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## **Impact of advertising on users' perceptions regarding the Internet of things**

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# **Impact of advertising on users' perceptions regarding the Internet of things**

## **Abstract**

This paper proposes a model that measures the impact of advertising on users' perceptions when using a smartwatch. One of its main contributions is to analyze the moderating effects of national culture. A PLS approach is mobilized to test the relationships of the model. The sample consists of 1,197 respondents made up of smartwatch users living in France, Germany, the United Kingdom and United States. Our findings highlight the impact of Advertising on variables measuring affect and emotions, and the importance of Perceived-Enjoyment when using a smartwatch was demonstrated. However, we found that Brand-Experience does not impact Attitude-Toward-Using and that national culture moderates five relationships of the model. Our results demonstrate the importance of brands maintaining and reinforcing their affective link with customers.

**Keywords:** Values, Perceived-Enjoyment, Brand-Experience, Internet of Things, Marketing communication, Smartwatch

## **Highlights**

- This paper shows the impact of Advertising on variables measuring affect and emotions
- The importance of Perceived-Enjoyment when using a smartwatch is emphasized
- Cultural differences must be considered for Advertising campaigns on IOTs
- Maintaining and strengthening emotional ties between users and the brand is key

## **Introduction**

Today's brands often use advertising to explain the functionalities of their products to users, especially when it comes to disruptive technologies. However, few studies have analyzed the impact of advertising on users' perceptions of such products. With the advent of the Internet, products have become increasingly complex and smart. Individuals expect products used for communication to provide them with a range of different features but also to provoke an emotional response. Researchers have shown that individuals now demand bundled technology, providing them with different functionalities, particularly in products linked to the Internet of Things (IoT), such as the smartphone (Reid & Thomas, 2017; Martins et al., 2019) or the smartwatch (Hsiao & Chen, 2018). A growing number of individuals are considered to be over-dependent on their smartphones (Reid & Thomas, 2017). These consumers want to be constantly connected, receiving notifications in real time in order not to miss out on an important message, or to be instantly aware of any new content published on a social network. The smartwatch meets this need, as it is worn on the wrist and all notifications are visible at a glance. This is particularly true for women, who tend to keep their smartphones in their bags. Smartphones and smartwatches have similar functionalities, such as allowing the user to make and receive telephone calls, listen to music and connect to the Internet (Arruda-Filho et al., 2010). The smartwatch, considered as an IoT, is a disruptive technology that is changing individuals' day-to-day lives (Chang et al., 2014). It is defined by Hsiao and Chen (2018) as a wearable computer that allows users to interact with their network. Indeed, according to Kumar et al. (2019), smartwatches can enhance user awareness by providing information on their behaviour, on their ambient awareness – by informing them about their environment – and their social awareness – by highlighting their social interactions with others. According to Statista (2019), the worldwide installed base of smartwatches is estimated to be around 66.5 million units.<sup>1</sup>

Many studies have analyzed individuals' acceptance of IoTs (Tsourela & Nerantzaki, 2020) and a few have focused specifically on the smartwatch (Al-Emran, 2021). However, the impact of advertising on consumer perceptions of this type of device remains unexplored. Previous studies have mainly focused on the antecedents of advertising value and the experience of mobile advertising, but little research has been carried out on smartphone advertising, and none

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<sup>1</sup> <https://www.statista.com/statistics/524830/global-smartwatch-vendors-market-share/>

has been published to our knowledge on the smartwatch (Nguyen & Simkin, 2017; Martins et al., 2019).

The aim of this paper is to analyze the factors that influence users' perceptions when seeing smartwatch advertisements. To do this, we developed a model that combines the relationships between smartwatch advertising and brand through Brand-Experience (Brakus, Schmitt & Zarantello, 2009), Brand-Connection (Escalas & Bettman, 2003) and Values (Strizhakova, Coulter & Price, 2008) on the one hand, and the relationships between these three brand variables and users' perceptions on the other.

Thus, the research questions that emerged are as follows:

R1: Does Advertising impact the interaction between a brand and users' internal responses?

R2: What are the variables impacting Attitude-Toward-Using a smartwatch?

R3: Are the relationships of our model moderated by age, gender or national culture?

To answer these research questions, we administered a survey to smartwatch users across three European countries (France (FR), Germany (DE) and the United Kingdom) and the United States.

Our paper makes two major contributions to the extant literature by examining the impact of advertising on users' perceptions and the influence of these perceptions on Attitude-Toward-Using a smartwatch. First, our findings highlight the importance of a brand developing and reinforcing an affective link with its customers through advertising campaigns. Second, our cross-national study highlights cultural differences and the importance of considering these differences in brands' marketing strategies.

The rest of this article is organized as follows. First, we present the variables mobilized for the research model. Then, we consider our hypotheses and a global model is developed. Our findings are presented and results explained in the discussion section, including managerial implications. Finally, we make suggestions for future studies and detail the limitations of our research.

### **Conceptual background and hypotheses**

The Resource Based View (RVB) consists of identifying, utilizing and enhancing resources that could contribute to developing and maintaining competitive advantage (Safari & Saleh, 2020; Chatterjee, Rana, & Dwivedi, 2021). Srivastava, Fahey and Christensen (2001) demonstrate the

link between RBV and marketing communications, as both can generate customer value. Marketing communications, based on sharing information with stakeholders (Luxton, Reid & Mavondo, 2017), allow brands to, first, provide insights into their products or services, second, to differentiate themselves from competitors by building brand image and consciousness (Murray et al., 2011), third, to quickly react to a major competitor's actions, fourth, to achieve competitive advantage (Martin & Goodrich, 2018) and, finally, to stimulate demand (Guitart, Hervet & Gelper, 2019). Martin et al. (2020) demonstrate that marketing communications mediate the relationship between marketing capabilities and competitive strategy.

Thus, marketing communications, such as advertising, play a key role in influencing the interaction between users and brands (Srinivasan et al., 2009). Advertising evolves according to the emergence of new media (Carlson, 2015) such as print, radio, TV (Nan & Faber 2004) and, most recently, social media, moving from a mass-market strategy to a personalized one. Advertising can be segmented into five key dimensions – paid, mediated, identifiable-source, persuasion and action (Kerr & Richards, 2021). Brands use advertisements to persuade consumers to fall in love with both the product and the brand (Bell & Buchner, 2018; Nguyen, Melewar & Chen, 2013). Advertising strategies can be segmented into two different types: functional or emotional. Functional advertising is used for innovative technologies, where potential customers require information about the usefulness of the product, whereas emotional advertising is more frequently used for well-known products or technologies (Lee and Connor, 2003). According to Krey et al. (2019), for non-smartwatch users, functional advertising generates higher levels of hedonic values while higher levels of functional values are generated by emotional advertising. As the smartwatch shares a lot of similar features with the smartphone, functional advertising is less impactful. Thus, our study focuses on the influence of emotional advertising on Brand-Experience, Self-Brand-Connection and Values. The conceptual background consists of a four-part analysis: i) constructs impacting Brand-Experience, Self-Brand-Connection and Values, ii) variables influencing Attitude-Toward-Using, iii) constructs impacting Perceived-Enjoyment, and iv) moderators impacting the relationships of our research model (national culture, age and gender). Indeed, some authors (Khan et al., 2017) have shown the influence of moderators in the adoption of disruptive innovation. Therefore, this study focuses specifically on the impact of moderators and the effects of national culture.

Our research model is shown in Figure 1.

[Insert Figure 1 here]

## **Constructs impacting Brand-Experience, Self-Brand-Connection and Values**

### ***Brand-Experience***

According to Brakus et al. (2009), Brand-Experience is “a subjective internal consumer response (sensations, feelings and cognitions) and behavioural responses evoked by brand-related stimuli that are part of a brand’s design and identity, packaging, communications, and environments” (p.53). Brand-Experience can be segmented into four dimensions: Sensory, Behavioural, Intellectual and Affective. Paramita et al. (2021) demonstrated the direct impact of the affective dimension of Brand-Experience on consumers’ social interactive engagement. Others expressed the view that the personality traits of a brand, enhanced by a firm’s communications, such as advertising, could impact customers’ Brand-Experience. Indeed, Vizcaíno, Cardenas and Cardenas (2021) found that Brand-Experience could be impacted by personality traits such as sustainable practices or ethical management, with positive consequences for consumers’ intentions. According to Das et al. (2018), customers who have positive experiences of a brand are responsive to brand stimuli such as advertisements. Advertising can contribute to creating or maintaining a positive experience of a brand. Zhang (2021) demonstrated the potential influence of advertisements that use social media on Brand-Experience. According to Zenetti and Klapper (2016), the persuasiveness of advertising can impact Brand-Experience, meaning the message is perceived as more credible. Thus, the authors postulate that:

H1: Advertising has a direct, significant and positive impact on the affective dimension of Brand-Experience while using a smartwatch

### ***Self-Brand-Connection***

According to MacInnis and Folkes (2017), Self-Brand-Connection is one of the dimensions of the Self-Focused Perspective, linked in the literature to the concept of Consumer Brand Identification. If the product bought or service used can be considered by a consumer as an extension of themselves (Belk, 1988; Ahuvia, Bagozzi & Batra, 2014), their self-image is reinforced (Batra, Ahuvia & Bagozzi, 2012). According to Thorbjornsen et al. (2002), “self-connection reflects the degree to which the brand delivers on important identity concerns... expressing a significant aspect of the consumer’s self” (p.21). Aaker (1997) defines the Self-Brand-Connection as a set of human traits connected to the brand, referring to the link between the self (the user) and a brand. Self-Brand-Connection is a key component of brand

relationships, linked to the notion of a feeling of unity with the brand (Park et al., 2010). According to Escalas (2004), Self-Brand-Connection depends on brand attitude, especially if it is a well-liked brand (Tan et al., 2018), which is considered as an outcome of Self-Brand-Connection. Chand and Fei (2020) found a direct relationship between Self-Brand-Connection and the intention to buy counterfeit luxury products. Indeed, customers could, by purchasing such products, enhance their self-concept. Self-Brand-Connection can be developed using advertising campaigns to build brand personality (Park & John, 2012) by using stories which reflect individuals' self (Harrigan et al., 2018). Self-Brand-Connection can also be impacted by Brand-Experience. Brand-Experience – considered to be a personal response after a self-verification process through relationships (Schmitt et al., 2015) – interacts with the brand (Morgan-Thomas & Veloutsou, 2013), demonstrating the association between Self-Brand-Connection and Brand-Experience (van der Westhuizen, 2018). Escalas and Bettman (2003) suggest that individuals may use brands that meet their own needs and will choose a brand with which they share similar values, allowing it to be included in their self-concept. Using a product or a brand allows consumers to build and depict self-image. Therefore, the authors hypothesize that:

H2: Self-Brand-Connection is directly, significantly and positively impacted by Advertising

H4: Self-Brand-Connection is directly, significantly and positively impacted by the affective dimension of Brand-Experience

H5: Self-Brand-Connection is directly, significantly and positively impacted by Values

### ***Values***

Brand personality and brand values are crucial for the creation and development of relationships between consumers and brands, especially in enhancing brand attachment (Japutra, Ekinici & Simkin, 2014, 2018) or brand love (Nguyen, Melewar & Chen, 2013). Companies expect, by enhancing values in their marketing campaigns, to generate positive attitudes towards their brand. According to Strizhakova et al. (2008), several different values can be identified: first, there are Social-Altruistic values, such as being responsible, helpful, conscientious, etc.; second, there are the biospheric values (a world of beauty or peace, unity with nature), third, there is openness to change, and, finally, there is conservation (respect for tradition, social order, preservation of public image, etc.).

Firms tend to tie their brands to consumers' values by demonstrating their involvement in charity campaigns supporting social or health concerns (Strizhakova et al., 2008), corporate social responsibility strategy (Nan & Heo, 2007), or national traditions and ethical approaches



(Askegaard, Arnould & Kjeldgaard, 2005) by using cause-related marketing campaigns (Gupta & Pirsch, 2006). For example, Apple launched their red products in support of the AIDS campaign (Strizhakova et al., 2008) and Nespresso emphasize their environmental values (Achabou, 2014). Many companies use their brand to carry meaning by focusing on family ties, traditions or shared moments (Wallendorf & Arnould, 1991).

Brand personality involves human traits such as honesty, engagement and transmits values (Stokburger-Sauer et al., 2012). Brand personality can mirror a consumer's own personality traits; therefore, using a brand personality component in a marketing strategy contributes to differentiating the brand from its competitors by communicating distinct features and values (Chiang & Yang, 2018; Martin & Javalgi, 2019). Sometimes, the values emphasized will vary, depending on the products sold within a brand (Nguyen et al., 2018). Many researchers have studied consumer brand identification with strong brands that express consumers' values (Bhattacharya & Sen, 2003).

Thus, consumers tend to choose brands they perceive as reflecting their own values and advertising can help them to identify such brands (Coelho et al., 2018). Therefore, the authors postulate that:

H3: Advertising has a direct, significant and positive impact on Values

### **Variables influencing Attitude-Toward-Using**

Attitude-Toward-Using a technology, considered as a psychological variable composed of cognitive and emotional elements, can be defined as the individual's assessment of whether it was a good idea or not to use a particular technology (Davis et al., 1989). This variable is often mobilized to measure the acceptance of innovative technologies such as wearables (Chuah et al., 2016; Gao, Zhang & Peng, 2016; Baudier, Ammi & Lecouteux, 2019). Attitude-Toward-Using can be impacted by a customer's perception of the product or the brand depending on their direct experience. Thus, a positive Brand-Experience, leading to satisfaction, can directly impact the Attitude-Toward-Using a product such as the smartwatch (Ghazali et al., 2020), especially for innovative technologies, and where the service quality is positively perceived (Sahin et al., 2017). Attitude-Toward-Using can also be influenced by Self-Brand-Connection. Moore and Homer (2008) demonstrate the impact of Self-Brand-Connection on Attitude Toward branded sports companies. In addition, Attitude-Toward-Using can be impacted by the fact that users share the same brand values (Values). Several researchers have studied the influence of corporate social responsibility strategy or, more precisely, brands' commitment to

causes, on customers' attitudes or decisions (Nan & Heo, 2007). According to Wu and Holsapple (2014), information technologies such as the smartwatch can provide users with both utilitarian/hedonic functions and business/social functions. Based on Davis et al. (1992), Perceived-Enjoyment is a key predictor of users' attitude. Therefore, the authors postulate that:  
H7: Attitude-Toward-Using is directly, significantly and positively impacted by the affective dimension of Brand-Experience

H9: Attitude-Toward-Using is directly, significantly and positively impacted by Self-Brand-Connection

H11: Attitude-Toward-Using is directly, significantly and positively impacted by Values

H12: Attitude-Toward-Using is directly, significantly and positively impacted by Perceived-Enjoyment

### **Constructs impacting Perceived-Enjoyment**

Perceived-Enjoyment is defined as the perception of joy felt by individuals when using a product (Venkatesh, 2000). Perceived-Enjoyment, identified as an intrinsic motivation (Davis et al., 1992), drives individuals to accept innovative products and demonstrates the user's need for entertainment. Perceived-Enjoyment is considered as key, especially for the adoption of disruptive technologies such as augmented reality wearables (Holdack, Lurie-Stoyanov & Fromme, 2020), 3G mobile services (Suki & Suki, 2011), virtual reality devices (Lee, Kim & Choi, 2019), video on demand (Pereira & Tam, 2021) or media tablets (Yu et al., 2017). Nevertheless, Nascimento, Oliveira and Tam (2018) found that Perceived-Enjoyment has no impact on the continuance of the intention to use a smartwatch.

Brand-Experience impacts affective experiences such as Perceived-Enjoyment, and using a technology can enhance Perceived-Enjoyment (Arruda-Filho & Lennon, 2011). Researchers also confirm the impact of personal traits and values on enjoyment (Baek & Touati, 2017) and the link between personality and enjoyment (Fang & Zhao, 2010). Therefore, the authors suggest that:

H6: Perceived-Enjoyment is directly, significantly and positively impacted by Brand-Experience

H8: Perceived-Enjoyment is directly, significantly and positively impacted by Self-Brand-Connection

H10: Perceived-Enjoyment is directly, significantly and positively impacted by Value Factor Items

Our twelve hypotheses are summarized in Table 1.

[Insert Table 1 here]

## **The influence of moderators in the adoption of disruptive innovations**

### ***National Culture***

Hofstede (1980) claimed that national culture, shared by people living in the same country, consists of programming individuals' attitudes. National culture, considered as subjective, as an unconscious infrastructure (Rossi, 1989), is viewed in technology use and adoption research (Hofstede & Minkov, 2010<sup>b</sup>) as influencing individuals' behaviour (Samaha, Beck & Palmatier, 2014). Indeed, cultural backgrounds are relevant when determining how consumers satisfy their expectations (Ko, Seo & Jung, 2015). In some cases, national culture could be an obstacle (Soares et al., 2007), and its impact varies according to the type of products or solutions proposed (Cleveland et al., 2016), particularly where security and privacy could be impacted, such as, for example, in online banking solutions (Khan et al., 2017; Changchit et al., 2018). According to Hofstede's framework (1991), the countries studied for the purposes of this research (i) share individualist values (France, Germany, UK and USA), (ii) have low uncertainty avoidance (avoid ambiguous situations) and (iii) favour a long-term orientation (such as perseverance), with (iv) limited power distance (power inequality) and (v) mixed results for the values of masculinity (success, results-driven) versus femininity (taking care and life quality).

Therefore, we suggest that the hypotheses of our research model could vary depending on the national culture of the country in question.

### ***Gender***

Gannouni and Ramboarison-Lalao (2019) found no difference between genders (Male/Female) when analyzing self-perceived leadership. However, their study, based on Hofstede's framework (1980), highlights the impact of countries of origin considered as masculine (e.g., Germany and UK) or feminine (France), rather than gender.

Many Technology Acceptance Models (TAMs) theorize the influence of gender on the relationships of research models. Indeed, many studies have measured the moderating effect of gender on new technologies adoption (Leong et al., 2013), including computers (Todman & Day, 2006), mobile applications (Venkatesh et al., 2003, 2012), or the acceptability of smart

homes (Baudier *et al.*, 2020). However, some authors have detected no influence for e-learning solutions (Decman, 2015) or for the adoption of smartwatches (Wu *et al.*, 2016).

Hence, the authors postulate that gender has a direct, positive and significant impact on all the relationships of the research model.

### ***Age***

Age is often regarded as key in moderating the adoption and use of innovative technology (Venkatesh *et al.*, 2012). Consumers can be divided in two distinct groups: Digital Immigrants (born before 1981) and Digital Natives (1981 and after), explaining their degree of acceptability, and their level of experience (Prensky, 2001). Digital Natives are more willing to use innovative technology than Digital Immigrants (Kaplan & Haenlein, 2016; Baudier *et al.*, 2020). Digital is part of their day-to-day life (Howe & Strauss, 2000), as they grew up with access to the Internet, tablets, smartphones and computers. Several studies have confirmed that elderly people have less propensity than younger generations to adopt innovative products (Liébana-Cabanillas *et al.*, 2014). Nevertheless, Wu *et al.* (2016) found that age does not influence the adoption of Internet of Things such as wearables.

The authors suggest that the hypotheses could be impacted according to the age of the respondent.

## **Methodology**

### **Research model**

The research model was built taking into account the results of previous research as discussed in the conceptual background section. The aim of the research model is to, first, analyze the impact of advertising of smartwatches on users' perceptions (Brand-Experience, Self-Brand-Connection and Values). Second, the model investigates the influence of both Values and Brand-Experience on Self-Brand-Connection. Third, the model postulates that Brand-Experience, Self-Brand-Connection and Values influence the perception of enjoyment. Fourth, the impact of variables (Brand-Experience, Self-Brand-Connection, Values and Perceived-Enjoyment) on the Attitude-Toward-Using a smartwatch is studied. Finally, we analyze the potential moderating effects of national culture, gender and age.

Our model was developed using existing scales which have already been tested and validated (Table 2). The Self-Brand-Connection construct was measured by adapting the scale proposed by Escalas and Bettman (2003), using seven items. We selected four items from the Advertising

scale measuring Consumer Attitude Toward Marketing and Consumerism developed by Barksdale and Darden (1972). The Perceived-Enjoyment variable, mobilizing three items proposed by Davis et al. (1992), was then applied. Three items from the affective dimension of the Brand-Experience scale (Brakus et al., 2009) and four items from the Attitude-Toward-Using scale (Taylor & Todd, 1995) were selected. Finally, we applied three Values items from the Meaning of Branded Product scale developed by Strizhakova et al. (2008). A five-point Likert scale from “strongly disagree” to “strongly agree” was mobilized to measure each item.

[Insert Table 2 here]

### **Data collection**

We selected a quantitative method using a CAWI approach (Computer-Aided-Web-Interview) to test our hypotheses and established a panel of users who owned a smartwatch (Table 3). According to *Market Research Future*<sup>2</sup>, the market in 2017 for the smartwatch was mainly based in the United States and Europe, headed by Germany and France. We decided to include a third main European economy, the United Kingdom. A questionnaire in four languages was sent out in May 2017 by an international market research firm called Survey Sampling International. Of the 2,365 individuals contacted by the firm, a total sample of 1,197 responses was collected from the following countries: France (300), Germany (297), UK (297) and USA (303). At 50.5 per cent, men represent the largest proportion of the respondents, consisting mainly of Digital Natives, born after 1980. The majority of the respondents are active, with a permanent job, and mainly in a management position, except for those from the United States, where all strata of jobs were represented. The majority of respondents live in big cities of more than 50,000 inhabitants. Most of them acquired their smartwatch during the previous six months and they are already in intensive daily use.

[Insert Table 3 here]

### **Results**

A Structural-Equation-Modelling analysis was conducted to analyze the relationship between the constructs of our research model using SmartPLS3 software.

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<sup>2</sup> <https://www.marketresearchfuture.com/reports/smart-watch-market-967>

### ***Outer model***

The Alpha's Cronbach, Composite reliability, Rho.A, all above 0.7, demonstrate the reliability of the model. The Convergent Validity was verified by controlling that the Average-Value-Extracted (AVE) was above 0.5 (Table 4).

[Insert Table 4 here]

Next, the discriminant validity was checked by verifying the cross-loading values. Item 2 for Brand-Experience "*I do not have strong emotions toward the brand*" with a loading below the recommended threshold of 0.700 was removed. In addition, the square roots of the Average Value Extracted of each variable were higher for its construct than for other constructs. Thus, the analysis confirmed the reliability and validities of our outer model (Table 5).

[Insert Table 5 here]

### ***Inner model***

To test our inner model, the  $R^2$ ,  $f^2$  and  $Q^2$  of the endogenous variables were controlled. To evaluate the relationships between constructs, a control was carried out on t-values (t) above 1.96 and p-values (p) below 0.05 (Figure 2).

[Insert Figure 2 here]

The explained variances ( $R^2$ ) at 0.604 showed that the model explains 60.4 per cent of Self-Brand-Connection determined by three constructs: Brand-Experience, Advertising and Values, all directly impacting Self-Brand-Connection. Thus, hypotheses H2, H4 and H5 are validated. Advertising explains (i) 33.2 per cent of Brand-Experience with a strong size effect ( $f^2 = 0.497$ ) and (ii) 37.9 per cent of Values with a huge size effect ( $f^2 = 0.610$ ). Therefore, hypotheses H1 and H3 are validated. Our model explains 25.7 per cent of Perceived-Enjoyment determined by Brand-Experience, Values and Self-Brand-Connection (strongest effect). Thus, hypotheses H6, H8 and H10 are validated. Finally, the  $R^2$  of Attitude-Toward-Using at 40.7 per cent is explained by Perceived-Enjoyment, Self-Brand-Connection and Values but not by Brand-Experience. The  $f^2$  (0.137) confirmed the impact of Perceived-Enjoyment on Attitude-Toward-Using which is considered as moderate. Therefore, hypotheses H9, H11 and H12 are validated and H7 is rejected. The  $Q^2$  were controlled by using the blindfolding procedure. All values of the constructs were above 0 with a better predictive relevance for Self-Brand-Connection

(0.406) and Attitude-Toward-Using (0.314). The Standardized-Root-Mean-Square-Residual at 0.05 (below the recommended threshold of 0.1) confirmed the quality of the hypothetical model. In sum, eleven hypotheses are validated, and one is rejected (Table 6).

[Insert Table 6 here]

### ***Moderating effect***

A Multi Group Analysis procedure was mobilized to check the moderating impact of gender, age and national culture using SmartPLS3 software.

The relationships of the model are not moderated by gender, except for the link between Self-Brand-Connection and Attitude-Toward-Using, where a positive and direct impact for Females was found (Path-Coefficient= 0.200, t-value= 3.960, p-value= 0.000), whereas the influence is not significant for Males (Path-Coefficient= 0.142, t-value= 1.858, p-value= 0.064). Therefore, the link between Self-Brand-Connection and Attitude-Toward-Using is validated for women but rejected for men (Table 7).

[Insert Table 7 here]

Age does not moderate the relationships of the model except for the influence of Brand-Experience and Values on Perceived-Enjoyment (Table 8). Our sample was divided into two parts: Digital Natives, born in 1981 and after, and Digital Immigrants, born before 1981 (Prensky, 2001). Regarding the impact of Brand-Experience on Perceived-Enjoyment, the relationship is direct, significant and positive for Digital Natives (Path-Coefficient= 0.172, t-value= 3.367, p-value= 0.001) but is rejected for Digital Immigrants (Path-Coefficient= 0.135, t-value= 1.856, p-value= 0.064). The influence of Values on Perceived-Enjoyment was also demonstrated for Digital Natives (Path-Coefficient= 0.171, t-value= 3.629, p-value= 0.000) but is rejected for Digital Immigrants (Path-Coefficient= 0.115, t-value= 1.569, p-value= 0.117).

[Insert Table 8 here]

One of the contributions of this research was to highlight the differences arising from national culture (Table 9). First, Brand-Experience does not impact Perceived-Enjoyment in the Anglo-

Saxon countries: UK (Path-Coefficient= -0032, t-value= 0.384, p-value= 0.701) and USA (Path-Coefficient= 0.036, t-value= 0.557, p-value= 0.577) but Brand-Experience impacts Perceived-Enjoyment in Germany (Path-Coefficient= 0.397, t-value= 5.729, p-value= 0.000) and France (Path-Coefficient= 0.299, t-value= 2.815, p-value= 0.005). Self-Brand-Connection impacts Perceived-Enjoyment in the USA (Path-Coefficient= 0.301, t-value= 4.014, p-value= 0.000) and UK (Path-Coefficient= 0.413, t-value= 4.990, p-value= 0.000) and not in Germany (Path-Coefficient= 0.083, t-value= 0.861, p-value= 0.389) or France (Path-Coefficient= 0.180, t-value= 1.947, p-value= 0.052). Then, Self-Brand-Connection impacts Attitude-Toward-Using in the UK (Path-Coefficient= 0.207, t-value= 2.279, p-value= 0.023) and Germany (Path-Coefficient= 0.243, t-value= 2.925, p-value= 0.003) but not in France (Path-Coefficient= 0.180, t-value= 1.722, p-value= 0.086) or the USA (Path-Coefficient= 0.096, t-value= 1.168, p-value= 0.243). Finally, Values do not impact Self-Brand-Connection in the UK (Path-Coefficient= 0.088, t-value= 1.309, p-value= 0.191) and Perceived-Enjoyment in Germany (Path-Coefficient= 0.109, t-value= 1.170, p-value= 0.242). Each country rejected two relationships of the model but not on the same constructs.

[Insert Table 9 here]

## **Discussion**

### ***Advertising***

Our results confirm the impact of Advertising on Brand-Experience, Self-Brand-Connection and Values, with both Values and Brand-Experience having a higher impact. Indeed, Advertising can induce an emotional response and contributes to the development of a positive and affective experience of a brand, as demonstrated by Zhang's (2021) analysis of the impact of social media advertising on Brand-Experience. In addition, by communicating their values through advertisements (Nan & Heo, 2007; Gupta & Pirsch, 2006), a brand allows its users to make the link between their own values and the values of the brand (Coelho et al., 2018). Advertising also contributes to creating and reinforcing the feeling of Self-Brand-Connection, confirming previous research (e.g. Phua & Kim, 2018).

### ***Attitude-Toward-Using***



Our findings highlight the positive influence of Perceived-Enjoyment, Self-Brand-Connection and Values on Attitude-Toward-Using a smartwatch. Indeed, the positive relationship between Perceived-Enjoyment and Attitude-Toward-Using is in line with other studies on reality-augmented smart glasses (Holdack et al., 2020), iPads (Sarosa, 2019) and e-book readers (Anton et al., 2013). Krey et al.'s study (2019) also confirms that enjoyment shapes individuals' attitudes. Our results regarding the link between Self-Brand-Connection and Attitude-Toward-Using a smartwatch are similar to previous research (e.g. Moore & Homer, 2008). Individuals preferred to select a brand that could be incorporated into their self-concept. Thus, using a particular product or brand allows consumers to build and convey their self-image. However, Chand and Fei (2020) confirm that Self-Brand-Connection can impact Attitude regarding the purchase of counterfeit products, as customers who want to enhance their self-concept may decide to buy counterfeit luxury products. Finally, the feeling of sharing similar values with a brand directly impacts Attitude-Toward-Using a smartwatch. Our findings are consistent with earlier research, such as that of Wiese, Martinez-Climent and Botella-Carrubi (2020), confirming the impact of values shared through Facebook advertising on Attitude. Nevertheless, our results indicate that the affective dimension of Brand-Experience does not impact Attitude-Toward-Using. Respondents agree that the brand induces feelings, sentiments and emotions, but this construct does not influence customer attitudes while using the smartwatch: there is a disconnect between the affective perception of the brand and the use of the smartwatch, regardless of gender, age or culture. Therefore, our findings suggest that emotional attachment to the brand is not linked to Attitude-Toward-Using for the brand users. Our results contradict the study carried out by Ghazali et al. (2020) confirming the impact of Brand-Experience on Attitude-Toward-Using a smartwatch. However, this discrepancy could be due to the fact that Ghazali *et al.*'s respondents were non-users of smartwatches while our sample was composed of smartwatch users.

### ***Perceived-Enjoyment***

The relationships of Values, Brand-Experience and Self-Brand-Connection with Perceived-Enjoyment are also confirmed. First, our finding regarding the impact of Values on Perceived-Enjoyment confirms the importance of personal traits (Baek & Touati, 2017). Cho and Son (2019) demonstrated that sharing social values can directly impact Perceived-Enjoyment and Chen, Lu and Wang (2016) found a direct link between shared identity and Perceived-Enjoyment. Second, the positive impact of Brand-Experience on Perceived-Enjoyment confirms that the affective dimension of Brand-Experience is related to Perceived-Enjoyment, as raised by Nadeem et al. (2021), who identify hedonic value as one of the experiential values.

Indeed, positive Brand-Experience can enhance Perceived-Enjoyment (Arruda-Filho & Lennon, 2011). Third, the relationship between Self-Brand-Connection and Perceived-Enjoyment is validated. Arruda-Filho and Lennon (2011) found that the hedonic dimension is important for i-phone users loyal to the Apple brand. Other studies have analyzed the moderating effect of Self-Brand-Connection on the relation between consumer engagement and hedonic value (Nadeem et al., 2021).

### ***Self-Brand-Connection***

Self-Brand-Connection is related to Values and Brand-Experience. Indeed, our results confirm the impact of Values on Self-Brand-Connection, highlighting the fact that sharing values with a brand is key and that individuals may decide to select a brand on the basis that it could be incorporated into their self-concept, as stated by Escalas and Bettman (2003). This study also addresses the influence of Brand-Experience on Self-Brand-Connection, and our findings confirm the influence of positive consumer experiences on Self-Brand-Connection, thereby confirming previous studies (van der Westhuizen, 2018; De Kerviler & Rodriguez, 2019).

One of the main purposes of this study was to identify the potential moderating effects of gender, age and national culture on the relationships of the model when consumers interact with smartwatches.

### ***Gender as a moderator***

No major differences were found in terms of the impact of gender on the relationships of the model. These results confirm the analysis done by Wu et al. (2016) on the acceptance of the smartwatch. Nevertheless, the link between Self-Brand-Connection and Attitude-Toward-Using is validated for Females and rejected for Males. Moore and Homer (2008) demonstrate the influence of Self-Brand-Connection on Attitude-Toward a branded sports company where the influence is stronger for women than for men, especially if a brand is perceived as female-gendered and if it nurtures its aesthetic appeal. According to Dommer and Swaminathan (2013), advertising reinforces the identity of the brand as recognized by Females. In addition, design plays an important role in the adoption of such products (Chuah et al., 2016). In fact, Choi and Kim (2016) consider the smartwatch to be a fashion product. Consequently, the link between Self-Brand-Connection and Attitude-Toward-Using for Females is direct, positive and significant.

### ***Age as a moderator***

Regarding the moderating effect of age, ten of the model's relationships are not impacted by age. However, age influences two relationships between Brand-Experience and Values on Perceived-Enjoyment. For the Digital Natives, sharing common values with the brand and

viewing it as an emotional brand directly impacted enjoyment. These results confirm the finding that Digital Natives, unlike Digital Immigrants, perceive the smartwatch to be a hedonic product, and thus are more responsive to the affective dimension of Brand-Experience and Values shared via advertising. Our findings confirm analysis carried out by Drolet et al. (2007) on rational advertising for hedonic vs. utilitarian products and by Williams and Drolet (2005) on emotional advertising.

### ***National culture as a moderator***

Finally, the purpose of our research was to compare results from different cultures. Roth (1995) suggests that there are more similarities between individuals across cultures than within cultures, and that national culture has less of an impact than was thought by Hofstede et al. (2010<sup>a</sup>). Thus, international companies often treat their consumers as global consumers who share the same personal values. Others believe that with globalization individuals will think in the same way regardless of their nationality because of the increasing emergence of communality (Cleveland & Laroche, 2007). Seven of the model's relationships were not impacted by the respondents' national culture. The sample can be segmented into two categories, both of which were categorized by Hofstede et al. (2010<sup>a</sup>) as individualistic: the Western European countries (DE and FR) and the Anglo-Saxon countries (UK and USA). Nevertheless, some relationships were rejected by some of the countries (Values, Brand-Experience and Self-Brand-Connection) linked to Perceived-Enjoyment. There are two provisos to this, first, according to Khan and Rahman (2015), the two main contributors to research on Brand-Experience are the USA (31%) and the UK (7.5%), demonstrating these national cultures' interest in the subject. Nevertheless, the relationship between Brand-Experience and Perceived-Enjoyment was rejected by Anglo-Saxon countries and validated in France and Germany. Ladhari et al. (2011), in their study on Brand-Experience, found that French respondents are more attached to the perception of fun than American consumers. Second, even if the self-expression characteristic (Inglehart & Baker, 2000) is shared within Western European and Anglo-Saxon countries, this study found the opposite results for the relationship between Self-Brand-Connection and Perceived-Enjoyment, where the relation is rejected in FR and DE and validated in the UK and USA. In their study, Ford et al. (2018) demonstrate that US consumers are more sensitive to brand heritage, familiarity and nostalgia than Belgian consumers, and experience more pleasure from being self-connected to the brand. Based on Kim et al. (2011), individualists are attached to self with a focus on emotion and entertainment, particularly in the USA. Third, the influence of Values on Perceived-Enjoyment was verified in all cultures except Germany. According to Schwartz (2010), German culture

exhibits egalitarian values focusing on the veracity of information (utilitarian information), whereas US consumers' attitudes confirm the importance of shared values on Perceived-Enjoyment. The image of a brand can be linked to nationality and a consumer might select a product simply because they feel self-connected to this culture (Yasin et al., 2007). Nevertheless, Values do not impact Self-Brand-Connection for UK users who share an Anglo-Saxon profile with the United States.

To conclude, for FR and the USA, Self-Brand-Connection does not influence Attitude-Toward-Using a smartwatch.

### **Theoretical Implications**

This study confirms the huge influence of Advertising on smartwatch users based on a number of variables, including (i) Values, where individuals and the brand share the same values (e.g. sustainability, families ties, etc.) and where the consumer selects a brand because this specific brand supports the values they stand for; (ii) the affective dimension of the Brand-Experience, where individuals experience the emotions and sentiments induced by the brand and view the brand as an emotional brand, and, finally, (iii) Self-Brand-Connection, where the brand reflects who they are, where they feel that the brand helps them become the type of person they want to be, and where they consider the brand to be an integral part of their identity.

Our results highlight the influence of the affective dimension of the Brand-Experience, Values and Self-Brand-Connection on Perceived-Enjoyment. Perceived-Enjoyment, defined as the level of joy perceived by individuals when using a product or service, is identified as an intrinsic motivation, confirming that the notion of enjoyment is key for the adoption of new technologies and can directly impact consumers' attitudes regarding the use of a product or service. Finally, our analysis confirms the influence of Perceived-Enjoyment, Self-Brand-Connection and Values on Attitude-Toward-Using a smartwatch but demonstrates that Brand-Experience has no impact.

### **Practical Implications**

The impact of Advertising is positive if individuals consider it to be reliable, if it induces emotion, and if it contributes to building a positive and affective experience of the brand. By being Self-connected, individuals develop an affective link with the brand. Thus, brands may decide to focus on values or entertainment rather than on functional features to distinguish themselves from their competitors. This strategy is appropriate when the technology needs no explanation, especially for the Digital Native population. Regarding potential cultural

differences, with the rise of globalization, companies and academics often consider consumers to be more similar than they are different, sharing the same personal values. Nevertheless, some differences still exist, and even if advertising continues to focus on building a strong feeling of being part of a community, managers need to take into account the national culture variable in other types of communication, such as social media or events organized in different countries.

## **Conclusion**

A consumer's brand relationship impacts their future purchases, and a strong brand can directly impact the profitability of companies by increasing their revenues. Brand personality and brand values are crucial for the creation and development of a durable link with the brand. Advertising is considered as one of the key activities for creating and maintaining the link between the brand and its users. This study shows that communication with consumers on the smartwatch is crucial for a brand to maintain and strengthen its emotional connection with them. A further aim of this research was to highlight the potential moderating effects of (i) gender, (ii) age and (iii) national culture.

(i) No major differences were found regarding the impact of gender on the relationships of the model, except for the relation between Self-Brand-Connection and Attitude-Toward-Using, validated for Females and rejected for Males. In this case, the smartwatch is perceived as a fashion and aesthetic product, key for its adoption by women. This result reflects that of Kang and Jung (2020), who showed that women have a more positive attitude towards their smart wearables than men. With the development of luxury accessories such as the Hermes wristband, the fact that some smartwatches are seen as a luxury product impacts women more strongly than men, as the former tend to be more responsive to luxury. Hence, Females feel self-connected to the brand, with a direct influence on their Attitude-Towards-Using the product; it is therefore important for the company to develop the product's aesthetic appearance to ensure that the identity of the brand is recognized by Females and to target their advertising according to gender.

(ii) Regarding age, respondents can be divided into two distinct segments: the Digital Immigrant (born before 1981) and the Digital Native (born after 1980). Our results confirm the impact of the affective dimension of the Brand-Experience, Values on Perceived-Enjoyment for Digital Natives. Sharing common values with the brand, Digital Natives consider the brand to be an emotional purchase, directly impacting their enjoyment. However, even if emotional advertising is a predominant factor for Digital Natives in the case of hedonic products such as

smartwatches, the utilitarian side should not be ignored. Indeed, Mani and Chouk (2017) suggest that perceived uselessness positively influences this group's resistance to smart products.

(iii) A better understanding in cross-national studies of the impact of national culture is crucial. Although the countries analyzed are all considered to be individualistic, the sample can be segmented into three categories: German countries (DE), Latin countries (FR) and Anglo-Saxon countries (UK and USA). The authors noticed important differences between the three groups, confirming the impact of national culture. In addition, the results confirm that (a) the image of a brand can be linked to the national culture, with consumers selecting a product simply because they feel self-connected to this culture (American consumers); (b) transparency of information can be key for adoption (for German consumers, who are more focused on egalitarian values); and (c) the perception of fun is a determinate component of the affective dimension of Brand-Experience (for French respondents).

To summarize, this article presents a theoretical perspective on how advertising campaigns can succeed for IoTs such as smartwatches. But understanding how advertising campaigns can succeed, as demonstrated by Grewal et al. (2016), requires an understanding of how to ensure the alignment of all contextual variables, including advertising objectives, stakeholders, market conditions, and selected mobile advertising elements. As regards the latter, Martins et al. (2019) highlight design as playing a crucial role in consumers' perception of the brand and in their purchase intention after viewing Advertising. The authors therefore urge brands to consider the type and form of advertising messages sent to smartwatch users in order to strengthen the emotional bond with that brand.

### ***Limitations***

This study has several limitations. First, the authors did not focus on a particular brand. Analysis of a specific smartwatch brand may have produced different results, especially in terms of the variables of Brand-Experience and Self-Brand-Connection. Second, our sample is focused on Western cultures and does not include Asian cultures, where the connectivity rate is probably the highest in the world and where the number of units sold represents more than two-thirds of global consumers. Third, our study has neglected collectivist cultures, where behaviours and Values are completely different, which could have modified our results for some variables. Future research might replicate our model but focus on a specific brand to measure the

importance of brand perception on consumers' perception. Further studies could test the model on other smart technologies. Finally, the study could be extended to Asian countries as well as to collectivist countries.

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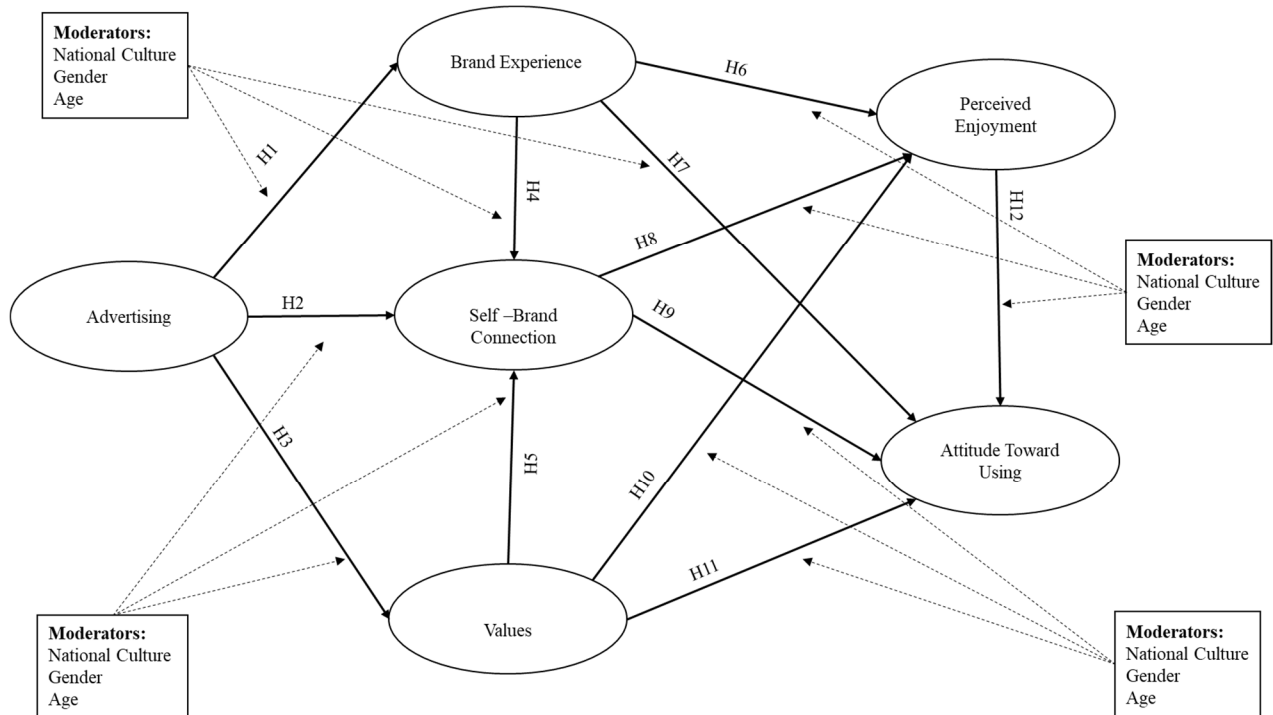
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**Figure 1. Research model**



**Table 1. Hypotheses**

H	Relationships
H1	ADV positively and directly impacts BE
H2	ADV positively and directly impacts SBC
H3	ADV positively and directly impacts VAL
H4	BE positively and directly impacts SBC
H5	VAL positively and directly impacts SBC
H6	BE positively and directly impacts PE
H7	BE positively and directly impacts ATU
H8	SBC positively and directly impacts PE
H9	SBC positively and directly impacts ATU
H10	VAL positively and directly impacts PE
H11	VAL positively and directly impacts ATU
H12	PE positively and directly impacts ATU

**Table 2. Variables mobilized**

Variables		Number of items	Scales mobilized
Advertising	ADV	4	Barksdale and Darden 1972
Brand-Experience	BE	3	Brakus <i>et al.</i> , 2009
Self-Brand-Connection	SBC	7	Escalas and Bettman 2003
Values	VAL	3	Strizhakova <i>et al.</i> 2008
Perceived-Enjoyment	PE	3	Davis <i>et al.</i> 1992
Attitude-Toward-Using	ATU	4	Taylor and Todd, 1995

**Table 3.** Sample's characteristics

Country	France		Germany		UK		USA		TOTAL
	Nbr	%	Nbr	%	Nbr	%	Nbr	%	
Respondents invited	731		492		503		639		2365
Sample collected	300		297		297		303		1197
Response Rate	41%		60%		59%		47%		51%
Female	157	52%	149	50%	140	47%	147	49%	593
Male	143	48%	148	50%	157	53%	156	51%	604
18-24 years old	75	25%	71	24%	63	21%	79	26%	288
25-34 years old	99	33%	114	38%	113	38%	108	36%	434
35-44 years old	66	22%	58	20%	64	22%	52	17%	240
45-56 years old	53	18%	40	13%	36	12%	30	10%	159
57 plus	7	2%	14	5%	21	7%	34	11%	76

**Table 4.** Reliabilities and convergent validity

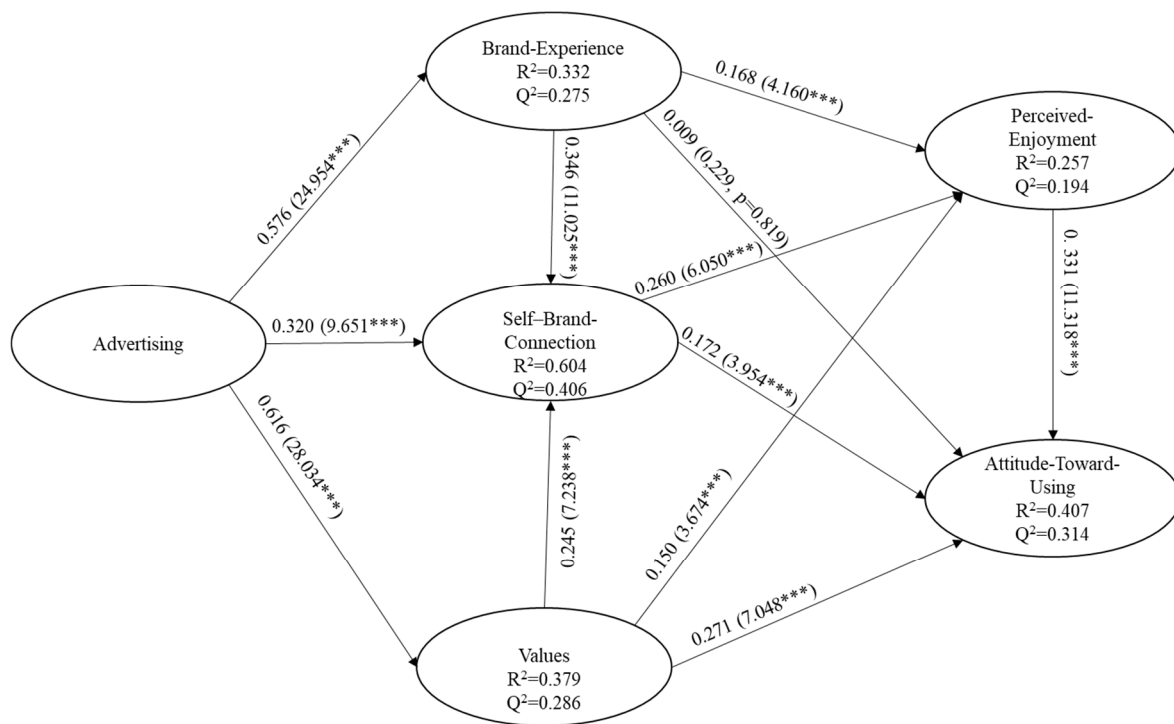
	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Advertising	0.836	0.838	0.891	0.671
Attitude-Toward-Using	0.922	0.922	0.945	0.810
Brand-Experience	0.833	0.837	0.923	0.857
Self-Brand-Connection	0.932	0.932	0.945	0.711
Perceived-Enjoyment	0.877	0.881	0.924	0.802
Values	0.865	0.866	0.918	0.788

**Table 5.** Convergent Validity: Fornell-Larcker Criterion



	Advertising	Attitude-Toward-Using	Brand-Experience	Self-Brand-Connection	Perceived-Enjoyment	Values
Advertising	<b>0.819</b>					
Attitude-Toward-Using	0.574	<b>0.900</b>				
Brand-Experience	0.576	0.421	<b>0.926</b>			
Self-Brand-Connection	0.671	0.507	0.671	<b>0.843</b>		
Perceived-Enjoyment	0.505	0.527	0.429	0.470	<b>0.896</b>	
Values	0.616	0.523	0.573	0.641	0.414	<b>0.888</b>

Figure 2. Model with results



p<0,05 \* p<0,01 \*\* p<0,001 \*\*\*

Table 6. Test of hypotheses

Construct	Predictor variable	R2	f2	$\beta$	t-Value	p-Value	Q2	H
Self-Brand-Connection		0.604					0.406	
	Brand-Experience		0.179	0.346	11.025	0.000		X

Advertising	0.142	0.320	9.651	0.000	X
Values	0.084	0.245	7.238	0.000	X
<b>Brand-Experience</b>	0.332			0.275	
Advertising	0.497	0.576	24.954	0.000	X
<b>Values</b>	0.379			0.286	
Advertising	0.610	0.616	28.034	0.000	X
<b>Perceived-Enjoyment</b>	0.257			0.194	
Brand-Experience	0.020	0.168	4.160	0.000	X
Self-Brand-Connection	0.041	0.260	6.050	0.000	X
Values	0.017	0.150	3.674	0.000	X
<b>Attitude-Toward-Using</b>	0.407			0.314	
Perceived-Enjoyment	0.137	0.331	11.318	0.000	X
Brand-Experience	0.000	0.009	0.229	0.819	O
Self-Brand-Connection	0.022	0.172	3.954	0.000	X
Values	0.067	0.271	7.048	0.000	X

**Table 7.** Moderating effect of gender

	Male			Female		
	$\beta$	t-value	p-value	$\beta$	t-value	p-value
<b>SBC-&gt;ATU</b>	0.142	1.858	0.064	0.200	3.960	0.000

**Table 8.** Moderating effect of age

	Digital Native			Digital Immigrant		
	$\beta$	t	p	$\beta$	t	p
<b>BE-&gt;PE</b>	0.172	3.367	0.001	0.135	1.856	0.064
<b>VAL-&gt;PE</b>	0.171	3.629	0.000	0.115	1.569	0.117

**Table 9.** Moderating effect of Country

	UK			Germany			France			US		
	$\beta$	t-value	p-value	$\beta$	t-value	p-value	$\beta$	t-value	p-value	$\beta$	t-value	p-value
<b>BE-&gt;PE</b>	(-0.032)	0.384	0.701	0.397	5.729	0.000	0.299	2.815	0.005	0.036	0.557	0.577
<b>SBC-&gt;ATU</b>	0.207	2.279	0.023	0.243	2.925	0.003	0.180	1.722	0.086	0.096	1.168	0.243

<b>SBC-&gt;PE</b>	0.413	4.990	0.000	0.083	0.861	0.389	0.180	1.947	0.052	0.301	4.014	0.000
<b>VAL-&gt;SBC</b>	0.088	1.309	0.191	0.315	5.444	0.000	0.271	3.399	0.001	0.272	4.872	0.000
<b>VAL-&gt;PE</b>	0.165	2.219	0.027	0.109	1.170	0.242	0.186	2.587	0.010	0.160	2.011	0.045