



Paving the way towards circular consumption: exploring consumer acceptance of refurbished mobile phones in the Dutch market



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ABSTRACT

In the transition towards a circular economy, refurbishment can be applied to regain value from used products, and to reduce waste. Refurbishment is a process in which a professional company collects and restores used products in order to resell these products to new consumers. Building on insights from the remanufacturing literature, this research is the first to provide a comprehensive understanding of the factors that influence consumer acceptance of refurbished products, and in specific refurbished mobile phones. We adopted a qualitative approach using in-depth interviews with consumers ($n = 20$) of new and refurbished phones to gain rich insights into consumers' considerations that play a role in the choice of a refurbished product over a new product. This paper maps out the main factors that influence consumer acceptance of refurbished mobile phones. Our findings uncover that the majority of consumers do not take a refurbished product into consideration as a consequence of a lack of awareness and a misunderstanding of what refurbishment actually entails. In addition, refurbished products are often rejected as a consequence of a negative trade-off between perceived risks and benefits. Personal, contextual and product-related factors have been identified that influence consumers' assessment of a refurbished product's risks and benefits. Finally, the findings have been translated into practical guidelines for designers and marketers to positively steer consumer perception of refurbished products.

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1. Introduction

The circular economy offers important opportunities to regain value from used products and to stimulate a shift towards a more sustainable consumption model in which valuable resources are reused and less waste is created (Ellen MacArthur Foundation, 2012). Within the concept of the circular economy, refurbishment is a promising strategy that enables high original value retention. Refurbishment is a process in which a professional company collects and restores used products to a functional and satisfactory state, after which these refurbished products are sold to new consumers (Rathore et al., 2011). In contrast to recycling, refurbishment does not require complete dismantling of products. Consequently, a high amount of the original energy and labor that was required for production is preserved. In the academic literature, refurbishment is often used interchangeably with remanufacturing, although it is not exactly the same. Where the remanufacturing process focuses on returning products to a like-

new condition that meets at least the original specifications (Ayres et al., 1997), the condition of refurbished products should be satisfactory but not necessarily equal to the original specification (Ijomah et al., 1999). The present study will focus on refurbishment, but because of the correspondence with remanufacturing and the lack of research specifically on refurbishment, insights from the remanufacturing literature will also be used.

Academic research in the area of product life extension has mainly focused on strategic and operational aspects of remanufacturing, like influences on competition and cannibalization (Agrawal et al., 2015; Atasu et al., 2008; Debo et al., 2005; Guide and Li, 2010), remanufacturing guidelines (Hatcher et al., 2011; Ijomah et al., 2007; Subramoniam et al., 2013), and functional design tools and methods to enhance the remanufacturability of products (Allwood et al., 2011; Hatcher et al., 2011; Rose, 2000). Besides environmental considerations, these studies have shown that remanufacturing and refurbishment can be valuable strategies for many companies for economic reasons (Atasu et al., 2008; Guide and Wassenhove, 2001; Linton, 2008; Ovchinnikov et al., 2014). Because refurbished products attract new consumer segments that would have never bought a new product, the risk of new product

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cannibalization has been shown to be minimal (Atasu et al., 2010; Guide and Li, 2010). Refurbishment can be seen as cost-effective, high-quality and socially responsible alternative for developing a low-end product version. In case of neglecting this opportunity, companies will run the risk of competing against a third party offering a refurbished version of their own product, which will definitely decrease market share and can result in brand erosion (Ferguson and Toktay, 2006).

To increase the share of refurbished products in the commercial market, there is a need for insights on how to develop refurbished products that will have a strong appeal to consumers (Jiménez-Parra et al., 2014; Souza, 2013). A consumer perspective on refurbished products has been largely unexplored. An explanation for a lack of research on a consumer perspective may be that refurbishment has its origins in the business-to-business market, for example with copiers. Nowadays, refurbishment is gaining interest from consumer companies, for instance in personal and home electronics (e.g., mobile phones, laptops, tablets), and in clothing and baby products (e.g., prams, travel cots and car seats) (Armstrong et al., 2015; Catulli, 2012; Mont et al., 2006).

The present research contributes to the literature on product life extension by providing a comprehensive understanding of the factors that influence consumer acceptance of refurbished products, and specifically refurbished mobile phones. These insights can be used for the development and commercialization of refurbished products that will satisfy consumer needs and increase consumers' purchase intention.

The remainder of this paper is organized as follows. In Section 2, we discuss the theoretical background of consumer responses towards refurbished products and describe the knowledge gap that is addressed. In Section 3, we explain the used methodology. Section 4 reports and discusses the findings of our explorative study, which are translated into practical guidelines for increasing consumer acceptance in Section 5. Finally, in Section 6 we present our conclusions and provide opportunities for further research.

2. A consumer perspective on refurbished products

In the literature, various boundaries have been identified that try to explain the limited offer of refurbished products in the today's consumer market. First, companies do not fully acknowledge the value of refurbishment, and are put off by the idea of high investment costs (Abdulrahman et al., 2014; Hatcher et al., 2011; Govindan et al., 2015; Vasudevan et al., 2012). A lack of technical capabilities, skilled people, product quality concerns and design issues also hinder companies to develop well-functioning refurbishment facilities (Sharma et al., 2016; Vasudevan et al., 2012; Wei et al., 2015). Furthermore, there are no guidelines and standards for refurbishment, which leads to a great variety in product quality and a lack of recognition among authorities, companies and consumers (Sharma et al., 2016). Uncertainty about the availability and supply of used products, which is fostered by consumer unwillingness to return used products, is another factor that prevents companies to take advantage of refurbishment opportunities (Goodall et al., 2014; Sharma et al., 2016; Vasudevan et al., 2012). Finally, a lack of remarketing strategies and, as a consequence, a lack of consumer acceptance is a crucial boundary for companies to invest in refurbishment (Govindan et al., 2015; Sharma et al., 2016; Vasudevan et al., 2012; Wei et al., 2015).

The current literature on consumer response towards refurbished products predominantly focuses on consumers' willingness to pay (WTP), which is elicited in an imaginary purchase situation. It has been concluded that consumers show a lower WTP for refurbished products due to a high perceived risk and low perceived quality of refurbished products (Debo et al., 2005; Guide

and Li, 2010; Hamzaoui Essoussi and Linton, 2010, 2014; Hazen et al., 2012; Michaud and Llerena, 2011; Wang et al., 2013). Furthermore, researchers have started to investigate the factors that may influence consumers' evaluations of refurbished products. It has been found that consumers' low WTP is related to the ambiguity that is surrounding the refurbishment process (Hazen et al., 2012). A lack of understanding and knowledge of refurbished products fosters low quality perceptions and reduces consumers' WTP. Another study identified that low quality perceptions can be reduced by a positive brand reputation, which acts as an affirmation of product quality (Hamzaoui-Essoussi and Linton, 2014). Studies based on secondary market transaction data suggest that a positive seller reputation and approval by the original manufacturer increase consumers' WTP for refurbished products (Pang et al., 2015; Subramanian and Subramanyam, 2012). From an environmental perspective, consumers' evaluation of refurbished products can be improved by providing information about the environmental benefits of refurbishment (Michaud and Llerena, 2011). Specifically, it has been demonstrated that providing eco-certification with a refurbished product can counterbalance the difference in WTP between a refurbished and a new product for certain product categories (Harms and Linton, 2015). Another stream of literature has adopted models integrating multiple general factors to explain consumers' purchase intention for refurbished products (Jiménez-Parra et al., 2014; Wang et al., 2013). Influencing factors include consumers' attitude towards refurbished products, perceived risk, benefits and behavioral control to execute the purchase, as well as contextual factors, like the opinion of the individual's social referents and the marketing mix. Recent attempts to validate existing assumptions, concerning the influence of knowledge, price, brand, quality and green attributes on consumers' perception of refurbished products, concluded that current insights are not sufficient to fully understand how consumers perceive and evaluate refurbished products (Abbey et al., 2015; Wang and Hazen, 2015). For example, Abbey et al. (2015) propose that also negative attributes perceptions, like feelings of disgust, influence the attractiveness of refurbished products.

Although existing studies provide valuable insights, these studies also illustrate the limitations of prior research in the area of consumer acceptance. First, these studies focused on the final phase in consumers' decision-making process in which consumers evaluate risks and benefits. However, consumers' decision-making process includes several phases (Engel et al., 1968) and it is likely that these other phases will influence consumer acceptance of refurbished products as well (Fig. 1). Second, prior studies predominantly used hypothetical scenarios to elicit consumer reactions, or conducted the study in an experimental setting. Under such hypothetical conditions, it is possible that participants express a more positive attitude towards a certain offer, on which they do not always act upon in reality. This attitude-behavior gap is especially apparent in situations where environmental or social considerations play a role (Boulstridge and Carrigan, 2000). Thus, more research is needed to uncover consumers' response towards refurbished products in an actual market setting. Third, due to the quantitative character of these studies, there is a lack of understanding of consumers' motives and considerations that drive consumers' choice in relation to refurbished products. As a consequence, the knowledge about consumer response is limited to a few predetermined factors. The studies that integrate multiple factors (Jiménez-Parra et al., 2014; Wang et al., 2013) only use generic models that correspond strongly to the literature on consumer response towards new products (Ajzen, 1991; Bettman et al., 1991) and provide no additional insights into consumers' considerations that are unique for refurbished product acquisition.

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