"Can't Get No Satisfaction?" – The Case for Broadening Information Systems Research on E-Commerce

Philipp Kernstock
Technical University of Munich
philipp.kernstock@tum.de

Leonard Przybilla
Technical University of Munich
leonard.przybilla@tum.de

Jason Bennett Thatcher
Temple University
jason.thatcher@temple.edu

Helmut Krcmar
Technical University of Munich
helmut.krcmar@tum.de

Abstract

Satisfaction is a crucial construct in information systems research, particularly for investigations of e-commerce. Given profound shifts in the scope and use of e-commerce and the associated proliferation of information systems, we ask whether research should adopt a more encompassing view of information systems in e-commerce. Based on recent propositions in marketing research, we identify "experience" as a construct apt to complement "satisfaction" by broadening the scope of inquiry to include the entire order process. In a systematic literature review, we identify a variety of definitions of key constructs but find very few contributions from information systems research that take experience into account. Based on these findings, we outline possibilities for future research to move from exclusively focusing on satisfaction to directing attention to experience as an affective response to technology on a systems level. Such a change carries several implications touching the very basis of information systems research, such as the role of the IT artifact. In addition, we discuss implications for practice.

Keywords: IS research, satisfaction, e-commerce, experience, order process

1. Introduction

Satisfaction is considered a significant and widely used factor for measuring Information Systems (IS) success and usage (DeLone & McLean, 1992; McKinney et al., 2002). Further, satisfaction is often studied in the e-commerce domain. Recent marketing research expanded its focus from satisfaction to encompass customer experience. However, IS research on e-commerce continues to focus almost exclusively on satisfaction with the IS artifact.

E-commerce research on satisfaction with order processes kicked off with the advent of the Internet at the beginning of this millennium (Wolfinbarger & Gilly, 2003). In its early phases, studies focused on factors such as website quality as drivers of satisfaction with e-commerce services (Cao et al., 2003; Lin, 2007), . As many consumers relied on dial-up, perceptions of quality were driven by structural factors such as Internet connectivity and performance issues that were outside the control of web vendors.

Technological advances and the ubiquity of digital tools and services have led to an ontological reversal: Digital technologies now define services and business models and no longer merely support or mirror them (Baskerville et al., 2020). For example, business models such as ordering groceries online are not new (Boyer & Hult, 2006), but technological advances have enabled new versions of this type of business model. New developments in the IS area are now at the center of advances in the e-commerce domain, e.g., receiving live updates about the delivery process via push notifications.

However, has the view of IS in research kept pace with these changes in the real-world context? If the focus of IS research is still on the basic website satisfaction theme, the scope of research might be too limited and especially fail to reflect the changing role of IS, which supports end-to-end ordering processes, from the point-of-sale to the delivery of a product. Thus, we pose the question: How does IS research view satisfaction in the e-commerce order process and should it take a broader perspective?

Grounded in the idea that processes are essentially defined and shaped by IS and that satisfaction and experience are influenced further along the order process than just placing an order on a website, we discuss if it is appropriate for IS to use a more encompassing concept such as experience on a systems level to move beyond satisfaction with website attributes.

Based on a literature review, we assess the current state of IS research on customer experience and

HᵢCSS

satisfaction in order processes. Reflecting on these results, we outline potentials for developing a more encompassing perspective of IS research in the e-commerce domain by moving towards assessing the whole user experience, that is, their affective responses to the technology, the purchasing process, and the delivery of goods and services.

2. Theoretical Background

2.1 Satisfaction in Marketing Research

Research on the concept of satisfaction, its antecedents, and outcomes is well established in the marketing discipline. Oliver (2014) defines satisfaction as "the consumer's fulfillment response. It is a judgment that a product/service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels of under-or over-fulfillment" (p.8). This definition recognizes the psychological process preceding satisfaction. Spreng et al. (1996) model overall satisfaction as determined by attribute satisfaction and information satisfaction. Attribute satisfaction is defined as satisfaction with the product performance, whereas information satisfaction concerns the judgment of the information used in choosing the product. Rust and Zahorik (1993) show that the value of consumer satisfaction is quantifiable for firms through customer retention and market share.

Customer experience extends the foundational satisfaction concept with a dynamic component through which past experiences influence future ones (Lemon & Verhoef, 2016; Verhoef et al., 2009). That perspective is similar to the view of expectancy disconfirmation theory, where past experiences impact the baseline expectations. Verhoef et al. (2009) posit that customer experience is a holistic concept that includes affective, cognitive, emotional, social, and physical responses of a customer to a retailer. This definition effectively conceptualizes customer experience as a customer's journey with a firm during the purchasing process across various touchpoints. Meyer and Schwager (2007) argue that multiple customer experiences, in which good experiences and bad experiences work in an additive manner, lead to customer satisfaction. Similar to the subjective nature of satisfaction, they acknowledge the subjective aspect of customer experience as an internal response to any direct or indirect contact with a firm.

Palmer (2010) sees customer experience as an essential integrator of service quality, relationships between customers and companies, and brands. The value of customer experience is linked to its novelty and has a transitory nature. Therefore, a specific experience on its own is incapable of creating a lasting competitive advantage because some of its novelty value is lost over time. This implies that managers should think about a stream of experiences over time to achieve competitive advantages. In an online context, customer experience is conceptualized through an affective and a cognitive state that result in outcomes such as customer satisfaction and repurchase intention (Rose et al., 2011). Homburg et al. (2017) report that from a company's perspective, customer experience management involves three resources: cultural mindset, strategic directions for designing customer experiences, and firm capabilities for continually renewing customer experiences. Firm capabilities include the design, prioritization, monitoring, and adaptation of customer journey touchpoints.

2.2 Satisfaction in IS Research

The definitions of satisfaction in an IS or web context are often influenced by marketing. McKinney et al. (2002), for instance, define satisfaction as an affective state that is an emotional reaction to the website search experience and base this definition on Cadotte et al. (1987), Oliver (1980), and Spreng et al. (1996). Further, the satisfaction construct was and still is used as a surrogate for system effectiveness and IS success (Melone, 1990). DeLone and McLean (1992) explicitly distinguish between information aspects and system features and define system quality and information quality as antecedents of user satisfaction and IS use. The updated version of DeLone and McLean's model includes service quality as the third major quality dimension and user satisfaction antecedent (DeLone & McLean, 2003).

Two categories of satisfaction definitions can be distinguished in IS research focusing on the IT artifact: the process-oriented and outcome-oriented approaches. The process-oriented approach describes how satisfaction is formed in an individual and the core mechanisms by which the antecedents interact to form satisfaction. The focus lies on the subjective evaluation process that leads to satisfaction (Au et al., 2002). The outcome-oriented approach concerns the results of the evaluative process. This approach sees satisfaction as the outcome of a consumption or use experience. It focuses on the effect on other constructs instead of explaining how satisfaction forms (Vaezi et al., 2016).

3. Method

With the goal of informing a discussion whether IS research should expand its focus, we conducted a

systematic literature review to provide a comprehensive overview of current research results from a broad array of research areas such as information systems, marketing, and operations management (Webster & Watson, 2002). The goal is to obtain an overview of how research has treated customer satisfaction and experience and the correspondingly broadened focus on order processes. To realize this goal, we broadened the scope of our review to include the entire order process, specifically including fulfillment. We thus consciously created a juxtaposition to the traditional IS focus on the "website frontend."

We focused our search on experience. Since it is still a relatively new construct without a clear focus and various definitions, even in marketing (Homburg et al., 2017), we also included the more established satisfaction concept in our literature search. As we aim to assess the overall state of knowledge, create a basis to gauge the relative contribution of IS, and discuss its potential expansions, we included all disciplines in our review. We started with a keyword search and then conducted a backward and forward search to identify relevant literature (vom Brocke et al., 2015).

Since our literature review is at the intersection of experience, satisfaction, and order processes, we split our search terms into two parts to account for both fields (Frank et al., 2020). We searched the title, abstract, and keywords of potential papers with the following search string:

("c*mer behavior" OR "c*mer experience" OR "c*mer satisfaction" OR "c*mer journey" OR "c*mer centric*" OR "c*mer orient*" OR "c*mer perspective" OR "user experience" OR "user satisfaction") AND

("order* process*" OR "order fulfillment" OR "e-fulfillment" OR "online fulfillment" OR "fulfillment process*")

We aimed to include all publications from the Internet era starting around 2000. To cover a wide range of publications, we selected the citation databases Scopus and Web of Science.

We defined multiple selection criteria to increase the transparency of literature selection (vom Brocke et al., 2009). The applied inclusion criteria were a) covers customer experience, customer satisfaction, or customer behavior and operational aspects regarding order processes and/or b) employs a customer perspective to study operational aspects such as order fulfillment, supply chain management, or logistics in relation to order processes. The search yielded 351 hits, from which we selected 23 papers. After a backward and forward search, the set of included papers consisted of 30 papers.

4. Results

Considering limitations on scope, we will focus on key results of our analysis. Specifically, we will highlight how literature has conceptualized the key constructs order process, satisfaction, and experience. Detailed results of the literature review are available from the authors upon request. For a general overview of satisfaction in information systems research, we would like to refer readers to Vaezi et al. (2016).

4.1 Order Process Conceptualizations

The reviewed papers employ multiple order process concepts that distinguish the different stages a customer goes through when purchasing goods or services from a company. Figure 1 gives a high-level conceptualization of order processes. These concepts have in common that they give a holistic perspective of the order process, from its inception to its end. The prevalent conceptualization separates the order process into an *ordering* and a *fulfillment* process, which accounts for the time gap between completing an order online and receiving the ordered goods-unlike classical retail, in which completing the transaction and receiving the goods happen simultaneously.

The measures used to operationalize the ordering and fulfillment constructs vary within the group of studies. Earlier studies from the early 2000s operationalize the ordering component through *product selection, product information*, as well as the IS-related categories *website aesthetics* and *website navigation*. Fulfillment is operationalized by product availability, timeliness of delivery, customer support, and ease of return or cancellation (Cao et al., 2003; Heim & Sinha, 2001). More contemporary studies still include *aesthetics* but expand on IS-aspects by operationalizing website features through *ease of use* or *navigation* and *overall look and design* (Cho, 2015; Liao et al., 2010; Roy Dholakia & Zhao, 2010). Thus putting more emphasis on usability and technical capabilities, which are traditionally at the core of IS research.

The operationalization of the order fulfillment construct is adjusted in more recent publications to increase attention on the IS-related feature order tracking, which describes the ability to effectively and accurately track orders (Cho, 2015; Roy Dholakia & Zhao, 2010; Wan et al., 2016). Further, product representation, which describes if the product meets the customer's expectations based on the textual and visual description of the product on the website, is included as an evaluation item of the fulfillment sub-process (Cao et al., 2003; Liao et al., 2010; Roy

Dholakia & Zhao, 2010; Thirumalai & Sinha, 2005; Wan et al., 2016). This item effectively expands the scope of IS in order processes by linking IS-related ordering features with fulfillment.

The *interactivity* component of the order process's *interactivity, transaction*, and *fulfillment* model (Chen & Chang, 2003) is operationalized through variables from the early days of the internet, such as *internet connection quality*. The *transaction* component is measured through *value* (consisting of price and quality), *convenience* (location, time, and variety), *assurance* (privacy, security, and policies), *evaluation* (product information and comparisons), and *entertainment* (fun and novelty factors). Except for value, IS capabilities define or heavily influence the other variables (Chen & Chang, 2003).

A somewhat different approach to conceptualizing the online shopping process is the transaction-based one. Bauer et al. (2006) focus on service quality elements that influence the overall quality of the shopping process. The *information* phase is hereby quality-wise defined through *functionality, accessibility, efficiency of navigation, content, website design*, and *enjoyment* of the website use. At the *agreement* stage, *avoiding frictions*, an *efficient order process, navigation*, and *website architecture* are considered to determine quality perceptions. In the *fulfillment* stage, *security, privacy*, and *reliable service delivery*, including fast order confirmation and tracking, are the determining quality factors. Finally, the concluding *after-sales* phase concerns relationship-related activities mainly defined through customer service-related factors such as *prompt responses to complaints*.

Pham and Ahammad (2017) develop a concept through which they aim to account for the fact that activities can simultaneously or sequentially occur online and also be conducted offline. Factors relevant for the pre-purchase stage regarding satisfaction are *product information* and the IS-related aspects *ease of use, website appearance*, and *customization*. The actual purchase stage is associated with activities like *choosing payment* and *delivery options*. The two influential factors during this stage are *ease of checkout* and *security assurance*. Associated capabilities for the final *post-purchase* include *responsive customer service*, and *ease of return*, which is considered more important in an online setting than in a physical one.

As opposed to the order process concepts mentioned before, which effectively focus on pure online processes, Bijmolt et al. (2021) consider an omnichannel environment in which customers order products.
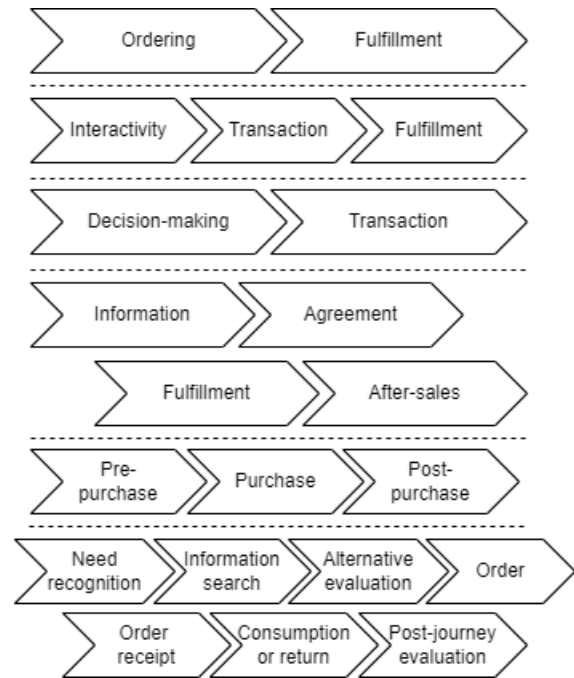

Figure 1. Overview of Order Process Concepts

The literature review reveals that while there are recurring themes regarding the operationalization of the constructs order process, satisfaction, outcome, and their relationship, there is no clear consensus regarding the conceptualization of said constructs. The general idea of an order process implies a sequential nature. The reviewed studies acknowledge this by arguing for the separation of the order process into some set of subprocesses. However, the majority of order process concepts presented do not emphasize this in their actual conceptualizations. Bijmolt et al. (2021) and, to a certain extent, Pham and Ahammad (2017) conceptualize the order process through actual activities that a customer conducts throughout purchasing a good or service. In comparison, most other studies describe website or operations capabilities, such as ease of navigation or overall look and design, which are necessary for enabling the order process in a way that leads to positive customer satisfaction and experience.

4.2 Operationalization of Satisfaction and Experience

Analogously to order process concepts, our literature review has revealed various operationalizations of satisfaction and experience. Besides holistic concepts that include multiple constructs to model the order process (Liao et al., 2010; Thirumalai & Sinha, 2005), a group of papers

mainly focus on the relationship between certain order fulfillment characteristics and satisfaction. The differentiation between outcome-oriented and process-oriented satisfaction approaches prevalent in IS research (Vaezi et al., 2016) is also evident in the reviewed papers. The difference between outcome-oriented and process-oriented studies mainly lies in the fact that the former consider satisfaction with certain order process elements as given, while the latter also take an interest in how satisfaction is formed.

The reviewed papers measured satisfaction through a multitude of items with some reoccurring themes. Within satisfaction with order processes, multiple constructs pertaining to IS-related aspects such as website features are used. The most frequent are satisfaction with *website aesthetics* (Cho, 2015; Heim & Sinha, 2001; Roy Dholakia & Zhao, 2010; Wan et al., 2016), *website performance* (Cao et al., 2003; Thirumalai & Sinha, 2005, 2011), *website navigation* (Cho, 2015; Heim & Sinha, 2001; Jain et al., 2015, 2017; Roy Dholakia & Zhao, 2010; Wan et al., 2016; Zhang et al., 2011), and *ease of ordering* (Cao et al., 2003; Jain et al., 2015, 2017; Thirumalai & Sinha, 2005, 2011; Zhang et al., 2011). The two constructs *website navigation* and *ease of ordering* are, however, used interchangeably and within the studies generally capture the usability of a website.

The satisfaction with fulfillment constructs is operationalized through satisfaction with *on-time delivery, order tracking, product availability, the product meeting expectations, ease of return or cancellation, variety of shipping options*, and *customer support*. Satisfaction with *on-time delivery* is seen as a relative measure that considers the timeliness of the product delivery in relation to the promised delivery date (Cao et al., 2003; Cho, 2015; Heim & Sinha, 2001; Rao et al., 2011; Roy Dholakia & Zhao, 2010; Thirumalai & Sinha, 2005; Wan et al., 2016; Wolfinbarger & Gilly, 2003). Traversing to IS-related constructs, *order tracking* is operationalized on a high level as the general ability to track the product until delivered (Cao et al., 2003; Cho, 2015; Rao et al., 2011; Roy Dholakia & Zhao, 2010; Thirumalai & Sinha, 2005; Wan et al., 2016). *Privacy* of the ordering sub-process is found to be a strongly influential factor on satisfaction with the ordering sub-process by Chiu et al. (2009), Jin and Park (2006), Pham and Ahammad (2017), and Wolfinbarger and Gilly (2003). *Privacy* is operationalized as the store protecting and not sharing personal information about the customer's online shopping behavior and payment. It is further strongly related to the customer's trust in a website, which impacts the outcome construct repurchase intention (Jin & Park, 2006). Studies originating from the information systems research field employ *perceived usefulness* and *perceived ease of use* as impacting factors on the outcome construct repurchase intention in addition to satisfaction (Chiu et al., 2009; Liao et al., 2010).

Opposed to the outcome-oriented approach, the process-oriented approach aims at explaining the formation of satisfaction with the order process. Expectancy-disconfirmation theory is commonly used to explain the formation of satisfaction within an individual (Fawcett et al., 2014; Liao et al., 2010; Rao et al., 2011; Thirumalai & Sinha, 2005; Wan et al., 2016). Confirmation with the ordering and fulfillment sub-processes is defined through confirmation with the underlying items, such as *ease of use, breadth and depth of product selection, on-time delivery of products, quality and relevance of product information, product representation* (description & depiction versus the received product), or the ability to effectively *track orders* (Liao et al., 2010; Wan et al., 2016). The positive or negative disconfirmation of expectations regarding these constructs then leads to satisfaction or dissatisfaction.

Grounded in the still-emerging customer experience management concept, the evaluation of the order process after the completion of the order process is seen as a separate step, which is called post-journey evaluation of touchpoints (Bijmolt et al., 2021). In essence, the post-journey evaluation of touchpoints includes an outcome-oriented component, the decision to conduct repeated purchases or not, and a process-oriented component, the evaluation stage itself. From a traditional marketing perspective, the post-purchase evaluation of the product or service influences future customer behavior (Kotler, 1997). The post-purchase evaluation of the outcome of the order process is a determining factor for satisfaction (Pham & Ahammad, 2017).

In summary, the literature review reveals that while there are recurring themes regarding the operationalization of the constructs of the order process, satisfaction, outcome, and their relationship, there is no clear consensus regarding the conceptualization of said constructs.

Despite information on satisfaction or experience within individual steps, the review shows that there is no clear consensus on which part of the ordering process is most important for customer experience. On the one hand, Cho (2015) and Roy Dholakia and Zhao (2010) found that fulfillment-related constructs have a dominating effect on satisfaction levels and repurchase intention. On the other hand, Chen and Chang (2003) state that interaction and transaction stages of the order process are more important for customer experience. This raises the question of how crucial IS is for the overall success of the order

process. Arguably, *interaction* and *transaction* are overwhelmingly defined through IS-related capabilities.

In our sample, it becomes apparent that IS literature is underrepresented. While the IT artifact defines order processes from a customer and a firm perspective, only four of the examined papers were from IS journals (Chiu et al., 2009; Koufteros et al., 2014; Liao et al., 2010; Zhang et al., 2011).

5. Discussion

Considering pronounced changes in e-commerce and the role of information systems over recent years, we raised the question of whether information systems research should broaden its view beyond the well-established construct satisfaction. Based on recent developments in marketing research and the overarching prevalence of information systems, we posed the question of whether experience may be a promising construct to augment information systems research on e-commerce.

A broad literature review to gauge the current state of knowledge on satisfaction and experience with (e-commerce) order processes–unsurprisingly–showed only little research in information systems covering the experience construct. We did, however, observe several noteworthy characteristics of the body of literature: there is a great variety of operationalizations of key constructs such as satisfaction or the elements of an order process. Moreover, there is no consensus which elements are most important from a customer perspective.

Drawing on these results from the extant body of knowledge, we will discuss implications and potential avenues for future information systems research in the following. We specifically put forward the idea of extending the scope of information systems research on e-commerce to encompass a broad view of affective responses to technology on a systems level. Such an approach may strengthen the contribution of the information systems field to both the scientific understanding of e-commerce as well as benefit practice.

5.1 System Level Response to Technology

First and foremost, there seems to be a number of arguments for answering "yes" to the question whether information systems research should extend or at least update its view of e-commerce. Specifically, our results and considerations make a case for moving towards **assessing affective responses to technology** instead of gauging effects of closely defined artifacts such as websites. In our understanding, there are at least three main perspectives on this proposition: the ontological reversal information systems are undergoing (Baskerville et al., 2020), the role of the IT artifact (Orlikowski & Iacono, 2001), and the potential role of information systems research compared to other fields.

As discussed before, the ontological reversal and the multitude of information systems involved in processes, that is, information systems moving from single instances with limited functionality to ubiquitous necessities (Baskerville et al., 2020; Gerlach & Cenfetelli, 2021), is equivalently evident in e-commerce: Formerly, the information systems part may have been ordering through a website, whereas today there may be numerous interactions with several different information systems along the order process: Scanning a QR code with your phone and putting the item in your shopping cart, checking out on your PC, and your smart speaker announcing delivery within the next two hours. This by now quite typical approach to e-commerce relates to findings of order tracking being an integral part of order processes. Moreover, it highlights several implications for information systems research: considering the cumulative effects of multiple different information systems, the use of which occurs at different stages in time, which calls for a longitudinal investigation.

"Cumulative use of multiple different information systems" as opposed to using a single system resembles the difference between satisfaction and experience–with experience comprising several instances of past experiences (Meyer & Schwager, 2007). This distinction raises questions about how information systems research on e-commerce may incorporate such a larger context. As an immediate implication, which we have mentioned before, future research may consider not only the ordering stage but investigate information systems along the entire order process from searching to delivery. Considering the previously mentioned possibility of using multiple information systems within one order process, such an approach implies a decisive change: whereas much extant research into information systems in e-commerce we found in our literature review, e.g., Koufteros et al. (2014); Liao et al. (2010); Zhang et al. (2011), more or less relates features of information systems directly to outcomes such as satisfaction, the proposed longitudinal approach would aggregate such individual effects to overall affective responses to the entire e-commerce system, which may be comprised of a multitude of individual touchpoints and several information systems. In effect, we propose adopting a system-of-systems approach. Such an approach for information systems research could potentially directly draw on expectation (dis)confirmation theory,

which has a prominent role in experience research (McKinney et al., 2002). To illustrate this thought, consider our preceding example: Immediate satisfaction with the smartphone app may create a baseline expectation for subsequent touchpoints and interaction with other information systems. Actual interactions may subsequently change the perceived experience if expectations are under- or over-fulfilled.

An immediate and profound implication of such a measure of affective responses on the systems level pertains to a long-standing consideration at the heart of information systems research: the **role of the IT artifact**, that is "those bundles of material and cultural properties packaged in some socially recognizable form such as hardware and/or software" (Orlikowski & Iacono, 2001, p. 121). While two decades have passed since this definition has been put forth, Orlikowski and Iacono remains relevant by discussing the need to consider the timing of technology use, its compositional nature, as well as its continuous evolution and development–including trends towards deeply embedded systems (Orlikowski & Iacono, 2001). The contemporary proclamation of an "ontological reversal" with the digital world creating physical reality picks up this proposition by describing how information systems have morphed from high-involvement strategic singular investments to a utility (Baskerville et al., 2020). The view of information systems as utilities epitomizes key features of current information systems: they may be used without much dedicated thought with low involvement but at the same time they are prevalent across many applications and their absence or malfunction would carry grave consequences. This view rooted in the ontological reversal supports the argument for extending the focus of information systems research on e-commerce. Individual features of information systems, e.g. websites, may no longer suffice to meaningfully change perceptions of the entire e-commerce system. At the same time, the collective of multiple touchpoints and information systems are arguably core to the functioning of e-commerce. Investigating the affective response to the e-commerce system may thus update and extend our understanding of contemporary information systems and at the same time help address a peculiar void in the overall literature we observed: the lack of knowledge on which aspects in the e-commerce process are most important.

Especially the last argument raises the question of **which disciplines are most apt to investigate** said phenomena. While it seems decisive not to commit errors of inclusion (Benbasat & Zmud, 2003), current literature highlights how the increasing and shifting role of information systems opens up new areas for information systems research. For example,

information systems may be designed not only to generate competitive advantage but also to deal with sociotechnical complexity (Benbya et al., 2020). As a key concern, ethical considerations such as privacy are set to become even more critical since the amount and the spread of information increase (Baskerville et al., 2020). In the previously described scenario of multiple information systems in an e-commerce process, considering which information may flow between which information systems seems to provide a good example of how such an issue may also influence the overall affective response to the e-commerce system. While marketing has named digital technology as a key conduit to change in (e-)commerce (Lemon & Verhoef, 2016), answering such questions seems to be at the core of sociotechnical studies in information systems. The pronounced rise in e-commerce further underlines the relevance of an adequate response by information systems research.

While making a case for information systems research claiming a substantive stake, we acknowledge the multi-faceted nature of the phenomenon, which may push the boundary towards committing errors of inclusion (Benbasat & Zmud, 2003). Despite such risks, an integrative approach combining marketing-related and IS-related outcome measures could meaningfully extend the existing research body, as the relevance of technology for customer experience is long acknowledged (Parasuraman, 2000). We thus encourage future debates on which aspects are core to which discipline, which aspects would benefit from joint investigations, and which aspects are outside the purview of the respective discipline.

Adopting a more encompassing view based on assessing affective responses to technology will require some upfront investment of effort and potentially experimentation. As a particularly important example, we will discuss opportunities considering the **development of adequate measures**–specifically concerning unified definitions and proper contextualization. Overall, this could potentially include updating conceptualizations, using new measures, or updating measurements (Compeau et al., 2022).

5.2 Managing the Variety in Constructs

A key result of our literature review has been the remarkable **variety of definitions and operationalizations of key constructs** such as satisfaction, experience, and the order process itself. Such variety in core constructs may degrade the quality of research since neither measures nor discussions can be meaningfully compared if the

underlying understanding is not well aligned. Concerning satisfaction, research has long raised the issue of insufficient operationalization, specifically calling out a lack of convergence (Vaezi et al., 2016). This argument now seems equally applicable to experience, for which even the theoretical background of this paper introduces several different definitions. In this case, however, a common core seems evident: a dynamic, longitudinal view extending satisfaction. Our literature review resulted in a great variety of definitions for order processes, which can be compared on relatively objective dimensions such as start and end points or the number of process steps. In this sense, the different conceptualizations may be helpful if they can be combined to either extend coverage along the e-commerce process or to increase the level of detail by sub-dividing process steps.

A **longitudinal, process-focused view** of affective responses to technology, or experience, seems to be right at the heart of (contemporary) information systems research. Modeling and analyzing processes and their implications has been a subject of information systems research for a long time (Rebuge & Ferreira, 2012; Schmiedel et al., 2014). Combining this core interest in processes with the current pervasiveness of information systems makes research on affective responses to technology seem all the more promising for IS research.

In developing or updating measures to assess experience as an affective response to technology, the prominently discussed requirement to **incorporate context** in IS research (Hong et al., 2014) seems decisive. This approach immediately gives rise to the challenge of appropriately defining the context or multiple contexts to investigate. For example, appropriately delimiting contexts may raise issues: Is it a new context if browsing started on a smartphone, but the checkout process happened on a desktop PC? Considering which interactions with information systems shape experiences is decisive for defining a specific context. These considerations lead to the propositions by Hong et al. (2014) on how established theories may be contextualized to a specific context. Based on the preceding discussion, the options to add contextual factors, e.g., as antecedents or as moderators (Hong et al., 2014), seem feasible to incorporate unique characteristics of e-commerce or a specific e-commerce context as they pertain to information systems. In this sense, contextualization also provides the opportunity to more clearly define what should and should not be part of information systems research – and thus to avert errors of inclusion or exclusion (Benbasat & Zmud, 2003).

While our results specifically give rise to opportunities for future research, they carry implications for practice as well. Considering the lack of knowledge on which aspects of the order process are most important for consumer reactions, see previous sections, information systems research may contribute to the design of better systems through increased knowledge on affective responses to technology. In this sense, "better" may pertain not only to higher business value but also to systems with improved societal properties, for example more ethical designs or to deal with complexity (Baskerville et al., 2020; Benbya et al., 2020).

5.3 Limitations

As with any research endeavor, this paper is subject to limitations. Commensurate with our intention of deliberating potential future directions, we explored the implications of recent propositions in marketing research for the information systems discipline. By drawing on these propositions, our literature review may be biased by the selection of keywords and search strategy. Not least by putting special emphasis on the entire order process, we may have excluded relevant publications and thus may have underestimated the extant knowledge on experience in e-commerce. Moreover, our focus on a customer view leaves out the potential role of IS from a vendor perspective. In addition, our discussion and propositions for future research are hitherto only grounded in the literature review and would benefit from further development, especially trial implementations.

6. Conclusion

Against the backdrop of pronounced changes in how e-commerce is conducted and the associated change in the role of information systems, we posed the question whether the focus of our research should extend to "experience" as a more encompassing construct, which implies equally incorporating the entire order process.

A literature review on satisfaction and experience in the order process revealed no consensus but a large variety of definitions of the key constructs satisfaction, experience, and order process, as well as– unsurprisingly–only very few contributions from the IS field. Based on these results, we discuss the potentials for information systems research to move beyond satisfaction to assessing affective responses to technology at a systems level. While such an approach seems commensurate with the evolving role of information systems and may help support the relevance of the field, it implies significant efforts, such as appropriately developed measures with an

accepted consensual definition that is fit for the context of application.

7. References

Au, N., Ngai, E. W., & Cheng, T. E. (2002). A critical review of end-user information system satisfaction research and a new research framework. *Omega*, *30*(6), 451-478.

Baskerville, R. L., Myers, M. D., & Yoo, Y. (2020). Digital first: The ontological reversal and new challenges for is research. *MIS Quarterly*, *44*(2).

Bauer, H. H., Falk, T., & Hammerschmidt, M. (2006). eTransQual: A transaction process-based approach for capturing service quality in online shopping. *Journal of Business Research*, *59*(7), 866-875.

Benbasat, I., & Zmud, R. W. (2003). The identity crisis within the IS discipline: Defining and communicating the discipline's core properties. *MIS Quarterly*, 183-194.

Benbya, H., Nan, N., Tanriverdi, H., & Yoo, Y. (2020). Complexity and information systems research in the emerging digital world. *MIS Quarterly*, *44*(1), 1-17.

Bijmolt, T. H. A., Broekhuis, M., Leeuw, S. d., Hirche, C., Rooderkerk, R. P., Sousa, R., & Zhu, S. X. (2021). Challenges at the marketing–operations interface in omni-channel retail environments. *Journal of Business Research*, *122*, 864–874.

Boyer, K. K., & Hult, G. T. M. (2006). Customer behavioral intentions for online purchases: An examination of fulfillment method and customer experience level. *Journal of Operations Management*, *24*(2), 124–147.

Cadotte, E. R., Woodruff, R. B., & Jenkins, R. L. (1987). Expectations and Norms in Models of Consumer Satisfaction. *Journal of marketing research*, *24*(3), 305-314.

Cao, Y., Gruca, T. S., & Klemz, B. R. (2003). Internet pricing, price satisfaction, and customer satisfaction. *International Journal of Electronic Commerce*, *8*(2), 31–50.

Chen, S. J., & Chang, T. Z. (2003). A descriptive model of online shopping process: Some empirical results. *International Journal of Service Industry Management*, *14*(5), 556-569.

Chiu, C.-M., Chang, C.-C., Cheng, H.-L., & Fang, Y.-H. (2009). Determinants of customer repurchase intention in online shopping. *Online Information Review*, *33*(4), 761–784.

Cho, Y. K. (2015). Creating customer repurchase intention in Internet retailing: The effects of multiple service events and product type. *Journal of Retailing and Consumer Services*, *22*, 213–222.

Compeau, D., Correia, J., & Bennett Thatcher, J. (2022). When constructs become obsolete: a systematic approach to evaluating and updating constructs for information systems research. *MIS Quarterly*, *46*(2).

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research*, *3*(1), 60-95.

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems*, *19*(4), 9-30.

Fawcett, A. M., Fawcett, S. E., Cooper, M. B., & Daynes, K. S. (2014). Moments of angst: A critical incident approach to designing customer-experience value systems. *Benchmarking*, *21*(3), 450–480.

Frank, L., Poll, R., Roeglinger, M., & Lea, R. (2020). Design heuristics for customer-centric business processes. *Business Process Management Journal*, *26*(6), 1283–1305.

Gerlach, J. P., & Cenfetelli, R. T. (2021). Overcoming the Single-IS Paradigm in Individual-Level IS Research. *Information Systems Research*.

Heim, G. R., & Sinha, K. K. (2001). Operational drivers of customer loyalty in electronic retailing: An empirical analysis of electronic food retailers. *Manufacturing & Service Operations Management*, *3*(3), 264-271.

Homburg, C., Jozić, D., & Kuehnl, C. (2017). Customer experience management: toward implementing an evolving marketing concept. *Journal of the Academy of Marketing Science*, *45*(3), 377–401.

Hong, W., Chan, F. K., Thong, J. Y., Chasalow, L. C., & Dhillon, G. (2014). A framework and guidelines for context-specific theorizing in information systems research. *Information Systems Research*, *25*(1), 111-136.

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.

Jain, N. K., Gajjar, H., Shah, B. J., & Sadh, A. (2017). E-fulfillment dimensions and its influence on customers in e-tailing: a critical review. *Asia Pacific Journal of Marketing and Logistics*, *29*(2), 347–369.

Jin, B., & Park, J. Y. (2006). The moderating effect of online purchase experience on the evaluation of online store attributes and the subsequent impact on market response outcomes. *Advances in Consumer Research*, *33*, 203–211.

Kotler, P. (1997). *Marketing management: analysis, planning, implementation, and control* (Vol. 9). Prentice Hall.

Koufteros, X., Droge, C., Heim, G., Massad, N., & Vickery, S. K. (2014). Encounter Satisfaction in E-tailing: Are the relationships of order fulfillment service quality with its antecedents and consequences moderated by historical satisfaction? *Decision Sciences*, *45*(1), 5–48.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding Customer Experience Throughout the Customer Journey. *Journal of Marketing*, *80*(6), 69–96.

Liao, C., Palvia, P., & Lin, H.-N. (2010). Stage antecedents of consumer online buying behavior. *Electronic Markets*, *20*(1), 53–65.

Lin, H.-F. (2007). The impact of website quality dimensions on customer satisfaction in the B2C e-commerce context. *Total Quality Management and Business Excellence*, *18*(4), 363-378.

McKinney, V., Yoon, K., & Zahedi, F. M. (2002). The measurement of web-customer satisfaction: An expectation and disconfirmation approach. *Information Systems Research*, *13*(3), 296-315.

Melone, N. P. (1990). A theoretical assessment of the user-satisfaction construct in information systems research. *Management Science*, *36*(1), 76-91.

Meyer, C., & Schwager, A. (2007). Understanding customer experience. *Harvard Business Review*, *85*(2), 116.

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of marketing research*, *17*(4), 460-469.

Oliver, R. L. (2014). *Satisfaction: A behavioral perspective on the consumer*. Routledge.

Orlikowski, W. J., & Iacono, C. S. (2001). Research commentary: Desperately seeking the "IT" in IT research—A call to theorizing the IT artifact. *Information Systems Research*, *12*(2), 121-134.

Palmer, A. (2010). Customer experience management: a critical review of an emerging idea. *Journal of Services Marketing*, *24*(3), 196–208.

Parasuraman, A. (2000). Technology Readiness Index (Tri). *Journal of Service Research*, *2*(4), 307-320.

Pham, T. S. H., & Ahammad, M. F. (2017). Antecedents and consequences of online customer satisfaction: A holistic process perspective. *Technological Forecasting and Social Change*, *124*, 332–342.

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*(7-8), 692–703.

Rebuge, Á., & Ferreira, D. R. (2012). Business process analysis in healthcare environments: A methodology based on process mining. *Information systems*, *37*(2), 99-116.

Rose, S., Hair, N., & Clark, M. (2011). Online customer experience: A review of the business-to-consumer online purchase context. *International Journal of Management Reviews*, *13*(1), 24-39.

Roy Dholakia, R., & Zhao, M. (2010). Effects of online store attributes on customer satisfaction and repurchase intentions. *International Journal of Retail & Distribution Management*, *38*(7), 482–496.

Rust, R. T., & Zahorik, A. J. (1993). Customer satisfaction, customer retention, and market share. *Journal of Retailing*, *69*(2), 193-215.

Schmiedel, T., Vom Brocke, J., & Recker, J. (2014). Development and validation of an instrument to measure organizational cultures' support of Business Process Management. *Information & Management*, *51*(1), 43-56.

Spreng, R. A., MacKenzie, S. B., & Olshavsky, R. W. (1996). A Reexamination of the Determinants of Consumer Satisfaction. *Journal of Marketing*, *60*(3), 15-32.

Thirumalai, S., & Sinha, K. K. (2005). Customer satisfaction with order fulfillment in retail supply chains: Implications of product type in electronic B2C transactions. *Journal of Operations Management*, *23*(3-4), 291–303.

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.

Vaezi, R., Mills, A., Chin, W. W., & Zafar, H. (2016). User satisfaction research in information systems: Historical roots and approaches. *Communications of the Association for Information Systems*, *38*.

Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., & Schlesinger, L. A. (2009). Customer Experience Creation: Determinants, Dynamics and Management Strategies. *Journal of Retailing*, *85*(1), 31–41.

vom Brocke, J., Simons, A., Niehaves, B., Riemer, K., Plattfaut, R., & Cleven, A. (2009). Reconstructing the giant: On the importance of rigour in documenting the literature search process. *ECIS 2009 Proceedings*.

vom Brocke, J., Simons, A., Riemer, K., Niehaves, B., Plattfaut, R., & Cleven, A. (2015). Standing on the Shoulders of Giants: Challenges and Recommendations of Literature Search in Information Systems Research. *Communications of the Association for Information Systems*, *37*.

Wan, X., Huang, X., & Dong, Y. (2016). The Moderating Role of Product Categories in the Relationship between Online Fulfillment, Procurement, and Consumer Repurchase Intention: A Hierarchical Analysis. *Journal of Supply Chain Management*, *52*(4), 63–76.

Webster, J., & Watson, R. T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MIS Quarterly*, *26*(2), xiii–xxiii.

Wolfinbarger, M., & Gilly, M. C. (2003). eTailQ: dimensionalizing, measuring and predicting etail quality. *Journal of Retailing*, *79*(3), 183-198.

Zhang, Y., Fang, Y., Wei, K.-K., Ramsey, E., McCole, P., & Chen, H. (2011). Repurchase intention in B2C e-commerce - A relationship quality perspective. *Information and Management*, *48*(6), 192–200.