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During the last two decades, the rapid diffusion of computer and information technologies throughout the business and consumer communities has resulted in dramatic changes. The application of the Internet to purchasing behavior is a notable change in the way buyers and sellers interact. According to the Pew Internet and American Life Project (2014), 87 % of Americans adults (aged 18 and older) used the Internet as of March 2014, up from 73 % in 2006, with near-saturation usage among those living in households earning \$75,000 a year or more (99 %), young adults aged 18–29 (97 %), and those with college degrees (97 %).

An efficient and flexible information search, communication, entertainment, education, and transaction tool, the Internet is key to a large and ever-growing array of online activities. The most popular Internet use is email (94 % of Internet users) followed by search engine activity (87 %) but 22 % donate online and 26 % participate in online auctions (Pew Internet and American Life Project, 2010b). Online shopping is a broadly

defined activity that includes finding online retailers and products, searching for product information, selecting payment options, and communicating with other consumers and retailers as well as purchasing products or services.

The increase in shopping online coincides with a general trend in the rapid growth in the Internet usage. The Pew Internet and American Life Project (2010a) reported that the proportion of the general population that has bought products or services online rose from around 20 % in 2000 to 52 % in 2010. Online sales also have made significant contributions to the economy, with the percent of U.S. total retail sales increasing from less than 1 % in 1999 to 5.9 % in the second quarter of 2014 (U.S. Census Bureau, 2014). E-commerce also has witnessed a rapid growth globally: total sales online topped \$1.5 trillion worldwide in 2014, a 50 % increase from 2012 (eMarketer, 2014).

This chapter reviews important research related to several aspects of online shopping (for more earlier research, see Cai & Cude, 2008). It begins with an overview of research related to consumer use of the Internet, including issues related to those with and without access. The next section introduces online shopping theories and frameworks and factors influencing consumers' acceptance of online shopping. The third section reviews research that examines issues in the online shopping process and environment, including online information search, e-market environment, and online privacy and security.

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A final section provides an overview of emerging issues in online shopping research and concludes with comments regarding future research.

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## Consumers' Use of the Internet and Accessibility Issues

### Consumers' Use of the Internet

Understanding the Internet's potential to bring benefits to individuals at all levels is important. Researchers have shown that the Internet enables greater political participation (Polat, 2005), creates opportunities for social participation and maintains community connectedness (Grace, Raghavendra, Newman, Wood, & Connell, 2014), supports and improves health care services (Antheunis, Tates, & Nieboer, 2013), and enhances learning (Kazmer, 2005). The Internet also connects producers and marketers into a vast and logistical communication network that is more efficient than traditional channels. Davies, Pitt, Shapiro, and Watson (2005) summarized five technological forces that are relevant to e-commerce in general and highlighted its major benefits—*Moore's Law* (the exponential growth of computing power over time), *Metcalfe's Law* (efficiency of a service increases as more people use it), *Coasian Economics* (reducing transaction costs), *the Flock-of-Birds Phenomenon* (connecting people on a global scale), and *the Fish-Tank Phenomenon* (enabling greater creativity on every level).

One implication of Davies et al.'s (2005) work is that as electronic technologies continue to grow in influence, consumers have the potential to benefit from e-commerce by taking more and more control of business transactions. With the rapid development and use of social networking tools, another force, *Social Media Phenomena*, can be relevant and bring benefits to e-commerce by enhancing customer participation (Kim & Srivastava, 2007), promoting customer relationships (Liang, Ho, Li, & Turban, 2011), and achieving greater economic value (Parise & Guinan, 2008).

An underlying assumption of technological forces benefiting consumers is that consumer participation in online activities in general and in e-commerce specifically will continue to grow exponentially. Therefore, it is important to learn who uses the Internet and shops online and who does not, and to investigate what attracts consumers to go online and shop there, how and what they do when they shop online, and what factors might accelerate or slow the growth in consumer online activities.

### From "Digital-Divide" to "Digital-Inequality"

Despite the growth in the Internet's popularity, not everyone goes online. Some people are technological "have-nots," who do not have or want computers and/or Internet access. However, survey respondents, at least in the USA, are more likely to cite "no interest" or "Internet not relevant" than "no computer" as the reason for not being online (Pew Internet and American Life Project, 2013).

Inequity in access to information and communication technology was a topic that popularized political and academic debates in the 1990s about the "digital divide." A series of influential surveys in both developing and developed countries (for example, Georgia Institute of Technology, 1998; UCLA Center for Communication Policy, 2003; World Bank, 2000) provided empirical support for the existence of a digital divide and helped to put the topic on scholarly and political agendas. Initially, many of the studies concluded that individuals' income, education, race, and/or ethnicity explained the gaps in access. In the USA, as the percentage of Internet users has continued to grow over the past 2 decades, usage remains strongly correlated with demographic and socioeconomic factors such as age, education, and household income (Pew Internet and American Life Project, 2013). Although Internet access spans every age range, seniors continue to lag behind younger generations—a recent survey showed that 41 % of those aged 65 or older do

not use the Internet at all, compared with the near-saturation usage rate among young adults aged 18–29 (Pew Internet and American Life Project, 2014). Those with lower educations and incomes as well as minority individuals also have been the “have-nots.”

There is evidence from recent research reports, however, that the gaps between those with and without Internet access are closing. For example, in the USA the percentage of Internet users among seniors aged 65 or old has steadily increased and gender is no longer a predictor of Internet adoption (Pew Internet and American Life Project, 2014). In some European countries, researchers have observed a “reversed” digital divide: people with low levels of education use the Internet more hours a day than those with more education (Van Deursen & Van Dijk, 2014); low-income Internet users spend more time online than high-income users (Pantea & Martens, 2013).

A theoretical framework developed by Van Dijk (2006) may help redefine the digital divide issue by paying more attention to social, psychological, and cultural backgrounds of users and non-users. The model incorporates different types of access such as motivational, material, skill, and usage access into a process rather than a single event of obtaining a particular technology. Examination and re-examination of the factors in this newer model of the digital divide have helped researchers make the argument that the digital divide depends on and reflects the society’s disparities (Stiakakis, Kariotellis, & Vlachopoulou, 2010). Others have gone a step further and argued that digital inequality, also known as the “second order” digital divide, is not only a product of social inequality, but also a reproducer and even an accelerator as the Internet may widen the knowledge and skill gap between the information “haves” and “have-nots” (Witte & Mannon, 2010). The notion of human capital and social equality increasingly depending on the Internet also has prompted studies about a global digital divide, aiming to increase technology utilization and narrow its disparity across countries (World Economic, 2014). Researchers also have found that the Internet content available plays a significant role in promoting technology

adoption and affecting social change across countries (Viard & Economides, 2014).

The literature about Internet access gaps supports a positive relationship between increased Internet penetration and online activities. As researchers have called for a comprehensive definition of Internet usage (Van Deursen & Van Dijk, 2014), online shopping adoption and usage also can be examined in a comprehensive framework that encompasses content (purposeless and impulsive or need-based and goal-oriented), frequency, time since first shopped online, and the online shopping environment.

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## Consumer Acceptance and Use of Online Shopping

Although some people cannot or choose not to be online, it is almost unanimously accepted that the technology offers an opportunity for business transactions that cannot be ignored (Kraut et al., 2002). As a growing retail channel, the special characteristics and benefits as well as limitations of the Internet have been discussed extensively (Hoffman & Novak, 1996; Ganesh & Agarwal, 2014).

The online shopping channel can be a valuable, interactive communication medium that facilitates flexible search, comparison shopping, and product and service evaluation. The attributes of the channel and its ability to match users’ purposes can facilitate usage. With the development of mobile service and social media, new features and capabilities, such as location awareness, context sensing, and consumer interaction platform, have brought consumers novel services (e.g., location-based service), enhanced consumer relationships, and custom participation opportunities (Gültekin & Bayat, 2014; Liang et al., 2011).

## Theories Explaining Online Shopping Adoption

Several theories and models that incorporated a variety of concepts and factors have been employed to explain why and how consumers

shop online. The following theories and models serve as major conceptual and theoretical frameworks in the current research about consumers' adoption and use of online shopping.

*Media Choice Theory and Online Flow Experience Model* The media choice theory proposes that selection of media for a specific task is a function of the characteristics of the medium and the task (Fulk, Steinfeld, Schmitz, & Power, 1987). According to the theory, media can be differentiated by the degree of interactivity, communication richness, social presence, and vividness. Researchers have evaluated those characteristics and applied them to the choice of the Internet for shopping (Hoffman & Novak, 1996). Hoffman and Novak (1996, 2009) described the *flow experience* in a computer-mediated environment, which is characterized by interactivity, intrinsic enjoyment, and loss of self-consciousness and is self-reinforcing; the flow experience can be a determining factor in consumers' use of the Internet as a shopping channel. As the authors note, skills and focused attention are necessary antecedents for consumers to start the flow process. The framework provides insight into understanding consumers' goal-directed as well as experiential activities on the Internet. Many studies have been built upon the conceptual model of online flow experience. Researchers have examined and extended the model by incorporating a variety of constructs such as interactivity, motivation, vividness, and antecedents that have included novelty, personal innovativeness, attractiveness, and playfulness (Choi, Kim, & Kim, 2007).

*Diffusion of Innovation* According to Rogers (2003), diffusion is a process indicating how innovations (ideas or practices that individuals perceive as being new) are communicated to individuals within a society over time and how consumers adopt or reject the innovations. Rogers identified five stages that consumers experience when deciding to adopt or reject an innovation: (1) knowledge (awareness of an innovation); (2) persuasion (attitude toward the innovation); (3) decision (adoption or rejection of the innovation); (4) implementation (commitment to the innovation); and (5) confirmation (evaluation of

the decision results). Rogers also postulated that the five characteristics of innovations, relative advantages, compatibility, complexity, trialability, and observability, influence the consumer decision to adopt or reject an innovation. Researchers have demonstrated the diffusion process for consumers' online shopping behavior (Wu, Cai, & Liu, 2011); other researchers also showed that the characteristics of innovations positively influenced consumers' adoption of online shopping (Verhoef & Langerak, 2001).

*Theory of Reasoned Action and Theory of Planned Behavior* The components of the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980) are three general constructs: behavioral intention, attitude, and subjective norm. The TRA suggests that a person's behavioral intention depends on the person's attitude about the behavior and subjective norms. Also, a person's behavioral intention leads to his/her actual behavior. Ajzen (1985) extended the TRA to a new theory called Theory of Planned Behavior (TPB) by adding a new component, perceived behavior control, to address situations in which individuals do not follow through on intentions to undertake volitional (under a person's control) behaviors. Also, perceived behavioral control is presumed to not only affect actual behavior directly, but also affect it indirectly through behavioral intention.

TRA and TPB have been applied extensively in the context of consumers' information technology adoption. Researchers confirmed that consumer online shopping behavior is influenced by individuals' attitudes toward the shopping channel, the subjective norm and the amount of control perceived during the purchasing process (Keen, Wetzels, De Ruyter, & Feinberg, 2004; Shim, Eastlick, Lotz, & Warrington, 2001). Other factors pertaining to consumer online shopping behavior also have been incorporated in the TRA and TPB framework, including consumers' experiences, their concerns about privacy, and their perceptions of the trustworthiness of the Internet (George, 2002); consumers' disconfirmation and satisfaction (Hsu, Yen, Chiu, & Chang, 2006); consumers' perceived enjoyment and flexibility in navigation (Childers, Carr, Peck, & Carson,

2001); consumers' perceived advantages and risks (Amaro & Duarte, 2015); and consumer communication (Chen & Huang, 2013).

*Technology Acceptance Model* The Technology Acceptance Model (TAM) is one of the most influential extensions of the TRA. The TAM proposed by Davis (1993) is intended to explain technological usage by examining the effect of perceived ease of use and perceived usefulness on individuals' intention to use the technology and actual usage behavior. The model was expanded by incorporating additional technology acceptance determinants, including social influence processes (subjective norm, voluntariness, and image), cognitive instrumental processes (job relevance, output quality, and result demonstrability) (Venkatesh & Davis, 2000), computer self-efficacy, perception of external control, computer anxiety, computer playfulness, perceived enjoyment, and objective usability (Venkatesh & Bala, 2008). A Unified Theory of Acceptance and Use of Technology (UTAUT) was later developed based on the different expansions of the TAM (Venkatesh, Morris, Davis, & Davis, 2003). The UTAUT formulated four constructs, namely performance expectancy, effort expectancy, social influence, and facilitating conditions, as determinants of individuals' intention to use the technology; also, four major factors, gender, age, experience, and voluntariness, were introduced as key moderators of the relationship between the determinants and individuals' intention to use the technology.

The TAM and its expansions have been tested within a wide variety of computer settings and have been shown to be a robust predictor of consumers' adoption and use of online shopping (Ha & Stoel, 2009). To explain consumers' online shopping behavior, researchers also have added factors to the model including consumers' socio-economic characteristics (Hernandez, Jimenez, & Martin, 2011), consumers' personalities (Svendson, Johnsen, Almås-Sørensen, & Vitters, 2013), online shopping quality (Ha & Stoel, 2009), self-efficacy (Hernandez et al., 2011; Vijayasarathy, 2004), security and privacy (Vijayasarathy, 2004), and trust (Ha & Stoel, 2009).

## Factors That Affect Consumers' Adoption and Use of Online Shopping

Although much has been written about the numerous advantages of e-commerce for both businesses and consumers, there is no guarantee that consumers will substitute the Internet for traditional shopping channels. Many factors may affect consumers' adoption and use of online shopping. Researchers have identified four determinants of consumers' adoption and use of online shopping, namely consumer characteristics, consumer perceptions, e-tailer attributes, and product characteristics (Lian & Lin, 2008).

Researchers have found consistently that demographics and socioeconomic status such as age, gender, education level, and income influence consumers' acceptance of online shopping (Brashear, Kashyap, Musante, & Donthu, 2009; Hashim, Ghani, & Said, 2009). Other factors belonging to this category include consumers' value orientations (Wu et al., 2011), personality traits (Svendson et al., 2013), and consumer self-efficacy and anxiety (Yao & Li, 2009).

A second category of determinants of online shopping adoption and usage is consumer perception. Variables in this dimension include perceived shopping convenience (including convenience of access, search, evaluation, transaction, and possession/post-purchase; Jiang, Yang, & Jun, 2013); perceived usefulness and ease-of-use (Ha & Stoel, 2009); perceived benefits (Eastin, 2002); perceived enjoyment (Kim, Fiore, & Lee, 2007); and perceived risk (Lee & Huddleston, 2010).

A third category is e-tailer attributes. Researchers have found the following e-tailer attributes are important when examining consumer online shopping acceptance: web design, performance, quality, and web site atmospherics (Hausman & Siekpe, 2009; Hsieh, Hsieh, Chiu, & Yang, 2014); e-tailer reputation (Goode & Harris, 2007); online customer service (Piercy, 2014); security and privacy (Youn & Lee, 2009); and e-tailers' social activity on e-commerce platforms (Qu, Wang, Wang, & Zhang, 2013).

A fourth category of factors affecting consumer online shopping adoption and use is

product characteristics. Researchers have examined the following variables as they relate to consumer online shopping: product type (Moon, Chadee, & Tikoo, 2008; Roman, 2010); cost (including search, comparison, examination, negotiation, payment, delivery, and post-service cost) (Moon et al., 2008); quality (Li, Xu, & Li, 2013); as well as online product suitability characteristics such as tactility, importance of customization, shipping cost, importance of instant satisfaction, time criticality, and information intensity (Bang, Lee, Han, Hwang, & Ahn, 2013).

Employing a variety of theoretical frameworks to explain consumers' acceptance and use of online shopping channels enables researchers to explore and investigate various factors. In light of technological development and the growth of e-commerce, researchers have continued to incorporate new concepts and enrich the theoretical frameworks. For example, Chen and Huang (2013) incorporated "group relational embeddedness" into a TPB framework and examined consumers' online group-buying intentions and behaviors. Hwang and Lee (2012) introduced a concept of cultural values in a UTAUT framework that examines social influences on consumers' online purchase intentions. Investigation of a wider range of factors that influence consumers' acceptance and use of the Internet as a retail channel may continue to provide insights to not only the development of online business strategies in the global markets but also our understanding of the role consumers play in e-commerce.

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## The Online Shopping Process and Environment

Online shopping is not a single-stage behavior. A typical consumer decision process includes five stages: problem recognition, search, alternative evaluation, choice, and outcome evaluation (Engel, Kollat, & Blackwell, 1968). A mercantile model decomposes the consumer purchase process into three stages: purchase determination, purchase consumption, and post-purchase interaction (Kalakota & Whinston, 1996).

For an online purchase transaction, Liang and Huang (1998) defined a seven-step process: search, comparison, examination, negotiation, order and payment, delivery, and post-service.

## Information Search: An Essential Step in the Online Shopping Process

A common feature of the above-mentioned decision models is that consumer information search behavior precedes all purchasing and choice behavior. Information search can be defined as a stage wherein consumers actively collect and integrate information from internal and external sources (Schmidt & Spreng, 1996). Consumer information search is one of the major consumer research topics in the area of online shopping and researchers have approached it from different perspectives, primarily psychology and economics. With the recent development of social media and its application to online shopping, researchers also have explored information search using the perspective of interpersonal and social influence (Steffes & Burgee, 2009). Researchers, including Bigné-Alcañiz, Ruiz-Mafé, Aldás-Manzano, and Sanz-Blas (2008), have addressed how many and what sources of information consumers use, the extent and duration of consumer information search, types of information consumers search for, and the impact of information search on purchase and repurchase intentions (Shim et al., 2001).

Information technology has brought the potential to influence almost all dimensions of consumers' information search behaviors, ranging from the amount of search, number and types of sources searched, and timing of search to the distribution and weighting of information gathered (Bakos & Brynjolfsson, 2000). Li (2013) reported that 94 % of online shoppers conduct research before purchasing and 61 % of them use search engines to discover information when shopping online. Other popular information sources are coupon sites, 35 %, retailer emails, 28 %, online product/retailer reviews, 24 %, shopping comparison sites, 22 %, and social networking sites, 10 %.

The amount, variety, efficiency, and interactivity of information available on the Internet promotes consumers' online search. Using Stigler's (1961) theory as a framework, the attributes of online information search (relative to offline search) are intuitively associated with reduced costs (both time and cognitive costs) and increased benefits. Researchers consistently have found that search costs are lower in a virtual market than in a brick-and-mortar market (Kulviwat, Guo, & Engchanil, 2004). A key difference between online and offline shopping is the ability of online consumers to obtain more information that facilitates better decision making and makes the decision-making process more efficient. Empirical evidence indicates that consumers search more for information online than offline when they shop online (Ratchford, Lee, & Talukdar, 2003) and substitute online information sources for offline ones (Klein & Ford, 2003). In many cases, online shopping channels provide consumers with interactive information search tools to help them access and evaluate product/service information effectively (Parra & Ruiz, 2009).

Despite its ability to provide vast amounts of information, some researchers have argued that the Internet may baffle consumers by offering too much information (Chen, Shang, & Kao, 2009). Indeed, the vast amount of information available online has no value unless, on the one hand, consumers have abilities and motivations to use them, and on the other, there are efficient mechanisms to identify, retrieve, and organize the information. In addition, the benefits of online information search are varied and uncertain. The commonly identified perceived benefits of online search include ease of use, effectiveness of search, user satisfaction (Kulviwat et al., 2004), enjoyment, visual appearance, cognitive outcome, credibility (Santosa, 2010), greater product assortment and differentiation (Lynch & Ariely, 2000), and an enhanced experience (Zhang & Salverdry, 2001). However, it is difficult to conclude that the benefits of online search are necessarily greater than those of offline search as the realized benefits are dependent largely on situational factors, personal factors, product attributes, and how effectively the consumer can use the technology.

In fact, the assumption that the costs of searching online (vs. offline) are lower can be challenged. Income commonly has been used as a proxy for information search costs (Klein & Ford, 2003) but may be too broad a measure to accurately estimate online search costs without taking into consideration of other factors. Yu and Roh (2002) argued that online information processing requires greater cognitive resources in comparison with print media. Technical aspects, such as malfunctions (e.g., broken links) and download delay, also have been identified as costs of information search (Santosa, 2010). Another search cost is perceived risk, which should be assessed as a multidimensional variable including, for example, fear of technology, feelings of uncertainty and confusion, and privacy and security concerns. Thus, developing a valid, reliable, and complete measure of the costs of searching online presents significant challenges.

Nevertheless, the basic idea of Stigler's (1961) theory, comparing the costs and benefits to determine the optimal amount of information search, makes it a parsimonious model to guide studies of online search. Combined with behavioral approaches such as the Theory of Planned Behavior, the model provides a framework that can capture the process of consumer information search and the characteristics of the online environment. Shim et al. (2001) proposed a model of intention to search online using the Theory of Planned Behavior. The model incorporated consumers' shopping attitudes, consumers' perceptions of the extent to which significant referents approve of Internet use for shopping (i.e., subjective norm), consumers' perceived behavioral control (e.g., computer skills, availability of transportation to travel), and consumers' past Internet purchase experiences as predictors for consumers' intentions to search. Shim et al.'s (2001) model expanded the cost/benefit paradigm of information search by capturing noneconomic factors, i.e., consumers' attitudes, perceptions, and behavioral aspects of online search. A more comprehensive model might incorporate not only consumer characteristics but also Internet characteristics (e.g., ease of use, interactivity, information format, availability of

intelligent agents such as shopping bots that visit a number of websites to identify information that matches a product profile provided by shoppers, and recently developed online social mechanisms), and product characteristics (e.g., search goods, experience goods, and credence goods). For example, shopping bots can make comparison shopping more straightforward. However, using a shopping bot involves more than typing in a few keywords about a product and waiting for the results. Consumers must pre-articulate their needs, wants, and shopping goals to decide how to embed the use of this tool into their search, and decide how to use the information it provides in their decision-making process.

It is important to address the possible interactions among consumer, Internet, and product characteristics and how those factors influence consumers' online information search. Research has shown that online consumer communication, such as word-of-mouth (WOM) consumer reviews and recommendations, have become an important source of information to consumers, especially as a complement to or even a substitute for other forms of business-to-consumer and offline WOM communication about product characteristics (Gupta & Harris, 2010). King, Racherla, and Bush (2014) categorized online WOM characteristics as: enhance volume, dispersion of communication platform, persistence and observability of information posted, anonymity and deception, salience of information valence, and consumer community engagement. Generally, online WOM enhances consumers' online shopping experience by allowing them to socially interact with one another, exchange product-related information, and make informed purchase decisions via computer-mediated communications (Blazevic et al., 2013). In light of the complexity of the online shopping environment where heterogeneous consumers of different needs and incentives participate and a variety of flow of information exists, researchers have developed various integrative models to investigate interrelationships among the key pertinent factors: the unit of analysis (or the communicator and receiver, the source and audience), the content (or stimulus), antecedents (or causes), and

the effects (or consequences) (Cheung & Lee, 2012; King et al., 2014). With the rapid growth of online consumers and the emergence of new technology such as Web 2.0 (featuring social media and virtual community) and Web 3.0 (featuring big data sharing and utilization), the contextual or environmental factors (e.g., the online communication platforms) also are expected to become an important aspect influencing online WOM (Cheung & Thadani, 2012).

## Consumer Online Decision Making

The Internet attracts consumers based on not only its ability to provide information flows and a communication platform, but also its ability to facilitate consumer decision making. Understanding the complexities of online consumers' decision making plays an important role in e-tailers' ability to support consumer decision making and improve consumer satisfaction. Various models and frameworks have been used to examine the process and factors related to consumer online decision making.

Simon's (1977) three-phase decision model—intelligence (recognizing problems and gathering information), design (evaluating alternatives), and choice (making decisions)—has been applied to consumer online decision making (Kohli, Devaraj, & Mahmood, 2004). Kohli et al. (2004) argued that the inherent characteristics of online shopping channels would support consumer decision making in those three phases. For example, online search capabilities combined with multiple sources of information could facilitate the intelligence phase, and subsequently could lead to the development of effective plans to evaluate alternatives and make a final decision.

Other researchers have argued that chain decision models such as Simon's are biased toward problem solving, following the sequence of searching, evaluating, and purchasing in a hierarchy of effects, and often at the expense of neglecting various important factors that influence consumer decision making (Louvieris, Driver, & Powell-Perry, 2003). Smith and Rupp (2003) developed a model to capture the complexities of

consumer online decision making. The framework describes the decision-making process as three distinct but interlocking stages: the operational input stage, the process stage, and the output stage. A prominent feature of the model is that the variety of factors that influence each stage can be incorporated and examined. For example, the input stage of need recognition is influenced by both website marketing efforts (e.g., promotions and website designs) and social-cultural factors (e.g., demographics and socioeconomic status). The process stage focuses on how consumers make decisions and is influenced by consumer psychological factors such as perception, motivation, personality, attitude, and emotion. The output stage consists of consumer purchase behavior and post-purchase evaluation and also is influenced by marketing efforts and consumer psychological factors.

Compared with traditional markets, online shopping channels are able to utilize decision support systems (DSS) to facilitate consumer decision making. Researchers suggested that DSS can help consumers save time and develop strategies to optimize costs (Kohli et al., 2004). Researchers have examined two specific types of DSS: comparison matrix and recommendation agent. The findings supported the favorable effects of the DSS on consumer online decision making—online shoppers can make better decisions (quality) while using less effort (efficiency) (De Bruyn, Liechty, Huizingh, & Lilien, 2008; Senecal, Kalczynski, & Nantel, 2005). With the advancement of technology and the increasing number of consumers utilizing the tools, DSS may have the potential to transform the ways in which consumers search for information and make decisions (Haubl & Trifts, 2000).

### Online Shopping Post-Purchase Outcome

Online shopping post-purchase outcomes have been defined as the *output* of the consumer decision and behavioral process and are essential to better target potential buyers and promote products in the long-run (Smith & Rupp, 2003).

Researchers have defined and examined various specific concepts related to behavioral, cognitive, and affective aspects of this final stage of the consumer online shopping process. Shih and Venkatesh (2004) described consumer post-purchase behavior as repurchase, repeated usage, or replacement with upgraded products after the initial purchase. Cho, Im, Hiltz, and Fjermestad (2002) examined consumers' post-purchase complaint behaviors as a result of various aspects of evaluations—degree of dissatisfaction, purchase importance, perceived costs/benefits of complaining, and situational influences.

Consumers' post-purchase e-trust, e-satisfaction, and e-loyalty have been studied extensively as they play important roles in the consumer–retailer relationship and online retailers' long-term success (Dharmesti & Nugroho, 2012; Yang, Wu, & Wang, 2009). Some researchers have investigated these concepts in a bivariate relationship framework, such as e → satisfaction → e-loyalty (Anderson & Srinivasan, 2003), and e-trust → e-loyalty (Pratminingsih, Lipuringtyas, & Rimenta, 2013). Others have examined the concepts in a sequential order, such as e-trust → e-satisfaction → e-loyalty (Gummerus, Liljander, Pura, & Van Riel, 2004).

Researchers also have developed multivariate and multi-stage frameworks to gain a deeper understanding of online consumers' commitments to online retailers and products/services. Chang and Chen (2008) proposed and examined a cognitive-affective-conative/action framework, focusing on relationships among customer interface quality (customization, interactivity, convenience, and character), satisfaction, switching costs, and e-loyalty, with Internet experience as a moderator. Kim, Byoungho, and Swinney's (2009) model presented e-loyalty as influenced by direct and indirect relationships among e-satisfaction, e-trust, and e-tail quality (reliability, responsiveness, website design, privacy/security). Dharmesti and Nugroho (2012) proposed a framework to investigate extensively the antecedents of e-satisfaction and e-loyalty, including information quality, website design, product variation, transaction ability, response, privacy/security, payment system, delivery, and customer service.

## Online Shopping Environment

Computer-Mediated Environments (CMEs), which are defined as connected computer networks used to access and provide hypermedia content (Hoffman & Novak, 1996), have created a new technological and social media for consumers. As much as the instrumental characteristics of the media such as ease of use, usefulness, resourcefulness, and convenience play important roles in influencing consumers' online shopping attitudes and behavior, environmental or hedonic factors of online shopping channels, such as website design and quality, product and/or service presentation, and atmospheric cues, have received research and managerial attention (Jeong, Fiore, Niehm, & Lorenz, 2009; Koo & Ju, 2010).

Researchers have investigated the impact of environmental factors on consumers' shopping attitudes and behavior using a Stimulus-Organism-Response (S-O-R) framework adopted from environmental psychology (Mehrabian & Russell, 1974). Based on the S-O-R framework, Eroglu, Machleit, and Davis (2001) developed a model proposing that there are online environmental cues that lead to affective and cognitive internal states, which then result in approach/avoidance behaviors.

The online shopping environment lacks some of the properties of traditional atmospherics (such as temperature, odor, and textures) but possesses some others (such as flexibility and organization). Eroglu et al. (2001) classified the online shopping environmental characteristics into two general categories: a high task-relevant environment, defined as shopping site descriptors (e.g., price, description of merchandise, delivery, etc.); and a low task-relevant environment, which represents the "site information that is relatively inconsequential to completion of the shopping task" (p. 180) (e.g., colors, music, icons, etc.). Other researchers also categorized the characteristics of the online shopping environment as ease of understanding (e.g., navigation organization and technical adequacy), informativeness (e.g., attribute description), and quality of the environment (e.g., playfulness, aesthetic design, and entertainment) (Demangeot & Broderick, 2010).

Empirical studies using Eroglu et al.'s (2001) S-O-R framework have revealed a significant impact of a variety of environmental factors on online shoppers' affective and cognitive responses as well as shopping intentions. Lorenzo-Romero, Gómez-Borja, and Mollá-Descals (2011) found that a hedonic cue (music) and a utilitarian cue (navigational structure) both influenced online shoppers' emotions, learning and knowledge, satisfaction, and loyalty. Wu, Cheng, and Yen (2008) also found that music and color as atmospheric cues affected consumers' emotions and purchase intentions. Consumers' affective and cognitive internal states and behavioral responses also are influenced by online shopping website quality and website brand (Chang & Chen, 2008); website aesthetic formality and aesthetic appeal (Wang, Minor, & Wei, 2011); product presentation (Jeong et al., 2009); and graphics, colors, links, and menus (Koo & Ju, 2010).

Researchers also have incorporated environmental factors, such as web design, interface features, and interactivity, into other online shopping frameworks such as TAM and flow theory, and found that those factors influence consumers' attitudes and purchase intentions (Hausman & Siekpe, 2009). Other researchers expanded the existing frameworks by adding consumer characteristics as moderator variables; for example, Richard and Chandra (2005) proposed a mediating impact of personality variables on the relationship between online store attributes and consumer involvement. Koo and Ju (2010) found that consumers' perceptual curiosity interacts with atmospheric cues (graphics and color).

## Online Privacy and Security

The Internet has become a vast storage area for consumers' personal information, including both personally identifying information and financial information. Numerous public opinion polls and academic surveys (Pew Internet and American Life Project, 2008; Ponemon, 2014; UCLA Center for Communication Policy, 2003) have assessed the salience of consumers' Internet privacy and security concerns as they remain one of

main concerns about online shopping. A primary reason for consumers' privacy and security concerns on the Internet is the tremendous amount of transaction-generated personal information that various websites collect, often in a completely invisible manner. Many researchers have incorporated consumers' concerns about privacy and security issues into their online search and purchase models and interpreted the concerns as costs, risks, or obstacles for online search and purchase (Ha & Stoel, 2009). Privacy and security concerns also can be related to issues such as consumer protection, online payment options, trustworthiness of online vendors, information technologies, online market efficiency, online social media usage, and mobile device usage (Chen & Lan, 2014).

Kim, Ferrin, and Rao (2008) categorized the antecedents that influence consumer trust and consumers' risk concerns toward electronic commerce entities: cognition (observation)-based, affect-based, experience-based, and personality-based. Researchers also have investigated various specific antecedents of consumers' privacy and security concerns, such as intangibility of products, website properties, navigation functionality, and content quality (cognition-based) (Nepomuceno, Laroche, & Richard, 2014); company reputation and WOW communication (affect-based) (Kuan & Bock, 2007); experience with e-commerce and familiarity with online vendors (experience-based) (Bernard & Makienko, 2011); and consumer disposition and propensity to trust (personality-based) (Teo & Liu, 2007).

Consumers' concerns for privacy and security are heightened when they feel uninformed about who is collecting their personal information, how companies obtain their information, or for what purposes the information is used (Lanier & Saini, 2008). Such concerns might discourage consumers from disclosing personal information to marketers (Phelps, Nowak, & Ferrell, 2000) and making purchases online (Eastlick, Lotz, & Warrington, 2006). Consumers also might reduce the amount spent online (Akther, 2012) or even simply abandon their shopping carts due to their privacy and security concerns (Kukar-Kinney & Close, 2010).

The development of efficient informational technologies such as "cookies," a personalization device used by websites to track visitors and their transactions, as well as social network platforms for information sharing, has made it easier for online vendors to identify consumers' characteristics and browsing/purchasing behaviors. Some consumers are simply unaware of such tracking technology or information-collecting practices. Others know about them but are unwilling to block the devices or disconnect because of the inconveniences and isolation that result. Blocking all tracking devices is the equivalent of telling supermarkets not to organize their aisles based on consumers' shopping behaviors or telling a storekeeper not to greet a repeat visitor. It is also difficult not to share personal information through online social and professional networks. Online businesses face a delicate balance between meeting consumer demands for privacy and security protection and their desire for personalized treatment and thus a more efficient market. The e-commerce industry has developed different mechanisms to protect their customers, including Online Privacy Guidelines (Federal Trade Commission, 1999) and the use of privacy seals. However, researchers have criticized the industry's self-regulatory efforts as inadequate and ineffective (Bar & Krems, 2014).

As privacy and security concerns have been continuously identified as one of the primary barriers to e-commerce, governments also have proposed interventions. The set of fair information principles proposed by the FTC (Federal Trade Commission, 2000) is central to government response. The five core principles aim to empower consumers with more transparency and control of their information by providing them with *notice* of information collection; *choices* to opt out of use of personal information; *access* to their personal information to ensure accuracy and completeness; *security* of data and information; and *enforcement* of privacy and security protection. A recent notable government effort to protect online privacy and security came on December 1, 2010 when the FTC recommended a "Do Not Track" mechanism, which would be established either by legislation or industry self-regulation.

According to the FTC report, “Such a mechanism would ensure that consumers would not have to exercise choices on a company-by-company or industry-by-industry basis, and that such choices would be persistent” (Federal Trade Commission, 2010, p. 16). The protection of data privacy also has become an international concern for policy makers. The Organization for Economic Cooperation and Development (OECD) introduced eight online protection principles: collection limitation, data quality, purpose specification, use limitation, security safeguards, openness, individual participation, and accountability. These principles were widely adopted due to their breadth reflecting real-world flexibility (Wu, Huang, Yen, & Popova, 2012).

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## Conclusions and Future Research

Just as the invention of the horseless carriage and other technological developments improved people’s lives, online shopping has overcome many of the physical limitations of brick-and-mortar stores. However, every technological development also creates problems for consumers. The challenge is to find a balance of costs and benefits that works for both retailers and consumers. There are many opportunities for future researchers to find ways to more accurately balance these costs and benefits as well as to understand how they influence consumers’ use of the Internet.

Some of the areas, which are highlighted in this chapter and merit further research, include:

- Investigation of a wide range of evolving factors that influence consumers’ acceptance and use of the Internet as a retail channel and interactions among influential factors.
- Development of a valid, reliable, and complete measure of the costs and benefits of online information search and investigation of the influence of economic vs. noneconomic factors on online information search.
- Exploration of consumers’ online shopping process and communications in new Web 2.0 and 3.0 platforms.

- A more comprehensive assessment of consumers’ online privacy concerns and their influence on online shopping behaviors.

Another area that warrants future research is online shopping in the global market. While the unprecedented growth in e-commerce worldwide is well documented, the academic research investigating online cross-national and cross-cultural consumer behavior is relatively underdeveloped (Smith et al., 2013) and dominated by Western perspectives utilizing U.S.-based samples (Cayla & Arnould, 2008). The global expansion of online markets and consumer online social networks and communities requires a more systematic and comprehensive understanding of online consumer behavior’ both aspects that are universal and those that differ by culture or geographical locations.

Following the growing consumer adoption and use of various social networking sites such as Facebook and Twitter, social commerce, a part of e-commerce that uses social media to support interaction between business and consumers, is gaining research attention (Chen, Lai, Goh, & Daud, 2013). While social commerce can benefit companies and empower consumers by encouraging consumer involvement and strengthening customer relationship management, there are issues and challenges that warrant further examination, such as data/information control and intellectual property issues. Also, as consumers are more connected than ever through a variety of channels, it also is worth studying how consumers empower themselves by organizing to make group purchases.

Another area that is worthwhile for researchers to pursue is that of the online relationship between consumers and market agents such as department store sales persons and travel agents. As consumers’ interactions with markets and market agents become easier and (potentially) less costly online compared to offline, do consumers see these relationships as less favorable, equal, or superior to relationships established offline? How willing are consumers to substitute online relationships for face-to-face relationships? What may be the costs and benefits from such substitutions?

Finally, Pitt, Berthon, Watson, and Zinkhan (2002) have written about the potential of the Internet to transform the balance of power in the market. As they state it, “Websites allow better informed consumers to interact, band together, become more aware of corporate shortcomings, and gain easier access to the legal system” (p. 7). A fruitful area for research is an investigation into why the Internet has not achieved its potential to increase consumer power in the market. Is it because the tools that consumers need are unavailable or too difficult to use? Is it because the tools are available but consumers have not used them to their advantage? Or are there other explanations?

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