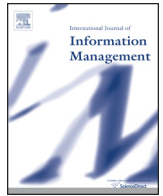




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## Analyzing electronic word of mouth: A social commerce construct

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### ABSTRACT

Due to the proliferation of Web 2.0 technology, e-commerce has evolved into social commerce. In this social commerce era, consumers are increasingly dependent on each other and look for social support (informational and emotional) online even before making purchases. This study examines the content of consumer reviews, a fundamental construct of social commerce. Topics expressed in consumer reviews (collected from [Amazon.com](#)) are explored using a machine learning technique (i.e. latent semantic analysis). This study documents the thematic differences between positive and negative reviews and finds that negative reviews report service-related failures while positive reviews relate more to the product, among other things. Next, the informational support aspect of social commerce is explored by identifying the topics expressed in reviews that are helpful in purchase decisions. The findings demonstrate that potential customers (i.e. those who would like to purchase a product in the near future and currently are reading reviews with the intention to decide whether or not to buy that product) find the negative reviews containing service failure information and the positive reviews containing information on core functionalities, technical aspects, and aesthetics to be more helpful. Theoretical and managerial implications are discussed.

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### 1. Introduction

Humans are social creatures. The urge to interact with others combined with the proliferation of Web 2.0 technologies have given rise to many social media platforms. As a result, e-commerce has evolved into social commerce. Social commerce promotes consumers' interactions on the internet for the marketing of a product ([Hajli, 2015](#)). Consumers are becoming increasingly active in this setting and they are frequently generating as well as absorbing contents. Today, potential customers (i.e. those who would like to purchase a product in the near future) have access via social media to a plethora of peer generated information about that product prior to making a purchase decision. It is estimated that 97 percent of consumers read consumers' reviews and are influenced by them.<sup>1</sup>

Social commerce has three dimensions: recommendations and referrals, forums and communities, and ratings and reviews ([Hajli, 2015](#)). Some authors have suggested that consumers are most influ-

enced by word of mouth on social commerce platforms ([Hajli, 2014a](#)). The Word of Mouth (WOM) available online is called Electronic Word of Mouth (eWOM) and online customer reviews are one form of eWOM ([Hajli, 2015](#)). Thus eWOM has the potential to reduce uncertainty about the product and to increase consumers' trust ([Hajli, Lin, Featherman, & Wang, 2014](#)), which in turn increases purchase intentions ([Hajli, 2014b](#)). Due to the importance of peer generated content as a driver of sales ([Liu, 2006](#)), this research focuses on this area by exploring the content and topics of reviews and their effects on future consumers.

Prior research has investigated many aspects of peer generated product reviews that affect sales. For example, valence (i.e. positive vs. negative) and volume of product reviews influence product sales ([Chevalier & Mayzlin, 2006; Liu, 2006](#)). A stream of research explored the content of reviews (e.g. [Campbell, Pitt, Parent, & Berthon, 2011; Hajli, Sims, Featherman, & Love, 2015](#)). The topics discussed in product reviews were studied ([Hajli et al., 2015; Yang, Jun, & Peterson, 2004](#)). The literature suggests that positive and negative reviews may influence consumers to varying degrees depending on factors such as product type or purchase goals ([Tsao & Hsieh, 2015; Zhang, Craciun, & Shin, 2010](#)). The topics in positive and negative reviews are, thus, likely to be different. *One may ask if*

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<sup>1</sup> <http://www.360i.com/reports/social-commerce-ratings-reviews/>.

and how the topics of positive and negative reviews differ more than their valence? This research aims to answer these questions.

Second, this study examines the topics that may influence consumers in their purchase decisions. Research has documented that consumers turn to user-generated content to get informational support (Hajli et al., 2015). They read reviews before making purchases and in a website such as Amazon.com – which 58% of consumers use as their source of consumer reviews – they may vote a review as helpful or not helpful after reading that review. The literature has considered this vote as a degree of influence on potential customers (Mudambi & Schuff, 2010). It has also been documented that helpful reviews tend to influence potential customers' decisions more than the reviews which are not perceived as helpful (Mudambi & Schuff, 2010). So are there some particular themes or topics in a review that consistently make a review helpful? The aim of this exploratory research is to fill this gap in the literature and to explore the topics of reviews and their effects in determining review helpfulness. Since helpful reviews influence sales (Liu, 2006), examining the topics that make a product review helpful is theoretically and managerially important.

This research contributes to the literature by conceptually differentiating the topics in positive and negative reviews and it provides a better understanding of the contents of eWOM. The study also examines the topics that make a review helpful, a variable of interest to managers since helpful reviews directly affect product sales (Liu, 2006). The current research analyses real reviews from Amazon.com by using the machine learning technique of Latent Semantic Analysis (LSA) (Landauer, Foltz, & Laham, 1998). By employing this text mining technique, this research responds to the call of incorporating sophisticated automatic techniques in business research (Westland, 2015) and it contributes to this emerging area.

The remainder of the paper is organized as follows. The next sections review research on social commerce and social word of mouth. This is followed by a section on research methodology and data analysis. Discussion, theoretical and managerial implications are then discussed.

## 2. Theoretical research foundations

This study has two objectives: First, to explore the topics of positive and negative reviews and second, to identify which topics are seen as helpful by potential customers. The literature relevant to the objectives is discussed next.

### 2.1. Social commerce and electronic word of mouth

Social commerce promotes interactions between consumers and businesses. This phenomenon has proliferated since the inception of Web 2.0 applications. Consumers create online content about a product and potential customers look for social support online (i.e. resources that are available from non-professionals in formal or informal settings) because of its high credibility (Hajli, 2014a; Senecal & Nantel, 2004). Although the social support construct has been thoroughly investigated in other social science disciplines, the business discipline has recently started to incorporate this idea in the social commerce context (Hajli & Lin, 2014; Hajli, 2014c). Potential customers perceive social support in two forms: emotional and informational support (Hajli, 2014a). Electronic Word of mouth (eWOM) is a dominant source of social support, especially when it is integrated within the social commerce constructs (i.e. forums and communities, referrals and recommendations, and ratings and reviews) (Hajli, 2014c). The eWOM is “any positive or negative statement made by the potential, actual or former customers about a product or company, which

is made available to a multitude of people and institutions via the Internet” (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004, p.39). When integrated with social commerce, eWOM is often referred to as social word of mouth (Hajli, 2014c). In this study, consumer reviews are chosen as a source of eWOM. Potential customers' perceptions about the themes in reviews as informational support (i.e. which themes are perceived to be helpful) are explored.

### 2.2. Key aspects of reviews

Online shopping behavior is influenced by various websites and product characteristics (Mallapragada, Chandukala, & Liu, 2016) as well as eWOM (Li & Zhan, 2011). Consumer reviews have been shown to be an important influencer that affects product sales (Liu, 2006) and willingness to pay (Sridhar & Srinivasan, 2012). This influence seems to be sequential in a sense that consumers who influence others are themselves influenced by other consumers (Sridhar & Srinivasan, 2012), making the effects of reviews much larger and worth investigating. Several aspects of reviews have been researched in the literature such as volume, valence, or quality. (Chevalier & Mayzlin, 2006; Goldsmith & Horowitz, 2006; Tsao & Hsieh, 2015). Its quality has an effect on the perception of credibility (Tsao & Hsieh, 2015). Among many other characteristics of reviews, volume and valence are probably the most thoroughly investigated aspects.

Chevalier and Mayzlin (2006) examined the positive effects of review volume on product sales, an effect also found in other studies (Goldsmith & Horowitz, 2006). Liu (2006) reaffirmed this phenomenon and mentioned that valence might not have as much explanatory power as volume in explaining revenues. This dilemma was further investigated by Duan, Gu, and Whinston (2008) who found evidence that valence was the precursor of volume and volume drove the sales. In a study, incorporation of both volume and valence increases the forecasting accuracy of sales (Dellarocas, Zhang, & Awad, 2007). This relationship between consumer reviews and sales is moderated by product type and several consumer characteristics (Zhu & Zhang, 2010). Moreover, positive affective contents of reviews have asymmetrical effects on conversion rates such that a greater increase in positive affective content does not improve conversion at the same rate (Ludwig et al., 2013). Negative affective content of reviews did not show such tapering effect (Ludwig et al., 2013), which strengthens the findings that negative messages are likely to be more useful than positive ones especially for risk averse consumers (Casaló, Flavián, Guinalíu, & Ekinci, 2015). The quality and proportion of negative reviews influence the attitudes of customers about the product (Lee, Park, & Han, 2008). Prior research points out that the influence of review valence on key marketing variables vary, and some of the key studies are discussed next.

### 2.3. Valence as a differentiator

Research on review valence mainly focused on the positive and negative domains. It has been documented that positive and negative reviews influence some marketing variables differently depending on various factors. For example, critics' review valence has been found to affect sales with a negativity bias (Basuroy, Chatterjee, & Ravid, 2003). Negative reviews dampen box office performance more than positive reviews improve it. Tsao (2014) found a negativity bias on the relationship between consumer review valence and movie selection and a positivity bias between reviews and movie evaluations. Consumer expectations play a moderating role on the relationship between review valence and movie selection as well as evaluation (Tsao, 2014). In other product categories, however, firm familiarity may attenuate the negativity bias and

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