

5-2012

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Maria Madlberger

Webster Vienna Private University, madlberger@webster.ac.at

Sabine Matook

The University of Queensland, s.matook@business.uq.edu.au

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Recommended Citation

Madlberger, Maria and Matook, Sabine, "Creation of Utilitarian Value with Online and Offline Transaction Phases" (2012). *CONF-IRM 2012 Proceedings*. 13.

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Creation of Utilitarian Value with Online and Offline Transaction Phases

Maria Madlberger
Webster Vienna Private University
madlberger@webster.ac.at

Sabine Matook
The University of Queensland
s.matook@business.uq.edu.au

Abstract

The Internet transformed a large number of industries, resulting in various e-commerce business models. An industry that has experienced a particularly large impact is tourism. Although numerous travel agencies offer their services online, the question about the design of online vis-à-vis offline distribution channels continues to persist. This research investigates the value creation for customers who conduct booking transactions in online and offline channels. The value created is considered an antecedent of customer satisfaction and reuse intention. In an experiment we divided a transaction into three phase modules and tested how customers react to the presence of the different phases supported online and offline. Our analysis shows that customers perceive a higher utilitarian value when the entire transaction is completed online. This increases consumer satisfaction and the likelihood to return to the website. Product and transaction characteristics further facilitate value creation.

Keywords

E-Commerce Business Models, Transaction Phases, Distribution Channels, Utilitarian Value, Customer Satisfaction.

1. Introduction

Customer-centric Information Systems (IS) position consumers to the core of their operations and understand them as advanced business partners. While in the beginning Internet IS were faced with inexperienced consumers which made web site quality attributes and usability of the web site particularly important (Palmer, 2002), users improved their skills and gained experiences with these Internet systems over time. Thus consumers have clear expectations about online service delivery today. Firms defined various approaches to participate successfully in e-commerce. The efforts to establish an Internet presence resulted in the implementation of e-commerce Business Models (BMs). A BM in its simplest form is “an architecture for the product, service and information flows, including a description of the various business actors and their roles” (Timmers 1998, p.4.) While this definition focuses purely on the business context of the BMs, other definitions are broader and regard BMs as bridges between the firm’s strategies, its transactions, and IS (Pateli & Giaglis, 2004). Although these BMs address various issues of doing business online (Timmers, 1998, Rappa, 2010, Weill & Vitale, 2001), they provide guidance for the design of distribution channels. While pure-players operate only online, traditional brick-and-mortar companies need to manage the online space as an additional business channel (Schoenbachler & Gordon, 2002).

Prior research emphasized the need to concert the interplay among the channels (Gallaugher, 2002).

Particularly in the presence of multiple channels, consumers can decide whether they conduct the whole transaction in one channel or whether they switch between channels. In this context it is important to distinguish various phases of a transaction. In IS such transaction phases are separated into three distinct phases, i.e., information, agreement, and fulfillment phase (McKinney, Yoon, & Zahedi, 2002, Zumpe & Madlberger, 2007). These phases can be designed to assist customers either online or offline with their transactions, hence both channels are deployed. By now, prior research was rather selective in investigating transaction phases and distribution channels. For example, McKinney et al. (2002) analyze the online channel for the information phase only. Therefore, implications on the channel design of various transaction phases are very limited.

The paper at hand seeks to improve the understanding of channel design from a transaction phase viewpoint. In contrast to other studies, this research considers a transaction consisting of three phases, which can be supported online, offline, or both. To explore to what extent online and offline support of transaction phases contribute to the overall purchasing behavior, we investigate the impact of channel design on a significant antecedent of online customer retention, i.e., utilitarian value. We hypothesize that utilitarian value, influenced by channel design, directly and indirectly, i.e., mediated by satisfaction, impacts reuse intention. Thus, we can better understand whether consumers perceive different utilitarian values created by having different phases available in different channels.

The paper is structured as follows: In the following section, we examine existing literature on BMs, transaction phases, and channels to identify their design for achieving high customer satisfaction. We then present our research model, followed by the research methodology and data analyses. Finally, we discuss the contributions and limitations of our research, the implications for future research and practice, and our conclusions.

2. Literature Background

2.1 Business Models for E-Commerce

E-Commerce BMs emerged to assist firms in establishing and managing their Internet presence. A large body of research on BMs analyzes the structure, functioning, and impacts of BMs for e-commerce (Afuah & Tucci, 2007, Applegate & Collura, 2001, Hedman & Kalling, 2003, Lam & Harrison-Walker, 2003, Timmers, 1998). Prior research developed BMs that root in disparate streams of research, for example in the fields of strategy, IS, management, and e-commerce (Pateli & Giaglis, 2004). The research findings on BMs present a variety of methods, classifications, frameworks, and components and hence, reflect the diversity among them.

Although benefits of BMs and recommendations for maximizing firms' benefits are extensively discussed, the guidance BMs provide for implementing transactions online is rather limited. In particular the distinction of transaction phases is considered by few researchers only. In the majority of existing BMs transactions are summarized as business processes (Alt & Zimmermann, 2001) or flows of products, information and money (Weill & Vitale, 2001). The three flows identified by Weill & Vitale (2001) describe transactions that occur after the agreement phase, but they do not consider activities in earlier phases. Another example of how transactions are conceptualized is the marketplace exchange model by Rappa (2010). He describes a transaction as a number of steps, "from market assessment to negotiation and fulfillment". The conceptualization by Basu & Muylle (2011) provides an even finer distinction of transaction phases in BMs for e-commerce. They differentiate trade processes from decision support processes and integration processes. Transaction phases are

reflected in the trade processes and comprise search, authentication, valuation, payment, logistics, and customer service.

2.3 Cross-Channel Transaction Phase Design

Extant literature largely focuses on BMs that take place exclusively on the Internet. In practice, many e-commerce activities are multi-channel BMs including both online and offline distribution channels. As empirical studies show, consumer behavior, particularly purchase intention of one channel can be influenced by another channel (Verhagen & van Dolen, 2009). Consumers furthermore can decide whether they are single-channel or multi-channel buyers thus switching between channels that are offered by one or several companies (Schoenbachler & Gordon, 2002). Therefore it becomes necessary to consider channel interactions that take place simultaneously and develop a channel mix that is optimal for the target customers (Pumphrey, 2006). The interplay between the online and the offline channel needs to be concerted rather than simplified by just shifting elements online that should better have stayed offline (Gallaughier 2002). Given consumers' propensity to switch between channels, confusion can emerge on transactions when firms select a BM and do not develop explicit considerations about how to design the transactions. For example, there is evidence from a content analysis of two tourism firms that they have implemented the same BM, i.e. purchase assistance networks, but designed their distribution channels very differently (Zumpe & Madlberger, 2007).

A business transaction embraces interaction processes between market participants in different roles, e.g. customers and suppliers. Transactions aim to initiate, arrange, and complete a contractual agreement between the trading partners (Schmid & Lindemann, 1998). Typical transactions are the purchase of goods or services, money transfer, or the settlement of contracts. Most frequently used transaction phases in literature are the information phase, the agreement phase, and the fulfillment phase (Kalakota & Whinston, 1997, Schmid & Lindemann, 1998, Chen & Chang, 2002). Other researchers extend these three phases by various further phases, i.e. the after-sales phase (Büyüközkan, 2004, Di Noia, Di Sciasio, Donini, & Mongiello, 2004), a communication phase (Selz & Schubert, 1997), and a business environment phase (Kim & Lee, 2002). While the after-sales phase is integrated into the fulfillment phase in the three-phase model, Kim & Lee (2002) argue that several characteristics of a transaction can occur at different stages and therefore a surrounding phase is necessary.

Our further understanding of transaction phases follows the widely used distinction between the information phase, agreement phase, and fulfillment phase. Therefore and in accordance with prior research we divide a business transaction into these three phases (Table 1). Although the transaction phases can be applied for e-commerce in b2c as well as in b2b, we focus on the final consumer-dominated sector only.

Information Phase	Agreement Phase	Fulfillment Phase
<ul style="list-style-type: none"> • Activities to get an market overview • Seek for information about the potential trading partners • Starts when a prospective customer enters the web site • Finishes when offer submitted 	<ul style="list-style-type: none"> • Aim for agreement on trading condition • Negotiation on prices, product characteristics, delivery conditions, and payment methods • Acceptance of seller's offer leads to a legal-binding contract 	<ul style="list-style-type: none"> • Covers the completion of the obligations • Typical tasks: storage, transportation, packaging, insurance, and payment

Table 1: Overview of Transaction Phases

Each transaction phase is characterized by different flows of information. Particularly in e-commerce systems, the flow of information usually is digital and transferred via the Internet. Hence, e-commerce systems are appropriate for supporting the flows of information resulting from the transaction phases. In Figure 1, the direction of the information flow in each transaction phase across the two channels (offline - online) is depicted.

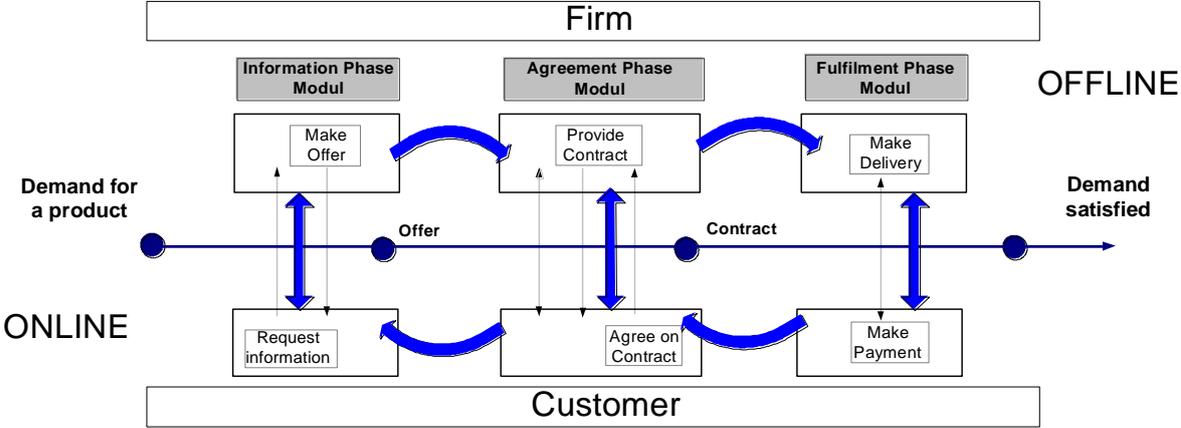


Figure 1: Performing a Business Transaction Using Offline and Online Channels

So far, the investigation of transaction phases and respective distribution channels is very limited. Although prior research increased our understanding of consumers’ perceptions of online and offline purchasing activities, two aspects are not addressed in this extant work. First, the body of research assumes the scenario of moving from offline to online business. Therefore, it lacks the understanding of the online and the offline channel as two sides of the same coin and both important to a strategic positioning of the firm. Focusing only on issues of how to digitize the entire transaction limits the findings and unlikely gives a comprehensive picture of the way how firms operate. Second, prior research predominantly defined a transaction as a complex entity and not as several interlinked modules (see Figure 1). Therefore, the channel design is defined for entire transactions rather than for different phases. The gestalt and hence, the channels could not vary within the transaction. We understand this limitation as a major barrier for firms to optimize their way serving customer needs and the creation of customer satisfaction.

3. Research Model

Customer satisfaction is one of the key objectives for firms (Anderson, 1994) and leads to customer loyalty (Anderson & Srinivasan, 2003). Satisfaction is generally constructed to be a post-consumption assessment on the perceived value by customers (Heskett, Sasser, & Schlesinger, 1997). Thus, the customer value is conceptualized as a comparison of weighted “get” attributes to “give” attributes and represents a ratio of the total value perceived to total sacrifices made (S. Lam, Shankat, Erramilli, & Murthy, 2004).

Consumer behavior literature distinguishes utilitarian and hedonic value. While hedonic value is focused on the shopping experience and fun, utilitarian value is related to the benefits of getting the shopping process done efficiently (Babin, Darden, & Griffin, 1994). Although prior research agrees that consumers purchase products or services not only because they get utilitarian value it is considered a basic requirement for the establishment of satisfaction (Groth, 1994). The utilitarian dimension of consumer attitudes is stimulated by the functions performed, for example by products or channels (Voss, Spangenberg, & Grohmann, 2003). In

store-based retailing, variety seeking and price sensitivity are significant antecedents of utilitarian value (Irani & Hanzaae, 2011). According to an empirical study utilitarian motivation is driven by cost saving, convenience, selection, and information availability (To, Liao, & Lin, 2007). Therefore we hypothesize:

H1: The design of the transaction phases positively impacts the utilitarian value.

In literature, two models on customer satisfaction exist: transaction-specific satisfaction and overall (cumulative) satisfaction (Johnson & Fornell, 1991). Studies on satisfaction center around three concepts: The first one is the confirmation-disconfirmation paradigm, where any perceived discrepancies between the pre-purchase and the post-purchase state alter satisfaction. Second, expectations are considered direct antecedents of satisfaction. And finally third, the quality or value effects are positive impacts on customer satisfaction (Anderson, 1994). Lin (2007) investigates the impact of a website's quality on customer satisfaction and reveals website design, interactivity, informativeness, and trust as antecedents. Similar results are obtained by Collier & Bienstock (2006) who stress the importance of web site interaction, delivery of the product, and the online retailer's preparedness to address problems. Cai & Xu (2006) show that customer satisfaction is largely influenced by the process value, the outcome value, and the shopping enjoyment in e-commerce. As a study conducted by Yang & Wu (2009) demonstrates, utilitarian and hedonic value have a significant impact on satisfaction which further impacts reuse intention in online shopping environments. Based on these findings, we suggest:

H2: The utilitarian value positively impacts the satisfaction with the service offering.

Specifically in the context of online and offline channels a large body of literature sought to understand satisfaction and its impact on purchase behavior. According to a study by Chong & Wong (2005), satisfied consumers tend to buy more online. The same findings were obtained by Koivumäki (2001) who confirmed the positive relationship between customer satisfaction and purchase behavior. In any kind of business, customer retention is usually of higher relevance than mere maximization of turnover or the number of customers. Thus, customer retention, often measured by reuse or reuse intention, is a subject of interest in e-commerce research. In a structural model, Bhattacharjee (2001) shows that satisfaction has an extraordinarily high impact on continuance intention of e-commerce services. Another study reveals that information quality, system quality, and the service level, mediated by satisfaction and regret, influence reuse intention (Liao, Liu, Liu, To, & Lin, 2011). Thus Hypothesis H3 proposes:

H3: The satisfaction with the service offer positively impacts the reuse of the website.

Besides the hypothesized impact of satisfaction on reuse intention, also utilitarian value itself may impact reuse intention. Noble, Griffith, & Weinberger (2005) empirically investigate the impact of utilitarian values on channel utilization where they distinguish between channel information search and channel purchase frequency. Utilitarian value is one of the drivers of purchase intention, mediated by preference (Overby & Lee, 2006). But utilitarian motivation also turned out to be a direct significant driver of purchase intention, as To et al. (2007) show empirically. Thus we hypothesize:

H4: The utilitarian value positively impacts the reuse of the website.

4. Research Methodology

4.1 Study Design

The study was designed as an experiment where participants were asked to use two web sites that offered different services in regards of conducting the transaction. Subjects were 54 undergraduate students at a large business university in Austria. Studies show that students are suitable participants to conduct an experiment that focuses on Internet purchasing transactions because Internet buyers tend to be younger, better educated, and comprise higher computer literacy (Swinyard & Smith, 2003). The participants were randomly assigned into two groups and each group started with a different treatment.

The materials given to the participants were two fictional HTML web sites that simulated travel agencies to book flights online. The web sites and the questionnaire were tested in a pilot study and enabled us to correct minor issues, for example navigation and wording improvements. The two websites were named Dream Flights and Flight Haven and had different structures. Dream Flights is a website that supports all transaction phases, i.e. information, agreement, and fulfillment phase exclusively online. It comprises five single web pages: the welcome page of the travel agent, a page with domestic flight offers (times, prices, airlines), a page with international flight offers (times, prices, airlines), a page with booking information and procedures, and a final booking confirmation page with reference number. The second website, named Flight Haven, supports the information phase online and the following phases offline. It comprises also five single web pages: the welcome page of the travel agent, a page with domestic flight offers (times, prices, airlines), a page with international flight offers (times, prices, airlines), a web page where customer contact details are requested for future contact through the travel agent via telephone or e-mail, and a final web page with information on turn around times for the flight requests. Therefore, with Dream Flights the entire business transaction must be conducted online. In contrast, Flight Haven stops the transaction after the information phase and moves to the offline channel.

The participants conducted the entire experiment one at a time. The two web sites were password protected and allowed a controlled access to the travel sites. Students were asked to fill out the questionnaire immediately after having finished the simulated booking process. On average one experimental task took 20 minutes.

4.2 Measurements

The questionnaire measured the utilitarian value, the satisfaction, the reuse intention of the participants, and their importance assessment for certain product characteristics and transaction characteristics. In addition, demographic data was collected. All our measurements applied constructs of previous work in this area and hence, ensured their reliability. We adjusted the wording of the items to the field of tourism, and in particular the air travel industry (Granados, Gupta, & Kauffman, 2007). Utilitarian value was measured with the popular hedonic/utilitarian (HED/UT) scale introduced by Voss et al. (2003) and enriched by the usefulness item by Davis (1989). The items used to measure customer satisfaction and reuse intention were taken from the web-customer satisfaction scale by McKinney et al. (2002). We applied a seven-point Likert scale ranging from 1 (extremely negative answer) to 7 (extremely positive answer).

5. Results

5.1 Descriptive Analysis

The average age of the subjects was 24.96 years and 29.4% were female students. The gender bias is due to the high proportion of male students in the IS course where the experiments

took place. Table 2 presents the data on consumers' perceptions about the product (flight ticket) characteristics and the transaction characteristics (searching, selecting, and booking the flight). The results are towards high importance because are all above 5 (strongly important).

ITEMS	Min	Max	Mean	SD
Product Characteristics				
Minimize product price	3	7	6.23	1.06
Get and book the product wanted	2	7	5.61	1.32
Minimize extra charges	2	7	5.92	1.27
Have huge choice and offer on products	1	7	5.27	1.48
Have possibility to select from various offers	1	7	5.68	1.32
Get a complete overview about all products	2	7	6.10	1.21
Get an offer that is matching with expectations	2	7	5.47	1.38
Compare different product offers	3	7	6.23	1.01
Mean				5.81
Transaction Characteristics				
Conduct the purchase without interruptions	1	7	5.98	1.23
Short time lag between selection of a product and the booking/ payment	1	7	5.66	1.48
No problems occur during transaction	3	7	6.40	.90
Less effort to book/purchase the product	1	7	5.84	1.41
Mean				5.97

Table 2: Descriptive Data for Consumer Importance

5.2 Hypotheses Tests

We used the utilitarian dimension of the HED/UT scale with its multi-item measures to measure the consumers' perceived values with the services offered (Voss et al., 2003). Accordingly, we gathered data on the items effective, helpful, functional, necessary, and practical for both web sites. Additionally we measured the perceived usefulness for the web sites. We first ran a factor analysis to demonstrate that the five items of the UT scale result in one factor, the utilitarian value. The results of the factor analysis for Dream Flights and Flight Haven are presented in Table 3. For both web sites one factor was extracted following the eigenvalues (< 1). The extraction method was the principal component analysis with Varimax rotation.

We also did correlation testing (Persons Correlation Coefficient) to demonstrate that the usefulness correlates with the utilitarian scale. Finally, we did a significance test to demonstrate that value differences between the web sites exist. The results for the calculation of Person's correlation coefficient between the UT scale and the usefulness for Dream Flights is 0.927 ($p = 0.01$), for Flight Haven it is 0.887 ($p = 0.01$). The results of the significance test between the two utilitarian values (paired t-test) were supported. The test showed significance ($p=0.016$) with a difference of means of 0.559, a SD = 1.65, $t= 2.49$, and $df = 51$.

To test the other three hypotheses we did not further distinguish between the two websites. To test the hypotheses we conducted independent sample t-tests and set a cut point on the value 5. This cut point was selected because on the seven point likert scale a five represents a value towards agreement. The results for the three tests are significant and support our hypotheses. The results are presented in Table 4.

Dream Flight (all transaction phases online)					
(a) Communalities		(b) Initial Eigenvalues			
Items	Initial	Factor	Total	% of Variance	Cumulative %
Effective	0.634	1	3.952	79.04	79.04
Helpful	0.778	2	0.515	10.29	89.33
Functional	0.846	3	0.250	5.01	94.34
Necessary	0.877	4	0.175	3.49	97.83
Practical	0.817	5	0.109	2.17	100

Flight Haven (one transaction phase online)					
(a) Communalities		(b) Initial Eigenvalues			
Items	Initial	Factor	Total	% of Variance	Cumulative %
Effective	0.701	1	4.102	82.03	82.03
Helpful	0.897	2	0.406	8.13	90.16
Functional	0.802	3	0.298	5.96	96.12
Necessary	0.854	4	0.116	2.33	98.45
Practical	0.848	5	0.077	1.55	100

Table 3: Communalities (a) and Total Variance Explained (b)

Hypothesis	Constructs	Mean	SD	df	t	Hypothesis Decision
H2	Utilitarian Value on Satisfaction ≥ 5	4.97	1.02	101	5.30***	Supported
	< 5	3.82	0.96	43.5	5.16***	
H3	Satisfaction on Reuse ≥ 5	5.32	1.21	102	8.42***	Supported
	< 5	2.85	1.30	42.9	8.74***	
H4	Utilitarian Value on Reuse ≥ 5	4.8	1.42	104	5.81***	Supported
	< 5	2.97	1.43	48.1	5.85***	

Table 4: Results of Significance Tests for Hypotheses 2, 3, and 4

6. Discussion and Conclusion

The results indicate that the intention to reuse a website is influenced by its perceived utilitarian value as well as consumers' satisfaction with it. Furthermore, satisfaction also mediates the impact of the utilitarian value on reuse and therefore the utilitarian value shows a direct and an indirect effect on reuse intention. This result is consistent with prior research on the role of satisfaction for purchase intention (McKinney et al., 2002, Chong & Wong, 2005, Koivumäki, 2001). The mediating role of satisfaction was also demonstrated by Bhattacharjee (2001) who considered satisfaction a mediator between confirmation and continuance intention. Therefore perceived utilitarian value as a significant direct and indirect impact factor on reuse intention is a crucial factor for any e-commerce firm.

It can be further demonstrated that the BM directly impacts perceived utilitarian value. As data shows, the utilitarian value of Dream Flights which supports the full transaction online is significantly higher than that of Flight Haven, the website that supports only the information phase online. Given the small sample size, this significant difference is remarkable and requires further considerations on the consequences. The study results show that the choice of an appropriate BM based on transaction phases can significantly impact consumers' perceived

utilitarian value, satisfaction with the website, and intention to reuse it. In this context it is important to notice that an appropriate BM need not necessarily maximize the number of supported transaction phases. It is rather recommended to optimize the number of transaction phases that are supported online. Only if appropriate transaction phases are supported by a BM in e-commerce, consumers' perceived utilitarian value, their satisfaction, and finally their reuse intention will be positively influenced.

The findings imply that insights into online consumer behavior should be deepened by accounting for the transaction phases in a BM. Besides other aspects of a BM (e.g. the price level, the existence of a well-known brand or the technical quality of the website), supported transaction phases are likely to be a further decisive factor. Based on the findings of this study, we call for an explicit consideration of supported transaction phases in the design and conceptualization of e-commerce BMs.

The study contributes to extant knowledge in several ways. First, we defined design factors for phases of a business transaction when online and offline distribution channels are available. These design factors measure the impact on customer satisfaction in the different phases of the transaction and can be used as an instrument to adjust satisfaction in a particular channel. The application of a transaction-channel-matrix can help firms to benchmark their current strategies against good-practice peers. Furthermore, our study can contribute to a better understanding of web customer satisfaction in the transaction phases that follow the information phase. Our analysis emphasizes that different designs create dissimilar value perceptions by consumers. The BM implementation that requires the customers to conduct the entire transaction online was assessed with a higher utilitarian value than the model with a partial online phase support. For customers possibilities like comparison among various product offers and conducting a transaction without any problems are important factors while shopping online. Firms need to consider these factors to ensure satisfaction. In doing so, we call for transaction phases as integrated service modules. Another key contribution stems from the integration and synthesis of the research on channels and transaction phases. In doing so, we sought to unite two separate research fields to the benefit of IS success.

The results of this research also provide benefits to firms: The first benefit is the ability enabled by taking on our theoretical perspective, i.e., design of business transactions as a series of interconnected modules. This new perspective allows firms to react faster to innovations, changing market environments, and threats by competitors. Second, by providing insights into the channel and service design firms realize which channel is most preferred by customers. As those preferences are likely to further change in the future the concept of modules ensures the firms' flexibility and hence enables them to be agile companies.

Like any research, this study shows several limitations. In its exploratory stage, the applied model is rather simple and requires an extension and refinement including the consideration of further variables, such as trust or experience with online shopping. Also socio-demographic variables could provide further insights into a potentially complex structure of factors. Last but not least the current study is limited to a specific industry and to either online or offline support of transaction phases. Further insights into multi-channel, i.e., online and offline support of transaction phases are needed.

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