning approaches. Retrieved October 30 2019 from https://ecommons.cornell.edu/bitstream/handle/1813/67733/Zhang_cornell_0058O_10695.pdf?sequence=1&isAllowed=y

Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, *18*(3), 429–472.

No.	Code	The Most Cited Articles in the RM research with hospitality and tourism focus
1	A1	Kimes, S. (2002). Perceived Fairness of Yield Management. *Cornell Hotel and Restaurant Administration Quarterly, 43*(1), 21-30.
2	A2	Hanks, R., Cross, R., & Noland, R. (2002). Discounting in the Hotel Industry: A New Approach. *Cornell Hotel and Restaurant Administration Quarterly, 43*(4), 94-103. (The article originally appeared in the February 1992 issue of Cornell Hotel and Restaurant Administration Quarterly (Vol. 33, No. 1), pp. 15–23.)
3	A3	Kimes, S. (1989a). The Basics of Yield Management. *Cornell Hotel and Restaurant Administration Quarterly, 30*(3), 14-19.
4	A4	Yeoman, I., & Ingold, A. (1997). *Yield management: Strategies for the service industries.* London ; Herndon, VA: Cassell.
5	A5	Espinet, J. M., Saez, M., Coenders, G., & Fluvià, M. (2003). Effect on prices of the attributes of holiday hotels: a hedonic prices approach. *Tourism Economics, 9*(2), 165-177.
6	A6	Kimes, S. E., & Wirtz, J. (2003). Has revenue management become acceptable? Findings from an international study on the perceived fairness of rate fences. *Journal of service research, 6*(2), 125-135.
7	A7	Orkin, E. (1988). Boosting Your Bottom Line with Yield Management. *Cornell Hotel and Restaurant Administration Quarterly, 28*(4), 52-56.
8	A8	Weatherford, L. R., & Bodily, S. E. (1992). A taxonomy and research overview of perishable-asset revenue management: Yield management, overbooking, and pricing. *Operations research, 40*(5), 831-844.
9	A9	Rosen, S. (1974). Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition. *Journal of Political Economy, 82*(1), 34-55.
10	A10	Cross, R. G., Higbie, J. A., & Cross, D. Q. (2009). Revenue management's renaissance: A rebirth of the art and science of profitable revenue generation. *Cornell Hospitality Quarterly, 50*(1), 56-81.
11	A11	Kimes, S., & Chase, R. (1998). The Strategic Levers of Yield Management. *Journal of Service Research, 1*(2), 156-166.
12	A12	Israeli, A. (2002). Star rating and corporate affiliation: Their influence on room price and performance of hotels in Israel. *International Journal of Hospitality Management, 21*(4), 405-424.
13	A13	Kimes, S. (1989b). Yield management: A tool for capacity-considered service firms. *Journal of Operations Management, 8*(4), 348-363.
14	A14	Thrane, C. (2007). Examining the determinants of room rates for hotels in capital cities: The Oslo experience. *Journal of revenue and Pricing Management, 5*(4), 315-323.
15	A15	Monty, B., & Skidmore, M. (2003). Hedonic pricing and willingness to pay for bed and breakfast amenities in Southeast Wisconsin. *Journal of Travel Research, 42*(2), 195-199.

16 A16 Choi, S., & Mattila, A. S. (2004). Hotel revenue management and its impact on customers' perceptions of fairness. *Journal of Revenue and pricing Management, 2*(4), 303-314.

17 A17 Kimes, S. E., Chase, R. B., Choi, S., Lee, P. Y., & Ngonzi, E. N. (1998). Restaurant revenue management: Applying yield management to the restaurant industry. *Cornell Hotel and Restaurant Administration Quarterly, 39*(3), 32-39.

18 A18 Lieberman, W. (1993). Debunking the Myths of Yield Management. *Cornell Hotel and Restaurant Administration Quarterly, 34*(1), 34-41.

19 A19 Thaler, R. H. (2008). Mental accounting and consumer choice. *Marketing Science, 27*(1), 15-25.

20 A20 Carroll, B., & Siguaw, J. (2003). The Evolution of Electronic Distribution: Effects on Hotels and Intermediaries. *Cornell Hotel and Restaurant Administration Quarterly, 44*(4), 38-50.

21 A21 Relihan, W. (1989). The Yield-Management Approach to Hotel-Room Pricing. *Cornell Hotel and Restaurant Administration Quarterly, 30*(1), 40-45.

22 A22 Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *Journal of marketing, 52*(3), 2-22.

23 A23 Thrane, C. (2005). Hedonic price models and sun-and-beach package tours: the Norwegian case. *Journal of Travel Research, 43*(3), 302-308.

24 A24 Kahneman, D., & Tversky, A. (1979). Prospect theory: an analysis of decision under risk. *Econometrica, 47*, 263-291.

25 A25 Abrate, G., Fraquelli, G., & Viglia, G. (2012). Dynamic pricing strategies: Evidence from European hotels. *International Journal of Hospitality Management, 31*(1), 160-168.

26 A26 Kahneman, D., Knetsch, J.L., & Thaler, R. (1986). Fairness as a constraint on profit seeking: Entitlements in the market. *American Economic Review,* (4), 728-741.

27 A27 Noone, B. M., & Mattila, A. S. (2009). Hotel revenue management and the Internet: The effect of price presentation strategies on customers' willingness to book. International *Journal of Hospitality Management, 28*(2), 272-279.

28 A28 Hung, W. T., Shang, J. K., & Wang, F. C. (2010). Pricing determinants in the hotel industry: Quantile regression analysis. *International Journal of Hospitality Management, 29*(3), 378-384.

29 A29 Weatherford, L. R., & Kimes, S. E. (2003). A comparison of forecasting methods for hotel revenue management. *International journal of forecasting, 19*(3), 401-415.

30 A30 Weatherford, L., Kimes, S., & Scott, D. (2001). Forecasting for Hotel Revenue Management: Testing Aggregation Against Disaggregation. *Cornell Hotel and Restaurant Administration Quarterly, 42*(4), 53-64.

31 A31 Choi, S., & Mattila, A. (2006). The Role of Disclosure in Variable Hotel Pricing: A Cross-Cultural Comparison of Customers' Fairness Perceptions. *Cornell Hotel and Restaurant Administration Quarterly, 47*(1), 27-35.

32 A32 Smith, B. C., Leimkuhler, J. F., & Darrow, R. M. (1992). Yield management at American airlines. *interfaces, 22*(1), 8-31.

33 A33 Jones, P., & Hamilton, D. (1992). Yield Management: Puffing People in the Big Picture. *Cornell Hotel and Restaurant Administration Quarterly, 33*(1), 89-95.

34 A34 Tso, A., & Law, R. (2005). Analysing the online pricing practices of hotels in Hong Kong. *International Journal of Hospitality Management, 24*(2), 301-307.

35 A35 Becerra, M., Santaló, J., & Silva, R. (2013). Being better vs. being different: Differentiation, competition, and pricing strategies in the Spanish hotel industry. *Tourism Management, 34*, 71-79.

36 A36 Monroe, K. (1973). Buyers' Subjective Perceptions of Price. *Journal of Marketing Research, 10*(1), 70-80.

37 A37 Schwartz, Z. (2000). Changes in Hotel Guests' Willingness to Pay as the Date of Stay Draws Closer. *Journal of Hospitality and Tourism Research, 24*(2), 180-198.

38 A38 Rohlfs, K., & Kimes, S. (2007). Customers' Perceptions of Best Available Hotel Rates. *Cornell Hotel and Restaurant Administration Quarterly, 48*(2), 151-162.

39 A39 Rigall-I-Torrent, R., & Fluvià, M. (2011). Managing tourism products and destinations embedding public good components: a hedonic approach. *Tourism Management, 32*(2), 244-255.

40 A40 Bull, A. (1994). Pricing a Motel's Location. *International Journal of Contemporary Hospitality Management, 6*(6), 10-15.

41 A41 Abrate, G., Capriello, A., & Fraquelli, G. (2011). When quality signals talk: Evidence from the Turin hotel industry. *Tourism Management, 32*(4), 912-921.

42 A42 Cross, R. (1997). Launching the Revenue Rocket: How Revenue Management Can Work for Your Business. *Cornell Hotel and Restaurant Administration Quarterly, 38*(2), 32-43.

43 A43 Wirtz, J., & Kimes, S. E. (2007). The moderating role of familiarity in fairness perceptions of revenue management pricing. *Journal of Service Research, 9*(3), 229-240.

44 A44 Chiang, W. C., Chen, J. C., & Xu, X. (2006). An overview of research on revenue management: current issues and future research. *International journal of revenue management, 1*(1), 97-128.

45 A45 Noone, B. M., Kimes, S. E., & Renaghan, L. M. (2003). Integrating customer relationship management and revenue management: A hotel perspective. *Journal of Revenue and Pricing Management, 2*(1), 7-21.

46 A46 Connor, P. (2003). On-line pricing: An analysis of hotel-company practices. *Cornell Hotel and Restaurant Administration Quarterly, 44*(1), 7.

47 A47 Kimes, S., & Wirtz, J. (2002). Perceived Fairness of Demand-Based Pricing for Restaurants. *Cornell Hotel and Restaurant Administration Quarterly, 43*(1), 31-37.

48 A48 Schamel, G. (2012). Weekend vs. midweek stays: Modelling hotel room rates in a small market. *International Journal of Hospitality Management, 31*(4), 1113-1118.

49 A49 Lancaster, K. J. (1966). A new approach to consumer theory. *Journal of political economy, 74*(2), 132-157.

50 A50 Fleischer, A. (2012). A room with a view—A valuation of the Mediterranean Sea view. *Tourism Management, 33*(3), 598-602.

51 A51 Schwartz, Z. (2006). Advanced booking and revenue management: Room rates and the consumers' strategic zones. *International Journal of Hospitality Management, 25*(3), 447-462.

52 A52 Chen, C., & Rothschild, R. (2010). An Application of Hedonic Pricing Analysis to the Case of Hotel Rooms in Taipei. *Tourism Economics, 16*(3), 685-694.

53 A53 Enz, C. (2003). Hotel Pricing in a Networked World. *Cornell Hotel and Restaurant Administration Quarterly, 44*(1), 4-5.

54 A54 Choi, S., & Mattila, A. (2005). Impact of Information on Customer Fairness Perceptions of Hotel Revenue Management. *Cornell Hotel and Restaurant Administration Quarterly, 46*(4), 444-451.

55 A55 Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research. *Tourism management, 29*(4), 609-623.

56 A56 Gu, Z. (1997). Proposing a room pricing model for optimizing profitability. *International Journal of Hospitality Management, 16*(3), 273-277.

57 A57 Baker, T., & Collier, D. (1999). A Comparative Revenue Analysis of Hotel Yield Management Heuristics. *Decision Sciences, 30*(1), 239-263.

58 A58 Hamilton, J. (2007). Coastal landscape and the hedonic price of accommodation. *Ecological Economics, 62*(3), 594-602.

59 A59 Guo, X., Ling, L., Dong, Y., & Liang, L. (2013). Cooperation contract in tourism supply chains: The optimal pricing strategy of hotels for cooperative third party strategic websites. *Annals of Tourism Research, 41*, 20-41.

60 A60 Schwartz, Z., & Hiemstra, S. (1997). Improving the accuracy of hotel reservations forecasting: curves similarity approach. *Journal of Travel Research, 36*(1), 3-14.

61 A61 Bowen, J., & Makens, J. (1996). *Marketing for hospitality and tourism.* Upper Saddle River, NJ: Prentice Hall.

62 A62 Campbell, M. (1999). Perceptions of Price Unfairness: Antecedents and Consequences. *Journal of Marketing Research, 36*(2), 187-199.

63 A63 O'connor, P., & Frew, A. (2002). The Future of Hotel Electronic Distribution: Expert and Industry Perspectives. *Cornell Hotel and Restaurant Administration Quarterly, 43*(3), 33-45.

64 A64 Xia, L., Monroe, K., & Cox, J. (2004). The Price Is Unfair! A Conceptual Framework of Price Fairness Perceptions. *Journal of Marketing, 68*(4), 1-15.

65 A65 Winer, R.S. (1986). A reference price model of brand choice for frequently purchased products. *Journal of Consumer Research,* (2), 250-256.

66 A66 Qu, H., Xu, P., & Tan, A. (2002). A simultaneous equations model of the hotel room supply and demand in Hong Kong. *International Journal of Hospitality Management, 21*(4), 455-462.

67 A67 Badinelli, R. (2000). An optimal, dynamic policy for hotel yield management. *European Journal of Operational Research, 121*(3), 476-503.

68 A68 Enz, C., Canina, L., & Lomanno, M. (2009). Competitive Pricing Decisions in Uncertain Times. *Cornell Hospitality Quarterly, 50*(3), 325-341.

69 A69 Bolton, L., Warlop, L., & Alba, J. (2003). Consumer Perceptions of Price (Un)Fairness. *Journal of Consumer Research, 29*(4), 474-491.

70 A70 Kimes, S., Barrash, D., & Alexander, J. (1999). Developing a Restaurant Revenue-management Strategy. *Cornell Hotel and Restaurant Administration Quarterly, 40*(5), 18-29.

71 A71 Yelkur, R., & Nêveda Dacosta, M. (2001). Differential pricing and segmentation on the Internet: The case of hotels. *Management Decision, 39*(4), 252-262.

72 A72 Choi, S., & Kimes, S. (2002). Electronic Distribution Channels' Effect on Hotel Revenue Management. *Cornell Hotel and Restaurant Administration Quarterly, 43*(3), 23-31.

73 A73 Kalyanaram, G., & Winer, R. S. (1995). Empirical generalizations from reference price research. *Marketing science, 14*(3_supplement), G161-G169.

74 A74 Chen, C., & Kachani, S. (2007). Forecasting and optimisation for hotel revenue management. *Journal of revenue and pricing management, 6*(3), 163-174.

75 A75 Rajopadhye, M., Ghalia, M. B., Wang, P. P., Baker, T., & Eister, C. V. (2001). Forecasting uncertain hotel room demand. *Information sciences, 132*(1-4), 1-11.

76 A76 Kimes, S. E. (1999). Group forecasting accuracy in hotels. *Journal of the Operational Research Society, 50*(11), 1104-1110.

77 A77 Andersson, D. (2010). Hotel attributes and hedonic prices: An analysis of internet-based transactions in Singapore's market for hotel rooms. *The Annals of Regional Science, 44*(2), 229-240.

78 A78 Kimes, S. (1999). Implementing restaurant revenue management: A Five-step approach. *Cornell Hotel and Restaurant Administration Quarterly, 40*(3), 16-1.

79 A79 Donaghy, K., Mcmahon-Beattie, U., & Mcdowell, D. (1997). Implementing yield management: Lessons from the hotel sector. *International Journal of Contemporary Hospitality Management, 9*(2), 50-54.

80 A80 Coenders, G., Espinet, J., & Saez, M. (2003). Predicting random level and seasonality of hotel prices: a latent growth curve approach. *Tourism Analysis, 8*(1), 15-31.

81 A81 Lewis, R. C., & Shoemaker, S. (1997). Price-sensitivity measurement: A tool for the hospitality industry. *Cornell Hotel and Restaurant Administration Quarterly, 38*(2), 44-54.

82 A82 Collins, M., & Parsa, H. G. (2006). Pricing strategies to maximize revenues in the lodging industry. *International Journal of Hospitality Management, 25*(1), 91-107.

83 A83 Dunn, K., & Brooks, D. (1990). Profit analysis: Beyond Yield Management. *Cornell Hotel and Restaurant Administration Quarterly, 31*(3), 80-90.

84 A84 Kimes, S. (2000). Revenue Management on the Links: Applying Yield Management to the Golf-course Industry. *Cornell Hotel and Restaurant Administration Quarterly, 41*(1), 120-127.

85 A85 Wirtz, J., Kimes, S. E., Theng, J. H. P., & Patterson, P. (2003). Revenue management: resolving potential customer conflicts. *Journal of Revenue and Pricing Management, 2*(3), 216-226.

86 A86 Chen, C., & Schwartz, Z. (2008). Room Rate Patterns and Customers' Propensity To Book a Hotel Room. *Journal of Hospitality & Tourism Research, 32*(3), 287-306.

87 A87 Lee, S. K., & Jang, S. (2011). Room rates of US airport hotels: examining the dual effects of proximities. *Journal of Travel Research, 50*(2), 186-197.

88 A88 Kimes, S. E. (2011). The future of hotel revenue management. *Journal of Revenue and Pricing Management, 10*(1), 62-72.

89 A89 Chen, C., & Schwartz, Z. (2006). The Importance of Information Asymmetry in Customers' Booking Decisions: A Cautionary Tale from the Internet. *Cornell Hotel and Restaurant Administration Quarterly, 47*(3), 272-285.

90 A90 Akerlof, G. (1970). The market for "lemons" quality uncertainty and the market mechanism. *The Quarterly Journal of Economics, 84*(3), 488-500.

91 A91 Jauncey, S., Mitchell, I., & Slamet, P. (1995). The meaning and management of yield in hotels. *International Journal of Contemporary Hospitality Management, 7*(4), 23-26.

92 A92 Lambert, C. U., Lambert, J. M., & Cullen, T. P. (1989). The overbooking question: A simulation. *Cornell Hotel and Restaurant Administration Quarterly, 30*(2), 14-20.

93 A93 Nagle, T., & Holden, R. (1995). *The strategy and tactics of pricing: A guide to profitable decision making* (2nd ed.). Englewood Cliffs, N.J.: Prentice Hall.

94 A94 Choi, T. Y., & Cho, V. (2000). Towards a knowledge discovery framework for yield management in the Hong Kong hotel industry. *International Journal of Hospitality Management, 19*(1), 17-31.

95 A95 Law, R., Chan, I., & Goh, C. (2007). Where to find the lowest hotel room rates on the internet? The case of Hong Kong. *International Journal of Contemporary Hospitality Management, 19*(6), 495-506.

96 A96 Donaghy, K., McMahon, U., & McDowell, D. (1995). Yield management: an overview. *International journal of hospitality management, 14*(2), 139-150.

97 A97 Goldberg, S.M., Green, P.E., & Wind, Y. (1984). Conjoint Analysis of Price Premiums for Hotel Amenities. *The Journal of Business, 57*, S111-S132.

98 A98 Zhang, Z., Ye, Q., & Law, R. (2011). Determinants of hotel room price: An exploration of travelers' hierarchy of accommodation needs. *International Journal of Contemporary Hospitality Management, 23*(7), 972-981.

99 A99 Dodds, W., Monroe, K., & Grewal, D. (1991). Effects of Price, Brand, and Store Information on Buyers' Product Evaluations. *Journal of Marketing Research, 28*(3), 307-319.

100 A100 Fornell, C., & Larcker, D. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research, 18*(1), 39.

101 A101 Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1986). Fairness and the assumptions of economics. *The Journal of Business, 59*(4), S285-S300.

102 A102 White, P., & Mulligan, G. (2002). Hedonic Estimates of Lodging Rates in the Four Corners Region. *The Professional Geographer, 54*(4), 533-543.

103 A103 Kimes, S. E., Wirtz, J., & Noone, B. M. (2002). How long should dinner take? Measuring expected meal duration for restaurant revenue management. *Journal of Revenue and Pricing Management, 1*(3), 220-233.

104 A104 Zhang, H., Zhang, J., Lu, S., Cheng, S., & Zhang, J. (2011). Modeling hotel room price with geographically weighted regression. *International Journal of Hospitality Management, 30*(4), 1036-1043.

105 A105 Oh, H. (2003). Price fairness and its asymmetric effects on overall price, quality, and value judgments: The case of an upscale hotel. *Tourism Management, 24*(4), 387-399.

106 A106 Kimes, S. (2003). Revenue management: A retrospective. *Cornell Hotel and Restaurant Administration Quarterly, 44*(5), 131-138.

107 A107 McGill, J. I., & Van Ryzin, G. J. (1999). Revenue management: Research overview and prospects. *Transportation science, 33*(2), 233-256.

108 A108 Reynoso, J., (2010). Satisfaction: A behavioral perspective on consumer. *Journal of Service Management, 21*(4). 549-551.

109 A109 Toh, R., Raven, P., & Dekay, F. (2011). Selling Rooms: Hotels vs. Third-Party Websites. *Cornell Hospitality Quarterly, 52*(2), 181-189.

110 A110 O'Neill, J., & Mattila, A. (2006). Strategic Hotel Development and Positioning: The Effects of Revenue Drivers on Profitability. *Cornell Hotel and Restaurant Administration Quarterly, 47*(2), 146-154.

111 A111 Rigall-I-Torrent, R., Fluvià, M., Ballester, R., Saló, A., Ariza, E., & Espinet, J. M. (2011). The effects of beach characteristics and location with respect to hotel prices. *Tourism Management, 32*(5), 1150-1158.

112 A112 Haroutunian, S., Mitsis, P., & Pashardes, P. (2005). Using Brochure Information for the Hedonic Analysis of Holiday Packages. *Tourism Economics, 11*(1), 69-84.

113 A113 Falk, M. (2008). A hedonic price model for ski lift tickets. *Tourism Management, 29*(6), 1172-1184.

114 A114 Kalwani, M., Yim, C., Rinne, H., & Sugita, Y. (1990). A Price Expectations Model of Customer Brand Choice. *Journal of Marketing Research, 27*(3), 251-262.

115 A115 Lai, & Ng. (2005). A stochastic approach to hotel revenue optimization. *Computers and Operations Research, 32*(5), 1059-1072.

116 A116 Chung, W., & Kalnins, A. (2001). Agglomeration effects and performance: A test of the Texas lodging industry. *Strategic Management Journal, 22*(10), 969-988.

117 A117 Belobaba, P. (1987). Air travel demand and airline seat inventory management (Doctoral dissertation, Massachusetts Institute of Technology).

118 A118 Bitran, G. R., & Mondschein, S. V. (1995). An application of yield management to the hotel industry considering multiple day stays. *Operations research, 43*(3), 427-443.

119 A119 O'connor, P. (2002). An empirical analysis of hotel chain online pricing strategies. *Information Technology & Tourism, 5*(2), 65-72.

120 A120 Mayhew, G., & Winer, R. (1992). An Empirical Analysis of Internal and External Reference Prices Using Scanner Data. *Journal of Consumer Research, 19*(1), 62-70.

121 A121 Kalyanaram, G., & Little, J.D.C. (1994). An empirical analysis of latitude of price acceptance in consumer package goods. *The Journal of Consumer Research*, (3), 408-418.

122 A122 Susskind, A., Reynolds, D., & Tsuchiya, E. (2004). An Evaluation of Guests' Preferred Incentives to Shift Time-variable Demand in Restaurants. *Cornell Hotel and Restaurant Administration Quarterly, 45*(1), 68-84.

123 A123 Aguiló, P., Alegre, J., & Riera, A. (2001). Determinants of the Price of German Tourist Packages on the Island of Mallorca. *Tourism Economics, 7*(1), 59-74.

124 A124 Andrew, W., & Cranage, D. (1990). Forecasting Hotel Occupancy Rates with Time Series Models: An Empirical Analysis. *Hospitality Research Journal, 14*(2), 173-182.

125 A125 Sinclair, M. T., Clewer, A., & Pack, A. (1990). Hedonic prices and the marketing of package holidays: the case of tourism resorts in Malaga. In G. Ashworth & B. Goodall (Eds.), *Marketing Tourism Places* (pp. 85-103). London: Routledge.

126 A126 Anderson, C. K., & Xie, X. (2010). Improving hospitality industry sales: Twenty-five years of revenue management. *Cornell Hospitality Quarterly, 51*(1), 53-67.

127 A127 Weatherford, L. (1995). Length of stay heuristics: Do they really make a difference? *Cornell Hotel and Restaurant Administration Quarterly, 36*(6), 70.

128 A128 De La Viña, L., & Ford, J. (2001). Logistic regression analysis of cruise vacation market potential: Demographic and trip attribute perception factors. *Journal of Travel Research, 39*(4), 406-410.

129 A129 Baum, J. A., & Haveman, H. A. (1997). Love thy neighbor? Differentiation and agglomeration in the Manhattan hotel industry, 1898-1990. *Administrative Science Quarterly*, 304-338.

130 A130 Pan, C. (2007). Market demand variations, room capacity, and optimal hotel room rates. *International Journal of Hospitality Management, 26*(3), 748-753.

131 A131 Gazzoli, G., Gon Kim, W., & Palakurthi, R. (2008). Online distribution strategies and competition: are the global hotel companies getting it right?. *International Journal of Contemporary Hospitality Management, 20*(4), 375-387.

132 A132 van der Rest, J. P. I., & Harris, P. J. (2008). Optimal imperfect pricing decision-making: Modifying and applying Nash's rule in a service sector context. *International Journal of Hospitality Management, 27*(2), 170-178.

133 A133 Kim, J., Bojanic, D., & Warnick, R. (2009). Price Bundling and Travel Product Pricing Practices Used by Online Channels of Distribution. *Journal of Travel Research, 47*(4), 403-412.

134 A134 Kimes, S. (2004). Restaurant Revenue Management: Implementation at Chevys Arrowhead. *Cornell Hotel and Restaurant Administration Quarterly, 45*(1), 52-67.

135 A135 Upchurch, R. S., Ellis, T., & Seo, J. (2002). Revenue management underpinnings: an exploratory review. *International Journal of Hospitality Management, 21*(1), 67-83.

136 A136 Lindenmeier, J., & Tscheulin, D. K. (2008). The effects of inventory control and denied boarding on customer satisfaction: The case of capacity-based airline revenue management. *Tourism management, 29*(1), 32-43.

137 A137 Grewal, D., Monroe, K., & Krishnan, R. (1998). The Effects of Price-Comparison Advertising on Buyers' Perceptions of Acquisition Value, Transaction Value, and Behavioral Intentions. *Journal of Marketing, 62*(2), 46-59.

138 A138 Beldona, S., & Kwansa, F. (2008). The impact of cultural orientation on perceived fairness over demand-based pricing. *International Journal of Hospitality Management, 27*(4), 594-603.

139 A139 Vinod, B. (2004). Unlocking the value of revenue management in the hotel industry. *Journal of Revenue and Pricing Management, 3*(2), 178-190.

140 A140 Ismail, J. A., Dalbor, M. C., & Mills, J. E. (2002). Using RevPAR to analyze lodging-segment variability. *Cornell Hospitality Quarterly, 43*(6), 73.

141 A141 Roubi, S., & Litteljohn, D. (2004). What makes hotel values in the UK? A hedonic valuation model. *International Journal of Contemporary Hospitality Management, 16*(3), 175-181.

142 A142 Griffin, R. (1995). A categorization scheme for critical success factors of lodging yield management systems. *International Journal of Hospitality Management, 14*(3), 325-338.

143 A143 Canina, L., Enz, C., & Harrison, J. (2005). Agglomeration efects and strategic orientations: Evidence from the US lodging industry. *Academy Of Management Journal, 48*(4), 565-581.

144 A144 Baum, T., & Mudambi, R. (1995). An empirical analysis of oligopolistic hotel pricing. *Annals of tourism research, 22*(3), 501-516.

145 A145 O'Connor, P., & Frew, A. J. (2004). An evaluation methodology for hotel electronic channels of distribution. *International journal of hospitality Management, 23*(2), 179-199.

146 A146 Chu, R. K., & Choi, T. (2000). An importance-performance analysis of hotel selection factors in the Hong Kong hotel industry: a comparison of business and leisure travellers. *Tourism management, 21*(4), 363-377.

147 A147 Yüksel, S. (2007). An integrated forecasting approach to hotel demand. *Mathematical and Computer Modelling, 46*(7), 1063-1070.

148 A148 Farouk El Gayar, N., Saleh, M., Atiya, A., El-Shishiny, H., Alkes Youhanna Fayez Zakhary, A., & Abdel Aziz Mohammed Habib, H. (2011). An integrated framework for advanced hotel revenue management. *International Journal of Contemporary Hospitality Management, 23*(1), 84-98.

149 A149 Shapiro, M. (2003). Booking last minute: A primer. The Washington Post, 20, P01.

150 A150 McFadden, D. P. (1974). Conditional Logit Analysis of Qualitative Choice Behavior. In P. Zarembka (Eds.), In *Frontiers in Econometrics* (pp. 42-105). New York: Academic Press.

151 A151 Oliver, R., & Swan, J. (1989). Consumer Perceptions of Interpersonal Equity and Satisfaction in Transactions: A Field Survey Approach. *Journal of Marketing, 53*(2), 21-35.

152 A152 Rajendran, K., & Tellis, G. (1994). Contextual and Temporal Components of Reference Price. *Journal of Marketing, 58*(1), 22-34.

153 A153 Biswas, A., & Blair, E. (1991). Contextual Effects of Reference Prices in Retail Advertisements. *Journal of Marketing, 55*(3), 1.

154 A154 Lichtenstein, D. R., & Bearden, W. O. (1989). Contextual influences on perceptions of merchant-supplied reference prices. *Journal of Consumer Research, 16*(1), 55-66.

155 A155 Papatheodorou, A. (2002). Exploring Competitiveness in Mediterranean Resorts. *Tourism Economics, 8*(2), 133-150.

156 A156 Anonymous. (1996). Factors of Successful Lodging Yield Management Systems. *Journal of Travel Research, 35*(2), 95.

157 A157 Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120.

158 A158 Lim, C., Chang, C., & McAleer, M. (2009). Forecasting h (m) otel guest nights in New Zealand. *International journal of hospitality management, 28*(2), 228-235.

159 A159 Zakhary, A., Atiya, A. F., El-Shishiny, H., & Gayar, N. E. (2011). Forecasting hotel arrivals and occupancy using Monte Carlo simulation. *Journal of Revenue and Pricing Management, 10*(4), 344-366.

160 A160 Kimes, S., & Mcguire, K. (2001). Function-space Revenue Management: A Case Study from Singapore. *Cornell Hotel and Restaurant Administration Quarterly, 42*(6), 33-46.

161 A161 Beldona, S., & Namasivayam, K. (2006). Gender and Demand-Based Pricing: Differences in Perceived (Un)Fairness and Repatronage Intentions. *Journal of Hospitality & Leisure Marketing, 14*(4), 89-107.

162 A162 Rothstein, M. (1974). Hotel overbooking as a Markovian sequential decision process. *Decision Sciences, 5*(3), 389-404.

163 A163 Schwartz, Z., & Cohen, E. (2004). Hotel Revenue-management Forecasting: Evidence of Expert-judgment Bias. *Cornell Hotel and Restaurant Administration Quarterly, 45*(1), 85-98.

164 A164 Chung, K. Y. (2000). Hotel room rate pricing strategy for market share in oligopolistic competition—eight-year longitudinal study of super deluxe hotels in Seoul. *Tourism Management, 21*(2), 135-145.

165 A165 Okumus, F. (2004). Implementation of yield management practices in service organisations: Empirical findings from a major hotel group. *The Service Industries Journal, 24*(6), 65-89.

166 A166 Adams, J. S. (1965). Inequity in social exchange. *Advances in Experimental Social Psychology, 2*, 267-299.

167 A167 Heo, C. Y., & Lee, S. (2011). Influences of consumer characteristics on fairness perceptions of revenue management pricing in the hotel industry. *International Journal of Hospitality Management, 30*(2), 243-251.

168 A168 Baum, J., & Mezias, S. (1992). Localized Competition and Organizational Failure in the Manhattan Hotel Industry, 1898-1990. *Administrative Science Quarterly, 37*(4), 580-604.

169 A169 Kreul, L. (1982). Magic Numbers: Psychological Aspects of Menu Pricing. *Cornell Hotel and Restaurant Administration Quarterly, 23*(2), 70-75.

170 A170 Kirmani, A., & Rao, A. (2000). No pain, no gain: A critical review of the literature on signaling unobservable product quality. *Journal Of Marketing, 64*(2), 66-79.

171 A171 Ladany, S. (1996). Optimal market segmentation of hotel rooms—the non-linear case. *Omega, 24*(1), 29-36.

172 A172 Shaw, M. (1992). Positioning and Price: Merging Theory, Strategy, and Tactics. *Hospitality Research Journal, 15*(2), 31-39.

173 A173 Kimes, S., & Thompson, G. (2004). Restaurant Revenue Management at Chevys: Determining the Best Table Mix. *Decision Sciences, 35*(3), 371-392.

174 A174 Law, R. (1998). Room occupancy rate forecasting: A neural network approach. *International Journal of Contemporary Hospitality Management, 10*(6), 234-239.

175 A175 Maxwell, S. (2002). Rule-based price fairness and its effect on willingness to purchase. *Journal of Economic Psychology, 23*(2), 191-212.

176 A176 Kimes, S., & Singh, S. (2009). Spa Revenue Management. *Cornell Hospitality Quarterly, 50*(1), 82-95.

177 A177 Abrate, G., & Viglia, G. (2016). Strategic and tactical price decisions in hotel revenue management. *Tourism Management, 55*, 123-132.

178 A178 Orkin, E. (1990). Strategies for Managing Transient Rates. *Cornell Hotel and Restaurant Administration Quarterly, 30*(4), 34-39.

179 A179 Oh, H. (2000). The Effect of Brand Class, Brand Awareness, and Price on Customer Value and Behavioral Intentions. *Journal of Hospitality and Tourism Research, 24*(2), 136-162.

180 A180 Johnson, M. D., Herrmann, A., & Bauer, H. H. (1999). The effects of price bundling on consumer evaluations of product offerings. *International Journal of Research in Marketing, 16*(2), 129-142.

181 A181 Viglia, G., Mauri, A., & Carricano, M. (2016). The exploration of hotel reference prices under dynamic pricing scenarios and different forms of competition. *International Journal of Hospitality Management, 52,* 46-55.

182 A182 Jacobson, R., & Obermiller, C. (1990). The formation of expected future price: A reference price for forward-looking consumers. *The Journal of Consumer Research,* (4), 420-432.

183 A183 Shoemaker, S. (2003). The future of pricing in services. *Journal of Revenue and Pricing Management, 2*(3), 271-279.

184 A184 Lefever, M. (1988). The Gentle Art of Overbooking. *Cornell Hotel and Restaurant Administration Quarterly, 29*(3), 7-8.

185 A185 Kimes, S., & Robson, S. (2004). The Impact of Restaurant Table Characteristics on Meal Duration and Spending. *Cornell Hotel and Restaurant Administration Quarterly, 45*(4), 333-346.

186 A186 Guiltinan, J. (1987). The Price Bundling of Services: A Normative Framework. *Journal of Marketing, 51*(2), 74.

187 A187 Dickson, P., & Sawyer, A. (1990). The Price Knowledge and Search of Supermarket Shoppers. *Journal of Marketing, 54*(3), 42.

188 A188 Schwartz, Z. (2008). Time, Price, and Advanced Booking of Hotel Rooms. *International Journal of Hospitality & Tourism Administration, 9*(2), 128-146.

189 A189 Chen, C. C., & Schwartz, Z. (2008). Timing matters: Travelers' advanced-booking expectations and decisions. *Journal of Travel Research, 47*(1), 35-42.

190 A190 Song, H., & Li, G. (2008). Tourism demand modelling and forecasting—A review of recent research. *Tourism management, 29*(2), 203-220.

191 A191 Morosan, C., & Jeong, M. (2008). Users' perceptions of two types of hotel reservation Web sites. *International Journal of Hospitality Management, 27*(2), 284-292.

192 A192 Enz, C. A., Canina, L., & Lomanno, M. (2004). Why discounting doesn't work: The dynamics of rising occupancy and falling revenue among competitors. *Cornell Hospitality Report, 4*(7), 6-25.

193 A193 Orkin, E. (1998). Wishful Thinking and Rocket Science: The Essential Matter of Calculating Unconstrained Demand for Revenue Management. *Cornell Hotel and Restaurant Administration Quarterly, 39*(4), 15-19.

194 A194 Mauri, A. (2007). Yield management and perceptions of fairness in the hotel business. *International Review of Economics, 54*(2), 284-293.

195 A195 Brotherton, B., & Mooney, S. (1992). Yield management—progress and prospects. *International Journal of Hospitality Management, 11*(1), 23-32.

Figures

Figure 1. Number of articles per year

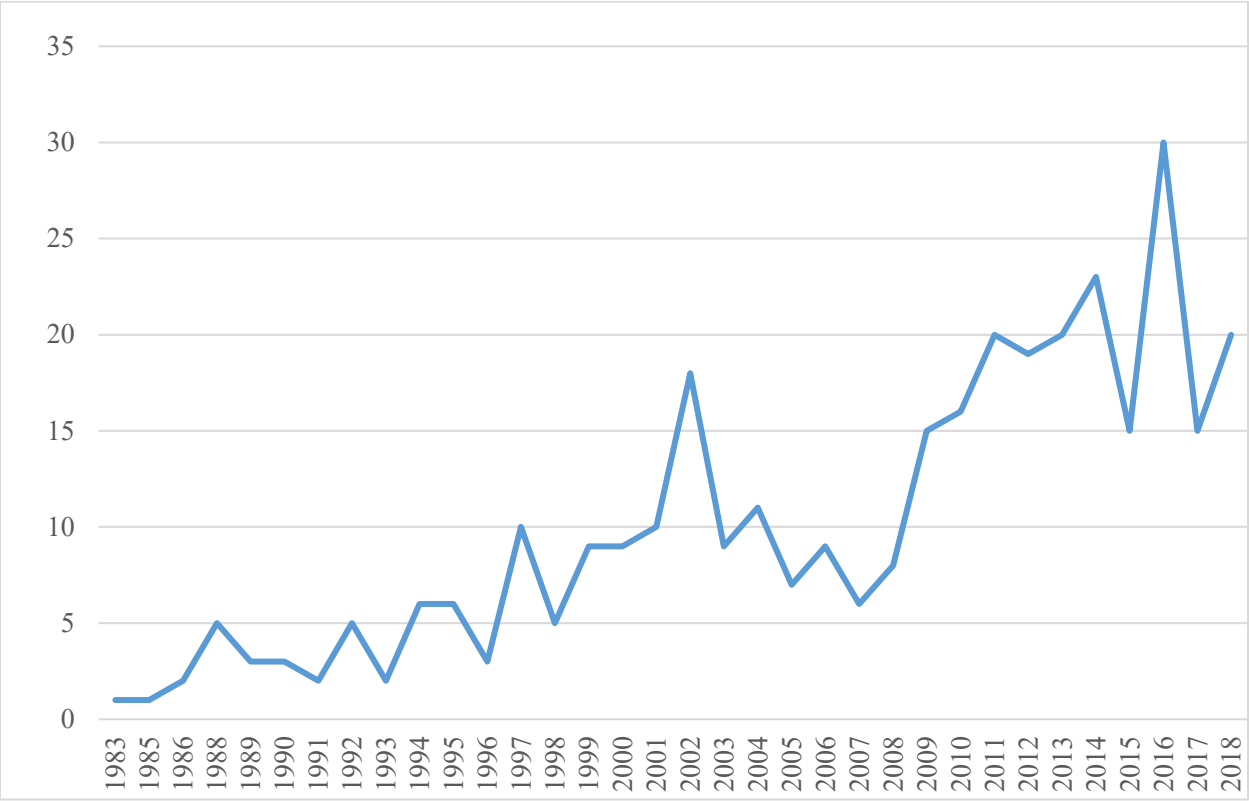


Figure 2. Intellectual structure of RM research in hospitality and tourism: pre-1998

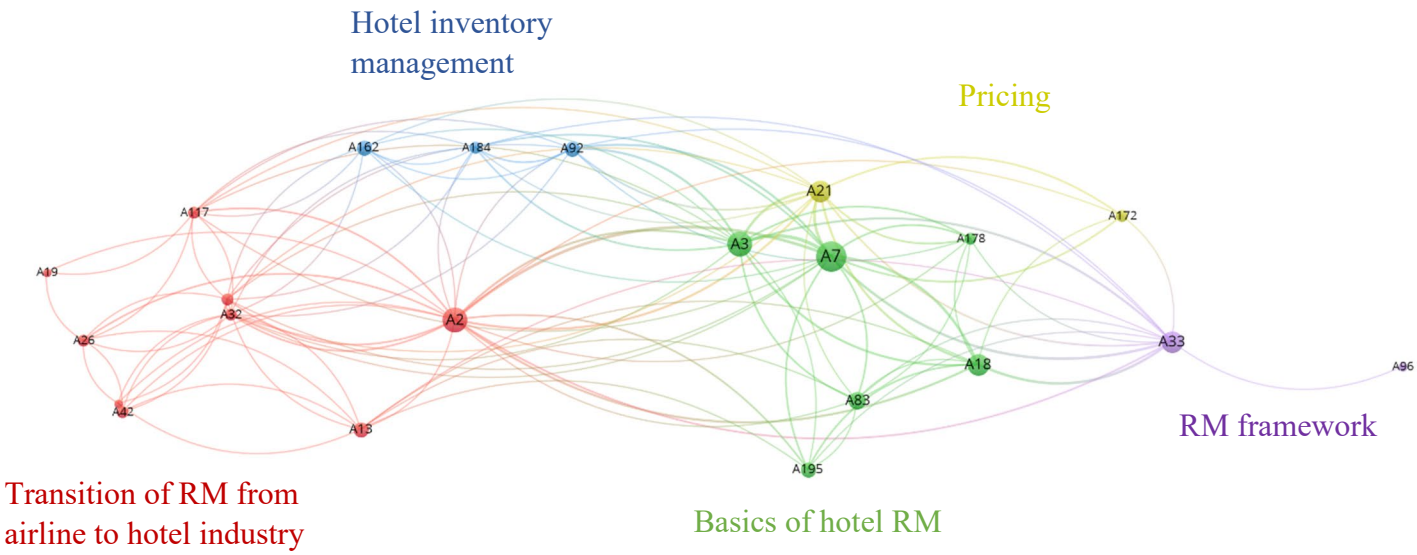


Figure 3. Intellectual structure of RM research in hospitality and tourism: 1999–2003

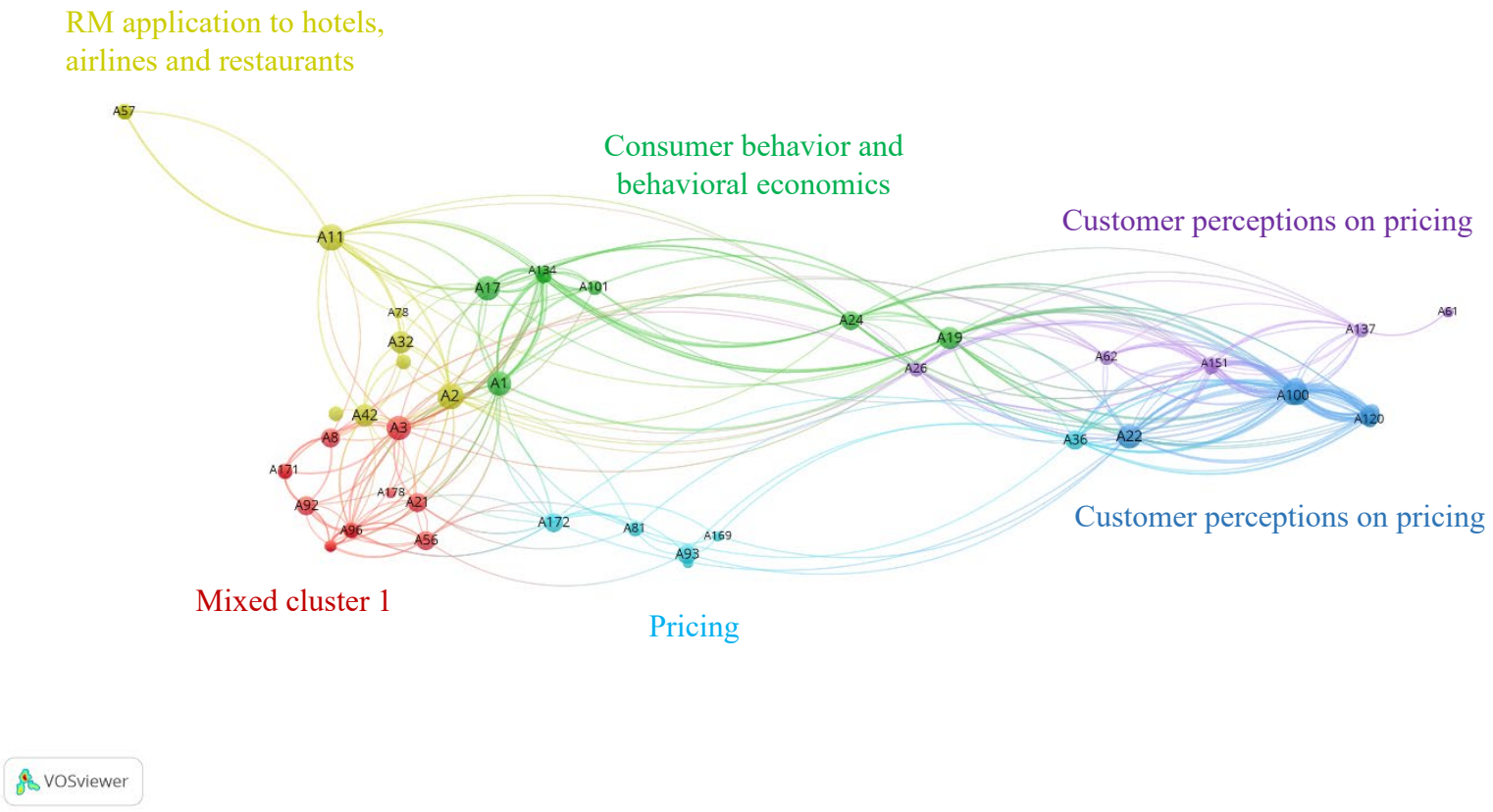


Figure 4. Intellectual structure of RM research in hospitality and tourism: 2004–2008

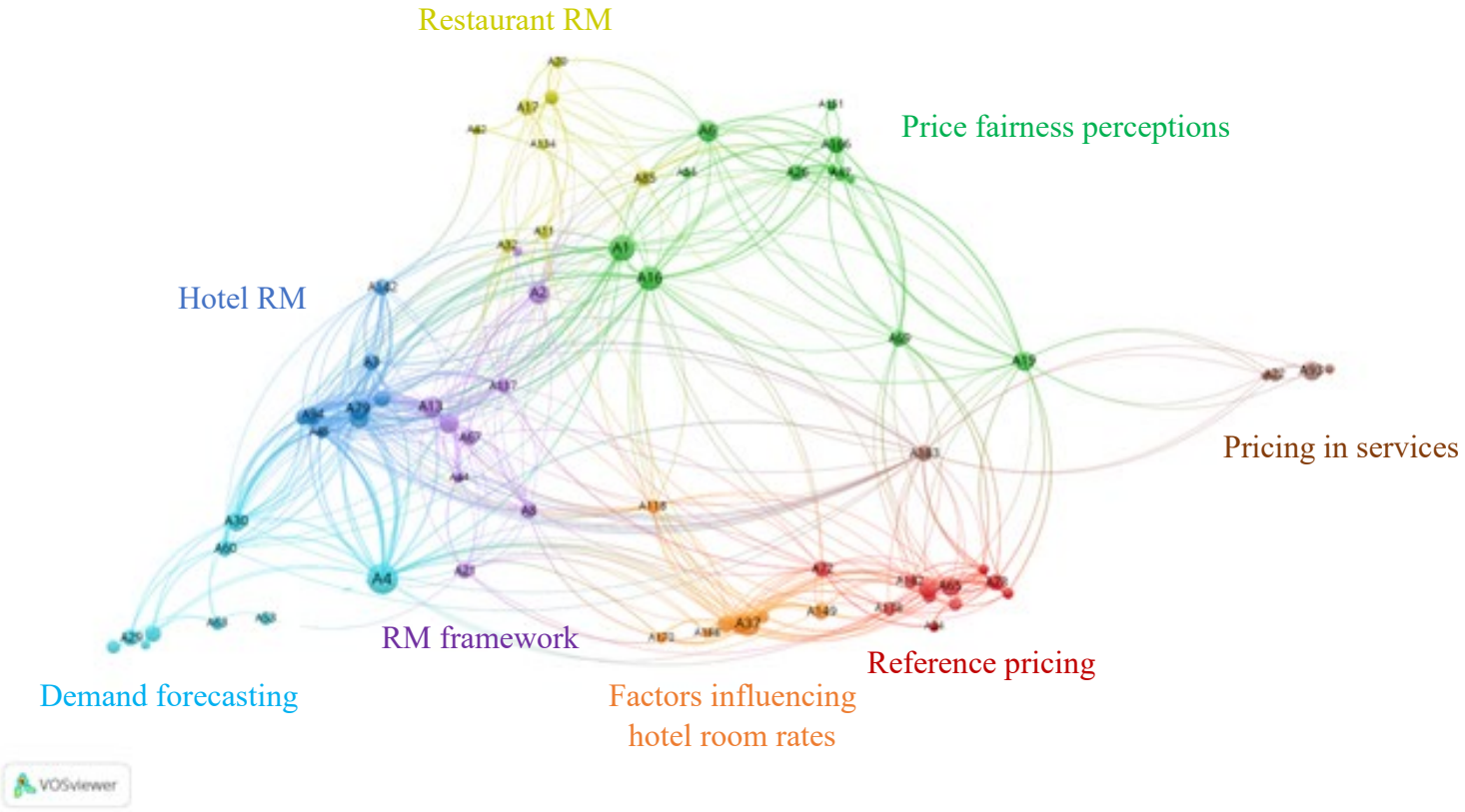


Figure 5. Intellectual structure of RM research in hospitality and tourism: 2009–2013

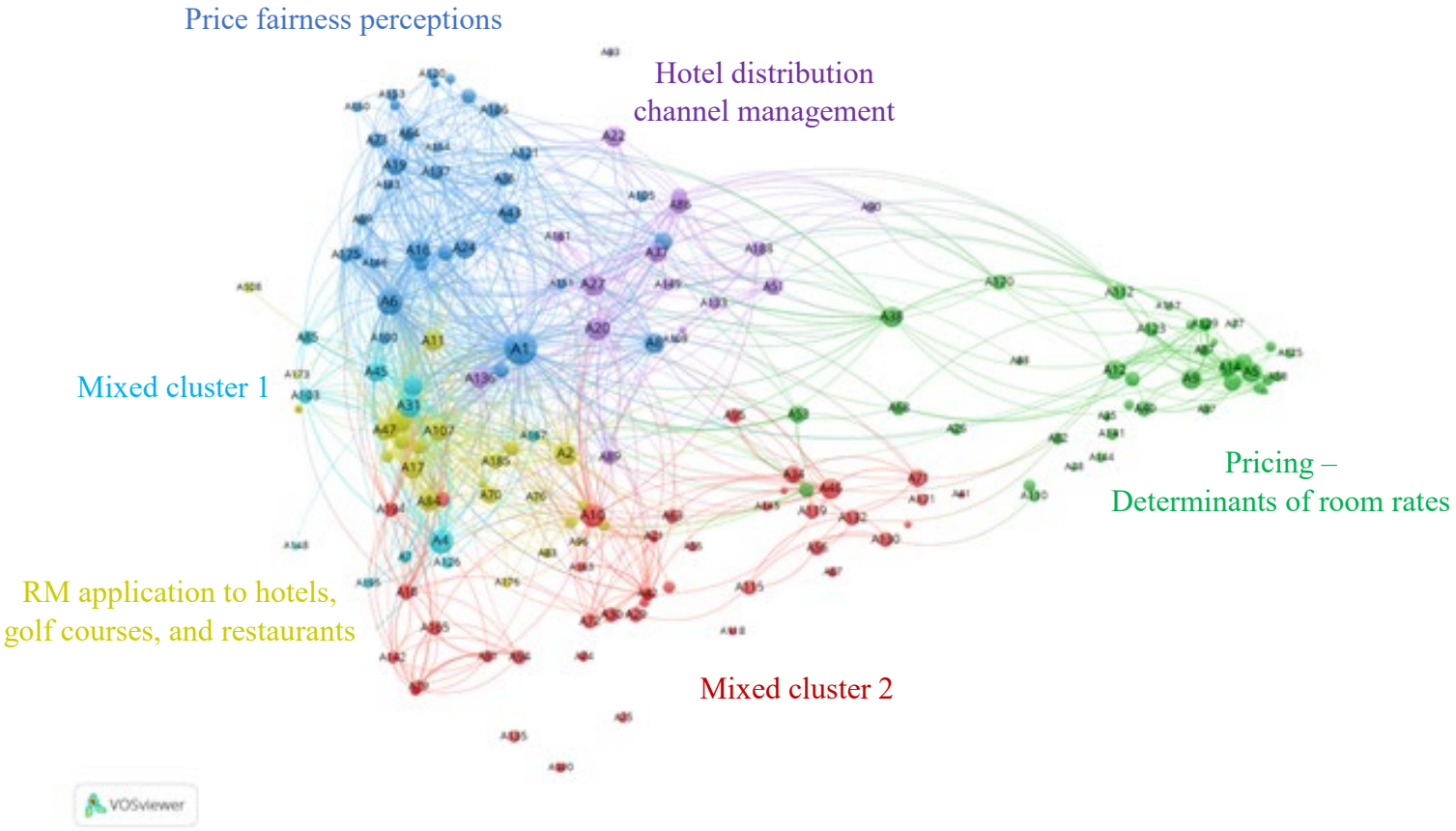


Figure 6. Intellectual structure of RM research in hospitality and tourism: 2014–2018

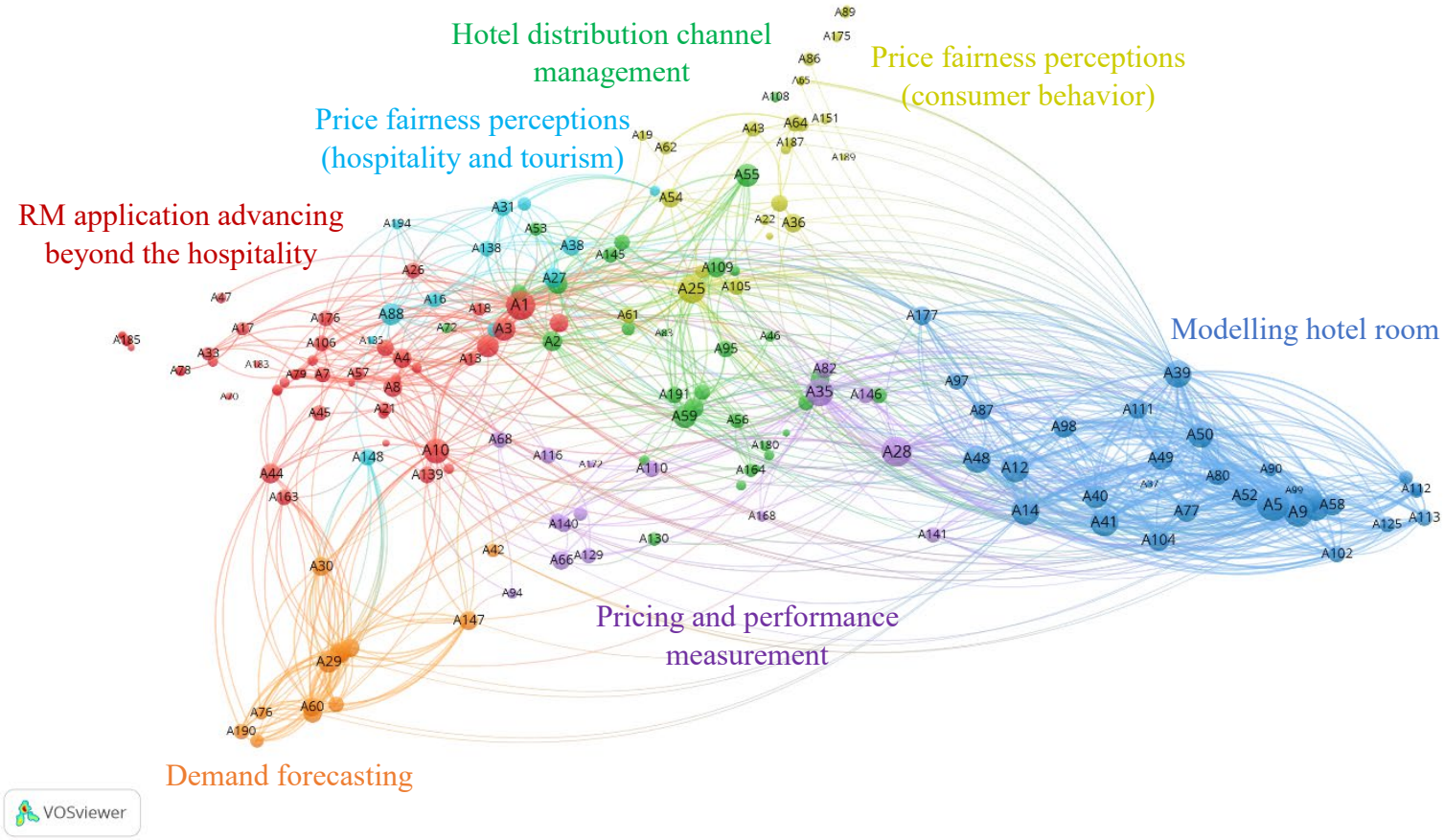


Figure 7. Intellectual structure of RM research in hospitality and tourism: 1983–2018

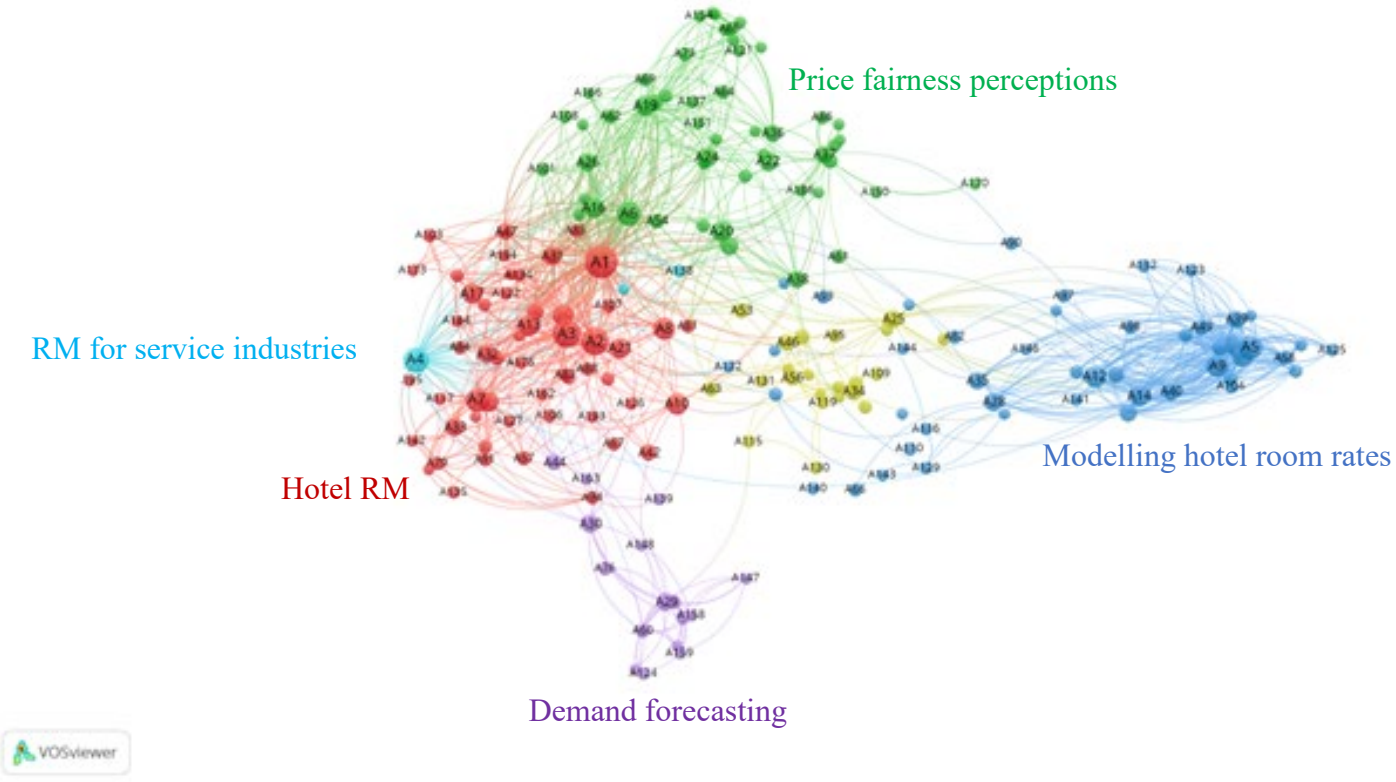
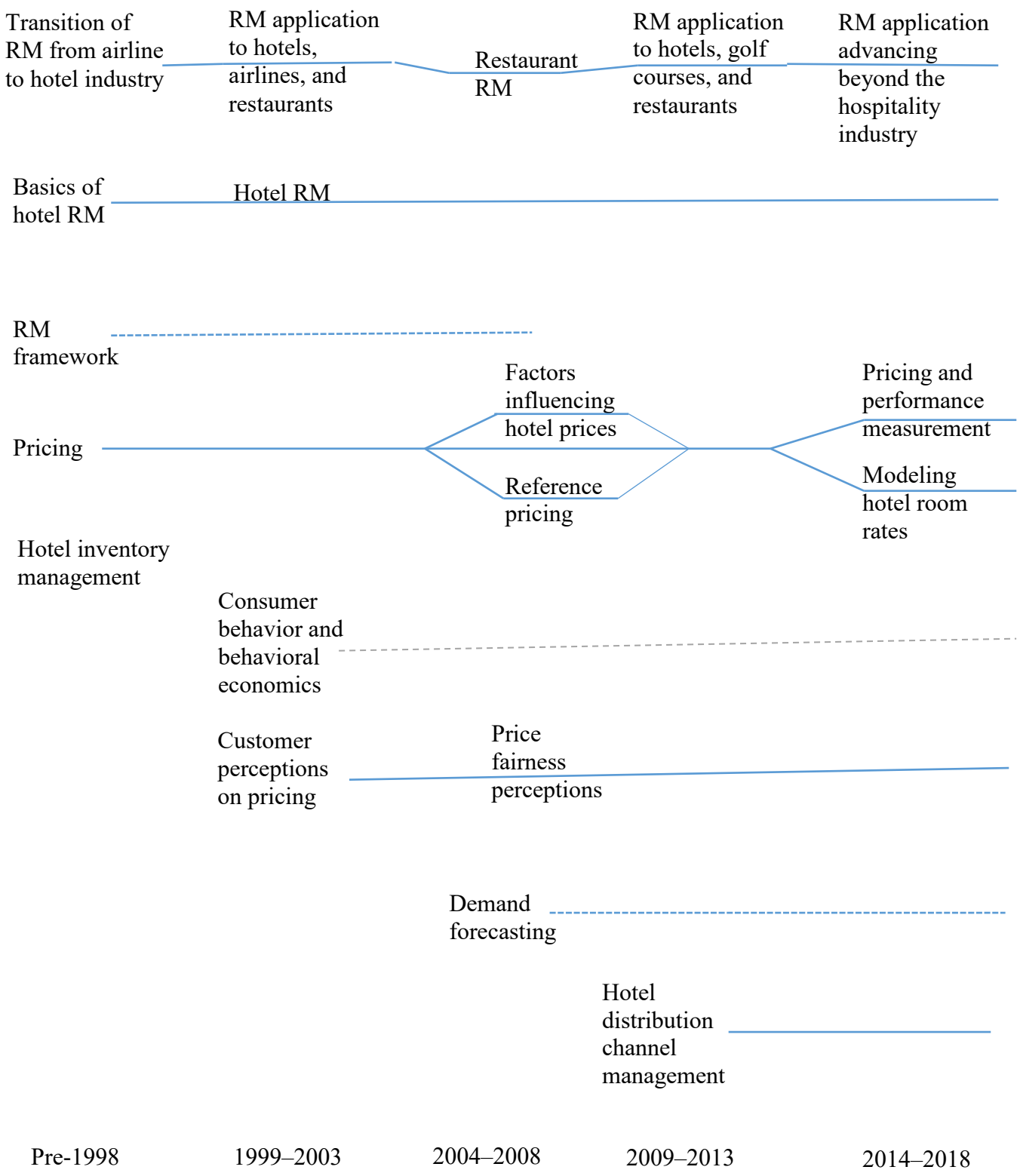


Figure 8. Evolution of source knowledge domains in RM research in hospitality and tourism



Tables

Table 1. Review of RM research outside of hospitality and tourism

Citation	Abstract
Weatherford & Bodily (1992)	By reviewing more than 40 articles, the authors proposed a RM taxonomy along 14 different elements, and classified the published research accordingly.
McGill & van Ryzin (1999)	The authors of this paper reviewed the past 40 years of transportation RM research, especially in the airline industry, in four key areas: forecasting, overbooking, seat inventory control, and pricing.
Bitran & Caldentey (2003)	The authors documented 88 articles to examine the research and results of dynamic pricing policies and how those policies relate to RM.
Boyd & Bilegan (2003)	The authors reviewed more than 110 articles to trace RM history in order to illustrate the e-commerce model of dynamic, automated sales. In addition, the authors concluded the paper with how RM was adopted outside the airline industry and discussed its relationship with dynamic pricing.
Elmaghraby & Keskinocak (2003)	The authors surveyed more than 80 pieces of literature in this study and provided a critical analysis of the latest practices in dynamic pricing in the presence of inventory considerations.
Chiang et al. (2007)	The authors reviewed 221 RM studies to discover the RM application in various service industries. Additionally, they discussed the primary RM issues, including pricing, auctions, capacity control, overbooking, and forecasting.
Bobb & Veral (2008)	The authors offered a brief review of existing knowledge on varied components of RM systems (forecasting, inventory control/overbooking, and price fences), analyzed the industry practices, and discussed the gaps between research and industry practices.
Yang, Shi, Xiao, & Feng (2009)	Focusing on RM studies in China, the authors first reviewed academic papers, then elucidated RM practices in various industries, and finally followed and subsequently discussed the RM prospects and concerns.
Cheraghi, Dadashzadeh, & Venkitachalam (2010)	The authors presented a research landscape of RM in manufacturing along three dimensions: capacity management, pricing, and market segmentation.
Armstrong & Meissner (2010)	The authors provided an overview of published literature for passenger and freight rail RM, highlighting the potential of RM development in the railway industry.
Jiang et al. (2010)	The authors first reviewed the progress of RM theory in service industries out of China and then commented on the development status of RM research in China.
Guadix, Onieva, Muñuzuri, & Cortés (2011)	The authors traced how the RM techniques were applied in various service industries in an effort to propose a RM application model to parking lots.

Ng, Rouse, & Harrison (2017)	In this study, the authors presented a taxonomy comprising seven indicators and a decision tree. A survey of 232 businesses was used to validate the classification system.
Pandey, Dutta, & Joshi (2017)	The authors surveyed 65 published items of RM literature in broadcasting and online advertising between 1980 and 2016, focusing on the strategies and techniques used to maximize advertising revenue. In addition, they identified research on mobile advertising.
Budiarto, Putro, Pradono, & Yudoko (2018)	The authors reviewed RM literature through capacity utilization in air cargo operations and examined the gap between theories and industry practice.

Table 2. Number of articles in each journal

Journal Name	Frequency	Percent
Cornell Hospitality Quarterly	91	26.53
International Journal of Hospitality Management	80	23.32
International Journal of Contemporary Hospitality Management	45	13.12
Tourism Management	33	9.62
Journal of Travel Research	15	4.37
Journal of Foodservice Business Research	11	3.21
Journal of Hospitality Marketing and Management	11	3.21
Tourism Economics	9	2.62
Journal of Hospitality and Tourism Research	8	2.33
International Journal of Hospitality and Tourism Administration	7	2.04
Journal of Travel and Tourism Marketing	7	2.04
Journal of Hospitality and Tourism Management	4	1.17
Journal of Quality Assurance in Hospitality and Tourism	4	1.17
Annals of Tourism Research	2	0.58
Asia Pacific Journal of Tourism Research	2	0.58
Current Issues in Tourism	2	0.58
International Journal of Tourism Research	2	0.58
Journal of Convention and Event Tourism	2	0.58
Anatolia	1	0.29
International Journal of Revenue Management	1	0.29
Journal of Culinary Science and Technology	1	0.29
Journal of Human Resources in Hospitality and Tourism	1	0.29
Journal of Vacation Marketing	1	0.29
Tourism Analysis	1	0.29
Tourism and Hospitality Management	1	0.29
Tourism Review International	1	0.29
Total	343	100.0

Table 3. Classification of most influential works in source domains according to extended framework for hospitality RM

Research streams in hospitality RM*	**Researched topics***	**Most influential works**	**Period**	**Article code**
Concepts, early applications and development of RM in hospitality industries	Conditions for RM practice RM process Early applications of RM in hospitality industries	Hanks, Cross, & Noland (2002); Cross (1997)	Pre-1998	A2, A42,
		Hanks, Cross, & Noland (2002); Kimes & Chase (1998); Smith, Leimkuhler, & Darrow (1992); Cross (1997)	1999-2003	A2, A11, A32, A42
		Kimes, Chase, Choi, Lee, & Ngonzi (1998); Wirtz, Kimes, Theng, & Patterson, (2003)	2004-2008	A17, A85
		Yeoman, & Ingold (1997)	2009-2013	A4
		Kimes (2002); Kimes (1989a); Cross, Higbie & Cross (2009); Chiang; Chen, & Xu (2006)	2014-2018	A1, A3, A10, A44
Customers	Consumer behavior Customers' reaction to price presentations Perception of fairness and reaction to RM Willingness/intension to purchase Satisfaction and emotional response to RM practices Customer relationship management (CRM) Customer choice models and RM	Kimes (2002); Kimes, Chase, Choi, Lee, & Ngonzi (1998); Thaler (2008); Kahneman & Tversky (1979); Oliver & Swan (1989).	1999-2003	A1, A17, A19, A24, A151
		Kimes (2002); Kimes & Wirtz (2003); Choi & Mattila (2004); Thaler (2008); Winer (1986); Kalyanaram & Winer (1995); Choi & Kimes (2002); Adams (1965)	2004-2008	A1, A6, A16, A19, A65, A72, A73, A166
		Kimes (2002); Kimes & Wirtz (2003); Weatherford & Bodily (1992); Choi & Mattila (2004); Thaler (2008); Kahneman & Tversky (1979); Choi & Mattila (2006); Wirtz & Kimes (2007); Noone, Kimes & Renaghan (2003)	2009-2013	A1, A6, A8, A16, A19, A24, A31, A43, A45
		Abrate, Fraquelli, & Viglia (2012); Noone & Mattila (2009); Choi & Mattila (2006); Rohlfs & Kimes (2007); Xia, Monroe & Cox (2004); Kimes (2011)	2014-2018	A25, A27, A31, A38, A64, A88
Core activities of RM process				

Pricing	Understanding price elasticity Pricing strategies/approaches Pricing decisions/determinants Price framing and formats Price transparency Minimum/lowest price guarantee Price patterns Price value relationship Reference price Understanding the pricing game and price reactions Price competition	Relihan (1989)	Pre-1998	A21
		Nagle & Holden (1995); Shaw (1992)	1999-2003	A93, A172
		Winer (1986); Yelkur & Nêveda Dacosta (2001); Kalyanaram & Winer (1995); Nagle & Holden (1995); Shoemaker (2003)	2004-2008	A65, A72, A73, A93, A183
		Espinet, Saez, Coenders & Fluvià (2003); Rosen (1974); Israeli (2002); Thrane (2007); Rohlfs & Kimes (2007); Enz (2003); Haroutunian, Mitsis, & Pashardes (2005)	2009-2013	A5, A9, A12, A14, A38, A53, A112
		Espinet, Saez, Coenders & Fluvià (2003); Rosen (1974); Israeli (2002); Thrane (2007); Rigall-I-Torrent & Fluvià (2011); Abrate, Capriello & Fraquelli (2011); Schamel (2012); Fleischer (2012); Chen & Rothschild (2010)	2014-2018	A5, A9, A12, A14, A39, A41, A48, A50, A52,
Demand forecasting	Forecasting methods Forecasting accuracy Forecasting demand-related variables	Yeoman, & Ingold (1997); Weatherford & Kimes (2003); Weatherford, Kimes & Scott (2003); Donaghy, Mcmahon-Beattie & Mcdowell (1997); Choi & Cho (2000); Griffin (1995)	2004-2008	A4, A29, A30, A79, A94, A142
		Weatherford & Kimes (2003); Weatherford, Kimes & Scott (2003); Schwartz & Hiemstra (1997); Yuksel (2007)	2014-2018	A29, A30, A60, A147
Inventory optimization	Inventory allocations Duration management or length of customer use Capacity/inventory management Managing groups and transients/displacement analysis	Campbell (1999); Lambert, Lambert & Cullen (1989)	Pre-1998	A62, A92
Distribution channel management	Rate comparison across channels Rate parity and integrity	Carroll & Siguaw, (2003); Zeithaml (1988); Noone & Mattila (2009); Schwartz (2000);	2009-2013	A20, A22, A27, A37, A51, A86, A188

	Management of distribution channels Distribution strategy Impacts of distribution channels on RM Managing distributor relationships	Schwartz (2006); Chen & Schwartz (2008); Schwartz (2008).		
		Buhalis & Law (2008); Guo, Ling, Dong & Liang (2013); Law, Chen, Go (2007); Morosan & Jeong (2008)	2014-2018	A55, A59, A95, A191
Performance analysis and monitoring	RM performance metrics/measurements Performance drivers Analysis, evaluation and adjustment	Qu, Xu & Tan (2002); Enz, Canina, & Lomanno (2009); O'Neill & Mattila (2006); Ismail, Dalbor & Mills (2002)	2014-2018	A66, A68, A110, A140

* Research streams in hospitality RM and research topics were adapted from Denizci Guillet & Mohammed (2015, p. 536). Core activities of RM process that are relevant to source domains and most influential works are included in the research streams in hospitality RM.