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# What's in the parcel locker? Exploring customer value in e-commerce last mile delivery

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## ABSTRACT

This study explores customer value in relation to parcel lockers, a self-service tool that reshapes the delivery and returns experience in the context of e-commerce last mile delivery. Parcel lockers offer a response to retail and last mile delivery challenges provoked by the rapid growth of e-commerce worldwide. Retailers, logistics service providers, communities, and other stakeholders now face issues due to increased volumes of goods sold online. The introduction of parcel lockers to service algorithms is intended to address these issues by involving consumers in the service process. However, the existing research fails to provide knowledge about the customer's view on this new technological solution. This study followed a focus group design and built on grounded theory to provide insights into customer value in relation to parcel lockers. These insights can contribute to both research and practice.

## 1. Introduction

In recent years, business practices worldwide have been shaped by the remarkable rise of e-commerce. According to industrial reports, international e-commerce will grow by 26.6% between 2013 and 2020 (IPC, 2015), and in 2016, it had already reached growth of 7.2% in parcel volumes (IPC, 2017). Undoubtedly, e-commerce is a priority for logistics service providers and postal operators. The global phenomenon of e-commerce can be explained in part by the numerous benefits it provides to actors in supply chains, particularly in last mile delivery (Zott, Amit, & Donlevy, 2000). Consumers gain the convenience, simplicity, and information and time efficiency of online shopping (Chen & Dubinsky, 2003), while businesses benefit from the absence of geographical boundaries, optimized information and flow of goods, and lower delivery, transaction, and advertising costs (Savrul, Incekara, & Sener, 2014; Zott et al., 2000).

Aside from the benefits, rapid e-commerce growth has resulted in the steady increase of parcel delivery and returns volumes, which has accentuated the pressure on last mile delivery actors (Ferrucci & Bock, 2014) and has created a demand for new solutions (Ducret, 2014; Morganti, Dablanc, & Fortin, 2014). To deal with the growing volumes of delivered and returned parcels, increasing customer expectations, and toughening market competition, retailers and logistics service providers are exploring and implementing innovative tools such as self-service technologies (SSTs). In the last mile delivery context SSTs are presented in the form of parcel lockers, which are commonly used for

self-service collection and return of goods purchased online. They can also be found under names like parcel kiosks, locker boxes, automated lockers, self-service delivery lockers, and intelligent lockers. According to industrial reports, parcel lockers have received positive feedback from both consumers and businesses, improving the service experience for the former and providing competitive advantage and performance enhancement for the latter (European Commission, 2012; IPC, 2014). In recent years, parcel locker networks have been growing in national and international markets (Dieke et al., 2013). These networks are forecast to represent a significant share of last mile deliveries (Morganti et al., 2014). The growing interest in parcel lockers can be explained in part by the efficiency of the algorithm that today's technology provides to both sides of this B2C interaction, where the customer plays the role of the service conductor.

Despite receiving considerable attention in the business environment, parcel locker research appears to be scarce. In fact, although studies have mentioned parcel lockers in various contexts, they have not directed scientific attention toward this technology (Ducret, 2014; Mangiaracina, Marchet, Perotti, & Tumino, 2015; Morganti et al., 2014; Weltevreten, 2008). More importantly, what scarce research does exist provides little knowledge about the customer perspective regarding this SST. As a self-service tool, the parcel locker positions the customer as both a service receiver and a service creator. Therefore, the customer is responsible for the customer value co-creation process (Grönroos, 2008) and can be perceived as a service employee (Meuter, Ostrom, Roundtree, & Bitner, 2000). From this perspective, the research gap in

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customer value regarding parcel lockers requires investigation. The gap in our understanding of the customer value creation process implies an inability of customer value management and of efficient improvement of the customer self-service algorithm in the e-commerce context.

To address practical issues and fill the research gap, we adopt the customer value perspective to investigate and provide insight into consumers' perceptions of parcel lockers and customer value regarding this SST. Specifically, the study explores the experience of customer–parcel locker interaction. Using the example of Swedish e-consumers, the study determines what value the technology creates by providing an alternative algorithm for receiving and returning goods purchased online. The findings provide stakeholders with a foundation upon which to improve customers' parcel locker experiences. This paper also contributes to the literature by filling the gap in our knowledge of customer value in relation to this widely applied technology.

The study is organized as follows: [Section 2](#) includes a brief review of customer value and value creation as well as the application of these concepts to self-service tools in e-commerce. [Section 3](#) describes the method, and [Section 4](#) presents the results and propositions. This is followed by a discussion in [Section 5](#) and conclusions in [Section 6](#).

## 2. Theoretical background

### 2.1. Customer value creation

Customer value is a multidimensional phenomenon that is applicable to many disciplines. In economics, value has traditionally been studied from the manufacturer's perspective, until the customer became the focus in the middle of the 20th century ([Drucker, 1954](#); [Levitt, 1960](#); [McCarthy, 1960](#)). Cost and cost savings were viewed as sources of value for both manufacturer and consumer. [Porter \(1985, p. 3\)](#) defined value as “what buyers are willing to pay.” Recently, the research shifted its focus when customer value appeared as a source of competitive advantage and profit generation for various stakeholders in the market ([Woodruff, 1997](#); [Zeithaml, 1988](#)). This shift triggered a wave of studies dedicated to perceived customer value ([Sanchez-Fernandez & Iniesta-Bonillo, 2007](#)). Recent research has described the customer as a one of the value creators ([Grönroos, 2008](#); [Vargo & Lusch, 2004, 2008](#)) and the consumer as a partial employee ([Mills, Chase, & Margulies, 1984](#)). It appears that customer involvement in value creation leads to benefits for various stakeholders ([Hsieh, Yen, & Chin, 2004](#)). Considering the aforementioned arguments, the conceptual perspective determines the nature of customer value. In addition, customer value can be created by both organizations and customers themselves.

Customer value in e-commerce may differ from customer value in other contexts. [Amit and Zott \(2001\)](#) suggest that no management theory on its own provides a complete description of value creation and its potential in an e-business context. While an e-firm uses its financial, physical, legal, human, informational, relational, and technological resources to develop a service, an e-consumer uses physical, social, financial, and cultural resources to assess the service and extract value from it ([Paredes, Barrutia, & Echebarria, 2014](#)). It is noteworthy that e-commerce companies create customer value that is specific to the context, including service personalization, ease of switching supplier, customization, virtual communities, and new goods and service features ([Christensen & Methlie, 2003](#)). Yet e-consumers are seen as a critical link in customer value creation because customer behavior and participation define service quality ([Janda, Trocchia, & Gwinner, 2002](#); [Lee & Lin, 2005](#); [Michałowska, Kotylak, & Danielak, 2015](#)).

### 2.2. Self-service customer value

Including the customer in the value creation process is especially meaningful in contexts where self-service tools are used. Involving the customer in the service algorithm has provided organizations and consumers with new opportunities and benefits in terms of delivery,

precision, customization, costs, productivity, competitiveness, service time frames, customer satisfaction, and customer loyalty ([Alcock & Millard, 2006](#)). In practice, firms often use SSTs in the organization of self-service streams. These diverse technological tools have received attention from different industries, research communities, and consumers. For consumers, SSTs offer service time and cost savings ([Meuter, Bitner, Ostrom, & Brown, 2005](#)), location convenience ([Kauffman & Lally, 1994](#)), service efficiency, and enjoyment ([Bitner, Ostrom, & Meuter, 2002](#)).

In e-commerce, customers are involved in value creation to a high degree because the customer conducts part of the service online ([Paredes et al., 2014](#)). Moreover, greater use of SSTs increases the customer's responsibilities in the e-commerce context. The principal group of SSTs consists of Internet-based SSTs, which consumers use for their online purchases and other services. Other types of SSTs are implemented by organizations in their offline service algorithms. Once the product has been purchased, online retailers need to ensure that it reaches the customer. At this point, retailers and logistics service providers turn to the parcel locker. This type of self-service kiosk is a recent development with multiple applications, including as a crucial tool in the e-commerce last mile delivery context. The research on parcel lockers and their value for customers is scarce. The published findings suggest that parcel lockers offer customers advantages such as flexible opening hours for delivery collection, faster deliveries, avoidance of time pressures to collect the parcel, and anonymity when collecting the parcel ([Weltevreden, 2008](#)). Parcel lockers also have the potential to reduce environmental impact and increase the total speed of service ([Quak, Balm, & Posthumus, 2014](#)). At the same time, parcel lockers have disadvantages from the customer perspective. These disadvantages include low ease of use and payment flexibility, limited storage possibilities, and sensitivity to crime and vandalism ([Weltevreden, 2008](#)).

## 3. Methodology

A qualitative research strategy was chosen for two reasons: 1) Customer value and SSTs in last mile delivery are emerging empirical topics about which comparatively little is known. 2) Such a strategy can provide preliminary explanations and descriptive inferences ([King, Keohane, & Verba, 1994](#)). Focus group interviews were viewed as a suitable technique because they allow access to experiences and a means of investigating complex behaviors and motivations during focus group interactions that create synergies ([Morgan & Krueger, 1993](#)). The method has certain drawbacks related to organizational issues and the moderator's interaction with participants ([Morgan, 1996](#)). These potential methodological weaknesses were addressed by strictly following the guidelines suggested by [Stewart, Shamdasani, and Rook \(2007\)](#).

### 3.1. Sampling design and setting

The sample consisted of 26 participants. The sampling frame covered e-consumers in Sweden. The participants were recruited via an email that was sent to different units in an office center and students at a local university. The response rate was 15%, which is acceptable for the chosen recruitment method. The participants were chosen to balance the sample across different population dimensions. The focus groups had participants ( $n = 26$ ) of different genders (14 men and 12 women), ages (20–59 years), occupations ( $n = 13$ ), nationalities ( $n = 17$ ), and e-purchase frequencies.

The setting included actual interaction with parcel lockers. Prior to participating in this study, the participants had different levels of parcel locker experience. To ensure all participants had the same level of experience, all participants conducted an experiment in a natural setting where they collected and then returned a parcel using a parcel locker. Actually using the parcel lockers ensured that participants would share a common experience, which would motivate a reflective state of mind.

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