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Digital Transformation in Retail: Can Customer Value Services enhance the Experience?

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Abstract The brick-and-mortar retail is struggling with the digital transformation and the shift to e-commerce. Likewise, technological developments in retail service delivery raise new questions concerning the nature of relationships between retailers and customers. To secure a strong customer relationship and support satisfaction, retailers have to transform their real-world advantages into digital goods and offer new value services to the customer. With an iterative process based on design science research (DSR), we want to explore the impact of different combinations of technology-mediated value services in customer-retail-relationships. Therefore, we want to evaluate, compare and classify a combination of emotional and context-aware approaches as well as services which link online and offline advantages. This research is aimed to identify services to support and lead the brick-and-mortar retailers through the digital transformation.

Keywords: • retail • context • emotion • digital transformation • customer value service •

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1 Introduction

The significant and continuous growth of e-commerce as well as the digital transformation itself are responsible for a necessary transformation process of the brick and mortar retail sector (Dennis, Jayawardhena, & Papamatthaiou, 2010; Doherty & Ellis-Chadwick, 2010; Hagberg, Sundstrom, & Egels-Zandén, 2016; Sands, Ferraro, & Luxton, 2010). The current phenomenon of digitalization in retail space is subject of different research projects with particular importance (Hagberg et al., 2016; Keeling, Keeling, & McGoldrick, 2013). At the same time mobile devices – especially smartphones and recently smartwatches – enable this digital transformation and trend to change the customer behavior (Blázquez, 2014). Mobile devices offer more specific and situation-related information to the customer (Rohm & Sultan, 2006). Adopting to this mobile and smart technology, nowadays customers are able to access the internet anytime and anywhere. Thus, they are also able to get product-specific information like price ranges, pictures and customer reviews faster and easier (Spaid & Flint, 2014). Furthermore, not only the customers' behavior changes, their expectations do as well. While integrating mobile devices into their everyday life, customers expect enhanced accessibility of retailers in online and offline channels (Fulgoni, 2014). This new digital retail situation offers many threads but also numerous opportunities for brick-and-mortar retail (Härtfelder & Winkelmann, 2016). The brick and mortar sector has already recognised the problems, but so far hardly reacted. New approaches and technologies should therefore be carried primarily through research into the retail sector.

To serve the customer better and offer a good customer-experience, it seems necessary to combine the positive parts of online and offline channels to an omni-channel strategy. Based on the current situation of brick-and-mortar retail, we want to examine if it is possible to digitalize the retailer's advantage of personal advice, supported by emotional data, to achieve a closer and more personal digital relationship between customer and retailer.

The broad definition of digitalization is the "integration of digital technologies into everyday life by the digitalization of everything that can be digitized" (Brave & Nass, 2002). Furthermore, it is firstly linked to create new value (Amit & Zott, 2001) and secondly to enhance the relationship between customer and retailer (Hagberg et al., 2016). As said, this relationship has changed fundamentally within the last years, due to the increased use of internet technologies. At the same time and due to the spreading of mobile devices, using contextual information may lead to a personalized digital advisory (Härtfelder & Winkelmann, 2016). Especially inner states like emotions can provide insights into the customers' specific situations and thus their needs (Brave & Nass, 2002). Understanding and solving the customers' problems in a digital enhanced way can increase the perceived equality in the relationship between customer and retailer (Scoble & Israel, 2014).

2 Research Agenda

Based on the current situation of brick-and-mortar retail, we intend to examine if there is a possibility to digitalize the retailers' advantage of personal advice, supported by contextual data, to achieve a closer and more personal digital relationship. Keeling et al. (2013), which classified different human-to-human and human-to-technology relationships (see chapter 4 and Figure 1), already observed that some artefacts like plain websites or nowadays avatars are less co-operative and socio-emotional than relationships to real people (Keeling et al., 2013). Based on their work we plan to examine new digital value services, which perform better in terms of cooperation and socio-emotionality. Additionally, we intend to combine retailers' online and offline advantages to increase the customer experience and satisfaction. In our approach, we suggest a contextual respectively emotional customer situation analysis to digitalize and extend the retailers' advantage of personal advisory.

Our research follows the design science research methodology (DSRM) of Peffers et al. (2007) in order to test and evaluate appropriate information system artefacts for the brick and mortar retail business. Accordingly, we are planning an iterative process consisting of surveys, experiments with existing applications or prototypes and finally prototypical development (see Figure 3).

Correspondingly, this research-in-progress paper is structured as follows. In the next chapter, we'll explain the importance of context-aware value services for retail, especially emotions as a highly important context factor (see chapter 3.1). In chapter 3.2, we propose emotional-awareness as an approach to enhance customer-centric value services in order to describe, understand and use the situation of the customer. In chapter 3.3, we introduce cooperation and co-operative information systems and the added values they offer to the customer. Chapter 4 demonstrates our approach to test and classify different modern information systems. The classification will follow and enhance the basic research of Keeling et al. (2013), who were able to categorize different technologies for customer-retailer relationships in 2013. In a similar way we plan to compare different modern information systems in order to understand why and how various elements will affect the customer-retailer relationship. Chapter 5 sums up the approach of this research and presents future work.

3 Context-aware Value Services

To enable a better and more personalized user experience for retail shopping, it is important to describe a customer's situation. The elements of a situation are defined by context. "Context is any information that can be used to characterize the situation of an entity" (Dey & Abowd, 1999). An entity is deemed as a person, place, or an object. Therefore, any kind of information which helps to characterize the situation of a customer can be considered as context (Dey, 2001). Minsky (2007) expanded the term context to a multidimensional parameter involving time, location and subjectivity in perceptions and emotions. Accordingly, context-awareness means the ability of a software to adapt to a

current situation. Software or applications of this kind are able to change their behavior in a certain situation in order to create a context-based value to the user (Baldauf, 2007). Due to the advances in technology, the decrease of cost and size of devices and to the onward development of sensors, context-aware computing is pushed forward (Yurur et al., 2016). Especially in combination with mobile devices, the use of context information and context-aware applications seems reasonable (Baldauf, 2007). Using a mobile device, the changing situation and therefore the context of the customer can be tracked. Related to retail, context-awareness could be a way to improve the shopping experience and intensify the personal relationship by better understanding what the customers want and how they would like to be advised (Frijda, 1993). For our research, we intend to focus on a very specific context factor which has a great influence on shopping behavior: the human emotion.

3.1 The Power of Emotions

In the following, we discuss the importance of emotions and how they are able to influence our daily life. Furthermore, we illustrate the role emotions can play in relation to information systems, especially as an enabler for designing more personalized services for the customer. An emotion is a reaction of the human body to an occurring stimulus like an event of a certain importance to the customer. At the same time, they lead to high mental activity and can contain high degrees of pleasure or displeasure (Brave & Nass, 2002; Cabanac, 2002). Since emotions manifest in different ways, many researchers try to pinpoint what kind of emotions exist and how they can be categorized (Lövheim, 2012; Plutchik, 2001; Russell, 1980). In addition, some researchers tried to define basic emotions like anger, disgust, fear, happiness, sadness and surprise (Ekman, 1992). Emotions are a typical human characteristic and have an impact on many aspects of our life like perception, rational thinking und decision making (Brave & Nass, 2002; Hussain, Peter, & Bieber, 2009; Picard, 1995; Reeves, Deeks, Higgins, & Wells, 2008).

Therefore, they can be responsible for one being productive or staying in bed as well as buying a new product or cancelling a shopping process. Since humans tend to treat computers like other humans, emotions are also a field of interest of information systems research, especially human-computer interactions (Brave & Nass, 2002; Picard, Vyzas, & Healey, 2001). The research field of affective computing is dedicated to enable information systems to properly react to human emotions and therefore to be able to simulate emotional intelligence (see chapter 3.2; Picard, 1995). An emotion-aware information system may be capable of enhancing the communication between human und information system (Peter & Urban, 2012). This in turn can lead to a better und more fitting adaptation to the customer's situation and to an increased customer experience. For example, an information system that uses the customer's emotional state as an information to understand his or her situation may enhance the pleasure of the purchasing process (Hussain et al., 2009).

3.2 Emotional Intelligence and Measurement

Humans are able to observe and understand emotional states of another person by recognizing facial expressions, gestures, posture and other information concerning the current situation (Hussain et al., 2009). So how can an information system be enabled to measure und interpret human emotions? There are various methods to deduce emotional states. On the one hand the evaluation of facial expressions and variances of the voice can be consulted to gain knowledge about the customer's emotions (Brave & Nass, 2002; Essa & Pentland, 1994; Essa & Pentland, 1995; Peter & Russel, 2008). On the other hand, biofeedback like heart rate and skin conductance can provide vital information for uncovering emotional states (Picard & Klein, 2002; Picard et al., 2001). To measure emotions in a mobile environment, smartphones and smartwatches, equipped with different biometric sensors, provide an unobtrusive possibility of measurement (Bachmann et al., 2015; LiKamWa et al., 2013; Muaremi, Arnrich, & Tröster, 2013). Finally, self-assessment can be a method to determine the current emotional state of an individual. This kind of self-report measure uses questionnaires to gain insight and exists in different forms. Some questionnaires present words like adjectives to describe emotions (Izard, 1972). Others use a two-dimensional approach and distinguish between arousal as a degree of activation and valence to define whether an emotion is either pleasant or unpleasant (Barrett & Russell, 1999). In addition, some researcher use pictures, pictograms or even emoticons to provide an emotional scale (Bradley & Lang, 1994; Meschtscherjakov, Weiss, & Scherndl, 2009). The ability to recognize and understand emotions – both of oneself and of others – is known as emotional intelligence. Part of this is integrating this emotional information in order to enhance and support one's problem-solving. Another important component of emotional intelligence is the appraisal and expression of emotions, which can also be described with the term *empathy* (Mayer & Geher, 1996; Salovey & Mayer, 1990). In our research approach, we intend to unlock and increase the possibilities of information systems to work with emotional information in order to obtain emotional intelligence.

3.3 Co-operative Services

In the following, we derive co-operative services and show their characteristics. People cooperate with each other because of emotional relationships or moral obligation. For a cooperation, at least two partners agree on the contribution and the outcome of the cooperation. A common strategy to reach a goal is not needed for a cooperation (Gerosa et al., 2006). A behavior is cooperative if it provides a benefit to another individual and if it has evolved at least partially because of this benefit (West, Griffin, & Gardner, 2007). Information systems can actively support cooperation between provider and customer, or even act as cooperation partners themselves. Co-operative information systems support the customer proactively and context-aware. They provide the customer with help and recommendations without actively asking for it, like context-aware recommender systems or digital assistants. A digital assistant should feel like a good friend with whom the users like to communicate (Siemon et al., 2017; West et al., 2007).

4 Emotional and Co-operative Digital Value Services

New technological developments and information systems in retail service delivery raise new questions concerning the nature of relationships between retailers and customers. Keeling et al. (2013) categorized retail and social relationships in four different dimensions. Guided by their classification, Figure 1 visualizes different human-to-human and human-to-technology relationships according to the two dimensions cooperative/friendly – competitive/hostile and socio-emotional/informal – task-oriented/formal. The classification shows that the human-to-technology relationships like plain websites or avatars are situated in the lower left quadrant and thus are more competitive and task-oriented than classic social relationships to team mates, neighbors or close friends. It is also indicated that human-to-human retail relationships are classified quite differently. While a phone salesman is classified as more competitive and task-oriented, the relationship with a farmer's market sales person feels more emotional, friendly and co-operative.

Figure 1: Relationships in digital age based on Keeling et al. (2013)

In our research approach, we intend to close the identified gap between human-to-technology relationships and human-to-human retail relationships by enhancing the customer's perception of the co-operation and friendliness as well as socio-emotionality and informality of a digital value service. With these, we aim for a solution to ultimately improve the customer-retailer relationship and customer experience. In order to understand why and how various elements affect the customer-retailer relationship, we plan to compare and classify different customer value services. Since the study of Keeling

et al. in 2013, technological advances and new sensor technologies have created new services which may close the described gap (see Figure 2; Yurur et al., 2016).

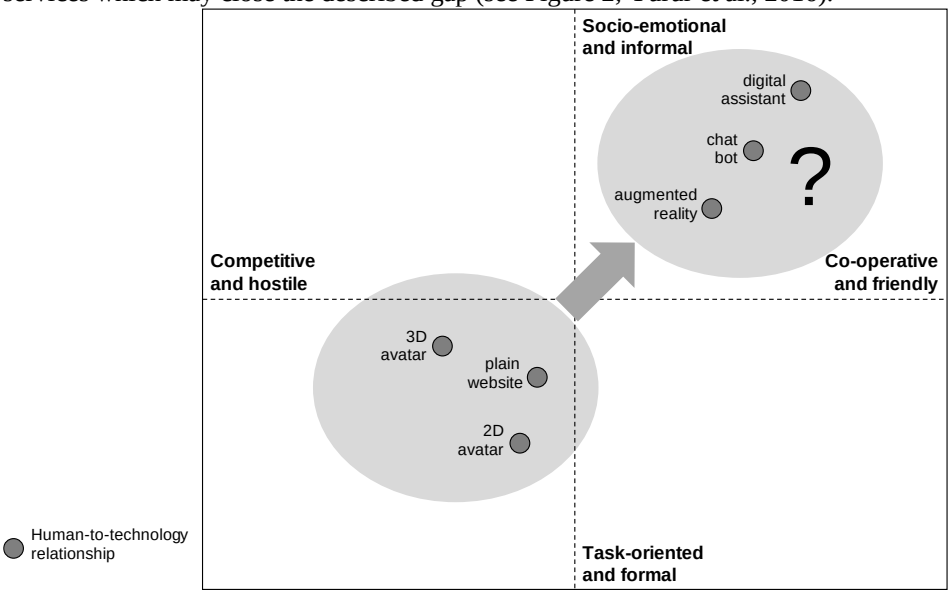

Figure 2: Classic human-to-technology relationships and modern relationships based on Keeling et al. (2013)

For example, emotion-aware digital assistants are able to support the customer in the shopping process, augmented reality can enhance the feeling of advice and product testing or location-aware chat bots can pop up when the customer needs help or an opinion. After a literature review, the exact digital value services we plan to compare will be determined. Based on the customer surveys and interviews we will examine these services in order to identify strengths and weaknesses while enhancing the classification of Keeling et al. (2013). Furthermore, we plan to develop an own prototype, which will be evaluated continuously (see Figure 3).

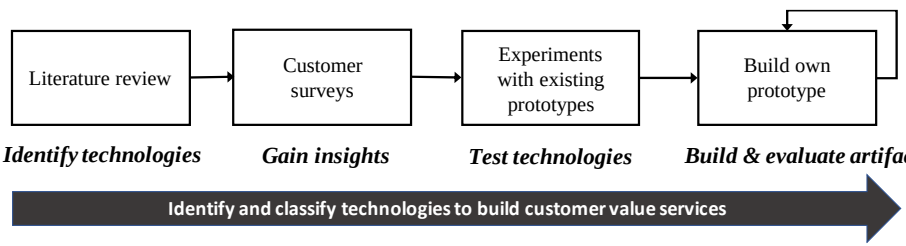

Figure 3: Research process on customer value services for retail

5 Conclusion and Outlook

As pointed out, the brick-and-mortar retail is struggling with the digital transformation and the shift to e-commerce. Hence, to manage this shift and to secure a strong customer relationship, retailers must transform their real-world advantages like personal advisory and the personal contact to the customer into a digital value (support) service. Based on the research on relationships in digital age – especially human-to-computer-relationships – by Keeling et al. (2013), we intend to continue the investigation with modern digital services. Therefore, we will explore the impact of different combinations of technology-mediated value services on customer-retail-relationships. After completing the preliminary investigations by literature and surveys (see chapter 4), laboratory experiments will be carried out. These experiments will be evaluated and continued by field experiments in the local retail business. Followed by the development of an own prototype. In addition, new ways of mobile emotional measurement and analysis provided by unobtrusive wearables like smartwatches will be investigated. The purpose of our research is to understand how a technology-mediated relationship feels. The long-term goal is to pinpoint specific elements in order to create more co-operative and socio-emotional information systems that fit to the users' expectations.

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