

Positive Relationships between Service Performance and Social Media Use in Internet Retailing: Does Information Symmetry Matter?

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ABSTRACT

The purpose of this research is to investigate whether differences in Internet retailer service performance influence the use of social media. Information economic theory is used to hypothesize a positive relationship between performance and social media use. To test the relationship, 516 Internet retailers' websites were investigated, and their service performance was analyzed based on online customer reviews. Exploratory factor analysis transformed the customer review data into refined measurements. The logistic regression model validated the positive relationship between service performance and social media use. Internet retailers who use social media show higher service performance. However, the significant effect is limited to online service performance. Offline service performance (i.e., order fulfillment service performance) was not significantly associated with social media use. This study considers information symmetry as a critical factor in social media use, which differs from previous studies based on traditional technology acceptance frameworks.

Keywords: Social media, Internet retailing, Information economic theory, Information symmetry, Order procurement, Order fulfillment

INTRODUCTION

Within a dramatically short period, social media has turned simple one-to-one interactions into vast social communities. The rise of social media has influenced perceptions of customer service experience for every business sector in general and Internet retailers in particular (Falcão & Isaías, 2020; Parsons & Lepkowska-White, 2018). Ideally, Internet retailers can use social media to manage better customer relationships as well as utilize information from publicly broadcasted customer feedback to improve the customer service experience (Chiang et al., 2019; Daugherty & Hoffman, 2014; Kumar & Mirchandani, 2012; Parsons & Lepkowska-White, 2018; Roy et al., 2019). However, the use of social media carries considerable risks. Public broadcasts of adverse customer reactions to their shopping experience with Internet retailers can result in considerable penalties for the retailers (Du et al., 2014; Pfeffer et al., 2014; Wang, 2020). Given the potential upsides and downsides, Internet retailers will decide whether to use social media to enhance customer perceptions of their service performance. These decisions pose a dilemma for Internet retailers, especially for poor service providers who would prefer to keep potential customers ignorant of the retailers' failings.

This research investigates differences in Internet retailer service performance between social media users and non-users. More specifically, this study seeks to delineate if and how much the use of social media by Internet retailers is associated with their service performance in different retail stages, from online order procurement to offline order fulfillment. The linkage between service performance and social media use is important to study because it indicates how Internet retailers leverage social media between their service performance and social media's marketing impact. A positive relationship implies that Internet retailers focus more on service performance, considering enhanced customer feedback in online communities. On the other hand, no relationship implies that they focus more on social media marketing (considering its positive impact on their brand reputation), regardless of their service performance.

This study draws on theoretical perspectives from conventional information economics to examine the linkage between service performance and social media use (Akerlof, 1970; Spence, 1973; Stigler, 1961; Stiglitz, 2000). Information economic theory indicates that social media use as part of Internet retailers' online marketing is determined based on the retailer's existing service performance. Internet retailers with higher service performance will be motivated to leverage the upside and adopt social media. In contrast, Internet retailers with poor service performance will seek to block any information channel that will reveal their poor service performance (Akerlof, 1970; Mavlanova et al., 2012) and minimize social media use. Over time, this discrepancy would lead to an increasing polarization between higher- and lower-performing Internet

retailers. Social media could potentially enhance overall system-level retail performance and customer service experiences by undermining the competitiveness of poor-performing Internet retailers.

Findings from this research will advance our understanding of social media use and inform us of social media marketing practices in Internet retailing. To empirically validate the association of Internet retailers' service performance with social media use, this study includes Internet retailers that show variations in social media use and online/offline service performance. The Internet retail industry is ideal for this study because Internet retailers widely use social media marketing and, at the same time, their service performance is reviewed by online customers who use social media.

This research makes several significant contributions. First, this study examines large-scale data collected from retailers' websites and customer reviews. The 516 Internet retailers in the sample add statistical power to the findings. Second, previous studies highlight the prescription of social media for building customer relationships primarily based on the social media marketing paradigm. The current research advances our understanding of the implementation of social media by studying both the industry and its customers. Lastly, this study investigates service performance in different stages of Internet retailing. Service performance in the online and offline stages is examined more systematically than in previous studies. Online performance is further refined into homepage information and order procurement performance, while offline performance is examined through Internet retailers' order fulfillment services. This presents a more complete analysis of service performance in Internet retailing.

THEORETICAL BACKGROUND

Information Economic Theory

Information economic theory helps explain and predict the behavior of Internet retailers concerning their social media use. The information gap between transaction parties, or information asymmetry, represents a central concept in information economics, one of the main economic paradigms. According to the theory, social media can influence service performance by enhancing information symmetry between retailers and customers. Consumers' electronic word of mouth (eWOM) plays a critical role in enhancing information symmetry (Daugherty & Hoffman, 2014; Roy et al., 2019). Consumers communicate with each other instantly online, allowing them to determine the proper value of products or services (Yang et al., 2015).

The original research by Stigler (1961) conceptualizes uncertainty as ignorance and connects sellers' price variances with the costs of consumers' information searches for assessing price fairness. Information economic theory contends that information asymmetry increases sellers' opportunistic behavior to protect the disparity between

price and actual product/service value. This leads to a market failure in finding an equilibrium between price and value, ultimately driving trust out of the market (Akerlof, 1970; Izquierdo & Izquierdo, 2007; Spence, 1973; Stiglitz, 2000). An example of information asymmetry is a used car dealer demonstrating unscrupulous business practices by selling poor quality cars for more than their fair market value (Akerlof, 1970). Applied to the focal industry of this study, information asymmetry occurs when Internet retailers attempt to market products by extracting unfair margins while providing poor services.

An Internet retailer's service performance represents critical information that influences customer purchase behavior when such information is available to customers. There is a tremendous amount of evidence that customer experience with an Internet retailer's service quality positively influences customer repurchase intention (Onofrei et al., 2022; Parasuraman et al., 2005; Rao et al., 2011; Szymanski & Hise, 2000; Zarei et al., 2019). Consequently, the contribution of social media to information symmetry is believed to influence Internet retailers' use of social media.

Ironically, the pioneering works by Akerlof, Spence, and Stiglitz were honored with the Nobel Prize in Economics in 2001 when the Internet (spurred by advanced web technologies) was dramatically reducing information asymmetry. Sinha (2000, 46, 47) describes the impact as follows: "Internet technology erodes the risk premium that sellers have been able to exact from wary buyers... The Internet encourages highly rational shopping." In this regard, Izquierdo and Izquierdo (2007) report that information asymmetry is reduced by allowing information exchanges through person-to-person social networks. Their market simulation reveals that spreading information through social networks significantly increases market stability. The extent of that study's information symmetry may not match social media's. However, the findings suggest that such a narrow context of information symmetry brings significant market stability. The timing of their study corresponds to the growing popularity of social media, which is as meaningful as their findings.

Impact of Social Media

The definition of social media is evolving as new social media with distinct social mechanisms emerge. Social media is broadly defined as electronic communication platforms for online communities. Thus, many retail websites can be seen as primary social media because they present customer reviews on their goods, and such information is shared among the website users. However, richer and broader interaction is achieved by dedicated social networking sites or content communities such as Facebook, Twitter, YouTube, Instagram, and LinkedIn.

Social media began actively connecting people in the mid-2000s (Kaplan &

Haenlein, 2010). Now, many firms consider social media as an essential marketing tool because they occupy significant personal computing time and influence consumers' online shopping behavior (Jamil et al., 2022; Kim & Ko, 2012; Parsons & Lepkowska-White, 2018; Santos et al., 2022; Schivinski & Dabrowski, 2016; Weiger et al., 2017; Yang et al., 2015). Two theoretical perspectives – social presence theory and media richness theory – provide insights into this new phenomenon. Both theories demonstrate social media's high communication quality, which drives people to use social media.

Social presence refers to a state of being connected, formally defined as the “degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships.” (Short et al., 1976, 65). The importance of social presence lies in the fact that it is a crucial determinant of communication performance. Zhang et al. (2012) find that the social presence online shoppers perceive from an online store strengthens their belief in the benefits of using that particular store. Similarly, Shen and Khalifa (2012) report that the social presence of an online store's website increases the pleasure of online customers, which, in turn, positively affects buying impulses. Relevant to this study, social media substantially increases intimacy and immediacy by establishing interpersonal and real-time interaction (Kaplan & Haenlein, 2010; Onofrei et al., 2022; Zhang et al., 2012), which will enhance social presence.

On the other hand, media richness theory considers media richness as the capacity of media to reduce information equivocality (Daft & Lengel, 1986; Daft et al., 1987). According to Daft and Lengel (1986), information uncertainty and equivocality are two reasons information processing is required. Information uncertainty can be reduced simply by increasing the amount of relevant information. Reduction of information equivocality requires the rich media practices of sharing information and manipulating the communication context (e.g., face-to-face or technology-mediated) and the communication content (e.g., cues, individual languages, or voice tone). Applied to this study, the vast amounts of information transmitted on social media in various formats (e.g., text, image, video) effectively resolve the equivocality of delivered information (Chen et al., 2021; Kaplan & Haenlein, 2010; Ledford, 2012).

Considerable evidence reveals that social media helps improve firms' marketing performance. In a study of luxury fashion brand consumers, Kim and Ko (2012) find that consumers' perceptions of the brand's social media marketing activities increase their assessments of brand value, and brand value positively affects consumer purchase intention. Similarly, Laroche et al. (2012) find that membership in online communities (such as Facebook and Twitter) increases loyalty to the brand and its products. More recently, Weiger et al. (2017) illustrate that the success of brand appeals generated for marketing largely depends on the company's capability to foster customer engagement through social media. Furthermore, Schivinski and Dabrowski (2016) and Chiang et al.

(2018) confirm that social media increases customer engagement, which influences customer brand attitude and equity. These findings are consistent with other studies that anecdotally highlight the connection between consumer social media usage and positive brand evaluations (Kumar & Mirchandani, 2012; Parsons & Lepkowska-White, 2018; Wong, 2023; Yan, 2011).

HYPOTHESIS DEVELOPMENT

Drawing from information economic theory, the current study hypothesizes a positive association between Internet retailers' service performance and social media use. Because social media enhances information symmetry, Internet retailers with high and low service performance levels will generate different orientations toward information symmetry, determining their decisions about social media. High-performing service performers are expected to have a positive orientation toward social media. They will seek to promote their superior service performance via social media, hoping it will attract customers and build customer loyalty to their online stores. However, poor service performers will want to hide their service performance and not use social media until they improve their service (Sinha, 2000). Therefore, a positive association between service performance and social media use is expected.

For a complete study, service performance in the online and offline phases of Internet retailing needs to be examined separately. Each phase of service interaction requires distinct service quality standards to satisfy customers (Jain et al., 2015; Kumar & Anjaly, 2017). For this purpose, the current study uses the following three constructs. Two constructs reflect a retailer's online service performance, operationalized through *homepage information* and *order procurement quality*. The third construct reflects a retailer's offline service performance as operationalized through *order fulfillment quality*.

The first online service performance construct (*homepage information*) indicates an Internet retailer's presentation of information about its services on its homepage. This construct is conceptualized because a retail homepage is a place for Internet retailers to advertise their services by providing information that contributes to information symmetry. Homepage information carries an essential aspect of the service performance of Internet retailing because many online shoppers save time by browsing the homepage to find necessary information (Cho, 2014; Kendall, 2003).

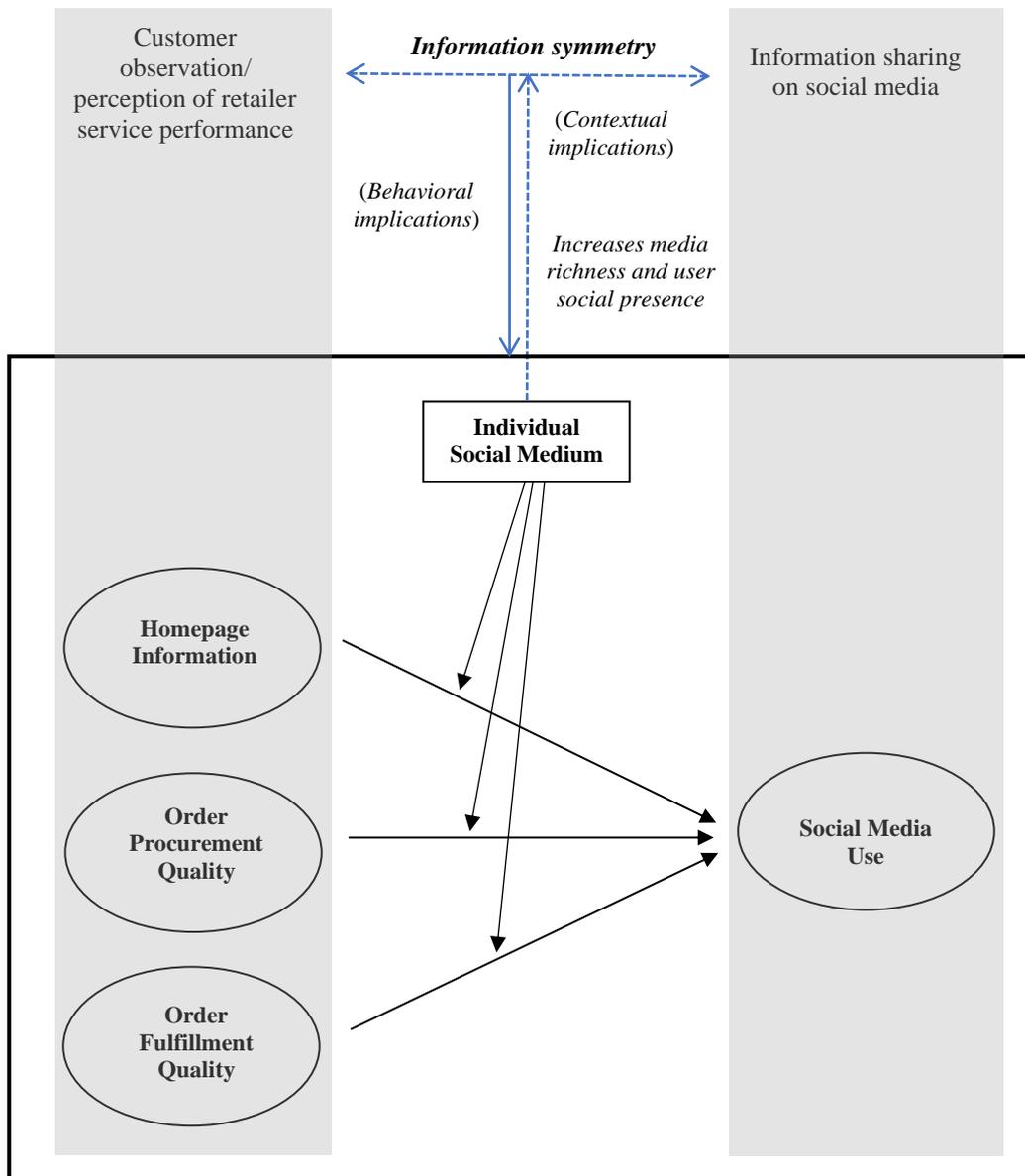
The second online service performance construct (*order procurement quality*) indicates the extent to which an Internet retailer has created positive customer perceptions or satisfaction with the retailer's overall online services up to finalizing the financial transaction (Zarei et al., 2019).

The offline service performance construct (*order fulfillment quality*) represents a

measure of operations performance that indicates the extent to which an Internet retailer has achieved positive customer perception or satisfaction with its order fulfillment through its supply chains (Cao & Zhao, 2004; Jain et al., 2015; Kumar & Anjaly, 2017; Rao et al., 2011). The research context and proposed relationships between the three service performance constructs and Internet retailers' social media use are schematically illustrated in Figure 1. As shown, social media enables online retail customers to share information, which enhances information symmetry. This will create a positive association between internet retailers' service quality and social media use. The proposed hypotheses are further discussed below.

Homepage Information and Social Media Use

The first hypothesis addressing online service performance proposes a positive association of Internet retailer homepage information with social media use. A retailer's homepage is designed to create a strong first impression about the retailer's services by establishing an initial interaction between a shopper and the Internet retailer (Cho, 2014; Okazaki, 2004). As suggested by information economic theory, retailers who proactively present information about themselves on homepages are likely to have a positive orientation toward information symmetry due to a desire to offer information to the public (Stiglitz, 2000). Social media serves as a channel for expressing that desire. Consequently, retailers who actively present information about their services through their homepages are believed to have a strong willingness to use social media. For them, social media can complement a retail website by delivering rich marketing information on customer-friendly platforms (Falcão & Isaías, 2020).

Figure 1 *Theoretical Background and Proposed Research Model*

A retailer's homepage includes multiple pieces of information about the retailer's services. The homepage is the introductory page to a retail website, and those multiple pieces of information are usually accessible by short and memorable hyperlinks from the homepage. This page serves as the intended gateway to the rest of a retailer's website. Presenting critical information on a retail homepage enhances information symmetry because it increases customer knowledge about the retailer's services before an actual transaction (Akerlof, 1970). For instance, hyperlinks on a homepage can guide customers to specific information webpages such as customer service information, FAQs (Frequently Asked Questions), and shipping information. By presenting necessary information on a homepage, the number of clicks required to find relevant

information decreases, which increases search efficiency (Kendall, 2003). This search efficiency positively influences information symmetry due to increased accessibility to the information.

H1: Internet retailers' homepage information is positively associated with their social media use.

Order Procurement Quality and Social Media Use

The second hypothesis addressing online service performance proposes a positive association between Internet retailer order procurement quality and social media use. Typically, a retailer's website uses many functional webpages to support its homepage where specific information on the retailer's products and services is provided. The retailer uses these webpages to influence customer purchase intentions, encourage purchases, and achieve order procurement (Zarei et al., 2019). Accordingly, a retail website's overall design and information as well as the store's product selection become critical factors in creating purchase intentions (Parasuraman et al., 2005; Szymanski & Hise, 2000). These service quality factors indicate that overall experience with multiple retail webpages, rather than merely with a specific web feature, is vital to order procurement performance (Rowley, 2006).

Based on the positive impact of social media on information symmetry, this study proposes that an Internet retailer's order procurement quality is positively associated with the retailer's social media use. Retailers who satisfy their customers with well-organized webpages and web information would embrace information symmetry and encourage satisfied customers to express their pleasure using a social medium (Kumar & Mirchandani, 2012; Yan, 2011). The relationship between order procurement quality and social media use will be consistently positive for those retailers. Retailers with high order procurement quality will use social media due to their positive orientation to information symmetry (Izquierdo & Izquierdo, 2007; Stiglitz, 2000). After the adoption of social media, the relationship is further reinforced because social media helps a retailer improve its order procurement quality. Access to all kinds of customer reviews created using lay language, pictures, and videos will point to areas where the retailer should improve (Chen et al., 2021; Daft & Lengel, 1986; Ledford, 2012). In the end, the positive influence of social media on information symmetry during online shopping will strengthen the following association:

H2: Internet retailers' order procurement quality is positively associated with their social media use.

Order Fulfillment Quality and Social Media Use

The third hypothesis addresses offline service performance, proposing a positive association between Internet retailer order fulfillment quality and social media use. An Internet retailer's order fulfillment starts after it receives an online customer order. Receiving an order achieves the goal of online services, but then the retailer faces the operational goal of delivering the right item to the right location at the right time (Cao & Zhao, 2004; Jain et al., 2015; Kumar & Anjaly, 2017; Parasuraman et al., 2005). Cho et al. (2003) find that delivery problems are one of the most frequent sources of customer complaints in Internet retailing, which explains why a retailer's order fulfillment services influence customer loyalty to the online store. To improve order fulfillment performance, many retailers have a positive inventory policy and use an order tracking system. These help them manage their supply to prevent delivery delays and failures (Cao & Zhao, 2004; Rao et al., 2011). Any failure in order fulfillment necessitates a recovery service. Prompt recovery is required to prevent or reduce customer frustration and disloyalty (Holloway & Beatty, 2003).

A positive association between an Internet retailer's order fulfillment quality and the retailer's social media use is expected because communications on social media can target a retailer's order fulfillment performance. In addition, properly responding to an order fulfillment issue takes longer and typically is more complicated than responding to an order procurement issue, which strengthens the proposed association. For instance, an issue on a retail website is relatively simple for the retailer to respond to by quickly confirming the issue and changing web content accordingly. In contrast, an issue in order fulfillment requires monitoring and tracking the entire supply chain to locate the failure point. Often, the issue is out of the retailer's control because it is the responsibility of an outsourced logistic company for most retailers. In some cases, improving order fulfillment services takes a significant restructuring of the supply chain and optimizing each supply chain member to ensure lean and agile operations (Rao et al., 2011). This unique nature of order fulfillment combined with social media's positive impact on information symmetry will strengthen the following relationship:

H3: Internet retailers' order fulfillment quality is positively associated with their social media use.

Differential Social Media Effects

This study selected Facebook, Twitter, and YouTube given their popularity, high usage among Internet retailers, relevance to information symmetry, and distinct individual social mechanisms concerning Hypothesis 4, as explained in previous studies (Cho & Menor, 2010; Kaplan & Haenlein, 2010). While these social media may have a

common role in information symmetry, the mechanisms for doing so are complex. Previous research suggests that each social medium uses a unique interaction mechanism. Cho and Menor (2010) classify e-service interaction into four types: informational, self-directive, intervenient, and intensive. According to their classification, user interaction on YouTube differs from that of Facebook. YouTube uses the informational type of interaction intended mainly to provide information, while Facebook uses the intensive type where users actively participate in developing more complicated personal interactions and networks. Kaplan and Haenlein (2010) also classify social media using two distinct dimensions: social presence/media richness and self-presentation/disclosure. They claim that YouTube and Twitter create a similar extent of social presence or media richness, but Facebook users disclose themselves much more.

The different social mechanisms are believed to have varying implications regarding information symmetry. Intensive and personal interaction via Facebook will significantly improve social presence among users (Karlsen & Aalberg, 2023; Potdar et al., 2018). Facebook supports communication content using text, pictures, video, etc., to increase media richness (Chen et al., 2021). On the other hand, YouTube is an informational network with limited social presence and media richness. Instead, YouTube can easily extend an information boundary beyond a personal community. In terms of network structure, Twitter differs from Facebook and YouTube. It could be considered somewhere between the two because Twitter involves a single node (i.e., followers) of varying strengths and limited information broadcast in limited space. Evidently, each social medium has a complex and distinct contribution to the depth and breadth of information sharing. Given that different mechanisms underlie their impact, these varying implications to information symmetry are expected to lead to different patterns of influences on those relationships previously hypothesized.

H4: Relationships in H1, H2, and H3 are moderated by each social medium.

METHODOLOGY

Data Source and Collection

This study sampled 516 Internet retailers whose service performance information was available on a retailer review website (i.e., BizRate.com). Online retailer reviews were an ideal data source for this study because they provided customer reviews on individual Internet retailers' service performance for both online order procurement and offline order fulfillment. One of the key strengths of this data comes from its two-stage data collection procedure. In the earlier stage, it surveys individual customers immediately after placing orders on its affiliated retailer websites, and the survey asks

about retailers' order procurement quality. After shipping and customers receive orders, the second survey (delivered by e-mail) asks about retailers' order fulfillment quality. Previous studies have reported details on the BizRate customer survey (Cho, 2014; Hu et al., 2022; Thirumalai & Sinha, 2011).

However, online retailer reviews were insufficient for testing the hypotheses because they did not include information about individual retailer's use of social media. In addition, an investigation of retailers' homepages was required to test the linkage between a retailer's homepage information and social media use, as noted in Hypothesis 1. To collect the required information, 516 retailers' websites were examined. Retailers' social media use was confirmed by observing individual unique social media icons on retailers' websites. Results of social media use among the 516 retailers are summarized in Table 2, revealing that 310 out of 516 retailers used social media. Among them, 75 used only one social medium, and the remainder (235) used two or more social media. Facebook and Twitter were the most popular--used by 259 and 239 retailers, respectively. Sixty-seven retailers used YouTube.

As noted earlier, 516 retailers' homepages were visited. The selection of homepage information was based on two criteria. First, the selected homepage information should enhance information symmetry, which helps customers know about the retailer and the retailer's services prior to order placement. Second, the information should show sufficient variance among 516 retailers for statistical power. The following five pieces of homepage information satisfied the two criteria: 1) customer service information, 2) shipping information, 3) frequently asked questions (FAQs), 4) web security certificate information, and 5) payment information. Observed homepage information among the 516 retailers is summarized in Table 1. Retailer homepages typically present hyperlinks for the first three kinds of information that redirect to specific webpages to provide needed information in detail upon a customer's click. Web security certificate information was assessed on whether the page showed a web security certificate (e.g., McAfee SECURE, Verified Secure, or PayPal Verified) to reassure customers of the financial safety of their website. Payment information was assessed on the inclusion of different payment options, showing the information directly or displaying various payment card icons and options. As summarized in Table 1, 306 of the 516 retailers (59%) presented customer service information on their homepage. Two hundred and ninety-two retailers (57%) presented shipping information, and 168 (33%) had FAQs on their homepages. Concerning security certificate information, 342 out of 516 retailers (66%) presented at least one web security icon on their homepages. Lastly, 281 retailers (54%) provided payment information on their homepages.

Table 1 *Measurements of and Statistics for Homepage Information*

Variable	Measurement	Statistics (out of 516 retailers)
Homepage information	Customer service information	yes: 307 (59%), no: 209 (41%)
	Shipping information	yes: 292 (57%), no: 224 (43%)
	FAQ	yes: 168 (33%), no: 348 (67%)
	Web security certificate	yes: 342 (66%), no: 174 (34%)
	Payment information	yes: 281 (54%), no: 235 (46%)

Table 2 *Use of Social Media by Internet Retailers in the Research Sample*

Non-users/users (out of 516 retailers)	Number of social media used	Use of social media ^{a,b}
Non-users: 205 (40%)	0: 205 (40%)	
Users: 311 (60%)	1: 75 (15%)	Facebook: 259 (50%)
	2: 90 (17%)	Twitter: 239 (46%)
	3: 86 (17%)	YouTube: 67 (13%)
	4: 41 (8%)	
	5: 15 (3%)	
	6: 3 (<1%)	
	7: 1 (<1%)	

Note. ^a236 retailers presented two or more social media icons.

^bAlso used other social media including Blog, Myspace, Flickr, LinkedIn, Digg, etc.

Measures

The following measurement scales were developed to test the proposed hypotheses. *Homepage information* was measured by a binary variable: one or zero. *Social media use* was also measured by a binary variable: one or zero. Social media use was measured by observing at least one or no social medium presented on the retailer's website. Two service performance measures – *order procurement quality* and *order fulfillment quality* – were continuous variables because the customer survey used a 10-point Likert scale.

As summarized in Table 3, order procurement quality was measured by three survey questions regarding customer experiences with a retailer website: *ease of finding what you are looking for*, *selection of products*, and *clarity of product information*. Previous studies extensively discussed these measurement dimensions (Parasuraman et al., 2005; Rowley, 2006; Zarei et al., 2019). The first question – *ease of finding what you are looking for* – indicates search efficiency that positively influences customer loyalty and business performance (Kendall, 2003). The second and third questions

represent two merchandizing service quality factors (Szymanski & Hise, 2000).

Likewise, order fulfillment quality was measured by four survey questions regarding customer experiences with retailers' order fulfillment: *on-time delivery*, *availability of a product you wanted*, *order tracking/status information*, and *customer support*. *On-time delivery* is a well-known measure of order fulfillment performance (Jain et al., 2015; Kumar & Anjaly, 2017; Parasuraman et al., 2005; Rao et al., 2011; Rowley, 2006). *Availability of product* indicates the positive inventory policy that allows retailers to promptly initiate order fulfillment operations immediately after receiving the order from the retail website (Cao & Zhao, 2004; Rao et al., 2011). *Order tracking/status information* represents one of the critical measures of retailers' order fulfillment performance because it appeases customer anxiety about delivery status (Cao & Zhao, 2004). Lastly, the indicator of *customer support* covers a retailer's service recovery performance, which must be included due to its close relationship to customer satisfaction and loyalty (Holloway & Beatty, 2003).

Before using the online customer review data, the unidimensionality of measurement scales was validated by exploratory factor analysis (Pedhazur & Schmelkin, 1991). As summarized in Table 3, the results of the factor analysis using SPSS were matched with the two service performance measures. The first latent component indicates retailers' offline service performance, and the construct was named *order fulfillment quality*. The second component indicates retailers' online service performance, and the construct was named *order procurement quality*. High Cronbach's alphas for order fulfillment quality and order procurement quality (0.931 and 0.913, respectively) indicate that measurement items within each scale are internally consistent and, thus, reliable. Factor scores were collected to test the hypotheses.

Hypothesis Testing

To test the hypotheses, logistic regression was selected because the social media variable was collected as a binary variable. In contrast to the linear model, the logit model takes log odds to relate linearly to independent variables. Logistic regression can compare multiple categories of a dependent variable through combinations of binary logistic regressions (Abraham & Ledolter, 2006; Hair et al., 2005). In this study, there were only two categories (i.e., social media users and non-users) requiring only one binary logistic regression model for each dependent variable.

Rapp et al. (2013) suggest that Internet retailers with differing brand reputations have varying levels of social media use. Specifically, the retailer's brand reputation reinforces social media use between the retailer and its customers. Thus, this study controlled for reputation effects. An Internet retailer's reputation was measured by the

web presence method used by a previous study (Cho, 2014). Among 516 retailers, 135 reputable retailers were recognized. A follow-up examination of the 135 retailers confirmed that the distinction was meaningful and that these firms were reputable. For example, the 135 retailers included well-known Internet retailers such as Amazon, Gap, Walmart, and Zappos, among others.

Table 3 A Rotated Component Matrix of the Principal Component Factor Analysis^a

Construct (Named latent factor)	Indicators ^b	Mean (SD)	Component		Cronbach' alpha
			1	2	
Order procurement quality	“Ease of finding what you are looking for” (Q1)	8.72 (0.262)	.134	.918	0.913
	“Selection of products” (Q2)	8.73 (0.270)	.156	.891	
	“Clarity of product information” (Q3)	8.69 (0.272)	.222	.912	
Order fulfillment quality	“On-time delivery” (Q6)	8.91 (0.502)	.958	.108	0.931
	“Availability of product you wanted” (Q7)	8.94 (0.438)	.829	.225	
	“Order tracking/status information” (Q9)	8.80 (0.537)	.917	.149	
	“Customer support” (Q8)	8.53 (0.588)	.885	.192	

Note. ^aVarimax rotation; ^bMeasured by a 10-point Likert scale (1=lowest; 10=highest).

RESULTS

Overall Social Media Effects

Table 4 summarizes the logistic regression analysis results in which the group of social media non-users is set as the reference category. The intercept indicates a baseline with a zero level of all independent variables. The logit model finds that reputation does not significantly predict social media use. However, the reputation effect is significant for Facebook and YouTube use (both $p < 0.01$). This result indicates that retailer reputation increases the likelihood of using Facebook and YouTube, confirming previous findings (Rapp et al., 2013).

As summarized in Table 5, this study finds an unmatched association between different forms of homepage information and social media use. Among the five forms examined in this study, three were verified to be significantly associated with at least one social medium, and their significance varied depending on the specific social medium. The use of a security certificate and shipping information is validated as significant predictors of social media use ($p < 0.01$ and $p < 0.05$, respectively). In other words, retailers that present information about security and shipping on their homepages have a significantly higher chance of being social media users. Finally, payment information significantly affects the odds of social media use/non-use ($p < 0.05$).

Surprisingly, the relationship coefficient was negative, which indicates that retailers who do not present payment information on their homepages are more likely to use social media.

In contrast, information about customer service and FAQs were not significant predictors of social media use. These results show partial support for H1. The positive association between homepage information (security certificate and shipping information) suggests that information symmetry influences Internet retailers' decisions on social media use. The negative association for payment information may weaken the linkage between information symmetry and social media use. However, the impact on information symmetry should be properly investigated if payment information is perceived to be different from other homepage information by online shoppers. More discussion on this issue is provided in the Discussion section.

Table 4 Results of Logistic Regression Analyses

Variables	Social Media ^a Users / Non-users		Facebook Users / Non-users		Twitter Users / Non-users		YouTube Users / Non-users	
	b	s.e. ^b	b	s.e. ^b	b	s.e. ^b	b	s.e. ^b
Constant	-0.417	0.290	-0.661*	0.286	-0.758**	0.286	-2.74**	0.450
Reputation	0.386	0.232	0.587**	0.222	0.329	0.219	0.846**	0.296
Customer service information	0.191	0.191	0.339	0.187	0.182	0.187	0.406	0.291
Shipping information	0.480*	0.195	0.308	0.191	0.373*	0.190	0.214	0.285
FAQ	0.201	0.208	0.183	0.202	0.094	0.201	0.042	0.298
Security certificate	0.583**	0.205	0.371	0.201	0.384	0.200	0.205	0.303
Payment information	-0.456*	0.206	-0.419*	0.198	-0.218	0.198	-0.043	0.295
Order procurement quality	0.242*	0.097	0.162	0.093	0.246**	0.094	0.278*	0.134
Order fulfillment quality	0.038	0.095	0.021	0.093	0.043	0.093	0.082	0.144
$\Delta - 2\ln(\text{likelihood})$	660.99**		688.64**		692.82**		380.76**	

Note. ^a Overall social media use which is indicated by the use of any one of three social media;

^b Standard error; * $p < 0.05$; ** $p < 0.01$

Hypothesis 2 and Hypothesis 3 stated that order procurement quality and offline

operations performance are positively associated with an Internet retailer's social media use. Results show that order procurement quality is a significant predictor of social media use ($p < 0.05$), supporting Hypothesis 2. However, order fulfillment quality is not a significant predictor of social media use. Thus, H3 is not supported. The difference between order procurement quality and order fulfillment quality regarding their impact on information symmetry needs to be investigated. More discussion on this issue is provided in the Discussion section.

Individual Social Media Effects

Hypothesis 4 sought to establish differential associations with Facebook, Twitter, and YouTube. Results show that Facebook use is significantly (and negatively) associated with payment information ($p < 0.05$). These results for Facebook differed for Twitter and YouTube because the use of any one of these two social media has no significant association with payment information. Twitter use also differed from the use of YouTube and Facebook in its significant association with shipping information. Twitter use is significantly (and positively) associated with shipping information, but the use of YouTube or Facebook is not.

Interestingly, the use of YouTube is not associated with any homepage information. Also, the use of any of the three social media platforms is not associated with a security certificate. Given that a security certificate is a significant differentiator between social media users and no users, the use of other social media than Facebook, Twitter, and YouTube is expected to be associated with a security certificate.

While order fulfillment quality has no relationship with the use of any one of the three social media, order procurement quality has some interesting relationship differences among the three social media. The pattern in these relationships is different from that in homepage information. Now, the use of Twitter or YouTube is significantly associated with order procurement quality, while the use of Facebook is not. These relationship patterns among different homepage information partially support H4.

DISCUSSION

This study draws on information economic theory to explain the impact of retailers' social media use on service performance. Notably, the theoretical background of this study differs from previous studies that use the concept of technology readiness (Parasuraman, 2000) or technology acceptance (Davis et al., 1989). Parasuraman (2000) claims that variance in the use of new technology is derived from personal predisposition to technology (i.e., technology readiness). The technology acceptance model considers ease of use and usefulness of technology as two critical factors for technology acceptance (Davis et al., 1989; Hussein et al., 2022). However, this study

highlights the nature of social media as an information tool and explores alternative explanations based on information economic theory. According to this theory, an orientation to information symmetry versus technology is the primary factor that affects retailers' use of social media.

Table 5 *Summary of Hypothesis Test Results*

Hypothesis	Results	Details of supported relationships
<i>H1: Relationship between homepage information and social media use</i>	Partially supported	Shipping information (p<0.05) Security certificate (p<0.01) Payment information (p<0.05, negative)
<i>H2: Relationship between order procurement quality and social media use</i>	Fully supported	Order procurement quality (p<0.05)
<i>H3: Relationship between order fulfillment quality and social media use</i>	Not supported	-
<i>H4: Moderation effects of Individual social media</i>	Partially supported	Facebook and payment information (p<0.05, negative) Twitter and shipping information (p<0.05) Twitter and order procurement quality (p<0.01) YouTube and order procurement quality (p<0.05)

The significant effect of homepage information on social media use confirms that retailers who are proactively providing shipping information and security certificates on their homepages are more likely to be users of social media. These findings are well supported by previous studies demonstrating that online customers are willing to pay more for security and privacy. Li and Dinlersoz (2012) validate that different shipping options lead to price discrimination, which will satisfy a broad spectrum of customers. Hammock (2011) also finds that online stores with security tools enjoy a price premium.

However, the negative association of payment information with social media use, specifically with Facebook use, is an unexpected result. This finding implies that the principle of information economics is not applicable to every kind of information in the same direction. A plausible explanation for the negative relationship is that the payment information highlights the cost side of customer value. This differs from the security certificate and shipping information that highlight the benefits side of customer value.

For instance, a security certificate on a retailer's website reminds customers of the benefits of using the online store concerning financial security and privacy (Hammock, 2011). Similarly, shipping information reminds potential customers of the benefits of customizing shipping services (Li & Dinlersoz, 2012). However, the payment information reminds potential customers of the costs associated with using the online store. If retailers use social media to affect brand impression positively, they would not want to display information highlighting the cost side. This is because the potential for customers spreading negative information trumps other concerns.

Regarding the negative information, Keiningham et al. (2018) empirically prove from a multinational survey that low satisfaction with a certain brand creates negative eWOM about the brand. Pfeffer et al. (2014) also find that negative eWOM spreads faster than positive eWOM and can quickly turn to online firestorms that spur intense indignation without actual specific criticism. Du et al. (2014) detail the psychology behind such a firestorm. Within the context of group services (like hotels or restaurants), their study reveals that customer anger is contagious during a service failure. Furthermore, individual customers' anger is provoked by other customers' expressions of anger more than by the service failure itself. It appears that there is a good reason that social media users would not want to present the costs associated with payment information on their homepages.

The significant association of social media use with order procurement quality (but not with order fulfillment quality) suggests that a retailer's use of social media is primarily related to online service performance. The difference between online and offline service performance results is noticeable. A couple of potential reasons can be conceived for the unmatched results. First, an experience factor can explain the difference. Online customers have free access to a retailer's website where they experience and assess the retailer's order procurement quality without difficulty. In contrast, direct experience with the retailer's order fulfillment quality is limited to those who order on the retailer's website. As a result, the symmetry of order fulfillment quality information is relatively low due to the limited experience. Therefore, retailers' concern about information symmetry will strengthen their online service performance. Second, order procurement and social media use require web-based information technology (IT). This means high order procurement quality performers will more likely have the necessary IT expertise to use social media effectively. As a result, using social media would not create much additional cost for high order procurement performers. In contrast to order procurement, order fulfillment requires different skill sets, such as maintaining agility in supply chains. The requirement of different skill sets could explain the stronger connection of order procurement quality with social media use.

Differential effects of each social medium on the relationship between Internet

retailers' online service performance and use of the social medium are interesting findings in this study. Findings suggest that each social medium has distinct implications for information symmetry. Previous studies (e.g., Cho & Menor, 2010; Kaplan & Haenlein, 2010; Onofrei et al., 2022) provide insights into different social mechanisms. Social media differs by the degree of user participation and communication intervention, leading to different interaction types. Potdar et al. (2018) suggest that Facebook has unique customer engagement patterns to guide communication toward brand recommendation. However, a question remains on how each social mechanism distinctly affects information symmetry. Further dedicated research on the social mechanisms of individual social media and information symmetry is required to clarify the differential effects.

MANAGERIAL IMPLICATIONS

The findings in this study have implications for retail managers adopting or using social media to enhance customer relationships. The use of social media has become technologically affordable to many retailers because it consumes standard web domains designed by dedicated providers. However, active use of social media requires a managerial commitment to establish rewarding social communities for their customers and the retailer. The findings of this study validate that retail websites using social media present a different information pattern than those that do not use social media. The pattern generally corresponds to retailers' behavior that favors information symmetry. These findings indicate that retail managers should understand the implications of enhanced information symmetry driven by social media use. Below are specific insights that the current research findings bring to Internet retailing.

First, social media icons on a retail website can serve as effective marketing signals. They deliver an impression to online customers that the retailer wants to interact with them and values their opinions. Therefore, retail webpages and corresponding social network sites should be designed to capitalize on this impression. Any misalignment between a retailer's social media use and customers' motivation to engage with the retailer may induce customer critiques or even intense indignation in the enhanced information symmetric context (Pfeffer et al., 2014). Second, Internet retailers that plan to use social media need to anticipate more intense competition. The positive association between order procurement quality and social media use suggests that, upon adoption of social media, a retailer will compete with other retailers that use social media. This study finds that such retailers achieve higher order procurement quality than social media non-users. Customer expectations will escalate accordingly. Internet retailers who plan to adopt social media should ensure that their service performance is competitive. Third, this study finds empirical evidence that the association of service

performance with social media use differs by each social medium. This finding suggests that retailers should carefully select a social medium to achieve their intended goal of enhancing information symmetry.

The unmatched results between order procurement quality and order fulfillment quality reveal challenges that retailers may confront regarding social media use. The result is not believed to indicate that offline operations in order fulfillment are less critical than online marketing using a retail website. Instead, the result implies a significant gap in information symmetry between order procurement quality and order fulfillment quality information. Indeed, a retailer's order fulfillment quality is less accessible to customers until they have placed an order on the retailer's website. Nevertheless, retailers' asymmetric behavior of ensuring high order procurement quality but neglecting order fulfillment quality will not be sustainable in the long run (Karlsen & Aalberg, 2023; Sinha, 2000).

CONCLUDING REMARKS

There is no doubt that retail transactions have become transparent and will be even more so as customers increasingly participate in online reviews of retailers and the results become accessible to Internet users. As a result, information symmetry is and will be the significant factor that affects every facet of business practices. The voices of empowered customers significantly impact business practices, as do effective information channels such as social media.

This study uses information economic theory to explore the impact of service performance on social media use. Research findings are consistent with the fundamental argument of the theory. However, the impact of social media is limited to online performance. In addition, each social medium relates differently to each service performance. Organizational managers will benefit from future research on specific social mechanisms within social media, their influences on information symmetry, and retailers' responses to enhanced information symmetry.

REFERENCES

- Abraham, B., & Ledolter, J. (2006). *Introduction to Regression Modeling*. Thomson Brooks/Cole Belmont, CA.
- Akerlof, G. A. (1970). The market for "lemons": Quality uncertainty and the market mechanism. *Quarterly Journal of Economics*, 84(3), 488–500.
<https://doi.org/10.2307/1879431>
- Cao, Y., & Zhao, H. (2004). Evaluation of e-tailers' delivery fulfillment: Implications of firm characteristics and buyer heterogeneity. *Journal of Service Research*, 6(4), 347–360. <https://doi.org/10.1177/1094670503262948>

- Chen, J. V., Chotimapruek, W., Ha, Q. A., & Widjaja, A. E. (2021). Investigating female customer's impulse buying in Facebook B2C social commerce: An experimental study. *Contemporary Management Research*, *17*(2), 65–96. <https://doi.org/10.7903/cmr.20448>
- Chiang, I. P., Lin, K. C., Huang, C. H., & Yang, W. L. (2019). Influence factors of people purchasing on social commerce sites. *Contemporary Management Research*, *15*(2), 69–87. <https://doi.org/10.7903/cmr.18575>
- Chiang, I. P., Tu, S. E., & Wang, L. H. (2018). Exploring the social marketing impacts of virtual brand community engagement. *Contemporary Management Research*, *14*(2). <https://doi.org/10.7903/cmr.18086>
- Cho, Y. K. (2014). Service quality and price perceptions by Internet retail customers: Linking the three stages of service interaction. *Journal of Service Research*, *17*(4), 432–445. <https://doi.org/10.1177/1094670514537557>
- Cho, Y., Im, I., & Hiltz, R. (2003). The impact of e-services failures and customer complaints on electronic commerce customer relationship management. *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, *16*, 106–118. From <https://jcsdcb.com/index.php/JCSDCB/article/view/78/0>
- Cho, Y. K., & Menor, L. J. (2010). Towards a provider-based view on the design and delivery of quality e-service encounters. *Journal of Service Research*, *13*(1), 83–95. <https://doi.org/10.1177/1094670509350490>
- Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. *Management Science*, *32*(5), 554–571. <https://doi.org/10.1287/mnsc.32.5.554>
- Daft, R. L., Lengel, R. H., & Trevino, L. K. (1987). Message equivocality, media selection, and manager performance: Implications for information systems. *MIS Quarterly*, *11*(3), 355–366. <https://doi.org/10.2307/248682>
- Daugherty, T., & Hoffman, E. (2014). eWOM and the importance of capturing consumer attention within social media. *Journal of Marketing Communications*, *20*(1-2), 82–102. <https://doi.org/10.1080/13527266.2013.797764>
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, *35*(8), 982–1003. <https://doi.org/10.1287/mnsc.35.8.982>
- Du, J., Fan, X., & Feng, T. (2014). Group emotional contagion and complaint intentions in group service failure: The role of group size and group familiarity. *Journal of Service Research*, *17*(3), 326–338. <https://doi.org/10.1177/1094670513519290>

- Falcão, J., & Isaías, P. (2020). Perceptions and attitude toward advertising on social networks and search engines: A comparative analysis. *Journal of Internet Commerce*, 19(4), 404–436. <https://doi.org/10.1080/15332861.2020.1816325>
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. I. (2005). *Multivariate data analysis*. (6th ed.) Upper Saddle River, NJ: Pearson Prentice Hall.
- Hammock, M. R. (2011). Do certification seals permit a price premium for online security and privacy? *Policy & Internet*, 3(2), 1–32. <https://doi.org/10.2202/1944-2866.1118>
- Holloway, B. B., & Beatty, S. E. (2003). Service failure in online retailing: A recovery opportunity. *Journal of Service Research*, 6(1), 92–105. <https://doi.org/10.1177/1094670503254288>
- Hu, M., Chaudhry, P. E., & Chaudhry, S. S. (2022). Linking customized logistics service in online retailing with E-satisfaction and E-loyalty. *International Journal of Engineering Business Management*, 14, 1–12. <https://doi.org/10.1177/18479790221097528>
- Hussein, R. S., Mohamed, H., & Kais, A. (2022). Antecedents of level of social media use: Exploring the mediating effect of usefulness, attitude and satisfaction. *Journal of Marketing Communications*, 28(7), 1-22. <http://doi.org/10.1080/13527266.2021.1936125>
- Izquierdo, S. S., & Izquierdo, L. R. (2007). The impact of quality uncertainty without asymmetric information on market efficiency. *Journal of Business Research*, 60(8), 858–867. <https://doi.org/10.1016/j.jbusres.2007.02.010>
- Jain, N. K., Gajjar, H., Shah, B. J., & Sadh, A. (2015). A conceptual framework for measuring e-fulfillment dimensions: A consumer perspective. *Journal of Internet Commerce*, 14(3), 363–383. <https://doi.org/10.1080/15332861.2015.1080056>
- Jamil, K., Dunnan, L., Gul, R. F., Shehzad, M. U., Gillani, S. H. M., & Awan, F. H. (2022). Role of social media marketing activities in influencing customer intentions: a perspective of a new emerging era. *Frontiers in Psychology*, 12, 808525. <http://doi.org/10.3389/fpsyg.2021.808525>
- Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of social media. *Business Horizon*, 53(1), 59–68. <https://doi.org/10.1016/j.bushor.2009.09.003>
- Karlsen, R., & Aalberg, T. (2023). Social media and trust in news: An experimental study of the effect of Facebook on news story credibility. *Digital Journalism*, 11(1), 144–160. <https://doi.org/10.1080/21670811.2021.1945938>

- Keiningham, T. L., Rust, R. T., Lariviere, B., Aksoy, L., & Williams, L. (2018). A roadmap for driving customer word-of-mouth. *Journal of Service Management*, 29(1), 2–38. <https://doi.org/10.1108/JOSM-03-2017-0077>
- Kendall, J. E. (2003). E-distance and the theatres of South Jersey. *Decision Line*, 32(2), 13–15.
- Kim, A. J., & Ko, E. (2012). Do social media marketing activities enhance customer equity? An empirical study of luxury fashion brand. *Journal of Business Research*, 65(10), 1480–1486. <https://doi.org/10.1016/j.jbusres.2011.10.014>
- Kumar, A., & Anjaly, B. (2017). How to measure post-purchase customer experience in online retailing? A scale development study. *International Journal of Retail & Distribution Management*, 45(12), 1277–1297. <https://doi.org/10.1108/IJRDM-01-2017-0002>
- Kumar, V., & Mirchandani, R. (2012). Increasing the ROI of social media marketing. *MIT Sloan Management Review*, 54(1), 54–61. <https://doi.org/10.1109/EMR.2013.6596535>
- Laroche, M., Habibi, M. R., & Richard, M. O. (2012). To be or not to be in social media: How brand loyalty is affected by social media? *International Journal of Information Management*, 33(1), 76–82. <https://doi.org/10.1016/j.ijinfomgt.2012.07.003>
- Ledford, C. J. W. (2012). Changing channels: A theory-based guide to selecting traditional, new, and social media in strategic social marketing. *Social Marketing Quarterly*, 18(3), 175–186. <https://doi.org/10.1177/1524500412460671>
- Li, H., & Dinlersoz, E. (2012). Quality-based price discrimination: Evidence from Internet retailers' shipping options. *Journal of Retailing*, 88(2), 276–290. <https://doi.org/10.1016/j.jretai.2011.12.002>
- Mavlanova, T., Benbunan-Fich, R., & Koufaris, M. (2012). Signaling theory and information asymmetry in online commerce. *Information & Management*, 49(5), 240–247. <https://doi.org/10.1016/j.im.2012.05.004>
- Okazaki, S. (2004). Searching the web for global brands: How American brands standardize their web sites in Europe. *European Journal of Marketing*, 39(1/2), 87–109. <https://doi.org/10.1108/03090560510572034>
- Onofrei, G., Filieri, R., & Kennedy, L. (2022). Social media interactions, purchase intention, and behavioural engagement: The mediating role of source and content factors. *Journal of Business Research*, 14(March), 100–112. <https://doi.org/10.1016/j.jbusres.2021.12.031>
- Parasuraman, A. (2000). Technology readiness index (TRI. a multi-item scale to measure readiness to embrace new technologies. *Journal of Service Research*, 2(4), 307–320. <https://doi.org/10.1177/109467050024001>

- Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL: A multiple-item scale for assessing electronic service quality. *Journal of Service Research*, 7(3), 213–233. <https://doi.org/10.1177/1094670504271156>
- Parsons, A. L., & Lepkowska-White, E. (2018). Social media marketing management: A conceptual framework. *Journal of Internet Commerce*, 17(2):,81–95. <https://doi.org/10.1080/15332861.2018.1433910>
- Pedhazur, E. J., & Schmelkin, L. P. (1991). *Measurement, design, and analysis, an integrated approach*. Lawrence Erlbaum Associates.
- Pfeffer, J., Zorbach, T., & Carley, K. M. (2014). Understanding online firestorms: Negative word-of-mouth dynamics in social media networks. *Journal of Marketing Communications*, 20(1-2), 117–128. <https://doi.org/10.1080/13527266.2013.797778>
- Potdar, V., Joshi, S., Harish, R., Baskerville, R., & Wongthongtham, P. (2018). A process model for identifying online customer engagement patterns on Facebook brand pages. *Information Technology & People*, 31(2), 595–614. <https://doi.org/10.1108/ITP-02-2017-0035>
- Rao, S., Griffis, S. E., & Goldsby, T. J. (2011). Failure to deliver? Linking online order fulfillment glitches with future purchase behavior. *Journal of Operations Management*, 29(7), 692–703. <https://doi.org/10.1016/j.jom.2011.04.001>
- Rapp, A., Beitelspacher, L. S., Grewal, D., & Hughes, D. E. (2013). Understanding social media effects across seller, retailer, and consumer interactions. *Journal of the Academy of Marketing Science*, 41(5), 547–566. <https://doi.org/10.1007/s11747-013-0326-9>
- Rowley, J. (2006). An analysis of the e-service literature: Toward a research agenda. *Internet Research* 16(3), 339–359. <https://doi.org/10.1108/10662240610673736>
- Roy, G., Datta, B., & Mukherjee, S. (2019). Role of electronic word-of-mouth content and valence in influencing online purchase behavior. *Journal of Marketing Communications*, 25(6), 661–684. <https://doi.org/10.1080/13527266.2018.1497681>
- Santos, Z. R., Cheung, C. M., Coelho, P. S., & Rita, P. (2022). Consumer engagement in social media brand communities: A literature review. *International Journal of Information Management*, 63, 102457. <https://doi.org/10.1016/j.ijinfomgt.2021.102457>
- Schivinski, B., & Dabrowski, D. (2016). The effect of social media communication on consumer perceptions of brands. *Journal of Marketing Communications*, 22(2), 189–214. <https://doi.org/10.1080/13527266.2013.871323>
- Shen, K. N., & Khalifa, M. (2012). System design effects on online impulse buying. *Internet Research*, 22(4), 396–425. <https://doi.org/10.1108/10662241211250962>

- Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications*. John Wiley & Sons.
- Sinha, I. (2000). Cost Transparency: The net's real threat to prices and brands. *Harvard Business Review*, 78(2), 43–50.
- Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 87(3), 355–374.
- Stigler, G. J. (1961). The economics of information. *Journal of Political Economy*, 69(3), 213–225. <https://doi.org/10.1086/258464>
- Stiglitz, J. E. (2000). The contributions of the economics of information to twentieth century economics. *The Quarterly Journal of Economics*, 115(4), 1441–1478. <https://doi.org/10.1162/003355300555015>
- Szymanski, D. M., & Hise, R. T. (2000). E-satisfaction: An initial examination. *Journal of Retailing*, 76(3), 309–322. [https://doi.org/10.1016/S0022-4359\(00\)00035-X](https://doi.org/10.1016/S0022-4359(00)00035-X)
- Thirumalai, S., & Sinha, K. K. (2011). Customization of the online purchase process in electronic retailing and customer satisfaction: An online field study. *Journal of Operations Management*, 29(5), 477–487. <https://doi.org/10.1016/j.jom.2010.11.009>
- Wang, C. C. (2020). Fake news and related concepts: Definitions and recent research development. *Contemporary Management Research*, 16(3), 145-174. <https://doi.org/10.7903/cmr.20677>
- Weiger, W. H., Wetzel, H. A., & Hammerschmidt, M. (2017). Leveraging marketer-generated appeals in online brand communities: An individual user-level analysis. *Journal of Service Management*, 28(1), 133–156. <https://doi.org/10.1108/JOSM-11-2015-0378>
- Wong, A. (2023). How social capital builds online brand advocacy in luxury social media brand communities. *Journal of Retailing and Consumer Services*, 70, 103143. <https://doi.org/10.1016/j.jretconser.2022.103143>
- Yan, J. (2011). Social media in branding: Fulfilling a need. *Journal of Brand Management*, 18(9), 688–696. <https://doi.org/10.1057/bm.2011.19>
- Yang, K., Li, X., Kim, H., & Kim, Y. H. (2015). Social shopping website quality attributions increasing consumer participation, positive eWOM, and coshopping: The reciprocating role of participation. *Journal of Retailing and Consumer Services*, 24(1), 1–9. <https://doi.org/10.1016/j.jretconser.2015.01.008>
- Zarei, G., Nuri, A. B., & Noroozi, N. (2019). The effect of Internet service quality on consumers' purchase behavior: The role of satisfaction, attitude, and purchase intention. *Journal of Internet Commerce*, 18(2), 197–220. <https://doi.org/10.1080/15332861.2019.1585724>

Zhang, H., Lu, Y., Shi, X., Tang, Z., & Zhao, Z. (2012). Mood and social presence on consumer purchase behavior in C2C E-commerce in Chinese culture. *Electronic Markets*, 22(3), 143–154. <https://doi.org/10.1007/s12525-012-0097-z>

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