

# PREVENTIVE PRODUCT RETURNS MANAGEMENT SYSTEMS - A REVIEW AND MODEL

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# PREVENTIVE PRODUCT RETURNS MANAGEMENT SYSTEMS – A REVIEW AND MODEL

*Complete Research*

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## Abstract

*Intense competition among online retailers and high customer expectations drive product returns, which eat into online retailers' profits. Thus, online retailers need to find ways to reduce return rates without causing a concomitant decrease in sales. Using a grounded theory approach which combines literature-based insights and in-depth qualitative interviews with managers from major online retailers, the authors propose a framework for understanding the antecedents of the decision to implement a product returns management system (PRMS). In addition, the framework considers three types of preventive instruments online retailers employ to reduce product return rates as well as moderators of the linkage between the decision to implement a PRMS and the chosen instruments type. The authors conclude with a brief discussion of future research directions.*

*Keywords: e-commerce, instruments, product returns management system*

## 1 Introduction

Product returns continue to be a challenge for the retailing industry. Both brick-and-mortar and online retailers incur substantial costs through taking back and restocking returned products. European online retailers experience product return rates of 40% or higher in product categories such as fashion (Accenture 2012). Handling each returned item costs online retailers between \$6 and \$18 (The Economist 2013). While the whole retailing industry is hemorrhaging profits owing to high return rates, this problem is particularly rampant in online retailing. Not surprising, retailers' product return management systems (hereafter PRMS) remains a pressing issue for online retailers (Bower and Maxham 2012). This is especially true for European Union (EU) online retailers that cannot recoup returns-related expenses by charging product return penalties owing to competitive pressure or legislation reasons. As of 2014 EU law stipulates that online retailers have to offer a no-questions return period of 14 days to their customers (The Economist 2013).

Despite the economic relevance of product returns, research on online retailers' PRMS remains scarce, both within and outside the information systems (IS) field. Especially research on preventive measures remains conspicuously absent from the literature. We believe the topic of product returns is important to IS research, given that IS (e.g., ERP, CRM systems) are involved in most e-commerce transactions, including the procedures for handling the product returns. IS research tends to take a supply chain

perspective and deals with the optimization of handling product returns (Bose and Pal 2012). For example, the Supply-Chain Operations Reference model (SCOR) recommends how product returns handling can be implemented. However, SCOR is not focusing on the prevention of consumer returns (Stephens 2001) and there is sparse research into preventive product returns management in IS literature (Hong and Pavlou 2010). The present research blends IS literature with insights from the management field to propose a conceptual model of the drivers and consequences of online retailers' decision to implement a PRMS.

A 'product returns management system' refers to a set of procedures that determine the processes of decision making and actions in relation to product returns as well as a sequence of activities which is carried out in an attempt to reduce product returns. This research is based on the assumption that PRMS are strategically relevant (Mollenkopf et al. 2011). Thus, it is important to understand what drives the decision to implement (i.e., invest in) PRMS and which measures online retailers consider viable in terms of effectively reducing returns. Using a grounded theory methodology, we develop a framework that links the decision to implement a PRMS with its antecedents and three outcomes (i.e., instruments). As a primarily (but not exclusively) inductive, theory discovery methodology, grounded theory enables researchers to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data (Martin and Turner 1986).

Drawing on literature-based insights and field interviews with fourteen senior managers in online retailing we propose a classification of PRMS instruments which reflect three types of instruments—monetary, procedural and customer-based instruments. This research is important for both conceptual and practical reasons. Conceptually, to gain an improved understanding of PRMS and their effectiveness, scholars need to move beyond findings based on individual PRMS instruments. Practically, such research is critical for online retailers because they need to avoid allocating resources to less effective instruments.

## 2 Developing a framework for preventive product returns management systems

Because our goal was theory building through the construction of a framework regarding online retailers' PRMS, a grounded theory methodology was employed (Glaser 1998). A grounded theory approach is appropriate because it allows us to draw on various sources to construct a framework. A literature review and qualitative data (that contains inductive and deductive thinking) resulted in a framework (see Figure 1).

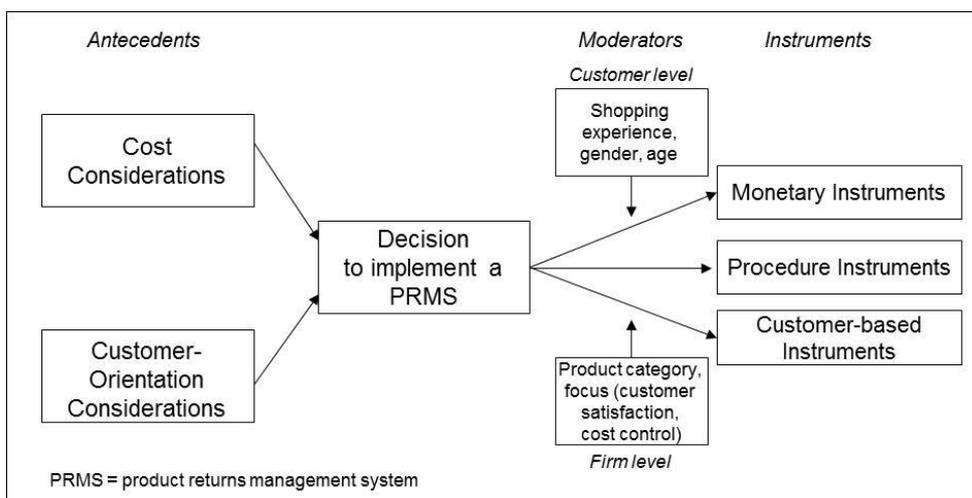


Figure 1. Conceptual framework

The proposed framework helps researchers and online managers better understand the considerations that drive online vendors' decision to invest in and implement a PRMS as well as the preventive instruments (to be) implemented. Specifically, future research can develop hypotheses about the relationships identified in this study.

## 2.1 Literature review

While some proponents of grounded theory argue against an early literature review in the substantive area, others maintain that prior knowledge of the field is important because it shows how a study contributes to knowledge in an existing field (cf. Dunne 2011; Suddaby 2006). Following this latter approach, and in order to achieve a deeper understanding of product returns management and to assess extant research, we conducted a systematic search (cf. Cooper 1998) which encompassed journals in the fields of IS, (online) marketing, operations, general management, and logistics for the 1997 to 2013 timeframe (see Table 1), tapping databases such as Web of Knowledge and EbscoHost. We selected 22 articles from journals which met certain minimum requirements in terms of 2011 Thomson Reuters Journal Citations Report (TRJCR; 5-Year Impact Factor  $\geq 2.0$ ) and 2011 SCImago Journal & Country Rank (SJR  $\geq 1.3$ ).

The selected articles were analyzed with a view to what drives the decision to implement PRMS and which preventive instruments online retailers employ. As a result of this analysis, two primary reasons for, or antecedents of, the decision to implement a PRMS emerged, namely cost considerations and customer orientation considerations. In addition, the literature details different instruments which can be categorized into three groups of instruments—monetary, procedure and customer-based instruments. The antecedents and instruments were also mentioned by informants in the qualitative interviews. The categorization of instruments will be explained in the next section. Our approach is in keeping with grounded theory which attempts to understand the action in the substantive area from the point of view of the actors involved, that is, PRMS-related decisions of online retailers.

Publication	Description of study	Monetary	Procedure	Customer-based
Bandyopadhyay and Paul (2010)	Conceptual study (related to Pasternack 2008); the authors propose a model of two competing capacity-constrained manufacturers offering return policies for perishable commodities to a retailer.	X		
Bechwati and Siegal (2005)	Development of a framework about consumer choice reversibility and consumers' likelihood to return products.			X
Bower and Maxham (2012)	Studies of long-term consequences and normative assumptions of fee and free return policies.	X		
Gurnani et al. (2010)	Modeling the optimal returns policy between manufacturer and retailer under demand uncertainty.	X		
Heiman et al. (2002)	Research on the impact of money-back guarantees as a put option (contract between two parties to exchange an asset at a specified price).	X		
Lyer and Villas-Boas (2003)	Development of a framework to examine bargaining between manufacturers and retailers including the impact on return policies.	X		
Ketzenberg and Zuidwijk (2009)	Modeling of the operational decisions on the optimum selling price, return policy and the quantity of purchased products for consumer goods.	X		
Kim and Forsythe (2008)	Study about the adoption of virtual try-on for apparel shopping in the internet.			X

McWilliams (2012)	Research on the optimal use of money-back guarantees at low and high quality retailers.	X		
Mollenkopf et al. (2007)	Examination of the impact of the product returns management on customer loyalty intentions based on service quality, satisfaction and intention to repurchase, etc.	X	X	
Mollenkopf et al. (2011)	Development of a framework of return management based on marketing-operations interface by conceptualization of customer value and its related drivers.	X	X	
Mukhopadhyay and Setoputro (2007)	Analysis of the relationship between product design quality, product price and the return policy.	X	X	
Ofek et al. (2011)	Theoretical study of competing multichannel retailers in terms of the impact of product returns on their strategies. The study focuses on pricing strategies and physical store assistance levels.	X		
Pasternack (2008)	Development of a model to analyze how a manufacturer can coordinate the channels with optimal pricing and return policies for perishable commodities.	X		
Petersen and Kumar (2009)	Empirical demonstration of product returns effects which focuses on customer buying behavior in the firm-customer exchange process.	X		
Shulman et al. (2010)	Theoretical paper which establishes the optimal reverse channel structure for consumer product returns and assesses how the return penalty is affected by the retailer and manufacturer.	X		
Taylor and Xiao (2009)	Conceptual study about rebates and return contracts for retailers as an incentive for forecasting.	X		
Tsay (2001)	Study about managing a retail channel overstock in a manufacturer-retailer relationship with return policies and unknown demand, focused on effect of "markdown money".	X		
Wood (2001)	Experimental study about the behavioral consequences of online shopping, focused on the effect of return policies.	X		
Yalabik et al. (2005)	Research of logistics and marketing decisions for designing an optimal product returns management system for retailers in two distinct market segments.	X	X	X
Yao et al. (2008)	Theoretical analysis of the impact of price-sensitivity factors on characteristics of returns policy contracts in a supply chain.	X		
Yao and Zhang (2012)	Analytical model and empirical analyses about the optimal pricing for shipping services of online retailers with aspects of product returns cost.	X		

Table 1. Summary of reviewed literature

Our literature review reveals that procedure instruments and customer-based instruments find little application in current research of product returns management. Extant studies tend to focus on online retailers' optimal profit in relation to customers' product returns and replacement purchases (Petersen and Kumar 2009), on the size of return penalties depending on whether the retailer or manufacturer handles returned products, and customers' motivation to return products online (Piron and Young 2000; Shulman et al. 2010). While these studies have made a contribution to our understanding of what affects product return rates, none appear to have assessed the drivers of the decision to implement a PRMS and the scope of online retailers' instruments aimed at effectively reducing return rates. Next, the classification of product returns management instruments will be explained and compared with these review results.

## 2.2 Qualitative interviews

### 2.2.1 Method

Since the literature does not yield a clear and comprehensive picture of the application of PRMS instruments in e-commerce practice, we used in-depth semi-structured interviewees. Using a quasi-convenience approach to informant selection, we interviewed 14 executives from 14 European online retailers with different assortment strategies that met certain selection criteria (see Table 2). The retailers' annual turnover ranged from €5m to €476m.

	Name	Occupation	Online retailer's assortment
1	Alice	Assistant to the e-commerce department	fashion
2	Bob	Head of returns management	electronic
3	James	Head of online store	fashion
4	Emily	Head of online store	fashion
5	William	Head of online store	fashion
6	Michael	Head of online communication	shoes
7	Anthony	Head of online store	shoes
8	Christopher	Assistant to the e-commerce department	fashion
9	Lily	Manager customer service	fashion
10	Alexander	Manager	fashion, accessories, motorbike equipment
11	Logan	Manager online marketing	books, music, video
12	Horst	CEO	accessories, gifts
13	Oliver	Member of returns management strategy division	fashion, shoes, accessories
14	George	e-commerce project manager	electronic

Table 2. Overview of interviewed person

Guided interviews were conducted which lasted approximately 45 minutes. The interviews were recorded and then transcribed for analysis. The interviews were started with a 'setting-the-scene' question to obtain information on the background of the participants, the online retailer and to provide basic information on the interview's purpose. Subsequently, questions on returns management in general were discussed as well as the retailer's preventive PRMS instruments using the laddering interview technique.

Grounded theory (GT) is a qualitative research approach that aims to develop theory about phenomena of interest, in which the theory needs to be rooted in observation (Glaser 1998). The qualitative data from each completed interview were transcribed into a spreadsheet program for line-by-line analysis. Following Glaser's (1998) recommendations, similar answers were placed together to form the conceptual properties of the respective categories. One of the first tasks in GT is to determine the core category, referring to the category that centers on emergent theory. While the returns-preventing instruments that emerged from the qualitative data do find mention in the literature, these instruments tend to be discussed in isolation and are not discussed in relation to PRMS.

Most of the retailers have a return rate of more than 50%. However, specialist retailers tend to have a lower return rate than generalist online retailers. The book, music and video online retailer interviewed reports a low return rate (< 5%), so does the electronics online retailer (< 10%). The handling costs of returned products are a very big issue for our interview partners. James, describes it like this:

*There is already a certain pool of costs because of the handling. The customer can return products without paying a fee. But we must check, store and possibly refurbish the merchandise. Such a return generates per-unit costs of about 8 to 10 Euro. If a customer purchases two units*

*and sends one back, we earn nothing on this customer. If we get a product return, the handling costs are on average between 20-30% of the price. (James, head of online store)*

The statements of other informants are consistent with James' and emphasize the importance of product returns management and the considerable challenge returns pose for online retailers. Previous research corroborates the notion that most service firms struggle to reconcile the competing goals of cost orientation and customer orientation (Anderson et al. 1997). Besides this tradeoff problem, little is known about the antecedents of online retailers' decision to implement PRMS. Our interviews confirm that most online retailers feel they need a PRMS to effectively reduce returns-related costs because those costs hurt their profit margins. At the same time, retailers realize that customers expect high-quality service not only when purchasing but also when returning products. Also, many customers would prefer not having to return products at all owing to the time and effort associated with returning products. Thus, a retailer's consideration for its customers also necessitates a PRMS. In the following vignette, Horst alludes to the two drivers of the decision to implement a PRMS:

*There is a realization that we lose money with every return. However, adopting a non-lenient return policy is not an option. Customers would vote 'with their feet' and shop at a different vendor. Thus, what we really need is a system that allows us to deal with the products that are returned in a cost-effective way while enabling us to help the customer to make less returns-prone buying decisions. (Horst, CEO)*

All of the informants (100%) described instruments aimed at financially disincentivising (or financially incentivizing) customers from returning (retaining) products, and the emergent core category in their stories supported the existence of 'monetary' instruments (Glaser 1998). Sixty percent of informants referred to instruments designed to either reduce transparency (in relation to the return process) for customers, to identify 'return sinners' and to increase the efficiency of the order and delivery process, indicating an emergent category 'procedure' instruments. The third emergent category, 'customer-based' instruments, was alluded to by roughly half of the informants. This category refers to instruments that attempt to increase the ease of the order process from the consumer perspective by reducing consumers' perceived pre-purchase uncertainty. The three emergent groups of instruments (see Table 3) are described next in relation to the pertinent literature.

<b>Monetary instruments</b>	<b>Procedure instruments</b>	<b>Customer-based instruments</b>
<ul style="list-style-type: none"> <li>- Restocking fees</li> <li>- Money-back guarantee</li> <li>- Discounts (for not returning products)</li> <li>- Gifts (for not returning products)</li> <li>etc.</li> </ul>	<ul style="list-style-type: none"> <li>- Safety packaging</li> <li>- Cycle-time optimization</li> <li>- Return advice</li> <li>- Different return channels</li> <li>- Contacting/banning of "return sinners"</li> <li>- Not providing merchandise return card</li> <li>etc.</li> </ul>	<ul style="list-style-type: none"> <li>- Virtual try-on</li> <li>- Avatar</li> <li>- Customer reviews</li> <li>- Product advice</li> <li>- Height/size charts</li> <li>- Product-availability information</li> <li>etc.</li> </ul>

Table 3. PRMS instruments

### 2.2.2 Monetary instruments

Monetary instruments are mechanism tools which provide a monetary incentive to the customer to keep the ordered products or reduce the risk of purchase for the consumer (Shulman et al. 2010). There are different types of monetary instruments described in the literature which also emerged during the qualitative study, such as restocking fees, money-back guarantees, discounts, shipping-fee discounts, and gifts (Petersen and Kumar 2009). However, existing research has focused particularly on the effectiveness of restocking fees and money-back guarantees.

Questions about the use of monetary instruments showed that the interviewed retailers considered using them, but few have implemented them already. Several informants pointed out that although in breach of distance selling regulations in the European Union, some European online retailers try to impose a restocking fee, consistent with the literature (Shulman et al. 2010). However, none of the managers that we interviewed indicated their companies use a restocking fee to tackle product returns.

Other informants mentioned money-back guarantees which offer customers full refunds for returned products (Heiman et al. 2002). While restocking fees have a punitive character, money-back guarantees aim at reducing consumers' pre-purchase uncertainty. Reduced consumer uncertainty is expected to be associated with greater spending (Heiman et al. 2002). However, only three stores stated they implement a money-back guarantee as most informants view these instruments very skeptically.

*I think these instruments are nonsense for the products we sell. When you buy shoes from us online and they do not fit, I can give you 10 Euro, but it won't change the fact that they don't fit. (Anthony, head of online store)*

Overall, informants did not seem enthusiastic about implementing money-back guarantees, fearing higher costs without improving profitability. Additional monetary instruments include discounts, shipping savings or special gifts which primarily aim at incentivizing consumers to keep the shipped products. Finally, one recurring theme in the interviews in relation to monetary instruments was that the savings resulting from these instruments might be offset by the costs of running them, including additional administrative and accounting costs.

### 2.2.3 Procedure instruments

The reviewed literature yields little research on procedure-related PRMS instruments (Mollenkopf et al. 2007; 2011). However, informants did make references to this group of instruments. Procedure instruments are those which affect return likelihood in the post-order phase. These instruments, which aim at making more complicating the return for customers or improve the shipping to the customer, include an intransparent return process, refusing to process orders placed by "return sinners" (i.e., online shoppers that make many returns) or a direct communication to the customer about the undesirability of product returns. 'Hassle costs' make returning products undesirable for customers (Mollenkopf et al. 2007). In this case, hassle costs are the non-monetary effort and inconvenience a customer incurs disposing of a product. For example, Amazon requires customers to print their return documents themselves, which results in search costs.

In contrast to the monetary instruments, the procedure instruments were frequently used. Most retailers (n=12) do not serve "return sinners" and – in moderate cases – ask them to decrease their return rate (n=11 retailers). The cycle time (i.e., amount of time spent per unit sold) and safe packaging instruments are employed by all interviewed retailers. Only five retailers do not explain the return process to the consumer and do not add return documents to their shipments. Most retailers (n=10) do not offer alternative return channels for the consumer to choose from. The interviews also indicate online retailers are reluctant to enact automatic responses to observed excessive consumer product returns in order to avoid the negative impact on customer loyalty. In one of our interviews, Alexander puts it this way:

*Currently we have no automatic system to respond to excessive product returns. It is not yet implemented, instead we examine every single case manually. When we find that, for example, someone ordered 5 times and returned 5 times, then we very carefully approach the consumer – for example, via letter or e-mail – and ask "What are we doing wrong?" [...] Because it can be also 5 mistakes made by us. (Alexander, manager)*

Additional procedural instruments include the optimization of the cycle time for shipping, safety packaging, and the provision of multiple return shipping channels, and special instructions on labeling.

If the customer receives a delayed or damaged shipment, the return likelihood is expected to increase (Mollenkopf et al. 2011). When an electronic retailer provides multiple return shipping channels, perceived convenience of the return process increases which is likely to result in higher return rates.

#### 2.2.4 Customer-based instruments

Overall, there is surprisingly little research on customer-based preventive product return management. Peterson and Kumar (2009, p. 36) refer to this fact when stating that “customer product returns behavior has often been ignored”. Nonetheless, informants confirmed that this group of instruments results from having established (or planning to establish) a PRMS. Customer-based instruments are instruments which aim at influencing the customer before and during the order process. The purpose of using these instruments is to communicate suitable information about the product to customers, so they can evaluate the personal fit more precisely and refrain from returning it because of a possible misfit (Yalabik et al. 2005). Virtual try-ons, avatars, customer reviews, detailed product description are typical examples for this class of instruments.

Regarding customer-based instruments none of the retailers interviewed has yet implemented an avatar or a virtual try-on solution. However, three retailers are planning to launch avatars and/or virtual try-ons in the near future. When the subject was broached during interviews, informants agreed that instruments such as virtual try-ons could be useful because they allow consumers a more real-world look at what their products might really look like on them. However, retailers perceive these instruments as challenging, mainly because of expense and the lack of related experience.

*We would really like to implement this, but there are still some important things to clarify, like how to produce suitable photographs of the apparel. We are currently discussing internally whether we can implement it and what the price tag is. (Alice, assistant to head of e-commerce)*

Avatars as virtual shopping assistant can be one way to communicate product advice and therefore facilitate a successful match between the customer and the product. In this context, Logan states:

*I could very well imagine an avatar as a product advisor due to the size of our product range. It could decrease the return rate, because the customers simply find what they are looking for. (Logan, manager online marketing)*

These statements outline the challenges of implementation, user acceptance and product category dependency of customer-based instruments. Another instrument discussed during interviews were customer reviews, which are a form of customer feedback on shopping websites. Customer reviews of products embedded in the product purchase website are used by many retailers (n=8) as a customer-based instrument to prevent returns. Size guides are implemented in ten retailers, however the informants come to no clear judgment regarding their effectiveness. The information on the product availability is present in the online shops of all retailers interviewed, as a means for preventing returns induced by late delivery. Telephone-mediated customer service is used by ten of 14 online retailers. Comprehensive product information is implemented by the majority of the retailers (n=10) in our sample. For example, some retailer websites advise shoppers whether an item considered is the same size as the one viewed during previous visits.

Moreover, the interview data give reason to expect that customer-level and firm level variables moderate the relationship between the decision to implement a PRMS and the chosen instruments type. A moderator is a third variable that affects the strength of the relationship (e.g., correlation) between two other variables.

Informants indicated that once the decision to implement a PRMS is made, the type of instruments chosen depends on various factors, including their target group. If for example an online vendor primarily targets senior consumers, which are often said to be more apprehensive and skeptical toward online shopping (Sorce et al. 2005), monetary instruments may be less useful than procedure

instruments. Several informants described the notion of older consumers' reluctance to make 'unnecessary' financial commitments when shopping online. This is demonstrated by the following vignette:

*Even if we would like to use monetary penalties and incentives as a means to reduce the number of returns, we are not sure our customers would welcome such measures. (Anthony, head of online store)*

Other informants pointed out that certain measures would be rendered largely ineffective given the extensive online shopping experience of their customers. Informants explained that experienced customers would react frustrated and angrily if the vendor tried to increase the customer's hassle costs, for example by hiding the return policy.

*Sure, we could make returning products more difficult for our customers, as some do. But on average, our customers are a bunch of Internet savvy people and they know what they are entitled to and what they can expect when shopping online. If we introduced such underhand measures to reduce returns, we would probably see some collateral damage in terms of negative word of mouth or a drop in repurchasing. (James, head of online store)*

Regarding firm level variables, informants stressed that, amongst others, their assortment (i.e., products they sell) and their strategic focus would play a role in choosing the 'right' instruments. Several informants stressed that not all available instrument options are suitable for their firm. For example, one informant suggested that his firm's assortment was incompatible with instruments that give customers enhanced abilities to return products:

*If we were to adopt a similarly lenient return policy as a well-known online shoe retailer, we would be shooting ourselves in the foot. We sell consumer electronics and the latest gadgets which become outdated quickly or are superseded by newer products. If, let's say, a tablet computer was returned after 10 weeks it would be near impossible to resell. It would have signs of usage or the customer would wait a few more weeks for the newest edition. Thus, we cannot infinitively extend the return period; we have to focus on the cost side of things and try and develop a system that works for us without alienating too many customers. (George, e-commerce project manager)*

Another informant reported that his firm is pursuing a customer orientation strategy and that using certain monetary instruments would be inconsistent with such strategy:

*We want customers to come back, to refer us to friends and family. Thus, we have to be better than our competitors and make the shopping experience as convenient and hassle-free as possible. Disincentivising customers to return products is possible if we apply financial penalties, but will customers be happy? I should think not. So we think it is more important to help the customer find what she is looking for. When the customer is happy with the product, there is no need to return it. (Oliver, member of returns management strategy division)*

Taken together, online retailers need to find ways to reduce return rates without causing a concomitant decrease in sales.

### 3 Conclusion and Future Research

The aim of this research was to improve understanding of drivers and consequences of online retailers' decision to implement a PRMS, thus seeking to better understand measures taken by e-commerce companies to reduce product returns. Extant literature emphasizes monetary instruments for preventive product returns management (e.g., restocking fees), however, the qualitative interviews reveal a more nuanced picture. Online retailers are aware of the gamut of possible monetary instruments, but are generally reluctant to deploy them because they fear alienated customers and increased accounting

costs. Our interviews reveal procedure instruments are extensively used by online retailers. The situation looks quite similar in terms of customer-based instruments such as virtual try-ons, which are largely overlooked in existing research. Nevertheless, our interviews suggest that these instruments can have an impact on the rate of product returns and thus deserve more attention in future research. As posited in other scenarios such as remanufacturing, we can therefore reject the idea that firms must passively accept product returns in e-commerce and propose a framework with alternative mechanisms to monetary instruments.

Our qualitative data show that a PRMS is more instrumental to some firms than others, for both reducing returns-related costs and creating a better shopping experience for customers. The two antecedents in our framework address the influence of both cost and customer considerations. The proposed framework and the three categories of instruments planned and/or deployed by vendors can point towards future research in terms of extension and cross-cultural confirmation. We believe it is useful to distinguish three groups of preventive instruments which allow research to more precisely study the effectiveness of returns prevention approaches.

Future research could investigate whether the findings can be confirmed for more online retailer types than the ones considered in the present study. Our informants were asked to talk about their experiences and that of their companies. Using an online retailer taxonomy, retailers' PRMS could be examined for retailers selling low-risk vs. high-risk products (or complex vs. non-complex products). This will allow researchers to better understand the use and effectiveness of context-specific PRMS and preventive instruments. Furthermore, this study examined only one side of the product-returns phenomenon. All of the findings are based on the reported experiences of online retailers. Accordingly, retail customers could be surveyed to ascertain that the instruments planned or used by online retailers have the intended effect on customers. Also, to effectively manage product returns, the effectiveness of different preventive instruments needs to be measured. This is why the authors intend to develop and validate measures representing the three preventive instruments identified in this study. Such measures would enable e-commerce researchers and practitioners to examine the relationships between the instruments and explore important causal relationships. The authors will further consider contingencies of such relationships. For example, it is conceivable that the relationship between hassle costs (i.e., procedure-related instrument) and number of product returns is moderated by consumers' shopping experience; in the case of more experienced online shoppers, hassle costs may not lead to reduced return rates because these consumers know how to return products with little time costs for themselves. In contrast, less experienced shoppers may be deterred by such hassle costs and decide to retain a product even if they would like to return it. Taken together, our conceptual model and the relationships depicted therein can be the basis for future research.

Much useful research has been done on different aspects of product-returns management, yet the returns literature in the information systems field is neither cohesive nor mature. Online vendors know preventing returns is important because it increases profitability, even if retailers are not always sure how to achieve lower returns. PRMS seems uncharted territory. It tends to be either treated generally in the IS/operations literature or lumped into a general approach which does not distinguish between different types of instruments. Future research therefore could also benefit from a more design-oriented research approach. For example, researchers could examine the effects of the implementation of product return management software using design science research which involves a sequence of problem identification, design and development, demonstration, and evaluation (Gregor and Hevner 2013). Evaluation, in turn, might be conducted in relation to our conceptual framework.

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