

Study on the role of information technology in the hospitality industry

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Abstract

This paper reviews recent research on information technology in the hospitality industry. The analysis revealed three broad research areas: the Internet's effects on distribution; on pricing; and on consumer interactions. Similar to aftermath of the dot com boom, the hospitality industry is realizing that information technology has unintended effects and prognosticators are often wrong. While the reviewed articles provide sound advice for hospitality operators and a rich stream of future research for academics, poor rigor and a lack of relevance throughout the reviewed journals underscore a worrying trend in hospitality research.

Keywords: Information technology, hospitality, distribution, Internet, e-commerce

1. Introduction

Information systems form a fascinating and rapidly expanding field of study. Hospitality traditionally lags other sectors in adopting information technology but this has changed in recent years and research into its application has followed suit. This paper represents our analysis of the information technology themes.

Developments in electronic distribution are the most recurrent theme throughout the period under review, reflecting topical developments since it has changed how people book hotel rooms. Two articles provide useful overviews.

Carroll & Sigauw (2013) ^[2] describe the major players involved in distribution, and highlight how economic issues are forcing hotels to provide increasing amounts of inventory to third party intermediaries. Using economies of scale and scope, the latter are gradually gaining control over both the sale of the hotel product and the selling price.

Dale (2014) ^[4] provides an analysis explaining why electronic distribution has become so complex. Using strategic network theory, he shows how electronic intermediaries need to form strategic alliances in order to prosper. In a competitive business environment, independently developing the competences and capabilities to insure success is a massive task, so companies enter into stable inter-organisational relationships (for example, strategic alliances, joint ventures and long terms supplier relationships) to leverage the capabilities of partners.

Dale maintains that establishing such virtual clusters leads to "synergistic strategic value", with each partner reciprocally and mutually benefiting from the relationship, generating inimitable and non-substitutable network resources. This synergy helps offset the newness of the firm and helps compete with more established players.

1.1 Disintermediation

Several articles address a common Internet prediction, disintermediation. For example, Tse (2013) ^[13] highlights how direct web distribution may affect the relationship between travel agents and hotels. Most hotels increasingly emphasize direct web bookings, often wooing consumers by promising best rate guarantees or loyalty club points. Since travel agents remain an important source of business, he explores their potential

reaction to this strategy. Building on conflict theory, he highlights two possible reactions – negative (perhaps terminating the relationship) or positive (including constructive discussion to find a win-win solution or simply passive acceptance).

Theory speculates that the reaction to expect depends on several factors, including the perception of damage; the injured party's perception of relationship quality before the act in question; their perception regarding the motivation behind the act; and the level of interdependence between the two parties.

Garcés *et al.* (2014) ^[6] show that the majority of Aragonese hotels have adopted ecommerce, use the Internet to advertise their services and garner between 2% and 5% of their revenues online.

Similarly, Buick (2013) ^[11] found high levels of both computer use and use of the Web for marketing purposes in small Scottish hotels.

Vich-i-Martorell (2014) ^[14] examined the potential of using the Internet to compete with tour operators. Particularly in areas dependant on mass tourism, tour operators have a high degree of control over distribution and typically dictate rates, terms and service levels to suppliers. Highlighting the potential of the Web to break this domination, he points out that continuing to procrastinate would further reduce competitiveness as industry consolidation means that suppliers will have to deal with bigger, even more powerful tour operators in the future.

1.2 Information Technology and Pricing Online Pricing

Noting that hoteliers use these networks without a clear understanding of their effect, she claims that they encourage competition based solely on price and urges a rethink of such hidden discounting. Citing forthcoming research from the Centre for Hospitality Research at Cornell, she shows how price has become largely transparent and that consumers now book rooms at one price, shop around for better prices and then cancel and rebook. Rather than yield higher total sales, discounting simply displaces customers from one distribution channel to another.

Any increase in volume fails to offset the revenue lost from the discounting. Claiming that this is true for all industry segments,

regardless of occupancy rates, Enz maintains that hoteliers need to be more selective about the rates they provide to third party sites to insure that they are actually generating incremental revenues.

Litvin and Crotts (2013) ^[9] focus on the potential use of online negotiation models in hospitality. While yield management varies prices relative to demand, the rate to individual customers is fixed; hotels set the price and potential guests accept their offer or stay elsewhere. In contrast, negotiation is normal with group sales (meetings, conventions, tour groups, and corporate travel accounts), and explore the applicability of contemporary e-commerce negotiation models to group sales. They argue that the “Consumer to Computer” model, (buyers nominate a price, commit to the transaction and have their offer matched to potential suppliers) is inefficient.

Only the highest bid is accepted, other potential customers are left unsatisfied and incremental revenue is lost as non-winning bids are foregone. “Online Requests for Proposal” (buyers detail their requirements, which are then forwarded to potential suppliers) help overcome these limitations, but generally only facilitate matching and have no influence over subsequent negotiations.

They advocate an “Automated Business-to-Business Negotiation” model, whereby the facilitating company maintains a dynamic database of active purchase and sale intentions, which it cross-compares to seek potential transactions. Once detected, the negotiation process begins and the system attempts to bring buyers and sellers together by adding stated trade-offs as needed. As this takes place automatically, negotiation can occur simultaneously with multiple partners, increasing the likelihood of finding an appropriate deal.

The authors argue that this approach is superior as it balances power differentials through matchmaking, and facilitates the entire process. Compiling a critical mass of potential buyer and seller transactions has limited the commercial success, so far, of this application.

1.3 Hospitality Consumers and Information Technology Online Consumer Decision Making

Several articles investigate how technology influences hospitality consumer decision making. Seeking information is one of the first stages in the decision making process.

Gursoy and Umbreit (2014) ^[7] use 3,264 responses from a European Commission survey to investigate cultural differences in how travellers from 15 EU countries search for information, online and offline. They found five distinct market segments and suggest specific marketing communication campaigns for each segment. For example, travellers from Belgium and Italy use external information sources more often than other segments, while travellers from Denmark and Finland use the Internet most frequently. Marketers need therefore to align their marketing efforts with a culture's information search behaviour.

Jeong *et al.* (2013) ^[8] explore the role of online information and behavioural intention, highlighting the importance of information satisfaction. They claim that this is a powerful determinant of behavioural intentions; lodging operators must ensure that websites satisfy visitors' information needs in order to expect online transactions. Specific website elements to note include accurate and reliable information, and easy navigation. Susskind *et al.* (2013) ^[12] investigate how apprehensiveness towards Internet use relates to information seeking, purchase

intention and purchase behaviour. Drawing on three separate surveys to develop and refine two measures, General Internet Apprehensiveness (GIA) and Transactional Internet Apprehensiveness (TIA), their results support strong relationships between apprehensiveness and both online information seeking and purchase.

1.4 Website Layout and Design

To account for such differences between consumer wants and website offerings, hotels need to reflect upon their website design. However, research on effective hospitality websites is an ongoing quest. Several studies specifically examined website layout and design. The first two introduce the notion of the experience economy and suggest how Web technologies can reinforce the customer experience. Websites, for example, should reinforce a hotel or resort's position by going beyond visual pleasures on the site and adding sensual, emotional and intellectual pleasures for online consumers (Dubé *et al.*, 2013) ^[5].

Chung and Law (2013) ^[3] develop a performance indicator for hotel websites based on five dimensions of information richness – facilities, customer contact, reservations, surrounding area and website management. Gauging the importance of dimensions from a survey of hotel supervisors, they analyse Hong Kong Hotel Association member websites. Consistent with past research, the level of information technology application relates directly to the hotel category.

Murphy *et al.* (2013) ^[10] posit that hotels paying attention to email also pay attention to their websites. Measuring email responses and assessing the website features of Swiss hotels, they argue that hotels with professional email responses also lead in the use of websites. Based on their findings, they suggest that hoteliers focus on inexpensive features that show a significant relationship to quality email responses, such as brochure requests, online services, hyperlinks, and branded URLs. Alternatively, their results suggest that hotels avoid questionable techniques such as animation, as it may reflect a bandwagon effect rather than add value. As in other studies, they found that hotel size and category relate directly to quality e-mail responses and the presence of appropriate website features.

1.5 Customer Relationship Management

Piccoli and colleagues (2013) ^[11] review the risks and benefits of customer relationship management (CRM). This philosophy of intimate customer familiarity can lower marketing expenditures and increase sales through closer relationships and increased satisfaction. For this to occur, the entire hotel chain must cooperate in the collection, management and dissemination of customer information – an expensive and complicated process. They highlight a potential data-ownership dilemma caused by the structure of the US lodging industry in which owners, management companies, and brands cooperate in the operation of properties. It is inherently difficult for these three entities to share customer data. In addition to cooperating, they frequently compete with each other, which could limit successful CRM implementation.

They argue that if these difficulties could be overcome, CRM would work best at the brand level, a claim supported by two case studies of brands with strong CRM programs – Wyndam International and Harrah's Hotels and Casinos. The latter also exemplifies how successful CRM relies upon data mining. This procedure applies artificial intelligence and sophisticated

statistical techniques to customer data to perform five tasks: classification, clustering, deviation detection, associations and forecasting, and can be a valuable tool for hotels seeking to better understand and predict guest behavior.

2. Conclusions

Compiling this review of research on hospitality information technology has been for us a useful and enlightening exercise. On an individual basis, the articles considered for inclusion make a contribution, but considering the collective set of literature, two recurring issues come to light – rigor and relevance.

Future hospitality research would benefit from other methodologies such as field experiments to show causality, and relying upon actual behaviour rather than intended behaviour. There is a yawning gap between a convenience sample of respondents filling out a form saying they intend to purchase online and what hospitality consumers actually purchase online. Server log files, advertising banner click rates, email response rates, online prices and CRM databases illustrate rich data sources that measure actual behavior by hospitality enterprises and consumers.

Overall, our conclusion is that research in this field – including our own – needs more originality in both the topics addressed and the research methods used. Having considered the majority of the peer-reviewed articles published on the topic this year, it seems to us that our focus is currently much too narrow and that a broader research agenda would make our work more relevant to industry practitioners.

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