



Operations research from 1913 to 2013

The Ford assembly line to hospitality industry innovation

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Abstract

Purpose – This article aims to first summarize and explain major services operations research foci from the past century. Second, this article relates how hospitality scholars have conducted operations-related research with a particular focus on research related to hotels and lodging. Finally, the article makes recommendations regarding potential future areas of concentration of operations research in hospitality.

Design/methodology/approach – The article presents a scholarly literature review, where literature from hospitality and general operations management (OM) was reviewed to document research foci throughout recent periods in history.

Findings – Hospitality scholars have been conducting research, which reflects trends in general OM literature. Additionally, the research being conducting, which focuses on services in OM, is becoming more commonplace and more distinct from production-based research.

Originality/value – The article provides a compilation of literature regarding OM and how hospitality scholars have applied those principles to hotel and lodging operations. Additionally, recommendations regarding potential future topical areas and methodologies are provided for scholars.

Keywords Social media, Information technology, Service operations, Operations management, Hospitality branding, Hospitality operations

Paper type Research paper

Introduction

Operations management (OM) can be defined as a function that organizations can use which allows them to achieve goals due to the efficient use and acquisition of resources (Krajewski *et al.*, 2007; Chase *et al.*, 2006). Traditionally, OM was concerned almost exclusively with manufacturing (Skinner, 1969; Hayes and Wheelwright, 1984), although, more recently, it has expanded to include service systems, including marketing, accounting, purchasing, logistics, information management, engineering and human resources functions (Chopra *et al.*, 2004). In short, OM is, as Knod and Schonberger (2001) and Chase *et al.* (2006) suggest, a system where inputs (labor, equipment, raw materials, information and so on) are put through a transformative process to create outputs (goods and services).

Over the past 100 years, OM has experienced changes in focus and points of emphasis. As Nankervis *et al.* (2005) outline, OM essentially started with the Ford coordinated assembly line in 1913 and has evolved all the way to today's virtual organizations. In the past century, OM has had many advancements such as total



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quality management (TQM), material requirement planning (MRP) and manufacture resource planning (MRP II) emerge. However, due to the shift from stand-alone functional applications to applications that are integrated through the entire organization, these earlier developed tools soon became insufficient. In fact, as early as the study by Skinner (1969), calls were made for integrating OM (in a manufacturing context) into the broader strategic goals of the organization. The call for improvements in OM for the sake of organizational performance was echoed in *Restoring our Competitive Edge: Competing Through Manufacturing*, by suggesting that manufacturing firms could better integrate functional areas to improve the efficiency and effectiveness of the firm (Hayes and Wheelwright, 1984).

It took until the past decade, for recent focuses on *services* in OM research to have seen developments in communications and new management tools like customer relationship management, supplier relationship management, supply chain management and knowledge management, all of which have become important models for success in the new economy (Bayraktar *et al.*, 2007). Nowhere is the integration of various elements of OM research more evident than in enterprise resource planning (ERP). In a review of OM research conducted by Pairat and Jungthirapanich (2005, p. 288), ERP is described as “[...] systems manage[d] to integrate once-dispersed business functional units, multiple tiers of suppliers, and end consumers into a seamless and synchronous supply chain”. ERP research has focused both on manufacturing and service organizations, and has been growing in popularity by capitalizing on the recent focus regarding the synthesis of the various business units and functional areas of an organization into OM (Pairat and Jungthirapanich, 2005).

The primary purposes of this review article are to present an understanding regarding how the shifts in OM research (as it pertains to services) have been adopted by hospitality scholars, and to attempt to anticipate future needs of hospitality research pertaining to OM. The remainder of the article is organized as follows: the next section describes the major focus areas in services research in OM over approximately the past 100 years, then the article reviews how hospitality has adopted and examined the major recent OM research trends, before concluding with future recommendations of study for hospitality scholars.

Service operation management

The big ideas

In the USA, as well as in other developed nations, the service sector of the economy is not only the largest economic sector, but also the fastest growing (Chase and Apte, 2007). In fact Quinn (1992) stated that large manufacturing firms generate large revenue streams through services, and those same companies, such as General Motors, actually hire 65-75 per cent of their employees in service units rather than manufacturing units. Manufacturing firms not only compete on product quality but also emphasize delivery as a core function of their strategic competitiveness (Kathuria *et al.*, 2010). Due to the importance of services in the modern economy, research on services is especially warranted, and as Chopra *et al.* (2004) point out, services research is gaining more attention in OM literature. Table I outlines the major focuses on service research throughout modern history. Adapting the big ideas framework from Chase and Apte (2007), this article briefly chronicles the history of services research in OM.

Time period	Research emphasis
1900s-1950s	Application of scientific management to services, e.g. Walt Disney: industrialized fantasy, Holiday Inns: consistency in multi-site services
1960s	McDonald's: production-line approach to services, service economy, material requirement planning and operations in healthcare
1970s	Industrialization of services, match supply and demand in services, the customer contact model, closed-loop MRP, MRP II and data envelopment analysis
1980s	Classify services to gain marketing and operational insights, gap model of service quality and SERVQUAL, strategic service vision, unconditional service guarantee, psychology of queues, enterprise resource management, customer relationship management, supplier relationship management and yield management
1990s	Service profit chain using poka-yoke, or fail-safe, methods to prevent human errors in service systems, globalization of information-intensive services, supply chain management and the emergence of the experience economy
2000s	Using behavioral science in service operations, managing operations in information-intensive services, information technology in services and e-services, global business process outsourcing, knowledge management and service design

Table I.
An historical view of
operations research, with
a focus on services

Source: Table adapted from [Chase and Apte \(2007\)](#)

Despite the rich history that services enjoy in OM research and their growing popularity as a research focus, they still account for a small minority of papers that are published regarding OM ([Machuca et al., 2007](#)). One reason for the lack of popularity for services research is that:

[...] in contrast to manufacturing, services tend to focus on different problem types and use different methodologies than those that are typically found in most production operation management doctoral curricula. Many service management problems are fuzzy and unstructured; are multidimensional and complex; and are less conducive to normative, analytical modeling ([Roth and Menor, 2003](#), p. 146).

Additionally, research focusing on services has typically focused on tactical or operational issues; however, researchers are recently starting to take a more strategic stance ([Machuca et al., 2007](#)).

OM research in services is unique because one cannot create a service without the involvement of a customer. A service is not like a product that can be produced and then purchased to be consumed or used by the customer separately from the producer. A hotel guest has to be physically present in a hotel and decide which services he or she wishes to use (creation and consumption occur simultaneously). The same is true for a restaurant guest or tour group participant. They are involved in the creation of that service.

Early services OM research

Moving on with the big ideas framework, one of the first forays into services research was applying principles of Taylor's *Principles of Scientific Management* ([Taylor, 1911](#)) to insurance companies, accounting firms and mail order firms ([Leffingwell, 1917](#)). The "scientific manager" was supposed to study the routines of employees to find the simplest and fastest ways for them to complete their work. After the optimal routine was

established, it would be standardized and the aspects of office life would be governed. [Koppes \(1999\)](#) proposed a contemporary view of scientific management by suggesting that the perspectives and happiness of employees should be considered and the principles of psychology applied to solve problems.

Transitioning from the scientific management approach to a production-line approach in services happened with the rise of McDonald's ([Norris and Bockelmann, 2000](#)). When McDonald's was listed on the New York Stock Exchange in 1995, the company president suggested that McDonald's traded not in food sales, equipment, fixtures or supplies but rather its "know-how" in operating restaurants. The success of the production-line approach is due to the following three factors:

- (1) the standardization and reduction in the variety of products offered;
- (2) simplification, standardization and automation of processes which allow workers with limited skills and training to reliably produce a certain quality of service and products; and
- (3) monitoring and controlling the process performance ([Chase and Apte, 2007](#)).

These same principles can also be seen in the 1950s through the development of Holiday Inn, which emphasized the standardization of quality and adhered to a production-line approach in services.

Defining services

The next advancement in operations in services came through the industrialization of service operations, and the further refinement of the definition of services being separate from production. During this time, certain concepts like intangibility, simultaneous production and consumption and co-production were used to discuss the differences between services and goods ([Shostack, 1977, 1984](#)). A part of the discussion of services was also how to match supply and demand, in the immediacy of a service context, such as hotel rooms being cleaned and vacant when travelers arrive. [Sasser \(1976\)](#) discussed strategies for matching supply and demand in service businesses. Additionally, [Levitt \(1970, 1972\)](#) suggested that systems and technology should be the focus in service operations rather than people and happenstance.

The 1970s also saw the development of the customer contact model ([Chase, 1978](#)). The customer contact model posits that the efficiency of a service is a function of how involved the customer is in the creation of the service, where low involvement of the customer leads to greater efficiency. The customer contact model is consistent with an earlier assertion by [Thompson \(1967, p. 19\)](#) who stated, "under norms of rationality, organizations seek to seal off their core technologies from environmental influences". Recently, researchers have used the customer contact model as a way to understand customer perceptions and also for service design ([Kellogg and Chase, 1995; Froehle and Roth, 2004](#)). For example, a hotel with low customer contact (high efficiency) may provide self-service kiosks, cut keys for guests prior to arrival and have service standards to reduce check-in times. Conversely, another hotel may opt to have high customer contact (low efficiency), by not only checking-in every guest at the front desk but also having the agent walk the guest to the elevator or even to the room itself. In this example, the hotel that operates with low customer contact cuts off portions of the process from the environmental influence of the customer, thereby working more efficiently.

Development of distinct services operations frameworks

Researchers in the 1980s advanced service operations literature further, through the development of service-specific frameworks in OM. One of the influential developments in the 1980s was the development of the gap model to services. [Parasuraman et al. \(1985\)](#) attempted to give service providers a way to measure the quality of their services the same way manufactures could measure the quality of their products. The gap model assumes that the quality of services is based on how well the perceptions of services meet the expectations of the customers. The gap model eventually led to the development of the SERVQUAL measurement system ([Zeithaml et al., 1990](#)).

Consistent with the gap model, [Maister \(1985\)](#) suggests two laws for service operations:

- (1) that customers compare their perceived experiences to their expectations; and
- (2) that the first impression of the service influences the rest of the entire service experience.

Research regarding the second law gave rise to research regarding the psychology of queues in service operations. Recent research has gone beyond just the psychology of queues and how to use them to manage demand and capacity in an operation ([Pullman and Thompson, 2003](#)). Moreover, [Larson \(1987\)](#) suggested that customers would become dissatisfied when the service provider's service quality was below their expectations.

Another major influential development of service operations research that was developed in the 1980s was that of yield management ([Chase and Apte, 2007](#)). [Belobaba \(1989\)](#) discussed yield management in the airline industry as a way to effectively control inventory on flights and forecast future bookings. Yield management was used as a system of setting booking limits on flights and trying to maximize revenue for a service provider with a perishable fixed inventory. [Kimes \(1989\)](#) stated that the principles of yield management could be used anywhere with a perishable fixed inventory like hotels, restaurants, cruise lines and car rental agencies. [Kimes \(1989\)](#) suggested that yield management, later referred to as revenue management could help a firm determine how much of each type of inventory to sell to each type of customer and when.

It is important to note that services OM research had traditionally focused on only certain sectors of the economy prior to and during the 1980s. In fact, during the 1980s, three sectors, namely, healthcare, commercial distribution and transportation, accounted for 50 per cent of all published services OM research ([Machuca et al., 2007](#)). As [Machuca et al. \(2007\)](#) suggest, tourism, leisure, culture and sport have overtaken transportation as being among the three most commonly researched sectors in services OM research. Hospitality scholars can observe this change regarding how yield management was first discussed in the airline industry; however, it now receives more attention in the hotel industry.

Recent services OM research

Researchers in the 1990s developed two new ways to focus on quality in service operations. One such way that was developed by Harvard researchers was the service profit chain ([Heskett et al., 1997](#)). The service profit chain starts with creating favorable conditions for employees who, in turn, do the same for guests, which drives satisfaction and loyalty. Another such way in which OM researchers in the 1990s focused on improving quality in service operations was through TQM or applying poka-yoke. The

idea behind TQM was that the actions of the system, service provider and customer could be thought of in fail-safe terms (Chase and Stewart, 1994). Even though services research in OM gained conceptual distinction from manufacturing at this time, services research in OM mirrored that of the more traditional manufacturing OM research. Kathuria (2000) developed a taxonomy of manufacturing strategies which emphasized the quality of products as well as timeliness and customer satisfaction.

Additional OM research in the 1990s started to focus on globalization and what that meant for services, especially services that were information intensive. Research on globalization focused on the delivery of services and the emergence of the global work force. Apte and Mason (1995) suggested that services having a high information intensity component but lacking customer contact are prime for outsourcing. Additionally, research sought to understand the relationship between culture and what behaviors lead to a satisfying service encounter (Youngdahl *et al.*, 2003).

Operations research in hotels

The hotel macroculture

In line with Chase and Apte's (2007) framework of services research, hospitality research from the past decade has focused on using behavioral science in service operations, global business process and service design, as well as some hospitality specific areas of research, such as research which focuses on the asset or physical property. This section will focus solely on recent literature related to the hospitality industry. To begin this section, we discuss the hotel industry macroculture (O'Neill *et al.*, 2004) to frame OM as it relates to the hospitality industry, and particularly, the hotel sector.

A macroculture in and of itself is a constellation of strategies, processes and perceptions shared among organizations that operate in the same industry (Abrahamson and Fombrun, 1994). Therefore, an industry macroculture stems from beliefs, norms and mental models shared by many members of organizations in that single industry. As O'Neill *et al.* (2004, p. 4) indicated, a macroculture is:

[...] organizational culture manifested in behavior patterns shared among organizational participants in an industry resulting from shared beliefs, needs, and/or circumstances, and resulting in similar mental models, similar perceptions or strategic issues, and similar strategies.

We believe that understanding hotel macroculture helps researchers to study OM as it relates to the hotel industry.

Through empirical research, three aspects have been discovered regarding macroculture in hotels:

- (1) the service model;
- (2) the growth model; and
- (3) the property model (O'Neill *et al.*, 2004).

The service model is the belief that it is of strategic importance to build relationships with customers through the effective use of training and motivating employees. The growth model is a belief that acquiring financing and finding new markets in which to expand and grow market share is strategically important. The property model suggests that it is strategically important to renovate and maintain the physical property while

implementing new technology. These models are in concert with Olsen and Roper's (1998) assertion that strategic management in hospitality is not a simple rational process, but rather a complex one. Additionally, seeing that executives in the hospitality industry are concerned with service, growth and the physical condition of assets can help to explain the focus researchers in the field have used to conduct OM research.

The service model

The service model of hotel macroculture (O'Neill *et al.*, 2004) and Chase and Apte's (2007) discussion of service design overlap in hospitality OM research. One such way that these ideas overlap is in Mattila and O'Neill's (2003) assertion that certain elements of a stay in a hotel greatly influence guest satisfaction such as the attentiveness of staff and guest room cleanliness. Additionally, hospitality research has been interested in the application of technology into the service design, by determining the needs of guests through the design of hotel services (Yeh *et al.*, 2005). ERP has also been applied in the hotel industry through the adoption of Peoplesoft and SAP, which help with logistics related to forecasting, scheduling and, in general, more effectively managing hospitality operations (Pairat and Jungthirapanich, 2005).

Technology has been a recent focus in the area of hospitality OM research and has received a considerable amount of attention since the turn of the century (Law *et al.*, 2009). The technological revolution that began in the 1980s and 1990s has continued to flourish, and hospitality properties have had to adapt to the changing world from an information technology aspect, which is, at times, seen as being in opposition to the people-oriented operations of the hospitality industry (Law *et al.*, 2009), making it an important consideration for hospitality operators. As Zins (2007) asserts, the Internet has become one of the most important resources of business operations, and hotel guests now have certain expectations for technology and access to it during their stays (Yeh *et al.*, 2005). Research on information technology has gone beyond expectations and also focuses on how a Web site influences purchase intentions of potential hotel guests (Chiang and Jang, 2006) and the understanding of customer perceptions (Benckendorff, 2006).

In addition to guest expectations and perceptions, research regarding information technology has also focused on risk management in hospitality operations. Online security is a valid concern for hotel service operations, as 15 per cent of hotels have reported virus attacks (Cobanoglu and DeMicco, 2007). Despite the risk that hotel companies face due to the transactional nature of their service operations (e.g. a sold-out 2,000-room hotel may have information containing 2,000 credit cards on file during only one night of the year), O'Connor (2007) found that only one-third of hotel companies provide the service of displaying third-party privacy certifications online. Hotel managers and employees need to be able to provide the service of operating their properties in a secure and responsible way not only to serve their guests and meet their expectations, but to protect them as well. Additionally, in a crisis, information technology systems can be used as a tool by hospitality operations managers to address the crisis (Mistilis and Sheldon, 2006) or as a tool to communicate to stakeholders (Volo, 2007).

Hospitality researchers' interests (consistent with the service model) lay in managing the quality of all service operations, not just understanding how technology can be used to manage in a crisis. Specifically, OM research has begun to analyze TQM programs

like Six Sigma and how they relate to guest satisfaction and other outcomes (e. g. [Noone et al., 2010](#)). Six Sigma programs in services contexts have traditionally been applied to aspects of operations that did not involve customer contact, such as human resources ([Heuring, 2004](#)) and accounting ([Rucker, 1999](#)). Six Sigma could be applied to areas of high guest involvement as [Noone et al. \(2010\)](#) suggest, as well as parts of the hospitality operations that do not involve guest contact.

The growth model

The global business processes that [Chase and Apte \(2007\)](#) discuss manifest themselves in the growth model of hotel industry macroculture. Hotel companies are not just competing for real estate in overseas locations, but also for new inbound travelers. According to the United Nations World Tourism Organization, the destinations and origins of tourists are changing, creating new domestic and international markets for hotel companies to compete in and for ([UNWTO, 2011](#)). The change in the hotel market dynamics has led to companies adopting new strategic marketing options and operational marketing processes to capture new market share in the changing competitive environment of the industry ([Gustavo, 2013](#)).

Consistent with the growth model is the need for hotel companies and scholars to understand the effects of brands. The majority of hotels operate as branded properties, which influences the service operations of those individual hotels, with not only tangible requirements (e.g. Westin's Heavenly Bed), but also service requirements (e.g. 24-hour room service at certain luxury branded properties). Hotel brands, with their corresponding brand standards, have been demonstrated as one of the significant determinates of hotel operational performance ([Xiao et al., 2012](#)), and brands have been shown to have a significant relationship to a hotel's market value ([O'Neill and Xiao, 2006](#)). Additionally, research has found that the relationship between brands, guest satisfaction and revenue growth is moderated by the extent of franchising within a brand ([O'Neill et al., 2006](#)). In a related topic from the past decade in hospitality, OM research regarding services has served as the foundation for customer-centric programs like loyalty programs ([Rust et al., 2004](#)).

The growth model is deeply concerned with hotel performance. Recently, hospitality operations scholars have paid close attention to the variables that influence hotel operational performance. One such way that scholars studying hotel operations performance have addressed the issue is by relating marketing expenses to performance ([O'Neill et al., 2008](#)). Additional studies in profitability have focused on marketing-based questions, borrowing from the neoclassical economics literature and finding that guest satisfaction becomes a key performance indicator for economic vitality ([Fornell et al., 2006](#)). It has been shown that guest satisfaction has a positive effect on loyalty ([Bolton et al., 2004](#)), which, in turn, provides the double operations benefit of future revenue and reduces transaction costs ([Reichheld and Sasser, 1990](#)). However, the bulk of the work regarding hotel operational performance focuses on top-line revenue, even though there has been some debate regarding whether it is the best way to study performance ([Watkins, 2002](#); [Shaw, 2002](#)). However, as [Singh and Schmidgall \(2002\)](#) suggest, Average Daily Rate (ADR) and Revenue Per Available Room (RevPAR) are the two most crucial operating statistics for hotel executives, and top-line revenue figures have been shown to predict net operating income (NOI) ([O'Neill and Mattila, 2006](#)). The

relationship between top-line revenue figures and NOI has also been established as they relate to the sales price of hotels (O'Neill, 2004).

The property model

While recent OM research has focused on information technology and managing in virtual organizations (Nankervis *et al.*, 2005), hospitality scholars have focused on the physical property and operational performance hurdles that are required based on construction cost to achieve profitability (O'Neill, 2003), what hotel types are the most profitable operations (Mattila *et al.*, 2009) and how long do certain hotel types take to stabilize their operations (O'Neill, 2011). While some operational research has focused on the integration of technology to the hotel property (Yeh *et al.*, 2005), a significant portion of research has focused on real estate, property type and upkeep of the property. The recent focus on the physical asset and the ramifications the physical space has for services in hospitality seems to be the biggest deviation from current researchers in other OM-related fields. This difference is reasonable considering that hospitality operations are highly location-based businesses, whereas manufacturing operations are not location-based in the same fashion.

The property model also subsumes hospitality research regarding total property revenue management, which used statistical methodologies to improve profitability mechanisms in the entire operation, not just through the more efficient management of guest room inventory. Areas of interest in total revenue management are: function space, restaurant, spa and golf (Kimes *et al.*, 1998; Kimes, 2000; Kimes and McGuire, 2001; Kimes and Schruben, 2002; Noone *et al.*, 2009). Exploring these various outlets' potential for revenue management allows hotel managers to maximize their operations' overall profitability.

In summary, hotel OM research has focused on the three aspects of the hotel macroculture, namely, service, growth and the physical property. Hospitality scholars have addressed important theoretical and practical issues in their research and have been able to see work done in other fields reflected in their own. The future for OM research in hospitality appears to be one that is filled with bright, energetic scholars who are prepared to address the next generation's questions. The next section of this article reviews potential areas and aspects of that future research.

Future directions for operations research in hospitality

Future research topics

Although hospitality researchers have been continuously advancing OM research, it is without a doubt that new challenges and opportunities are on our horizon. There have been advancements both in the fields of hospitality management and OM, and understanding the challenges and opportunities of the next decade will be crucial to our field. Future OM research in the hospitality industry could be conducted within the macrocultural framework outlined in this study. Linking operations to the cultural norms of the industry will be important to both contextualize and explain phenomena as they occur in our field of study. Several areas regarding technology should be explored in further detail as well as expanding our knowledge of the changing demands and demographics of the hospitality customer. The remainder of this section provides an outline for future directions hospitality scholars can take for their operations focused research.

A popular topic in today's hospitality operations world is social media, and although this topic is one on which service marketing researchers may focus, it also presents an opportunity for OM research. Social media provide a unique set of challenges for the hospitality industry and for OM researchers with sites like Trip Adviser and Yelp, essentially being designed as applications involving the hospitality industry, and particularly hotels. One area of concern should be the relationship between online reviews, room rates, willingness to book and operational performance, e.g. occupancy percentage and average daily rate. How does the sentiment of an online review influence the behavior of the reader of that review? Another interesting question may be: are all negative and positive reviews of a property viewed as the same? There may also be certain characteristics of the consumers of social media that influence the relationship they develop with a property. Are certain groups of people more savvy when it comes to online reviews and social media, in general, and therefore more or less prone to have what they read influence their purchasing habits? In addition, how can hotel conglomerates best organize themselves to most efficiently and effectively manage the multitude of social media for optimal operational performance?

Another area with a paucity of research conducted from an OM perspective is information technology. As *Law et al. (2009)* point out, there is a reluctance and even aversion to the adoption of technology by hotel managers. It was even suggested that hotel operators view information technology as unrelated to the customer-oriented nature of the hotel business and have relegated it as a secondary concern. The issue here is that few studies have investigated the benefits and drawbacks of information technology from a guest or employee perspective. Interesting and unanswered questions could analyze the adoption of virtual tools by hospitality operations teams and how they can better service customers for optimal performance. Additionally, research into how potentially eliminating the physical front desk to allow hotel operations teams to check in arriving guests on tablets rather than in pods or stations could be conducted so that researchers and operators can better understand the effects of such a change on efficiency and other performance measures. In addition, questions regarding how guests' interactions with elements of technology prior to and while they are staying in hotels affect the operational efficiencies of hotels should be answered.

Future research in OM may also focus on the effect of brands on profitability. Certain questions remained unanswered regarding how hotel brands influence hotel performance, such as whether certain brands have a better flow-through of their revenue streams from top- to bottom-line performance. Another interesting question would be the performance of hotel brands throughout an economic cycle; are certain brands stronger performers in a recession, while their performance lags during the growth portion of the economic cycle? Finally, questions regarding brands could revolve around how they expand globally. Hotels need to be present in the USA and China to serve both of those markets, unlike manufactured goods, which can be produced in one country and distributed in many. Therefore, research regarding the country of origin of hospitality brands could be of interest to practitioners and scholars alike. Does where a brand originated from influence its performance in international markets, and are there certain markets that are particularly compatible or hostile to foreign brands? Again, the relationship between local and foreign brand performance could be investigated during different economic cycles to determine how internationally branded hotels compete against domestically branded hotels throughout the economic cycle. Additionally, the

power of brands could be viewed from the guest's perspective. Are travelers more or less likely to book a hotel whose brand originated from their country when traveling for business or leisure purposes when they travel internationally or domestically, and do such factors affect the room rates guest are willing to pay? Such research avenues should help scholars with understanding and practitioners with achieving optimal levels of performance.

The hospitality industry is itself evolving, and so should OM research to support that evolution. For example, new hotel concepts are being designed to encourage the use of public space by guests, such as Even Hotels by InterContinental Hotel Group. Similarly, Marriott's Courtyard concept has been undergoing a redesign of its lobby concept to encourage guests to work, eat, drink and meet people there. What this redevelopment means for the property model of the hotel industry's macroculture is still not completely known. OM researchers may also be interested in what this new style of development and redevelopment might mean for how guests and employees both interact and flow through the new, redesigned spaces.

Another avenue that hospitality researchers should consider is examining existing areas or new topics with more interpretive methods. [Craighead and Meredith \(2008\)](#) noted an increase in the amount of OM research that has been conducted from the positivist or empiricist paradigm from approximately 32-57 per cent of all studies conducted between 1987 and 1995, and this percentage remained relatively level from 1995 to 2003. They also noted growth in the interpretive paradigm, which accounted for only approximately 6 per cent of studies in 1987, increasing to 16 per cent of studies in 1995 and 34 per cent in 2003. Some scholars are specifically calling for more research that generates theory in OM ([Handfield, 2006](#)), while others are championing a shift away from the survey method to more interpretive methods ([Rungtusanatham, 2006](#)). Such a shift may allow hospitality scholars to use new methods to approach old problems, or even explore uncharted territory and make new contributions to the field through the use of novel, interpretive methodologies.

Conclusions

The field of OM research has enjoyed a long history, and seen much advancement in the past century. Throughout the history of OM research, services have been ever-present, from applying scientific management principles to insurance companies to developing subfields in OM such as revenue management. Although services have received less research attention than production-focused organizations, service organizations, particularly hospitality firms, have, nonetheless, been the subject of a growing quantity of scholarly efforts. The hospitality industry and scholars have been a part of the history of services research in OM from the operations of Walt Disney World and Holiday Inns, to the work of today's researchers on global strategic brand expansion and hotel profitability.

During the next decade, hospitality OM researchers will need to address contemporary global trends and issues for hospitality properties and organizations to effectively deliver quality service operations. One such global trend is the popularity and diversity of various forms of social media and how guests, potential guests and managers interact. Another global trend is the continuation of the technological revolution and how various aspects of software and hardware have changed human behavior and what that means for the hospitality industry and hospitality research. As the hospitality

industry becomes ever more global, people are traveling to new destinations, and more travelers are originating from more diverse parts of the globe. What the increased internationalism of travel and the hospitality industry means for hospitality managers and operations research will be of paramount importance moving forward. This article also highlights the macroculture of the hotel industry. The macroculture framework may be able to serve as a point of distinction for hospitality scholars who wish to develop their own theories or study phenomena not traditionally studied in the field of OM.

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