

Big Data, Social Media and Employer Branding: An Exploratory Study From the Hospitality Industry

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Abstract: Purpose: “Data Production” and its analysis are becoming increasingly important for the hospitality industry due to wide mobile technology and social media use. “Big Data” has become an important concept for businesses and requires significant management competences in its usage. Within this scope the purpose of this exploratory study is to exemplify best practices from the concept of Big Data and its relation with social media in understanding how employer branding issues are perceived by hospitality operations. Design/methodology: Both quantitative and qualitative methods have been used in the study. The study consisted of two parts and data were obtained from lodging operations in Ankara, Turkey. The first stage consisted of analyzing content of social media sharings from ten 5-star hotels in Ankara, Turkey. For the second stage, a survey was conducted among 149 employees from the same lodging operations to determine employee’s employer branding perception levels. Findings: The first part of the study indicated that both international chains and local hotels mostly shared promotional message for employer brand enhancement. Sharings related to motivational messages, social responsibility activities, and events for customers and employees are mostly done by international chain hotels. Findings from the second part of the study revealed that international chain hotel employees’ perception of the employer brand is at a higher rate. The study showed that social media usage level of the operations and employees’ perceptions of employer brand concept are consistent. Originality: This is an innovative research project. The study integrates the concept of Big Data and social media relations with employer branding issues in hospitality operations. With its quantitative and qualitative nature, the current study shed light to further studies. The sample size and the fact that the study was carried out in 5-star hotels in Ankara are the main limitations of this study.

Keywords: big data, employer brand, social media, hospitality operations

1. Introduction

In recent years, a vast amount of “data production” has been taking place in the hospitality industry due to widespread utilization of information technologies through mobile devices and social media. This evolving technology allows collection and storage of large amounts of data. It is important to understand how processing and analysis of data provide various opportunities for process management in order to create competitive advantages (Mikalef *et al.*, 2020). Those improvements bring Big Data as a prominent concept in business management processes. Big data is defined as “data sets, the analysis of which cannot be carried out by conventional data processing tools and that are too large to be managed” (Ohlhorst, 2012). The concept underlines importance of goal-oriented “data analyses” in service industries for the prediction of attitudes for individuals and outputs for businesses by emphasizing significance of the “quality” of big data, rather than its quantity. Data management and comprehending data has been gaining attention in hospitality management processes. The use of Big Data through people analytics has also introduced a new dimension into managing human resources (Galbraith, 2014) and hospitality managerial processes. In this novel dimension, the fact that employer-employee relations have come into prominent context while providing competitive advantages has resulted in an increased interest of researchers in employer branding concept (App *et al.*, 2012). Research supports that social media plays an intermediary role in utilizing the employer brand, “best place to work” perception (Rosethorn, 2016; Carpentier, 2019). Previously, Big Data analysis of the hospitality at an international level has been discussed in subjects such as transportation and hotel reservations (Fuchs *et al.*, 2014). Considering Big Data as the influence of online sharing posted via social media is an interesting topic and may be investigated in ways that have been not clearly studied in previous research. The purpose of this study is to exemplify the concept of Big Data and examine the relationship between social media usage and big data relations and how they serve hospitality operations employer branding issues. We commence with a brief introduction to conceptual framework of big data, followed by a brief discussion of the relationship between big data, social media and employer brand. The Method section describes the research questions that were posed. This is followed by a discussion of the results and implications for research and practice.

2. Conceptual framework of big data

The Big Data concept, discussed in a general sense, does not only refer to the capacity of data, but it also means the storing and processing capacity of the software used (Ohlhorst, 2012). Big Data is defined as data sets with great volumes which cannot be managed or be analyzed with conventional data processing tools (e.g. Ohlhorst, 2012). The term “big” included in this concept does not only refer to the volumetric size of the data, but also to its fundamental characteristics such as variety and velocity. The amount of data produced, stored and processed has been increasing rapidly with technological developments. Many components such as the Web, smartphones, TVs, satellites, social networks, cameras, banks, credit cards, aircrafts, hospitals, GPS (Global Positioning System) devices, radios and sensors are continuously producing data in various formats. In this context, “data flood” is being perceived and experienced in all spheres of our lives. With the amount and the variety of data increasing, new concepts have begun to be introduced into the literature. Relevant literature indicated that the concepts of “volume”, “velocity” and “variety” are the fundamental features of Big Data. Recently, a fourth “V” for veracity has been added to the Big Data definition, in addition to these basic characteristics named in literature as the 3Vs (Volume, Velocity, Variety). “Veracity” is the proof of the accuracy of the data and closely affects the degree of giving credit to and using them in the strategical decision-making processes of businesses (Sharma *et al.*, 2014; Zhang *et al.*, 2018). With the inclusion of veracity in the Big Data concept, the bulk of things that previously could not be measured, stored, analyzed or shared have begun to be transformed into data (Zhang *et al.*, 2018). In this direction, Big Data basically involves both the type of data processed and the technology utilized for processing them (Chen *et al.*, 2012).

Examination of the data generated, stored and produced by everyone in daily life in various formats is important to show how significant the Big Data platform is. The variation of the data is due to the emergence of different technologies every day. The data structure is generally evaluated in 3 sections; structured, unstructured and semi-structured data (Azad *et al.*, 2019). These are values in a certain format generally described in relational database systems in structured data. For example, it is necessary to define beforehand in what form sections such as address, name, surname, number, date, and can be kept in database tables. Otherwise, incoming data in other forms will definitely not be registered to database systems. And therefore, they cannot be used for obtaining any information. Unstructured type of data is evaluated in two sections as human-generated and machine-generated data. Machine-generated data can be generalized as satellite images, scientific data, photographs and videos, radar and sonar data. Social media data (Facebook, Twitter, Flickr and LinkedIn), data obtained from mobile devices and content data of web sites can be presented as examples of human-generated data (Cukier & Schönberger, 2013; Zhang *et al.*, 2018). Unstructured data is the greatest and the most rapidly growing part of data in time. As will be discussed in this study, analyzing the data obtained on social media enables having different achievements. For instance, the data obtained on Twitter, which is being frequently used today, are first converted into structured data, and then used to reveal behavior patterns of people (Opresnik & Taisch, 2015; Wamba *et al.*, 2015; Zadrozny & Kodali, 2013). On the other hand, semi-structured data is the type of data that lies between structured and unstructured data. It does not need to conform to the relational database table structure (Zhang *et al.*, 2018).

Through effective analysis of Big Data, data can be transformed into information for companies. Although this is valid for all industries, implementation differs among sectors. It can be said that this is entirely about the needs of companies. In short, while it is important for one company to make sense of the data obtained from the web site and social media, making sense of customers’ habits comes first for another one. With the development of Web 2.0 and social media, users have begun to produce content and share the content they produce. Constantly evolving social media platforms allow users (personal or institutional) to share content with different formats simultaneously. Thus, the amount of data in different formats has progressively increased, attracting the attention of many scientific disciplines, from computer science and social sciences to marketing and health sciences. Concordantly, it has become increasingly difficult to analyze this continuously growing data. The Big Data concept that we see right at this point is expressed as the ability to analyze huge amounts of data in different formats which is continuously growing. Big Data includes not only the data generated by users, but also those generated by machines and sensors. Significant investments are being made by private companies and public institutions, and new techniques and softwares are under development for the analysis of Big Data, which is gaining importance in many fields (Azad *et al.*, 2019; Provost & Fawcett, 2013; Opresnik & Taisch, 2015)

In the context of this study it is considered that understanding how Big Data serves to company’s employer branding issues are important for further developments.

3. Big data, social media and employer brand

Brands are one of the most valuable features of businesses and therefore, brand management is a key activity for an organization. Companies generally perform branding efforts through the manufacture of products and corporate brand development. However, branding also falls into the field of human resources management. On a growing trend, companies are taking advantage of employer branding to influence the potential workforce, and to adapt currently working employees to corporate culture and strategies. Employer branding is a purposeful and long-term strategy that is used to manage the perceptions and awareness of potential employees and stakeholders (Backhaus & Tikoo, 2004, Dabirian *et al.*, 2019; De Stobbeleir *et al.*, 2018). Numerous texts and articles written about employer branding emerge as a demonstration of the interest in this concept. Evaluating the employer brand image requires a more extensive and more complex process compared to evaluation of awareness. Because, during image evaluation, *how* the business is remembered (positive/negative) was also tried to be determined in addition to determining *whether* the business is remembered (Bisis & Suar; 2016; Cascio & Graham; 2016). Different features on the employer image of the business are examined in the literature (Davies *et al.*, 2018; Lievens & Slaughter; 2016). For instance, characteristics such as the company's culture, its values, the benefits it provides to its employees and the work environment affect the employer image. It is possible to get opinions on certain aspects of the institution in order to determine employer's brand image. People evaluate the employer identity and evaluation generally based on value propositions (benefits). These can be sorted by characteristics such as social responsibility, ethics, innovativeness under the employer identity, and as benefits such as job security, wages, career opportunities and working conditions under the value proposition. Companies should define and manage how Big Data are related to these issues. Advertising and public relations activities are important communication tools for establishing corporate identity (Berhon *et al.*, 2005; Knox & Freeman, 2006).

The social media term is defined in brief as the online platform that provides the communication and sharing that individuals engage in through the Internet (Komito & Bates, 2009). Social media, introduced into our lives with the development of Web 2.0 technology, provides unlimited creativity for brands. These brands must determine for what purpose they will use social media and how they will benefit from it, by creating a strategy, and must proceed by finding out clearly how it is going to work. Like all marketing efforts, social media, too, must be used as a part of a comprehensive and integrated plan with a strategic approach (Chaney, 2009; Kaplan & Haenlein, 2010). Social media should be considered as one of the main parts of communication strategies in a planned way. Companies utilize written, visual and audial communication tools and techniques to create an employer brand and ensure its continuity. Where online communication, in particular, has come into prominence, especially the Internet is one of the most important sources of information for young population. In this context, it is thought that social media will assume the most fundamental intermediary role in employer branding activities of businesses (Sivertzen *et al.*, 2013).

Social media has a structure where users can communicate with each other at any time, and its most basic feature for users is that it is a platform to which users can access whenever they want without space and time constraints. Social media has resulted in an increase in mobile device use, and it has become the center of people's lives for facilitating one-to-one communication between businesses and consumers, and for being easily accessible (Manovich, 2011). It is the most powerful medium for disseminating the accessed information and for this information to raise awareness. Individuals and brands also benefit from the power of social media in this direction (Goh *et al.*, 2013).

Brands interact with the target audience by producing content through blogs, social network sites, and image and video sharing sites. When social media is used to communicate with consumers, improvements can be made to the product or service by evaluating consumers' wishes and recommendations (Kaplan & Haenlein, 2010). Social media is highly effective in evaluating the reactions of the target group and receiving rapid feedback. On social media, brands provide insights into their new products, campaigns and projects, while also strengthening their mutual communication with consumers. Through image and video sharing tools and blogs, social network sites facilitate brand loyalty creation by gathering consumers together around brands. Playing an important role in creating brand loyalty, social media channels are prominent components of brand management (Kaplan & Haenlein, 2010). It is also fairly important to establish and to be able to manage a fitting relationship on social media. Brands must listen to their target audiences carefully on their own social media platforms, analyze them well, be very familiar with them and be able to answer all their questions. Social networks enable various

departments, from human resources to corporate communications, to customer relations and sales, to communicate one-to-one with customers (Shah *et al.*, 2017).

Rather than waiting for the target audience to reach the brand, brands take their places on platforms where the target audience is found. On social media, where people shift from a position where they are consuming content, to a position where they are generating and publishing content, a language appropriate to the brand's identity should be used. Sincerity is of great importance in the use of social media, and when brands are sincere, consumers will often trust the brand. Shared contents of brands that are sincerely present on social media will be appreciated by target groups and will be shared with their own friend circles (Bruhn *et al.*, 2012). This gives brands new supporters and followers, so that consumers become volunteering marketers of the brand as well. Social media has put its mark on the employer branding process. As of 2020, the number of tweets posted daily on Twitter is approximately 500 million, the number of Facebook users is above 1 billion, and the number of users on LinkedIn is over 600 million (Clement, 2020). These figures give an idea of the size of the unstructured data that can be generated from these sources. Out of these generated data, businesses can benefit from the Big Data technologies to quickly isolate, process and store the portion of data relevant to them (Provost & Fawcett, 2013). On social media, users are now able to share data in different formats at the same time. For example; text, link and video can be found in a single content shared on social networks.

Big Data, which emerged through content shared by people on social media, is the raw material in researches. Especially social media hosts Internet researches, and collected data are analyzed both by current statistical methods and by newly-emerging analysis techniques (Wang *et al.*, 2007). Social media communication is an integral part of integrated communication for brands today. The need to process, manage and analyze Big Data gathered from various social networks that have become a part of our daily lives with the digital age has an epistemological impact for research conducted by social scientists. The Big Data obtained through social media tools provide researchers with the opportunity to examine, via an extensive information base, how individuals process information in online environments and the factors under the impact of which they share information with other individuals (Opresnik & Taisch, 2015).

Data management and comprehending dates in the hospitality management processes gained attention recently. The use of Big Data through people analytics has also introduced a new dimension into human resources management and hospitality managerial processes. In this novel dimension, the fact that employer-employee relations have come into a prominent context while providing competitive advantage has resulted in an increased interest of researchers in employer brand concept (App *et al.*, 2012). Research supports that social media plays an intermediary role in utilizing the employer brand, for example the "best place to work" perception (Rosethorn, 2016; Sivertzen *et al.*, 2013). Previously, Big Data analysis of the hospitality industry at an international level has been discussed in subjects such as transportation and hotel reservations (Fuchs *et al.*, 2014). Considering Big Data as the influence of online sharing posted via social media will be investigated which has not been clearly identified in previous research. In the light of the above conceptual framework, the main research question of this study is;

Whether Social media posts that serves big data creates an employer brand perception in the hospitality industry?

4. Research method and findings

In the context of the hospitality industry, the starting point of the study was whether the content shared by employers via social media and employees' perceptions of the "best place to work" and to what extent this content related to Big Data. Despite not deriving benefits from Big Data and its analysis to increase the sectoral activity of Turkey, it is thought that rendering it applicable will bring a great potential for the hospitality industry. Furthermore, in contrast to the lack of branding implementations in local enterprises in Turkey, international chain hotels' social network activities constitute the origin of the content provided for the Big Data in the context of Turkey. Within the scope of this study, social media sharing of 5-star international and local hotels located in Ankara was examined. Social media sharing of the hotels were analyzed as texts. Textual analysis (Leonard and McAdam, 2001) was conducted using open coding to develop inductive themes from the sharing, and resulted in a list of occurring subject areas. The similar approach has been used in previous studies (Tuzun and Takay, 2017). Moreover, a second quantitative study conducted to measure the level of perception of employer brands from the same mentioned 5-star international and local hotels employee's located in Ankara.

The qualitative research section of this study consisted of two parts. In the first part, sharings have been analyzed in a 6-month period (February 2017 - August 2017). A total of 910 messages were reached. Categorizations were generally assigned to words, word phrases, a sentence or sentences that had common keyword attributes. The categorization was generated by the study authors. According to the contents of the sharings posted, we distinguished social media sharings which serve to the employer branding concept as: (a) Promotional Messages, (b) Motivational Messages, (c) Celebration Messages, (d) Social Responsibility Activities, (e) Events for Customers, (f) Events for Employees and Company Rewards Sharing. Moreover, it was observed that all the hotels actively post sharings on Facebook and that they solely copied Facebook posts on Instagram and Twitter accounts. Since no mutual interactions were observed in these accounts, content analysis was only performed on Facebook posts. On a side note, it was observed that the greatest numbers of followers are also encountered on Facebook pages of the hotels. Because of absolute anonymity and privacy, we did not declare the names of the hotels. We created codes for IC (international chains) and LH (local chains). Examined individually, it is observed that 128 of them are promotional, 10 of them were motivational messages, 11 of them were celebration messages, 3 of them were sharing related to social responsibility issues and 2 of them were about awards won by the hotel. The hotel carries out all sharing as photo sharing (see Table 1).

Table 1: Frequency of Hotel Social Media Sharing Based on Employer Brand Dimensions

Hotels	Promotion Messages	Motivational Messages	Celebration	Social Responsibility Activity	Events for Customer	Events for Employees	Company Rewards Sharing	Total Sharing
IC 1	128	10	11	3	7	1	2	162
IC 2	104	21	7	3	10	-	-	145
LH 2	110	6	5	-	8	1	-	130
LH 1	88	13	8	8	3	1	1	122
IC 5	68	-	9	1	1	2	-	81
IC 6	38	24	8	-	3	1	-	74
IC 7	15	22	9	1	0	25	0	72
IC 3	42	0	11	11	0	4	3	71
IC 4	20	2	8	0	0	0	0	30
LH 3	10	-	7	-	6	-	-	23
Total	623	98	83	27	38	35	6	910

In the second part of the study, a survey was conducted of employees working in the above analyzed hotels (one of the international five-star hotels did not accept to participate in the study). The perceived employer brand level of hotel employees for whom content analysis was carried out was measured. 246 of the questionnaires sent for the research have been collected. After the pre-analysis evaluation of the questionnaires and the removal of those which were not completed or could not be used, analyses are continued to be carried out with 149 questionnaires. In order to evaluate the employees' perception levels of the employer brands of hotels, employer brand scale is established. A scale consisting of 23 expressions is prepared out of the expressions included in the studies of Ambler and Barrow (1996), Knox and Freeman (2006) and Backhaus and Tikoo (2004). The scale consists of 23 items rated on a five-point Likert-type scale ranging from 1 (strongly disagree) to 6 (completely true). Sample items were "Hotel ... Is widely regarded as a highly prestigious employer", "Hotel X, Really cares about their employees as individuals", "I would like to work in this hotel for the rest of my career". Explanatory factor analyses were conducted to the scale. As a result of factor analysis, four items were not loaded properly. Those items were excluded from the scale. The final scale consists of 19 items and the scale's alpha reliability coefficient was 0.81. As seen in Table 2, the highest mean regarding the employee's perception of employer brand belongs to IC2 and the lowest level of employer brand perception to IC5.

Table 2: Mean and standard deviation results obtained from the surveys

Hotels	N	Mean	Sd
IC2	15	4,54	0,35
IC3	25	4,31	0,46
IC6	20	4,30	0,45

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Hotels	N	Mean	Sd
LH2	12	4,25	0,18
IC1	25	4,20	0,39
LH1	15	4,01	.605
IC4	14	3,72	0,45
LH3	10	3,37	1,01
IC5	13	3,30	1,03
Total	149	4.01	.55

5. Conclusions, discussion and limitations

The aim of this study is to demonstrate the concept of Big Data and its relations to social media and employer branding issue. The first part of the study qualitatively examined the social media sharings of hotels regarding employer brand and the second part quantitatively test employees' employer branding perception level. Ten different lodging operations' social media usage from Ankara, Turkey was content analyzed regarding employee brand in detail. Moreover, a survey was conducted among the mentioned hospitality operations. The final sample consisted of 149 employees.

The findings of the first part of the study indicated that both international chain and local hotels mostly shared promotional messages for employer brand enhancement. Sharings related to motivational messages, social responsibility activities, and events for customers and employees were mostly done by international chain hotels. One can say that the local chains' social media sharings were mostly based on promotional activities. In this study it has been observed that both international and local chain hotels use Facebook as a medium of sharing message in social media.

Findings from the second part of the study indicated that international chain hotels' employees have higher perceptions regarding the employer brand. Celebration messages and social responsibility activities sharings are the common parts of the first two highest hotels for the perception of employer brand. On the other hand, LH3 and IC5 hotel employees state the lowest level of perception of employer brand. LH3 have no sharings rather than promotional activities and IC5 has little sharings the other issues of employer brand than promotional activities.

To sum up, the "Big Data" concept could serve in providing crucial information for hospitality operations' employer branding concept. This study indicated that based on analyses of 910 social media sharings, hotels use promotional messages for the enhancement of employer brand. Among the dimensions of the second most shared messages from social media was related to motivational messages. The second part of this study confirmed that Big Data serves employer brand in the eyes of employees too.

As to the quality of the social media posts, responses from participants and conducting the study in a metropolitan city could be considered the limitations in this research. Results may differ in other Turkish communities. Further research is needed to explore the potential generalization of the impact of this study. Additional research could be conducted in the different geographical regions of the country. As an exploratory step, findings of this study may serve as a framework for questionnaire development and contribute to design of future research to be conducted in Turkey or in another country.

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