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Exploring the adoption process of personal technologies: A cognitive-affective approach

Debora Bettiga*, Lucio Lamberti

Department of Management, Economics and Industrial Engineering, Politecnico di Milano, Milano, Italy

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ABSTRACT

The impact of cognitive and emotional factors on the customer's decision to adopt a new technology has long been at the core of innovation and marketing literature. Today, the proliferation of personal technologies makes the understanding of the adoption process of such innovations a vital issue. This article, moving from long-established technology adoption theories, integrates affective factors to propose a comprehensive framework to interpret and orient innovation and marketing approaches of companies. To do this, we review a rich literature from the domains of management, information systems, marketing and cognitive psychology, identifying six possible sources of perceived value for personal technologies, hence attitude to adopt them: functional value, monetary value, social value, entertainment value, epistemic value and aesthetic value. After defining and framing them in the extant literature, we discuss how the framework may be adopted in practice to support Companies' strategies in the surprisingly under-explored industry of personal technologies.

1. Introduction

The fast-growing digitalization of our societies and the progress in digital technologies have created a blooming business area in the so-called “personal technologies” – that can be defined as “technologies exhibiting a kind of one-to-one binding with the user” (Arbore, Soscia, & Bagozzi, 2014, p. 90) - such as smartphones, laptops, fitness watches, smart glasses, wearable devices, apps, etc. It is a business area with an unprecedented growth potential. More than 2.500 new apps are published daily and some 20.4 billion connected things interacting with personal technologies are expected to be in use by 2020.¹ The potential is as big as competition, and better understanding the possible reasons behind the success of personal technologies represents a fundamental challenge for academicians and practitioners alike.

A major factor for the success of such technologies has been individuated in their ability to offer a permanent connection, permitting new forms of collaboration and interaction (Borges & Joia, 2015), to provide valuable experiences and to create addictive engagement for the user (Dholakia, 2014). Such hedonistic experience centrality challenges some of the cornerstones of the theories developed, especially during the 1980s and 1990s, to describe the technology adoption process by consumers as the outcome of cognitive processes. As a result, extant literature on technology adoption can catch just a part of the possible impact of affective factors in the user's decision-making (Wolff, Nordin, Brun, & Berglund, 2011). Marketing and cognitive psychology literature, yet, have broadly studied in time the relevance of affection in consumer behavior: hedonic consumption (Holbrook & Hirschman, 1982), experiential marketing (Schmitt, 1999a, 1999b) and sensory marketing (Krishna, 2012) are just some of the most significant

* Corresponding author.

E-mail addresses: debora.bettiga@polimi.it (D. Bettiga), lucio.lamberti@polimi.it (L. Lamberti).

¹ Gartner forecast 2017 (<http://www.gartner.com/newsroom/id/3598917>).

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examples of a consistent body of knowledge suggesting that consumers increasingly value, and base their choices on, visceral and emotional dimensions related to the inherent experience the offer provides.

The emergence of personal technologies (Kim & Shin, 2015) raises the need to lead these two streams of literature back to an unifying point, in which affective and cognitive factors are merged to interpret in a more comprehensive way the technology adoption process, i.e., framing the theories in a broader background, which is natively affective-cognitive. Our paper moves from this assumption and aims at proposing a conceptual framework to encompass the useful, but incomplete, drivers of technology adoption (Schwarz, Chin, Hirschheim, & Schwarz, 2014), specifically thought in the area of consumption technologies (Haverila, 2013; Thong & Venkatesh, 2011) and to develop a model of cognitive-affective technology adoption. By doing this, we aim at contributing to extant knowledge in a twofold way: on the one hand, we propose a unifying view of affection and cognition in technology adoption; on the other hand, we develop a conceptual tool to approach further research on the adoption of personal technologies.

Operatively, the paper will first discuss strengths and weaknesses of extant technology adoption theories in order to better frame the affective-cognitive approach in current wisdom. Moving from such theoretical underpinning, we will introduce the conceptual framework and its constituting parts and suggest propositions to be tested empirically. Finally, implications for research and practitioners will be discussed.

2. Cognitive-affective technology adoption

2.1. Cognitive approaches

Cognitive approaches to technology adoption share the idea that the intention to adopt a technology is the result of a rational processing of different information about the technology and the context of use by the user. Despite several theories have been developed in time, three of them have accomplished a universal acceptance and can be considered the reference for this class of approaches: Technology Acceptance Model (TAM; Davis, 1989), Theory of Reasoned Action (TRA; Fishbein & Ajzen, 1975) and Theory of Planned Behavior (TPB; Ajzen, 1991). These models share the assumptions that (1) human decisions are rational, (2) attitude, as a manifestation of the cognitive processes is the main determinant of consumer choices, and (3) emotional and affective reactions become relevant only when the cognitive structure is not fully represented (Fishbein & Middlestadt, 1995). Besides these commonalities, the approaches outline significant differences in the modeling of attitude and its relationship with intentions.

TAM posits that technology adoption is determined by the behavioral intention by the user to adopt such technology; such intention, in turn, is determined by two drivers: perceived usefulness (PU) and perceived ease of use (PEOU), that are the result of the stimuli the user is exposed to (“external variables”). PU and PEOU determine the attitude, which in turn define the behavioral intention, while PU may influence even directly such intention. In time, TAM has undergone several adjustments and refinements that can be summarized in three major streams (King & He, 2006): (i) study of the antecedents of PU and PEOU that fully mediate the effect of other constructs. With reference to this stream, image, output quality, subjective norm, job relevance and results demonstrability were identified as the main drivers of PU (Venkatesh & Davis, 2000), while self-efficacy, anxiety, perception of external control and playfulness as the anchors of PEOU (Venkatesh, Morris, & Ackerman, 2000). This stream expresses a gradual enclosure of non-merely-rational arguments in technology adoption (e.g., playfulness, anxiety), but interpreted as antecedents of cognitive constructs such as PU and PEOU; (ii) identification of user-level factors (e.g., gender, age or culture) moderating the PU/intention and PEOU/intention relationships (Hu, Hu, & Al-Gahtani, 2017; Tarhini, Hone, Liu, & Tarhini, 2017); (iii) enclosure of further factors besides PU and PEOU, such as subjective norms (Schepers & Wetzels, 2007) and, remarkably, hedonic motivations (Slade, Williams, & Dwivedi, 2015). This line of research tried to answer to the decrease in predictive power of the model over time in specific cases. Its extensive use in different countries, contexts and technologies makes TAM a broadly accepted model to predict technology acceptance (Chuttur, 2009; Roy, Balaji, & Kesharwani, 2016) for mobile technologies as well (Kitchen, Martin, & Che-Ha, 2015). Despite this broad consensus, the information processing approach on which it is grounded received several criticisms, especially because it systematically ignores emotional and experiential influences in technology adoption (Schwarz, 1997; Zanna & Rempel, 1988). The major concern raised regards the assumption that consumer evaluative responses are based primarily on utilitarian beliefs, forgetting affective experience (Zanna & Rempel, 1988).

TRA and TPB, on the base of which TAM has been developed, share the idea that behaviours are driven by intentions and intentions are driven by attitudes, but include the idea that a social pressure (“subjective norms”) may influence the behavioral intention. TPB refines TRA, which does not address incomplete volitional control, by introducing a third antecedent to behavioral intention, i.e. perceived behavioral control, that assesses the extent the user has the required opportunities and resources to perform a behavior. The conceptual closeness of TAM, TPB and TRA is such that models aimed at encompassing the three of them have been proposed in time, even if they have been less adopted than the individual theories. The most successful is UTAUT (Venkatesh, Morris, Davis, & Davis, 2003), a model to describe the user intention to use a digital technology based on four key constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions. The model also posits that some individual-related factors such as gender, age, experience and voluntariness of use moderate the impact of the four key constructs on usage intention and behaviours.

The idea by these models to lead back all the antecedents of the intention and behaviours to issues such as attitudes, beliefs, norms and “technical” variables has a main strength and a main weakness. The main strength lies in the fact that leading back all the model to cognitive, rational variables or cognitive expressions of affective variables, the theories are well suited to be analysed through self-reported measures by the users, increasing the ease of measurement of their actual predictive power. The main weakness they have shown over time is that they appear better predictor of self-reported intentions than of actual behaviours (Armitage & Conner, 2001).

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