



# A cross-country study of consumer innovativeness and technological service innovation

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## ARTICLE INFO

### Article history:

Received 20 August 2012

Received in revised form

28 September 2012

Accepted 11 October 2012

Available online 4 November 2012

### Keywords:

Consumer behavior

Technological innovation

Cross-cultural study

Service innovation

Consumer innovativeness

## ABSTRACT

The current literature suggests that the concept of consumer innovativeness is universally applicable. Innovators are believed to be novelty seekers and risk takers independent of their national identity, and therefore to be attracted to similar characteristics of an innovation across most countries. However, research in intercultural marketing has shown that cultural norms and values have varying influences on the adoption of innovation, a finding that seems to contradict the assumption that the relationship between consumer innovativeness and adoption of innovation is universally uniform. This research investigates the effects of consumer innovativeness on attitude toward a service-based innovation across three European countries. The results of a multi-group structural equation modeling show that the relationship between consumer innovativeness and attitude toward innovation varies across the three dimensions of perceived novelty, perceived value, and perceived risk.

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## 1. Introduction

The process of globalization has led to the increasing belief among marketing managers that consumer behaviors in different nations are converging into general common patterns that may serve as a common ground for predicting the adoption of an innovation (Yalcinkaya, 2008). The success of some recent new products tends to confirm this belief, as millions of Apple's iPhones, Nintendo's Wiis, and Asus computers have been sold in many countries with different value systems. However, innovations do not all succeed in the same manner, and in fact, most new products and services tend to fail in the market (Gourville, 2006), often because they have not been adapted to local markets (Meng et al., 2009; Yalcinkaya, 2008).

Since national values and norms strongly determine motivation and behavior (Markus and Kitayama, 1991; Park et al., 2012; Yenyurt and Townsend, 2003), consumers in different countries have differing perceptions, preferences, and values that influence their intention to adopt an innovation (Dwyer et al., 2005; Suh and Kwon, 2002; Yang and Jolly, 2009). One evidence of these differences is the varying technology adoption rates of countries that share similar economic situations (Erumbana and de Jong, 2006; van Everdingen and Waarts, 2003). For example, one of the main explanations of the varying adoption rates of broadband within the European Union lies in cultural and social factors (Fife and Pereira, 2002).

However, even if the literature shows evidence of the influence of cultural values and norms on adoption behavior (Hofstede, 2001; Steenkamp et al., 1999), few studies have investigated the validity of adoption models across nations (Yalcinkaya, 2008). Instead, research using popular adoption models such as the technology acceptance model (Davis et al., 1989) and the unified theory of acceptance and use of technology (Venkatesh et al., 2003) attempts to generalize consumer behavior at an international level. One important assumption of these models is that the relationships between the predicting and predicted variables are universal.

Consumer innovativeness determines one's tendency toward novelty-seeking and risk-taking behavior (Hirschman, 1980). The concept often implies that innovators hold the same profile independently of their national culture. For example, innovators are universally believed to be novelty-seekers, risk-takers and independent judgment-makers (Midgley and Dowling, 1978; Rogers, 2003). However, this assumption overlooks the influence of cultural values and norms on consumers' behavior toward innovation—an influence that is especially critical to the concept of consumer innovativeness since innovators play a central role by adopting the innovation earlier and diffusing it to subsequent segments of the population.

Because of the centrality of innovators to the adoption process, investigation of how consumer innovativeness may differ across cultures in its influence on perceptions, attitude, and adoption of innovation is particularly important to understanding how new products should be adapted to local differences (Fowler and Bridges, 2010). This importance underlies the increased attention cross-national study of adoption behavior has been receiving

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from both academics and practitioners (Yalcinkaya, 2008). Thus, although studies have provided evidence of variation in consumer innovativeness across countries (Tellis et al., 2009) and of differences in how national culture affects innovativeness (Steenkamp et al., 1999), little if any research has validated the influence of consumer innovativeness on perceptions and adoption behavior. This disregard is particularly apparent in the context of services, as most research so far has focused on products.

Many researchers seem to have assumed that the pattern by which consumer innovativeness influences perceptions and attitudes is similar across countries. Therefore, the objective of this research is to investigate the role of culture in moderating the relationships between consumer innovativeness, perceptions, and attitudes toward an incremental product innovation in a service context. Given the novelty of the product under study, we used attitude instead of adoption in order to better capture consumer initial evaluation of the new product. A structural model was tested using data collected in the UK, France, and Germany. Results show that consumer innovativeness influences perceptions differently across countries and that perceptions produce dissimilar effects on attitude across countries. For marketing managers, this finding illustrates the importance of taking into account the influence of culture on the attitude toward service-based technological innovations, and the corresponding need to adapt retailing strategies, to increase the chances of success of a new product or service in the local market.

## 2. Literature review

### 2.1. Consumer innovativeness

Beyond testing the commonly accepted assumption that innovators possess a propensity to adopt new products earlier than the average consumer (Rogers and Shoemaker, 1971), the major challenges of research in consumer innovativeness lie in the conceptualization and measurement of consumer innovativeness itself (see Vandecasteele and Geuens, 2010). Early research in this area employed time-of-adoption proxies to segment consumers into innovators and non-innovators (see Midgley and Dowling, 1978 for examples of temporal measures of innovativeness). However, time of adoption as a measure of innovativeness had several fundamental weaknesses. Primarily, it largely ignored the complex social dynamics that surround the purchase of new products or services, but it also lacked the ability to predict buying behavior. Therefore, some researchers argued that innovativeness should be assessed at a more abstract level and developed personality-related measures.

Midgley and Dowling (1978) proposed innate innovativeness as “the degree to which an individual makes innovation decisions independently of the communicated experience of others.” An underlying assumption is that innovators are independent decision makers who are driven by their personality rather than by others’ opinions of the new product. Hirschman (1980) conceptualized innovativeness as one’s desire to acquire information about the new product, which is strongly related to novelty-seeking behavior. Since innovators are not likely to adopt all new products, Goldsmith and Hofacker (1991) argued that consumers’ perceptions and interests often vary across product categories and developed domain-specific measures of innovativeness. Flynn and Goldsmith (1993) subsequently proposed a distinction between domain-specific innovativeness and global innovativeness.

More recent literature suggests that consumer innovativeness often includes multi-dimensional motivations such as functional, hedonic, social, and cognitive factors (Baumgartner and Steenkamp, 1996; Tian et al., 2001; Voss et al., 2003). For example, to better

account for the consumer–product relationships in adoption, Vandecasteele and Geuens (2010) included functional, hedonic, social, and cognitive motivations in their innovativeness measure.

### 2.2. Adoption of innovation

Understanding consumer adoption behavior is fundamental to the innovation process (Roberts et al., 2005). With respect to innovation adoption, two streams of research seem to co-exist, each addressing a distinct type of innovation: technological innovation and information technology acceptance. Researchers in technological innovation use innovativeness as a predictor of adoption but tend to prefer to use domain-specific innovation rather than global innovation, as technological innovation is considered to be radically different from that of general consumer goods. In particular, technological innovations have a shorter product life-cycle (Temporal and Lee, 2000; Winkler, 1999; Zajas and Crowley, 1995), require technical savviness for evaluation (Tripat and Lei, 2009; Truong, 2011), and face saturation in nearly all markets (Hamann et al., 2007). Given the technical nature of technological innovations, researchers investigating adoption have extensively explored the role of perceived risk (see Hirunyawipada and Paswan, 2006) and technology convergence (see Gill and Lei, 2009). As a result of the weight of these characteristics, the predictive power of global innovation tends to be low in such a specific product category (Leonard-Barton and Deschamps, 1988), while domain-specific innovation has proven to be a very good predictor of adoption (Roehrich, 2004).

In the field of information technology acceptance, researchers have focused on the perceptions of new technologies as predictors of acceptance and then adoption. The technology acceptance model (TAM) (Davis et al., 1989), which builds on the theory of reasoned action Ajzen and Fishbein (1980), assumes that individuals’ adoption decision results from their attitude toward the use of the new technology. In this case, attitude is influenced by perceived usefulness and perceived ease of use. Researchers in both marketing and psychology have used the TAM extensively to predict attitude, which is believed to determine intention and decision. However, investigations relying on the TAM have neglected the role of consumer innovativeness in technology acceptance, even though personal innovativeness seems to play a mediating role between perceptions and attitude toward a new technology (Agarwal and Prasad, 1998).

Although consumer innovativeness concepts and the TAM have both been used to predict adoption of technological innovation, consumer innovativeness has more often been used to forecast adoption of mainstream consumer goods and services (Roehrich, 2004), most likely because its construct is individual-related (predisposition) and not product- or service-related (perceived usefulness and perceived ease of use of the product or service). Since consumer innovativeness is more relevant to the study of innovators as individuals than is the TAM, especially in the context of cultural differences across countries, this construct was chosen as a predictor of perceptions of and attitude toward a new service.

Past research has suggested that cultural values and norms can explain the differences in levels of innovativeness across countries (Steenkamp et al., 1999; Tellis et al., 2009), but has not examined how the same cultural values and norms can moderate the effects of consumer innovativeness on perceptions and attitude toward innovation. Specifically, the literature suggests that individuals who score high in innovativeness have a higher propensity to seek novelty, capture value, and accept risk than the average consumer (Roehrich, 2004; Rogers, 2003). However, an assumption that the relationship between innovativeness, novelty, value, and risk is stable across countries would contradict

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