# Artificial intelligence and hotel marketing: a case study

**Smallman, Clive**

**Ryan, Peter**

**Higher Education Leadership Institute**

**Extended Abstract**

## Abstract

Artificial intelligence is playing a significant role not only in marketing generally, but also specifically in hospitality marketing. Marketing departments are at the forefront of the adoption of AI in the hospitality industry. In this extended abstract we explore the potential of combining artificial intelligence and business intelligence in hotel marketing and discuss its effectiveness.

**Keywords**: Artificial intelligence, hotel marketing, information and communications technologies, customer experience, customer loyalty, hospitality, education

## 1. Introduction

Artificial intelligence (AI) has extensive applications across marketing. Voice processing technologies, text processing technologies, image recognition and processing, decision-making and autonomous robots and vehicles each have found a place in marketing in services and manufacturing (Bhattacharjee, 2019; Devang, Chintan, Gunjan, & Krupa, 2019; Jarek & Mazurek, 2019; Kumar, Rajan, Venkatesan, & Lecinski, 2019; Wirth, 2018). Not surprisingly then, AI impacts each area of the 'marketing mix' (Kotler, Burton, Deans, Brown, & Armstrong, 2012):

**Table 1: The impact of AI on the marketing mix** (Jarek & Mazurek, 2019)

| *PRODUCT* | *PRICE* | *PROMOTION (BRAND)* | *PLACE (SALES & DISTRIBUTION)* |
|---|---|---|---|
| • New product development<br>• Hyper-personalisation<br>• Automatic recommendations<br>• Creating additional value<br>• Additional solutions beyond product category | • Price management and dynamic price matching to customer profile | • Creating a unique experience<br>• Personalised communication<br>• Creating the 'wow' factor and offering benefits<br>• Elimination of the process of learning product categories<br>• Positive impact on the customer<br>• Minimised disappointment | • Convenient shopping<br>• Faster and simpler sales process<br>• 24/7 customer service (chatbot)<br>• Purchase automation<br>• Service-free shops<br>• Consultant-less customer support<br>• New distribution channels<br>• Merchandising automation |

Hence, AI has a two-way impact on marketing benefiting not just the consumer, but the marketing profession too. AI offers consumers more convenient and quicker shopping, new consumer experiences and heightens the consumer-brand relationship. For marketing teams, AI eliminates laborious and time-consuming activities, improves analysis in creative and strategic activities leading improved competitive advantage, design innovations, developing new competences in marketing staff, and the development of new marketing 'ecosystems' (Bhattacharjee, 2019; Devang et al., 2019; Jarek & Mazurek, 2019; Kumar et al., 2019; Wirth, 2018).

In this extended abstract, we further explore the potential of AI in hotel industry marketing, before offering up a short case study indicating its effectiveness.

## 2. Literature review: AI in hospitality industry marketing

The present authors have previously identified how cloud-based AI systems are enabling a wave of responsive, customer-centred improvement across hospitality through enabling process optimisation (Smallman & Ryan, 2019). Out of these processes, marketing is at the forefront of the adoption of AI in hospitality:

- Competitive intelligence, by drawing upon and analysing a whole range of data (Antonio, Almeida, Nunes, Batista, & Ribeiro, 2018; Claveria, Monte, & Torra, 2015; Kirilenko, Stepchenkova, Kim, & Li, 2018; Rita, Rita, & Oliveira, 2018; Salguero, Gámez, Fernández, & Palomo, 2019);
- Booking and staff interaction, by deploying 'chatbots' to deliver a personalised experience and 'capture' visitors to social media sites, rather than relying purely on aggregator sites (Rita et al., 2018; Salazar, 2018);
- Occupancy and rate optimisation, by developing highly nuanced and 'tuned' analysis of occupancy and rate data developed through data mining (Claveria et al., 2015; Rita et al., 2018);
- Revenue optimisation (Millauer & Vellekoop, 2019);
- Personalisation, by tailoring experiences to match a guest's preferences (Kirilenko et al., 2018; Sánchez-Medina, Naranjo-Barrera, Alonso, & Rufo Torres, 2018), notably through reward programs; and
- Reputation risk management, by better managing reviews and social media posts (Aula, 2010; Hirsch, 2018; Munnukka & Järvi, 2014; Rodríguez-Díaz, Rodríguez-Díaz, Rodríguez-Voltes, & Rodríguez-Voltes, 2018).

It is perhaps not surprising that important hotel performance indicators relate strongly to the AI applications listed above. Occupancy, average daily rate, revenue available per room, advertising return on investment and online rating are each strongly represented in the applications outlined. Yet, research demonstrates that the key performance indicators that occur most frequently in practice and in the literature are occupancy and rate optimisation, followed closely by revenue optimisation (Pnevmatikoudi & Stavrinoudis, 2016). Indeed, customer satisfaction is the only commonly used non-financial performance indicator in the sector.

What sort of benefits can be expected from the use of AI in managing the processes that are evaluated through these indicators?

## 3. Methodology

A case study of the relationship between Traff1k Digital and the Accor Group was undertaken to assess the outcomes of using AI to increase direct bookings with Accor hotels across Australia.

## 4. Results

Traff1k Digital[1] is a digital marketing agency based in Australia and New Zealand. They comprise marketers, designers, developers, writers and strategists. Their aim is to help clients build a consistent digital presence on the Internet to accelerate the development of their business online and offline. They are one of many such agencies but offer examples of what can be achieved through the use of artificially intelligent systems in social media marketing.

Using organic search engine marketing and search engine optimisation, paid search, landing page optimisation and dynamic local search they employ algorithms and search techniques that are synonymous with artificial intelligence and business intelligence, which in Traff1k Digital's case they refer to as 'digital intelligence.'

Traff1k Digital has enjoyed considerable success with leading brands across the hotel sector, and most notably with the Accor Group. Traff1k Digital was engaged by the Accor Group to increase direct bookings with individual hotel properties across Australia. The aim was to reduce online agency overheads, improving revenue yield for each hotel through reducing commissions. Through the application of various techniques by Traff1k Digital, Accord saw a 148 per cent increase in traffic on their websites and a 70 per cent increase in revenue.

Sofitel is part of the Accor Group. Their Noosa Pacific Resort lies on Australia's Sunshine Coast to the north of Brisbane, Queensland. Traff1k Digital were brought in after Sofitel took over the resort from Sheraton. Artificially intelligent and business intelligent systems were developed, focusing on improving direct bookings and search engine rankings. Across 2018-2019, the resort saw a 97 per cent increase in average revenue growth, a 31 per cent increase in room nights and a 38 per cent increase in room bookings.

Traff1k Digital has enjoyed similar success with other members of the Accor Group. How so? Multiple factors are monitored on a daily basis to determine trends, demand and rankings. This enables AI experts to make tactical adjustments to web page strategies, as part of wider, longer term marketing strategy. Humans could undertake this analysis, but not with the speed of artificially intelligent systems drawing on business intelligence.

## 5. Discussion and Conclusion

The challenge these types of results pose for the hotel sector is not truly technological. Hotels of all different sizes can find AI applications to support them. The challenge is, as we have previously reported, educating hotel staff in the use of these systems (Smallman & Ryan, 2019). At present, conventional approaches to hospitality education usually compartmentalise technology, such as we are dealing with here, away from those training in the various hospitality disciplines. However, this compartmentalisation can only last so long. AI is increasingly being deployed directly in both services and manufacturing. Human intelligence,

[1] Traff1k Digital is known to one of the present authors through an open-ended advisory arrangement. The information reported in this paper is based on publicly available information from Traff1k Digital's website. Traff1k Digital has not been involved in the development of this abstract.

work life and AI are developing an ever more intertwined relationship across many disciplines, notably medicine, leading to the application of what is termed ‘augmented intelligence’ in solving problems (Prentice, Lopes, & Wang, 2019; Rouse & Spohrer, 2018; Zheng et al., 2017).

AI is further enabling the development of supply chain and operations management to better cope with the increase in business that these outcomes deliver (Buhalis & Leung, 2018).

Taken together, the development of augmented intelligence with improved supply chain and operations management, is leading to the development of increasingly ‘smart hospitality’, whereby hospitality professionals and systems interconnect and interoperate to develop increasingly effective and efficient hospitality ‘eco systems’ (Buhalis & Leung, 2018). This marks the development of a new paradigm in hospitality and particularly hotel operations, with marketing at the very leading edge.

One of the limitations of this study is that it is based on one case study, albeit across a large hotel group. Therefore, it is important to observe the outcomes from replications of this study in other hotels.

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