Predictors of customer acceptance of and resistance to smart technologies in the retail sector

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ABSTRACT

In recent decades, rapid advances in Internet technology have led to numerous innovative smart technologies. This research investigates the customer acceptance of and resistance to smart technologies in the retail sector, by integrating the literature on technology acceptance model, system characteristics, technology readiness, and store reputation. Data were collected using a quantitative survey and analysed using symmetrical PLS path modelling and asymmetrical fuzzy set qualitative comparative analysis (fsQCA). Results show complex relationships among perceived technology readiness, perceived ease of use, perceived usefulness, superior functionality, perceived adaptiveness, and store reputation in determining customers' attitudes and behavioural intentions towards smart retail technologies. The findings also show that technology readiness does not directly affect customer attitude but does indirectly through perceived innovation characteristics. The findings indicate that retail stores should focus on smart technologies that are simple, yet offer enhanced customer value through improved shopping efficiency. Findings also suggest that retail stores can engage in brand management strategies to improve customers' acceptance of smart technologies.

1. Introduction

The rapid diffusion of Internet technology is dramatically transforming the retail industry and customer shopping experience. One notable application is the introduction of smart technology by many leading retailers all over the world (Inman and Nikolova, 2017; Renko and Druzijanic, 2014). The smart retail technology (hereafter, SRT) is an interactive retail system which delivers retail services to consumers through a network of smart or intelligent objects and devices. These connected devices can sense the surroundings and engage in real-time data collection, communication, interaction, and feedback (Wünderlich et al., 2015). SRTs can be integrated into the existing retail environment extending from product displays to shopping aisles and to even fully immersive retail stores. For example, Rebecca Minkoff recently introduced a 'connected wall' that consists of a mirrored display which allows consumers to virtually try-on the clothing, create outfits from the retailers' inventory, request matching items, order drinks, and even connect to social media (Willems et al., 2017). Thus, SRT represents a major step forward in the use of information technology in the retail sector where the physical and digital dimensions are integrated to create a unique shopping experience tailored to the customer's needs.

According to a recent report, investment in SRT is predicted to reach $36 billion by 2020 (Research and Markets, 2015).

The implementation of SRT is expected to bring substantial benefits such as lower labour costs and increased efficiency for retailers and greater convenience, accessibility, and increased interaction for customers (Wünderlich et al., 2013; Roy et al., 2017). Due to widespread adoption and benefits of SRT, extant literature suggests more in-depth research on this topic. For example, Gao and Bai (2014) contend that there is a lack of research examining the customer adoption of smart technology. Garaus et al. (2016) suggest that smart technology's influence on customer behaviour in the retail sector represents a fertile area for further investigation. More recently, Inman and Nikolova (2017) highlight the dearth of research related to customers' perceptions of smart technology in the retail industry. Ignoring these calls for research may result not really understanding customers' decisions whether to adopt SRT (Claudy et al., 2015). Given the long adoption process and high costs of smart technology systems, there is a need for retailers to understand the drivers of customer adoption of SRT. Moreover, as all innovations face some form of consumer resistance (Laukkanen, 2016; Mani and Chouk, 2017), retailers must overcome consumer resistance for successful adoption of SRT. Thus, the primary objective of this study
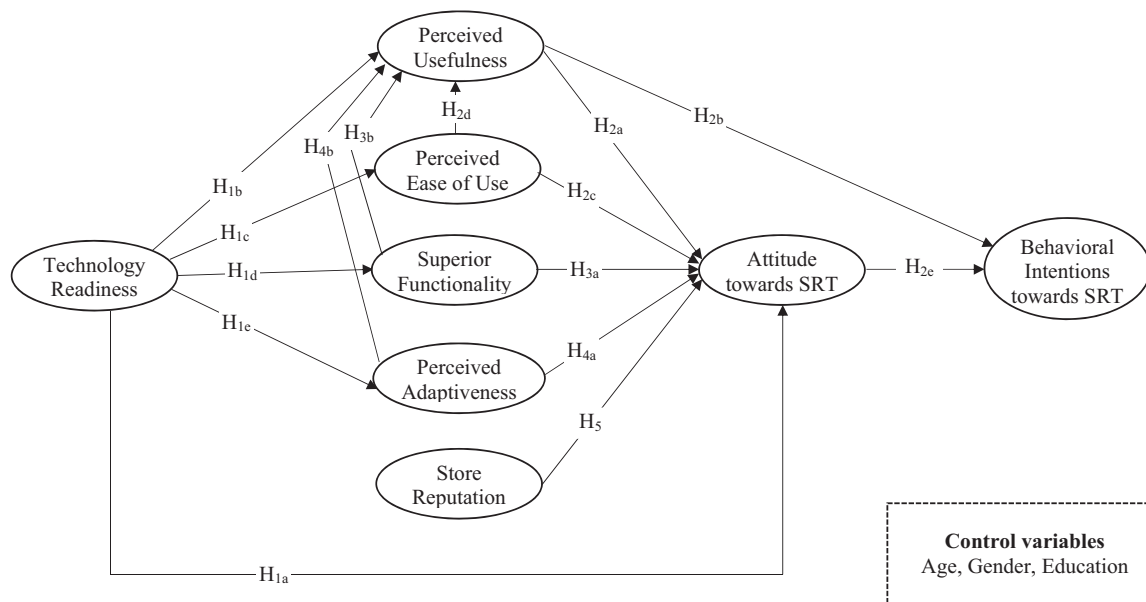
Fig. 1. Research model of attitudes and behavioural intentions towards SRT.

is to examine the factors which promote as well as hinder SRT adoption. This study notably integrates the technology acceptance model (TAM: Davis, 1989), technology readiness perspective (Parasuraman, 2000), and organisational theory (Damanpour, 1991) to examine how consumers evaluate SRT on perceived usefulness, perceived ease of use, superior functionality, perceived adaptiveness, technology readiness, and store reputation in determining their attitude and behavioural intentions.

The contributions of the present study are three-fold. First, this study examines the factors that drive customer adoption of and resistance to SRT. Given that traditional retail stores are now facing huge challenges from online retailers (Chiu et al., 2011), SRT has been mooted as a promising tool to reduce the problem of customer churn by offering a new and unique in-store experience (Kim et al., 2017). However, as SRT is still in the nascent stage, many retailers are apprehensive about its ability to add value to customers. Additionally, the introduction of SRT in retail stores can lead to high customer resistance. While the majority of prior studies have focused on adoption behaviour, little research has investigated customer resistance to technology innovations (Talke and Heidenreich, 2014; Laukkanen, 2016). Therefore, it seems relevant and timely to examine the factors that motivate and hinder SRT adoption.

Second, this study extends the traditional technology acceptance research by developing an integrated model based on TAM, technology readiness, and organisational theory perspectives. While TAM offers a promising theoretical background for investigating SRT, many researchers recommend expanding the theory by considering system characteristics, individual differences, facilitating conditions, consumer traits and organisation characteristics as exogenous variables of the TAM model (Venkatesh and Bala, 2008; Kwee-Meier et al., 2016; Gelderman et al., 2011; Rosenbaum and Wong, 2015; Purohit and Srivastava, 2001). In response to the call for expanding TAM (Kaushik and Rahman, 2015; Stern et al., 2008), this study examines the role of system characteristics (superior functionality, perceived adaptiveness), consumer trait (technology readiness) and organisation characteristic (store reputation), to add to the knowledge on SRT acceptance and resistance.

Third, previous research has been equivocal regarding the linkages between beliefs, attitudes, and intentions (Bagozzi, 2007). Based on the recommendations of Carrión et al. (2016), this study uses a sequential approach of partial least squares structural equation modelling (PLS-SEM) and fuzzy-set qualitative comparative analysis (fsQCA) to tease out the complex relationships among the determinants of customers' acceptance of and resistance (attitude and intentions) to SRT. Ordanini et al. (2014) suggest that the same innovation attributes can either foster or inhibit new service adoption depending on how they are configured with other attributes. Moreover, the multi-criteria decision-making literature (Bous et al., 2010; Scholz et al., 2017) suggest that consumers consider all attributes (conditions) at once in a holistic manner to arrive at a decision commensurate with their preferences. Thus, consumers may rely on various attributes in their decision to adopt or resist new technology. In doing so, they may emphasise (or neglect) a condition – thus creating a configuration that leads to a decision regarding technology acceptance. A combinatorial approach using PLS-SEM and fsQCA can thus offer detailed insights into the factors driving SRT adoption and resistance (Liu et al., 2017). Consequently, this study uses PLS-SEM and fsQCA analyses to examine the determinants of customer acceptance and resistance to SRT.

The rest of the article is structured as follows. The next section presents the literature review and the research framework, followed by the research methodology. Finally, results are discussed with implications, novelties and limitations of the study as well as future research directions are presented in the last section.

2. Literature review and research hypotheses

The research model presented in Fig. 1 proposes the role of technology beliefs of perceived usefulness and perceived ease of use, SRT-related system characteristics of superior functionality and perceived adaptiveness, consumer trait of technology readiness, and organisation characteristic of store reputation in customers' perceived acceptance (attitude and behavioural intentions) of SRT in the retail setting. This integrated model is supported by social cognitive theory (Bandura, 1986) which states that socio-environmental, personal, and behavioural factors are the key determinants of customers' behaviour.

2.1. Technology readiness

Technology readiness is an "*individual's propensity to embrace and use new technologies*" (Parasuraman, 2000, p. 308). Technology readiness relates to the perceptions, beliefs, and feelings an individual holds with respect to high-tech products and services. Previous research suggests that an individual can at the same time, present both favourable and unfavourable technological beliefs and the balance between these