Chapter 2
The Acceptance Process of the Internet of Things:
How to Improve the Acceptance of the IoT Technology

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ABSTRACT

The internet of things, or the IoT, is progressively and surely invading environments, and is consequently creating new kinds of consumer needs and behaviors. More and more companies are getting involved in this growing field, showing the importance for them to understand this technology market. This chapter aims at studying the acceptance process of the IoT. More specifically, the main factors that influence consumer decisions to accept and use the IoT and smart objects have been tested, such as the ethical, wellbeing, social, and utility values. The importance of each benefit is demonstrated, according to specific targets and to examples of applications. A system of values that represents the promises of the IoT and the central needs of users is also described. Besides, a typology of users should help companies creating or refining targeting strategies and should guide consumers into their acceptance process. Finally, further research directions are discussed.

INTRODUCTION

By 2020, consumers should be surrounded by nearly 50 billion connected objects (Cisco, 2017), which represent at least 6 connected objects per person. The Internet of Things (IoT) is defined as an invisible network of networks which collects and stores data, controls and interacts with people, and with physical and virtual things. The IoT can connect everything together, dependently or independently of the initial settings pre-set by users, and can provide personalized feedback and features through mo-

bile applications and smart object interfaces. Indeed, the IoT connects physical objects, such as smart watches, connected cars or connected household appliances, anytime and anywhere to the Internet using wireless technology to reach desired goals, such as sleep monitoring, sport activity or other measures of health and wellbeing (e.g. Yang et al., 2013). All electronic objects can be equipped with artificial intelligence, and therefore become 'smart' objects, to seduce technophile consumers. The IoT should widely transform the way people live and improve quality of life (Porter & Heppelmann, 2014). This technology is spreading widely thanks to expanded Internet networks, high mobile adoption and low-cost sensors, but innovations can fail due to changing demand, user reluctance, or strong competition. It is essential for managers to understand the acceptance process of the IoT so as to respond to consumer needs and ensure better profits.

Therefore, the main contribution of this study is to understand the acceptance of the IoT. First, the background of this study is presented. A classification of the IoT and different types of users are then highlighted. The acceptance of the IoT is also studied and explained. Subsequently, theoretical implications are stated and managerial recommendations are provided to help companies better understand the connected consumer and refine marketing strategies. Finally, future research directions are given.

BACKGROUND

The Internet of Things

The IoT includes physical items, such as mobile applications and smart/connected objects, and includes virtual things, such as transmission of signals or artificial intelligence algorithms which send data to other physical or virtual things, and all that can interact together. The IoT is partly invisible to the human eye: no one can see or touch these networks, and physical supports like connected objects and mobile applications help to visualize the IoT interactions. The main threat with the IoT is that personal data are not always reachable by users, while it is automatically registered in databases to do personalized feedback and develop specific features. Figure 1 represents the subcategories, including physical and virtual things, which are involved in the IoT concept.

The classification of the IoT shows that there are common characteristics between each upper and lower category: the upper category includes the features of the lower category with additional characteristics.

Databases

Data are at the heart of the IoT: they are the essence of the IoT that enables physical and virtual things to interact together. Data are represented by series of codes that lead to meaningful information (Beynon-Davies, 2002). In the context of the IoT, data are defined as qualitative and quantitative information about users or specific environmental indicators, which is tracked, collected, measured and reported through sensors and then stored into databases to be analysed, and eventually resold. The data analysis is supposed to allow a better use of the IoT. Indeed, connected objects and mobile applications collect all kinds of data (personal and corporal indicators, environmental indicators, etc.) to enhance knowledge and wisdom for both users (i.e., higher quantified-self) and companies (i.e., higher profits and better product and service development).

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