Gathering Customer Insights from Social Media: The Impact on New Product Development and Supply Chain Design

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Abstract

The purpose of this study is to understand what insights could be gathered from customer posts on social media that would benefit operations and supply chains. This research analyses social media posts to uncover the themes that could be related to new product development (NPD) and the design of 'end-to-end' supply chains. Consumer posts will be analysed from social media platforms of two well-known multinational food and beverage companies. Social media analytics can be used to gather knowledge and intelligence for organisations aiming to have consumer-centric supply chains.

Keywords

Social media, supply chains, qualitative, social capital, media richness theory.

Introduction

Firms have begun to use social media to enhance the flow of information in supply chains and improve the relationships with customers and stakeholders (Swain and Cao 2019). Social media has grown rapidly over the past years and has become a rich source of information for businesses interested in the opinions of stakeholders regarding their products or services (Chan et al. 2017). Social media also offers businesses the ability to include their customers in their decision-making tasks (Bartl et al. 2012), as well as improving customer experience (Chen et al. 2009). The advantage of using social media to gather customer opinions is that it is cost-effective and captures a very large and diverse audience (Constantinides and Fountain 2008). Consumer posts are expressed in a personalized manner and with emotions, therefore it represents a great opportunity for firms to use social media to have a better understanding of customers (Rathore et al. 2016). Social media is probably the only authentic source for honest subjective opinions from consumers regarding a company's products or services. Moreover, customers consider information about products or services on social media to be more reliable than information spread by companies on websites or other traditional means (Mangold and Faulds 2009). This would indicate how necessary it is to consider consumer posts due to how much effect these posts have on people's opinions. Several studies have focused on how social media has practical applications for improving supply chains and operations (He et al. 2019). Social media has influenced effective collaboration between supply chain partners, such as customers, through social relations (Swain and Cao 2019). Social media has facilitated the timely and effective exchange of information across supply chains (Cao et al. 2018). Supply chains use social media to amplify their reach towards potential partners and customers and to improve their competitive advantage (Goh et al. 2013). In a study on firm-based operational efficiency and innovativeness, social media initiatives were found to facilitate information flow and knowledge sharing across organizations (Lam et al., 2016). Our research aims to examine such

collaborations from two perspectives: new product development and the 'end-the-end' supply chain (i.e., the entire process of procuring raw materials right through to providing a final product to consumers)

Social Media and Supply Chains

Social media can be highly valuable to organisations due to the amount of feedback customers have posted regarding the company and its products or services (He et al. 2019). Firms who extract and analyse this information can benefit from the knowledge shared by its consumers (Rathore et al. 2016), and use it to improve their businesses or products. Mishra and Singh (2018) discuss how through utilising social media information, a company was able to increase value along the supply chain for consumers and minimise waste activities. Wagner et al. (2014) argued that social media information could lead to valuable knowledge for decision-makers in any organisation. Moreover, Singh et al. (2018) mention how analysing social media information from customers can lead to a more consumer-centric supply chain and effective decision making in supply chain management. While Choi (2018), argued that both core data, such as sales data, and social media data would have to be analysed to predict consumer demand and improve operations. However, most of these studies focused on quantitative means to understand social media data's benefits to supply chain operations. In addition, research in utilising social media information in food supply chains is still at an early stage (Singh et al. 2018).

Media Richness Theory (MRT)

MRT discusses how to choose a suitable communication media based on the characteristics of the information that is to be shared between members within an organisation and the richness of the media used for communication (Daft and Lengel 1986). The richness of a media or how well it can convey or process information to an individual is determined by its ability to provide users with instant feedback, to express different cues, language variety and how much personal focus can be conveyed in a message (Daft et al. 1987). Social media channels are highly interactive and allow instant feedback between users (Belinda et al. 2018). It offers individuals the ability to use a variety of cues and language and allows users to express their messages in a personalised manner (Anandarajan et al. 2010). New communication technologies, including social media, allows for a strong relationship to be established and facilitates co-presence between individuals without these members having to be in the same location (Gyamfi 2018).

Social Capital Theory (SCT)

SCT is about what can be gained through the social networks of an individual and the resources or benefits that are generated to the person from the network (Portes 1998). Social capital is possible due to social networks and interactions. The main principle of this theory the valuable benefits that can be earned for an individual or the group from these social interactions (Swain and Cao 2019). Supply chains are socio-technical systems in which there are technical aspects such as information technologies and logistics (Li et al. 2015), and social aspects that include the social relations with various supply chain members (Burgess et al. 2006). Supply chain members include suppliers, distributors, retailers, customers, and other third parties. Both social and technical factors are equally important for supply chains (Burgess and Singh 2012). Shub and Stonebraker (2009) argue that organisations should focus more attention on the "soft" human activities to improve their supply chain management and performance. The soft human aspects in supply chains are more likely to be misaligned because they more deeply affect the social constructs of the member's culture (Brannen 2004). Moreover, Bernardes (2010) proved that the relationships leading to social capital are crucial to supply chain performance.

Engaging with consumers on social media can lead to social capital and more intelligent supply chains (Swain and Cao 2019). Social media is linked to social capital through three aspects: reach, engagement and influence. Focal firms can reach a larger audience through social media; they can engage with other users, and can influence social media members through the sharing of content (Sofia et al. 2012). Not only can social capital lead to improved supply chain performance but it can also be an appropriate source of competitive advantage for a firm (Min et al. 2008), and can lead to value creation along the supply chain (Lawson et al. 2008). Social media has maximised the reach firms have with their most important supply chain member, their customers, and has facilitated information sharing between companies and

thousands of consumers (Swain and Cao 2019). However, understanding how exactly a social media network of consumers can lead to benefits for a supply chain has not been fully addressed.

Methodology

We follow a qualitative and interpretive methodology (Boland 1978) to understand the meanings associated with customers' comments and the subjective interpretations of their posts on social media.

Collection of the Posts

Data was collected from two companies, Dunkin' Donuts (DD) and Kripsy Kreme (KK), from 1 June 2018 till 1 June 2019 using a social media analytics tool known as Forsight – Crimson Hexagon. Keywords were used to collect relevant posts. The tool gathers the overall sentiment, location of the posts, the gender, and age of the social media users, the main topics discussed, the main influencers, and the most common hashtags. The number of posts was DD (949,565) KK (418,941). Due to the very large dataset, a sample was selected using quota sampling (Saunders et al. 2015). The final sample sizes were: DD (374) and KK (377). Other data sources yet to be collected include other social media platforms such as Facebook, and also interviews with appropriate stakeholders within the supply chain of these companies.

Analysis

Thematic analysis (Saldana 2009) was performed on the data for each company to understand how these themes would be linked to supply chain operations. To further organise the findings, magnitude coding was used to calculate the percentage of positive, negative and neutral posts for each theme (Saldana 2009). This adds more description and demonstrates the strength and frequency of each theme, as well as understanding which topic was generating more negativity or positivity from consumers (McKenna et al. 2017; Saldana 2009). The posts were then also theoretically coded concerning MRT and SCT.

Preliminary Findings and Discussion

The data below illustrates the data from Twitter. Other data sources will also be included to determine the full richness of media choice. Daft et al. (1987) explains how the richness of media is determined by four factors. The four factors are the ability to provide instant feedback in communication, to provide multiple cues, to offer language variety and to express personal focus in conveying a message. The more these factors are achieved in a communication media, the more effective the transfer of information or knowledge will be, and the ability to understand ambiguous or uncertain issues.

> "@krispykreme coffee donuts are a fail😑 taste nothing like coffee just a plain glazed donut. Don't set yourself up for disappointment people! The hype isn't real. #dontdoit." (Post 1a-Date: 25/09/2018)
>
> "KK Response: Hi ****, these certainly aren't up to standard! Would you mind calling us at 1-800-4Krispy? We'd love to speak with you directly about this and try to make it up to you. Thanks!" (Post 1b-Date: 25/09/2018)
>
> "Customer Response: Just called😑 "feedback has been forwarded" but I still have 21 "coffee donuts" that don't taste like coffee 🤦‍♀️" (Post 1c-Date: 25/09/2018)
>
> "Hey @krispykreme still waiting for y'all to come to Forsyth County, GA. It's one of the fastest growing counties in the country. Way to many Dunkin Donuts. I HATE DUNKIN DONUTS!!!" (Post 2-Date: 29/12/2018)
>
> "@krispykreme My favorite flavor is "hot off the grill" glazed 😋😵." (Post 3-Date: 12/02/2019)
>
> "the energy of ordering food via drive thru and then eating it in your car in the parking lot is so powerful. like you could walk 50 feet and sit at a table in the light but we just stan alienation in this country me hunched over in the dunkin parking lot like a goblin, devouring an old-fashioned donut in the dim orange light of the streetlamps, abba blasting." Post 4-Date: 02/12/2018

It is clear from these tweets that social media can be a very rich media source. The first post shows how social media can provide the option to respond to a post or provide feedback immediately. This is also due to any social media channel's feature to provide users with automatic notifications when someone has responded to the user's post. Post 2 demonstrates how an individual can convey their message through different tones of voice. Users can understand that the poster has raised his or her voice and expressed the message in anger. Post 3 includes emojis. This variety in language and tone of voice demonstrates how social media allows users' opinions to be well understood and personalised (Anandarajan et al. 2010). Finally, post 4 is a detailed post of a customer explaining his or her personal thoughts of an experience that occurred at DD. Messages conveyed in this manner are usually only found on social media and would not be common on customer review pages or company websites, indicating how rich consumer information may be on social media platforms (Frasca and Edwards 2017).

Reaching out and engaging with customers on social media can lead to social capital and sophisticated supply chains (Sofia et al. 2012; Swain and Cao 2019), but the findings also indicated that allowing customers to engage on social media can lead to social capital and improved supply chains. The social capital emerged from all the customers providing feedback and interacting on DD and KK's social media pages; this led to a network of knowledge. This knowledge is the embedded resource that can be used to boost a supply chain's performance (Swain and Cao 2019). To benefit from these insights, and aid supply chain management, a firm is required to set up social media pages and collect and analyse customers' views to allow for social capital to grow. This would relate to how Burgess and Singh (2012) mention that focusing on the social aspects, such as understanding customers, is very important for supply chains.

Conclusion

The findings of this qualitative study will address the research problem of how consumer-based social media information can benefit a company's supply chain operations. The focus will be on how effective this media will be in examining customers' opinions regarding supply chain operations and how social media could be a rich media source. A limitation of this paper is the use of Twitter data. This will be address following McKenna et al. (2017)'s advice and will include data from additional sources.

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