

Essays on Smart Customization: Towards a Better Understanding of the Customer's Perspective on Smart Customization Offers

In the last decade, our products have been more and more equipped with information and communication technology (ICT) in a form of sensors, software, data elements, which has modified the nature of their applications greatly (Rijsdijk & Hultink, 2009). Notably, firms finally find a mean to empower customers to customize their products after purchase. One talks about "Smart Customization". For this smart customization to happen, the idea is to embed directly some smart user toolkits for co-design (smart UTCD) composed of ICT elements into consumer products. Such systems that consist principally of software tools and data elements can be viewed as - referring to their most basic versions - a CAD system, but with a friendly user interface and a library of modules and functionalities (Piller & Salvador, 2016). That said, while in the business press, it largely views smart customization as an opportunity to be tapped (see, e.g., Bechtold et al., 2014; Ernest-Jones, 2008; Porter & Heppelmann, 2014), in contrast, research is hardly focused on it (Piller, Ihl & Steiner, 2010). Yet, it appears essential to identify factors of customer-based success of customization offers (Ihl, 2009). Prior research on mass customization has begun to explore various perspectives to address the topic, that is, from the perspectives of the technology acceptance or customer's choice process (see, e.g., Dellaert & Dabholkar, 2009; Piller et al., 2010). In light of this groundwork, a comprehension of the customer's perspective on smart UTCD seems necessary. Thereby, in paper I, the dissertation looks for evidence from the customer's perspective whether smart customization is an applicable approach for firms to consider. That is, it extends previous research related to the customer's responses on the customization offers (e.g., Guilabert, 2005; Piller et al., 2010; Simonson, 2005) by investigating the customer's intention to utilize smart UTCD and its contingent factors. Explicitly, it adapts and tests a technology acceptance model to smart UTCD. Results from the structural equation modelling of 263 panelists from the car industry and 250 respondents from the mobile phone one, validate all the hypotheses made expect one in the model. With this study, such part of the dissertation contributes to theory and practice by adding to our limited understanding of the smart UTCD acceptance and by providing producers with practical implications to meet the smart UTCD acceptance. In paper II, the dissertation shows that it is important to understand how customers select a smart UTCD in function of the design features. That is, smart UTCD have the singularity to be consumer products. Therefore, as most customers often purchase products not well suited for them, it is essential to investigate the selection process for a smart UTCD. To test the theory, which is built on the one from McFadden (1986), a choice based conjoint analysis is realized on the smart UTCD for mobile phones. Resulting from an analysis of 250 mobile phone owners, the findings confirm all the hypotheses made. With such results, this section of the dissertation contributes to theory by providing in-depth knowledge on the customer preferences on the smart UTCD's design features. For producers, it permits to derive a set of judicious design tactics that enables them to develop smart UTCD that suit better their target customers. In article III, the dissertation seeks to provide interaction patterns of smart UTCD to co-design with customers the optimal solution or design. For such purpose, it makes use of a theoretical framework of use generation (Brown, 2013) and applies it on the two existing types of smart

UTCD. In doing so, it permits to expose the mechanisms of co-design, identify the natures of these mechanisms and pinpoint the difficulties that occur. Finally, with such findings, the paper suggests measures in a form of additional services (i.e. for support and supervision) under which the co-design mechanisms are more effective (i.e. interaction patterns). So, how the paper contributes to theory and practice? It utilizes modern design theories for the first time in this research to open the black box of the co-design mechanisms that occur between customers and smart UTCD. Moreover, it proposes additional services along with smart UTCD that focus on increasing the effectiveness of the co-design processes so as permit firms to develop the right smart customization offers in function of the various types of customers. Altogether, the dissertation contributes to a more holistic and balanced assessment of smart customization offers from the customer's perspective.