Chapter 15
Adoption of Wearable Technology Devices:
A Cross-Cultural Study

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ABSTRACT

With rapid change in technology worldwide, innovative products such as wearable technology devices tend to have an uprising trend. Consumers, however, are not necessarily adaptive in their nature and their perception is shaped by many factors. The aim of this research is to investigate the consumer acceptance of wearable technology devices, specifically smartwatches. The study extends the widely used technology acceptance model with the introduction of new variables. For the purpose of the study, survey data was collected from German and Turkish university students. The overall results provide validation to previous literature while introducing new factors for consumer acceptance of technology products, wearable technology devices, and smartwatches. Importance of this research comes from the innovative and promising nature of the wearable technology devices concept, the lack of work on smartwatches in literature, as well as the cross-cultural nature of the study. The study also has managerial implications for technology companies who chase after growth in their businesses.

INTRODUCTION

Disruptive innovation creates new value, eventually changing existing networks and establishing new ones. Technology continuously modifies our lives in subtle ways yet disruptive technologies such as artificial intelligence, 3D printing and advanced virtual reality have really made major impacts. Many digital technologies such as smartphones, social media, big data, predictive analytics and cloud are radi-

cally different from preceding IT-based technologies and products such as wearable technology devices tend to have an uprising trend that comes with wider variety nowadays. Wearable technology is any type of technology that is incorporated in electronics that can be worn on the body, either as an accessory or as part of materials used in clothing. One of the major features of wearable technology is its ability to connect to the Internet, enabling data to be exchanged between a network and the device.

With internet usage rates increasing rapidly since the beginning of the 90s, the usage capacity of information increased exponentially and technology spread rapidly throughout the world. This reflected on the amount of space and scope allocated to technology products in our day-to-day lives. Along with this, the number of wearable technology devices produced by companies has been increasing in recent years and these products are seen as the new era of growth for technology (Stinson, 2013). There are various forms in which wearable technology devices can be worn (Ko, et al., 2005) and despite being a relatively new product in its early diffusion stage in the global market, smartwatches are categorized as one of the most popular wearable technology devices in today's world (Chuah, et al., 2016).

The aim of this study is to understand the effects of specific factors on consumers' acceptance of wearable technology devices. The study also investigates the difference between the acceptance patterns of cultures, taking Turkey and Germany as sample populations. The model of this study is an extended version of the technology acceptance model of Davis (1989). External variables are added to the original model, while also aiming to test the validity of the original model.

WEARABLE TECHNOLOGY

The term wearable technology and its practices are relatively new in today's world, thus it is not possible to find an established description in literature. As the topic is an emerging one not only in consumer behavior industry but also in the technology industry, a variety of understanding of the topic has been presented in recent years. Although it is not likely to describe the meaning and scope of wearable technology in a standardized way, some terms have many close meanings, including 'wearable electronics', 'wearable devices' and 'wearable computers'. Although the topic has recently started to be a trending topic in both academic research and managerial application, the history of wearable technology dates back years ago starting with the head-mounted displays developed for pilots in the 1960s (European Commission, 2015).

According to Dunne (2004), "wearable technology is a term used to describe many different forms of body-mounted technology, including wearable computers, smart clothing, and functional clothing". Ko, et al. (2005) describe wearable technology devices as electronic devices that people continually wear as unhindered as clothes providing intelligence support that increases memory, intellect, communication, physical senses and creativity. European Commission's (2015) report on the internet of things and wearable technology states the following:

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