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**TITLE:** The impact of big data within the tourism and hospitality industry and influence on business intelligence and strategic decision making in the hotel sector.

## **ABSTRACT**

This paper provides the proposal for a PhD research thesis that will evaluate the relationship between big data and strategic decision making in the hotel sector and a critical review of the knowledge and skills needed to analyse big data to support business development within the international tourism and hospitality industry. These skills are linked with an understanding of business intelligence, statistics, data analytics and increasingly, big data. Big data used to be a technical problem, now it is a business opportunity, where businesses look for insights from huge volumes of data from Web traffic, e-mail, social media and other electronic sources. Businesses need to leverage managerial and marketing strategies, tactics and big data tools to achieve and maintain sustained competitive advantage.

## **1. INTRODUCTION**

Key roles within hotels need a broad set of essential data analysis and analytical skills, specifically, the key skills and knowledge required in relation to managing operations, strategic decision making and data analysis across chains and independent hotels. This paper provides the proposal for a PhD research thesis that will evaluate the relationship between big data and strategic decision making in the hotel sector and a critical review of the knowledge and skills needed to analyse big data to support business development within the international tourism and hospitality industry.

## **2. AIMS**

- 1- Critically review the development of big data and data analysis in business development in the UK
- 2- Analyse the level of big data within the international tourism and hospitality industry.

- 3- Evaluate the relationship between big data and strategic decision making in the hotel sector in the UK.
- 4- Develop a framework for the application of big data within the hotel industry in the UK.

### **3. BUSINESS INTELLIGENCE**

The hotel sector is a challenging, competitive area that requires hoteliers to be comfortable with data analysis skills, analysing operational data and making strategic decisions based on trends in revenue and sales, customer feedback data and other key performance indicators within the business (Marr, 2016; HospitalityNet, 2017). These skills are linked with an understanding of numeracy, finance, revenue, statistics, data and analytics, areas that many managers within the hospitality and tourism industry use as part of their knowledge development and understanding of the business environment. According to Jones (2017, p.18) the importance of Key Performance Indicators (KPIs) which are established within the hotel sector such as RevPAR, ADR, GOPPAR and more recent focus on GOPPSM as an important aspect of managing your hotel business. Jones also include several non-financial KPIs that have rising importance, such as big data, data analytics, customer experience and the data provided through online social media and TripAdvisor that influence of customer satisfaction and the hotel profile. Furthermore, Dedi & Stanier (2016), believe business intelligence comprises all the activities, applications and technologies needed for the collection, analysis and visualization of business data to support both operative and strategic decision making (Cited in Mariani, M., Baggio, R., Fuchs, M and Höepken, W., 2018).

### **4. BIG DATA**

According to Laudon and Laudon (2014), 'Big data represents datasets with volumes so huge that they are beyond the ability of a typical relational Database Management System to capture, store, and analyse'(Cited in Mariani, M., Baggio, R., Fuchs, M and Höepken, W., 2018, p). The

data are raw facts representing internal or external events before they have been organized and arranged into a form that people can understand and use to gain competitive advantage in areas such as new business models/growth, improve operational efficiencies, relational marketing, decision making and areas of customer services. Big data used to be a technical problem, now it is a business opportunity, where businesses look for insights from huge volumes of data from Web traffic, e-mail, social media and other electronic sources. Data sets that are so large or complex that traditional data processing application software is inadequate to deal with them. Includes challenges, as data extraction, storage, analytics, visualization, querying, updating and information privacy (Erl, T., Khattak, W. and Buhler, P. 2015).

Mariani and Baggio (2012), believe ‘any tourism company (be it a hotel or an airline) needs to leverage its managerial and marketing strategies, tactics and tools to achieve and maintain sustained competitive advantage. This is more critical in the current highly dynamic economic environment where competition is fierce and consumers are demanding and experienced’ (Cited in Mariani, M., Baggio, R., Fuchs, M and Höepken, W., 2018).

Mariani *et al* (2018) identified the practical applications of business intelligence and big data within hospitality and tourism and specifically, the hotel sector. To this end, the research will look at further identifying key uses and requirements of business intelligence, big data and trends with the hospitality and tourism industry. It will go on to analyse use within the hotel sector and specifically the key skills and knowledge required in relation to managing operations, strategic decision making and data analysis across chains and independent hotels in Greater Manchester. The research will also evaluate the perceptions of big data and numeracy, finance, revenue, statistics, data and analytics skills and knowledge need within the UK hotel sector.

## **5. RESEARCH DESIGN**

The study will adopt a mixed method research design that integrates both qualitative and quantitative methods. Employing a mixed method approach will enable the research to benefit from a small in-depth data sample using qualitative method, and the larger sample using a quantitative method (Creswell and Plano Clark, 2011), which makes a richer and more comprehensive study (Neuman, 2014). Semi-structured interviews (Phase 1) with open-end questions will be employed to form the basis of the research from specialists in the field of international tourism/hospitality data, strategic marketing in tourism/hospitality, international hotels, big data in tourism/hospitality and social media in tourism/hospitality. This approach can help in hypothesize causality relationship between research variables and considered as flexible tool that allows interviewer to change the form and sequence of questions to follow up the answers given by interviewees (Saunders et al., 2016). Based on the analysis of the qualitative data and findings, surveys (Phase 2) will be developed and used to conduct a wider study on the data analysis and analytical skills, specifically, the key skills and knowledge required in relation to managing operations, strategic decision making and data analysis across chains and independent hotels.

In addition, academic articles, journals, books, publications, relevant reports, will be used as a secondary source of data. This will be through an in-depth review of the relevant literature on each of the variables: hospitality, big data, hotel analytics, key performance indicators specific to the wider tourism industry and narrowed towards key aspects of the hotel sector (Saunders et al., 2016).

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