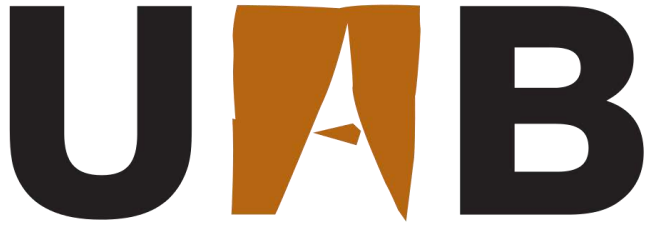
Universitat Autònoma de Barcelona

# DETERRENTS TO CO-CREATION ONLINE

**Maryna Chepurna**



# Universitat Autònoma de Barcelona

Department of Business and Economics

Doctorate in Entrepreneurship and Management

DOCTORAL THESIS

# DETERRENTS TO CO-CREATION ONLINE

By:

Maryna Chepurna

Supervisor:

Prof. Josep Rialp Criado

UAB - Campus Bellaterra, (Cerdanyola del Vallès),

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# Abstract

Value co-creation is an important topic of interest in marketing domain for the last decade. Co-creation via the Internet has received a particular attention in the literature (O'Hern & Rindfleisch, 2010; Rathore, Ilavarasan, & Dwivedi, 2016). Although there have been substantive number of studies of what motivates customers to participate in value co-creation in the Internet-based platforms (Fuller, 2006; Constantinides, Brünink, & Lorenzo-Romero, 2015; Nambisan & Baron, 2009), there is a lack of research of what the deterrents are that may prevent customers from contributing their ideas on-line.

First, the qualitative research based on twenty in-depth interviews with customers and twenty in-depth interviews with marketing specialists from different companies was undertaken in order to define the deterrents from the customers' and companies' point of view, as a basis for future survey to be delivered to the customers. The results show that although there is a repetition of the mentioned constraining factors indicated by the both groups of the interviewees, the ranking of the barriers is distinctive.

Second, up-to-date there is no study that would empirically measure the effect that the deterrents have on the users' attitude towards co-creation online. Therefore, the second study is aimed not only to fill up the mentioned literature gap, but also provide additional value to the academia and practitioners by determining the effect of the context, age, gender, and education level performing multigroup analysis. PLS-SEM approach is applied in order to answer the research questions.

Finally, the third study is built on the theoretical background of the previous chapter and is aimed to extend the implications for the practitioners and academia by not only adding moderating effects of perceived risk of use, brand reputation, and mediation effect of brand trust; but also by testing the advanced model performing multigroup analysis using context and previous experience in co-creation as the control variables.

Based on the research findings, the thesis's main theoretical contribution is the definition and analysis of the deterrents to co-create in an online environment. From a managerial implications perspective, the thesis provides practical marketing solutions for the development of co-creation strategies online considering targeted users' age, gender, educational level, and previous experience with co-creation.

**Keywords**: co-creation, Internet, deterrents, motivators, brand reputation, brand trust, perceived risk of use, previous experience, PLS-SEM.

## DEDICATION

*TO MY FATHER AND MOTHER, MY SISTER, MY HUSBAND AND TO OUR SON*

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To my life-coach, my dear father Mykola Chepurnyi: because I owe it all to you. You have been guiding me with your priceless advises through all the stages of my academic career. Without your motivation and support this result would not have been possible.

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# CHAPTER ONE

## 1.1 INTRODUCTION

Nowadays, one of the the most significant marketing directions of the companies is how to adopt innovation and design to the company's strategy in order to achieve high financial performance in the long-term (Marketing Science Institute, 2019). Growing competition grounded on globalization trends, allows consumers to have such a huge number of choices, access to sales channels, and technology as they have never had in the history before. In the era of consumerism companies try to offer greater product range, which leads to oversaturated markets and less differentiation among firms (Prahalad & Ramaswamy, 2004). There is a persistent requirement of establishing sustainable business around the product that is truly needed by consumers (Lee, Olson, & Trimi, 2012).

Firms prefer to shift from company's point of view, on how the product should be, to more customer-centric businesses, in order to be able to respond faster to consumers' needs (Payne, Storbacka, & Frow, 2008). On the other side, knowledgeable customers that act in the more and more transparent market are eager to discuss not only prices and other terms and conditions, but also features of the products and services with firms (Vargo, Maglio, & Akaka, 2008).

The result of the firm-customer negotiation is creation of value by consumer's and company's united effort (Prahalad & Ramaswamy, 2000; 2004), which is more and more popular fast-growing concept of value co-creation (Nambisan & Baron, 2009; Matthing, Sandén, & Edvardsson, 2004; Sandersa & Stappers, 2008). Co-creation can be defined as "a collaborative new product development activity in which consumers actively contribute and select various elements of a new product offering" (O'Hern & Rindfleisch, 2010, p. 85).

A substantial transformation of how innovation is developed through co-creation can be identified in numerous companies due to the significant growth of Internet services and social media popularity in particular. With the introduction of the latter and improved interaction possibilities with companies, customers want to be a part of the product development/improvement so that the products will be of a higher value for them (Bhalla, 2010; Prahalad & Ramaswamy, 2000). Hence, significant change in the vision and focus can be outlined in the companies towards technology and growing benefits received from social media, such as increased customers' reach, the information received for identifying the target audience, and improved customer experience (Rathore, Ilavarasan, & Dwivedi, 2016).

Due to the fact that co-creation activity and its results are difficult to imitate by competition, the integration of such practice into marketing strategy may bring competitive advantage to the company (Lee, Olson, & Trimi, 2012).

But the concept is voluntary-based, which means that customers have to be interested in participation (Roggeveen, Tsiros, & Grewal, 2012). Therefore, a major consideration of the effectiveness of the co-creation project is the customer's motivation to share his or her thoughts and ideas with companies (Fuller, 2006; Wasko & Faraj, 2000). In addition, understanding not only motivating but also inhibiting factors that affect customers' participation may facilitate the successful outcome of the co-creation practice (Dabholkar & Sheng, 2011; Hoyer, Chandy, Dorotic, Krafft, & Singh, 2010).

Many researchers have been trying to identify the motivational factors for customers to engage in co-creation activities online (Constantinides, Brünink, & Lorenzo-Romero, 2015; Hoyer et. al, 2010; Nambisan & Baron, 2009; Roberts, Hughes, & Kertbo, 2014; Urista, Dong, & Day, 2008).

The topic of the barriers has also been under certain examination: there are studies that try to identify barriers in knowledge-sharing communities of practice (Ardichvili et al., 2003); those that work with general definition of "Internet usage" (Porter & Donthu, 2006) and "Internet of things" (Balaji & Roy, 2017); those that concentrate on studying only one possible barrier, e.g. psychological distance (Holmqvist et al., 2015). However, it is difficult to find particular studies in the academic literature focused on identifying and studying constrains to co-creation online in a general and broad way.

Taking these observations into account, in this thesis we aim to contribute to the co-creation literature by identifying and analyzing the possible inhibiting factors that can influence the customers' attitudes towards participation in co-creation online. Furthermore, this study will provide managers with a useful and convenient tool that they can apply to enhance the participation in co-creation online, thus, increasing the competitive advantage for the company. From the academic point of view, new conceptual information will be received on what restrains customers from co-creation from the customers' and companies' point of view, and furthermore generate future research lines.

## 1.2 RESEARCH PURPOSE AND OBJECTIVES

The general purpose of this thesis is to generate an appropriate and useful managerial guide that would support the effectiveness of co-creation projects online by providing

professionals with recommendations on how to select the right target users' groups that would show better participation rates in a project based on the empirically proved results.

From this overall purpose, three research questions each one connected to the three chapters of the thesis are derived:

**Table 1. Research questions**

| Chapter | Research question | Chapter |
|---|---|---|
| **2** | • What might constrain customers from participation in co-creation projects in the Internet?<br>• Do these inhibitors derive from the external environment or from the customer's side (internal)? | Identification of barriers to co-create on-line: the perspectives of customers and companies. |
| **3** | • What is the effect that deterrents and motivators have on the customer's attitude towards co-creation online and how does that in turn affect the customer's participation in co-creation projects online?<br>• Is the mentioned effect moderated by the contextual background of the user or / and by his/her age, gender, education level? | Analysis of the barriers to co-create on-line: multigroup analysis structural equation modeling approach. |
| **4** | • Do perceived risk of use and brand reputation have a moderating effect on the relationship between positive attitude and participation in co-creation online?<br>• Does a brand trust have a mediating effect on the relationship between deterrent and attitude, or / and motivators on attitude?<br>• Are the mentioned effects moderated by the contextual background of the user or / and by his/her previous experience in co-creation online? | The role of prior experience, perceived risk, brand reputation, and brand trust in co-creation online |

# 1.3 RESEARCH OBJECTIVES

The significance of co-creation as a phenomenon has encouraged a growing interest in the research in the marketing literature since the works of Vargo and Lusch (2004) and Nambisan and Baron (2009) were published. There is still very limited amount of the existing

literature that is related to the topic of deterrents in co-creation online, e.g. barriers to participation in virtual knowledge-sharing communities of practice (Ardichvili et al., 2003), perceived access barriers to the Internet usage (Porter & Donthu, 2006), deterrents to participation in crowd funding community (Gerber & Hui, 2013), deterrents to the customers' behaviour in the Internet of things (Balaji & Roy, 2017), and none that would define and study the inhibiting factors to co-creation online. Furthermore, there are more than one actor involved in the process of interaction and participation in a value co-creation (Payne et al., 2008; Romero and Molina, 2011). Both customers and a company's marketing professionals build a dialog and transmit information and other resources for organizational resource formation and development (Gummesson and Mele, 2010). So, the first research objective formulated in this research is the following:

> *(1) to identify the deterrents to participation in the co-creation process in the Internet-based platforms from the customers' and companies' point of view.*

After obtaining the information both from the users' and professionals' perspective on what can serve as the barriers to co-creation online, their measurement scales were developed and adapted from the existing literature. Moreover, although the marketing of services underlines the significance of demographic factors such as gender, age, and education in consumer behaviors (Homburg & Giering, 2001; Mittal & Kamakura, 2001; Verhoef, 2003) the literature studying the potential effects of demographics in co-creation online is very limited. Similarly, there is scarce information about the effect of a user's contextual background on his/her attitudes towards co-creation. Based on the identified deterrents in the first part of the thesis, the second research objective is:

> *(2) to measure the effect that the deterrents have on the users attitude towards co-creation online and to determine the effect of the context, age, gender, and education level in the mentioned relationship.*

In order to enrich the applicability of the information received in the first two parts of the thesis, the third chapter is aimed to include the widely used online marketing concepts such as perceived risk of use (Faqih, 2013; Littler & Melanthiou, 2006; Tarpey & Peter, 1975), brand reputation (Casaló et. al., 2009; Jarvenpaa & Tractinsky, 1999; Selnes, 1998), brand trust (Chatterjee & Chaudhuri, 2005; Reichheld & Schefter, 2000; Urban, Sultan &

Qualls, 2000), and prior experience in co-creation online (Koyuncu & Lien 2003; Thamizhvanan & Xavier, 2013). Therefore, the third objective of the current research is:

> *(3) to enrich the research model proposed in chapter 2 by adding moderating effects of perceived risk of use, brand reputation, and mediation effect of brand trust; and to test the advanced model performing multigroup analysis using context and previous experience in co-creation as the control variables.*

# 1.4 RESEARCH METHODOLOGY

A sequential mixed method design procedure will be incorporated by this thesis in order to obtain the advantages of both qualitative and quantitative analyses (Bryman, 2006; Cameron & Molina-Azorin, 2011; Molina-Azorin & López-Gamero, 2012; Prashantham & Birkinshaw, 2015; Sale et al., 2002; Tashakkori & Teddie, 1998). Considering the type of the research questions, which relate to the concept of co-creation online, the qualitative design at the first stage of the research (second chapter) will be completed with a quantitative approach in the third and fourth chapters. Creswell (2003) stated that the research that incorporates mixed methods assists authors on amplifying on the conclusions of one method by completing them up with another method.

As previously mentioned, the purpose of the second part is to identify the possible deterrents to co-creation online, therefore, the qualitative research design with exploratory approach is selected. The method of in-depth semi-structured interviews (Gwinner et al., 1998; DiCicco-Bloom & Crabtree, 2006) have been chosen because the topic under examination is new, and there is no analogous studies, and the main purpose is to build the researchers' and managers' better understanding of the emerging topic of co-creation online. Following a key informant approach (Kumar et al., 1993; Philipps, 1981), the second chapter is based (1) on twenty in-depth semi-structured interviews with users; (2) and on twenty in-depth semi-structured interviews that were conducted with professional digital marketing managers, marketing managers, or professional agents that were hired to introduce (and to maintain) the online co-creation practice for a company; so both actors of the co-creation activity are considered (Gummesson & Mele, 2010).

In order to meet the objectives of the third and fourth chapters the quantitative research design will be applied. Using the data retrieved from the qualitative part of the research and adopting the results of previous research (Ardichvili et al., 2003; Constantinides,

Brünink, & Lorenzo-Romero, 2015; Giebelhausen et al., 2014; Lee & Yang, 2013; Nolan et al., 2007; Mathwick et al., 2008; O'Brien & Cairns, 2015; Polite, Roberts, & Thatcher, 2012; Porter & Donthu, 2006; Zhao et al., 2015; Balaji, 2017) the survey to the users will be prepared and distributed via Internet. The data collection will be performed by two independent companies: Netquest will be hired in Spain, and SmartSurvey for data collection in the UK. The finalized survey will be sent to the sample of Spanish and UK population: 307 completed responses have been obtained from the Spanish sample and 306 valid responses from the UK. Details of the quantitative methods applied are explained in detail in chapters three and four.

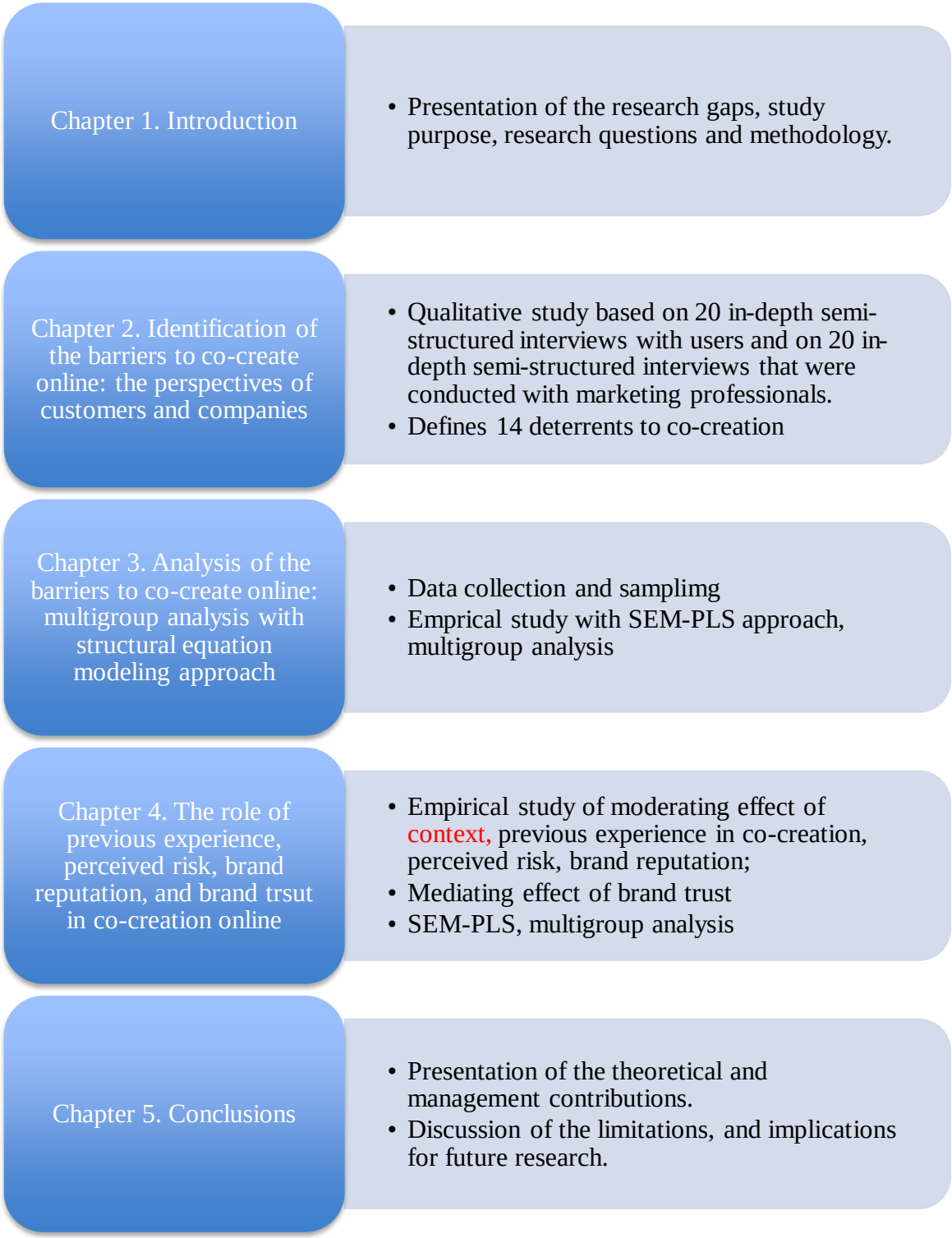
## 1.5 STRUCTURE OF THE STUDY

This study is organized into five chapters. The first introductory chapter assists in defining the general research idea and overview of the research purpose, questions and objectives that will be answered in the main body of this thesis. The main themes of each chapter are listed in Figure 1.

The second chapter is a qualitative research based on twenty in-depth semi-structured interviews with users and on twenty in-depth semi-structured interviews conducted with marketing professionals. The third chapter presents and tests one structural equation model that analyzes the effect of the deterrents on the attitude towards co-creation online. There is also an assessment of the invariance of the model and multigroup analysis across Spanish and UK users, their age groups, genders and education level. Afterwards, in the fourth chapter mediating and moderating effects have been added to the SEM model, and the context and previous experience in co-creation online are added as control variables.

Finally, the fifth chapter consists of the final discussion and conclusions of the research. More specifically, final theoretical and managerial contributions, study limitations, and recommendations for future research are presented.

**Figure 1. Structure of the study**



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# CHAPTER TWO
# IDENTIFICATION OF BARRIERS TO CO-CREATE ON-LINE: THE PERSPECTIVES OF CUSTOMERS AND COMPANIES

**Purpose:** Value co-creation is an important topic of interest in marketing domain for the last decade. Co-creation via the Internet has received a particular attention in the literature (O'Hern and Rindfleisch, 2010). Although there have been substantive number of studies of what motivates customers to participate in value co-creation in the Internet-based platforms, there is a lack of research of what the deterrents are that may prevent customers from contributing their ideas online. This research was undertaken in order to define the deterrents from the customers' and companies' point of view. Furthermore, the difference, if exists, between the users' and marketing professionals' ranking of the inhibitors to co-creation online is also studied.

**Design/ methodology/ approach:** This exploratory qualitative research is based on twenty in-depth semi-structured interviews with customers and twenty in-depth semi-structured interviews with marketing specialists from different companies. Spearman's rank correlation is applied to explore the relationship between the Internet users' and marketers' responses.

**Findings**: There are nine constraining factors. The results show that although there is a repetition of the mentioned constraining factors indicated by the both groups of the interviewees, the ranking of the barriers is distinctive.

**Research Implications:** New conceptual information is received on what restrains customers from co-creation from both customers' and companies' point of view.

**Practical Implications:** This paper explains the potential problems to be confronted when launching a co-creation project in the Internet-based platforms and offers managers a preliminary guide to comprehension of the users' deterrents rating.

**Originality:** the paper that defines deterrents to co-creation online.

**Keywords:** deterrents, co-creation, social media, service-dominant logic

**Article classification:** research paper

# 2.1 INTRODUCTION

According to the research priorities presented by Marketing Science Institute (MSI) in 2016-2018, one of the the most significant needs and interests of the companies in terms of marketing directions is how to adopt innovation and design to the company's strategy. One of such innovation drivers is the concept of value co-creation (Prahalad & Ramaswamy, 2000; 2004), which is defined as "a collaborative new product development activity, in which consumers actively contribute and select various elements of a new product offering" (O'Hern & Rindfleisch, 2010, p. 85).

With the introduction and growth of the Internet services and social media popularity which provides improved interaction possibilities with companies, customers want to be a part of the product development/improvement so that the products will be of a higher value for them (Bhalla, 2010; Prahalad & Ramaswamy, 2000). Due to the fact that co-creation activity and its results are difficult to imitate by competition, the integration of such practice into marketing strategy may bring competitive advantage to the company (Lee et al., 2012). Accordingly, organizations are concerned in attraction of the customers that wish to contribute their ideas to the co-creation process (Roggeveen et al., 2012). Understanding not only motivating but also inhibiting factors that affect customers' participation may facilitate the successful outcome of the co-creation practice (Dabholkar & Sheng, 2011).

There has been a substantial research done of what motivates customers to participate in co-creation activities in the Internet-based platforms (Urista et al., 2008; Nambisan and Baron, 2009; Hoyer et al., 2010; Roberts et al., 2014; Constantinides et al., 2015). The topic of the barriers has also been under certain examination: there are studies that try to identify barriers in knowledge-sharing communities of practice (Ardichvili et al., 2003); those that work with general definition of "Internet usage" (Porter & Donthu, 2006) and "Internet of things" (Balaji & Roy, 2017); those that concentrate on studying only one possible barrier, e.g. psychological distance (Holmqvist et al., 2015). However, it is difficult to find particular studies in the academic literature focused on identifying and studying constrains to co-creation online in a general and broad way.

Moreover, there are several actors involved by interacting and participating in a value co-creation process (Payne et al., 2008; Romero and Molina, 2011) who build a dialog and transmit information and other resources for organizational resource formation and development (Gummesson & Mele, 2010). It is defined that both a customer and a company's marketing professional are essential parts for co-creation "since the customer is

the axis around which the entire value co-creation process revolves and it is the marketer who facilitates this process" (Bharti et al., 2014, p. 416).

Hence, this exploratory study is aimed on the basis of twenty in-depth semi-structured interviews with customers and twenty in-depth semi-structured interviews with marketing specialists to identify the deterrents to participation in the co-creation process in the Internet-based platforms from the customers' and companies' point of view. Furthermore, following the methodology of Bharti et al. (2014), the distinctive ranking, if appears, of the deterring factors by users and marketers will be examined.

This paper will contribute existing literature in several ways: (1) new conceptual information will be received on what restrains customers from co-creation online (Hoyer et. al, 2010); (2) the factors will be identified by both of the actors of co-creation online - users and marketers (Gummesson & Mele, 2010); (3) the ranking of the inhibitors by both groups will be quantitavely compared (Bharti et al., 2014); (4) the paper serves as a starting point for the future research, as information generated from the interviews can be used as a basis for quantitave analysis in order to generalize the findings.

# 2.2 LITERATURE REVIEW

### 2.2.1 Co-creation and the Internet

Over the past years, new ideas have been developed and built on a revised logic that is more oriented on intangibility of resources, relationships with customers, and the co-creation of value. The pioneering paper by Vargo and Lusch (2004) on the service-dominant logic (S-D) for marketing was the starting point for the researchers' interest in value co-creation (Fuller, 2006; Grönroos, 2006; Hoyer et al., 2010; Nambisan & Baron, 2009). As the S-D logic implies, "value is defined and co-created by customers rather than being embedded in the output" (Yazdanparast et al., 2010, p.379).

Prahalad and Ramaswamy (2004) argue that not only a firm's transparency and access are important factors, but also the infrastructure that company must build in order to support the "dialog" with consumers. This process can be facilitated by digital technologies and the Internet, that serve as a linkage between company and customer, and customer with other customers. Internet-based platforms, or Web 2.0, refer to World Wide Web websites that develop usability (user-friendly), user-generated content, and interoperability (being adaptable to different devices) for the end users (DiNucci, 1999).

The study by Sawhney et al. (2005) examines how the Internet as a convenient platform can assist in co-creation with customers. First of all, it helps to convert one-way

customer communication into an on-going dialogue with them. Secondly, the Internet is a platform for creating virtual customer environments that permit a company to know what customers think about and how they interact in society with the same interests (Nambisan, 2002). Thirdly, it allows "the use of independent third-parties to reach non-customers—competitors' customers or prospective customers" (Sawhney et al., 2005, p.14).

Social media internet-based platforms are defined as "a group of Internet based applications that build on the ideological and technological foundations of Web 2.0, and allow the creation and exchange of user generated content" (Kaplan & Haenlein, 2010, p.61). Such platforms not only allow the information flow via social interaction channels but also enable public membership and the generation of user level content (Abrahams et al., 2012). Possessing characteristics such as unlimited timeframe, non-geographically connection, great communication transparency, and multi-party information sharing, social media permits the introduction of a range of value co-creation projects, where not only users can effortlessly interact with each other (Muniz & Schau, 2005), but also marketing managers can ''attend to'' and cooperate with their customers (Kaplan & Haenlein, 2010).

According to Dahan and Hauser (2002) social media acts as a useful intermediary between businesses and customers: companies have received the opportunity to assimilate its consumers in the business activities (Bartl et al., 2012; Sawhney & Prandelli, 2000). Luo et al. (2015) found that the participation in co-creation projects run on social media platforms improve the relationship of consumer with brand and user with other users, which furthermore contributes to generating agreeable brand community atmosphere.

### 2.2.2 Motivators and barriers to co-creation online

The theory of planned behavior explains a person's intention to perform a behavior at a defined time and place (Ajzen, 1985). It suggests that three determinants guide behavior intentions which in turn affects the behavior performance: an individual's attitude toward behavior, subjective norms, and perceived behavioral control (Ajzen, 1985). Furthermore, according to the theory, a number of factors may simplify (motivate) or inhibit performance of a behavior.

Motivation for co-creation was chosen as a separate direction in research in service dominant logic domain. One of the major research lines has been started by Wasko and Faraj (2000) with their pioneering attempt to examine motivators for co-creation, the paper based on the reasons why people participate in electronic communities either due to their personal self-interest, or due to the concern for the community. In 2004, Hennig-Thurau et. al.

intended to explain what motivates customers to engage in the electronic word-of-mouth on the consumer-opinion platforms. First empirical study on motivators for co-creation online applying uses and gratification theory (U&G) (Katz et al., 1973) was conducted by Nambisan and Baron (2009). Another three studies published in 2015 are based on motivators in the co-creation online: two using U&G (Constantinides et al., 2015; Zhang *et al.*, 2015); another building its own conceptual framework (Zhang & Kandampully, 2015).

Having the substantive amount of research on motivators to co-creation online, the literature about inhibiting factors to co-creation online is limited to a short number of studies. The qualitative approach to identify barriers to employees' participation in Caterpillar virtual communities of practice was the first study that tried to identify deterrents to participation in online knowledge sharing practice: information hoarding, fear to loose face, fear to let the colleagues down, more clear directions, to earn the right to post, too difficult problem – are some of the factors defined (Ardichvili et al., 2003).

Later, Porter and Donthu (2006) studied the perceived access barriers to the Internet usage in general. They claim that though access barriers have an important influence, perceptions concerning ease of use and usefulness have a more significant effect on consumer's attitude towards the use of the Internet. Another qualitative study by Gerber and Hui (2013) was dealing with deterrents to participation in crowdfunding online. Correia et al. (2015) mentioned that innovation in terms of co-creation online creates barriers and challenges, however, their paper answers different research question that the current study.

Cheung and To (2016) suggested that perceived usefulness measures the point to which a consumer considers that using social media to share his or her opinions on products or services is useful. The most recent study by Balaji and Roy (2017) named deterrents to value co-creation in the Internet of things as "determinants of value cocreation", which are superior functionality, aesthetic appeal, ease of use, and presence.

**Table 2. Literature associated with the topic of deterrents in co-creation online**

| Authors | Objective | Deterrents defined |
|---|---|---|
| Ardichvili et al., 2003 | Motivation and barriers to participation in virtual knowledge-sharing communities of practice | Information hoarding, fear to loose face, fear to let the colleagues down, more clear directions, to earn the right to post, to difficult problem |
| Porter and Donthu, 2006 | Using the technology acceptance model to explain how attitudes determine Internet usage: The role of perceived access barriers and demographics | Age, education, income and race are associated differentially with beliefs about the Internet, and these beliefs influence a consumer's attitude toward and use of the Internet |

| | | |
|---|---|---|
| Gerber and Hui, 2013 | What motivates and deters particitpation in Crowfunding community? | Fear of failure, lack of trust |
| Correia et al., 2015 | Marketing communications model for innovation networks | Mentioned the existence of barriers, but did not explore them |
| Cheung and To, 2016 | Examines factors that drive to co-create in social media and includes perceived usefulness as a key antecedent of consumer attitudes | Perceived usefulness measures the degree to which a consumer believes that using social media to share his or her experiences, opinions, and ideas on products or services is useful |
| Balaji and Roy, 2017 | Determinants of value co-creation to the Internet of things | Superior functionality, aesthetic appeal, ease of use, and presence. |

There is a clear research gap: no study exists that would explicitly define the inhibiting factors to co-creation in the Internet-based platforms; the studies that have been researching in the related topics (e.g. knowledge sharing communities online, Internet of things, etc.) offer a dispersed information about the possible barriers. Based on the literature review two propositions can be developed:

*Proposition 1: There is a set of inhibiting factors to co-creation in the Internet-based platforms.*

*Proposition 2: Some of the deterrents defined by related studies (see table 1) can be similar to the obstacles to co-creation in the Internet-based platforms.*

# 2.3 METHODOLOGY

The use of qualitative research was suggested by Corbin and Strauss (1990) to capture the context of the research at the highest possible richness level. The method of in-depth semi-structured interviews (Gwinner et al., 1998; DiCicco-Bloom & Crabtree, 2006) has been chosen to gain insights on a topic.

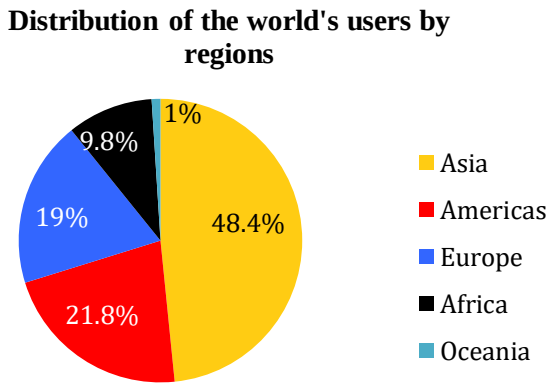
In order to identify the inhibiting factors to co-creation the content analysis was applied. “Content analysis is a technique for gathering data that consists of codifying qualitative information in anecdotal and literary form into categories in order to derive quantitative scales of varying levels of complexity” (Abbott & Monsen, 1979, p. 504). The similar technique was applied to the study by Andreu et al. (2010) and by Bharti et al. (2014).

Following a key informant approach (Kumar et al., 1993; Philipps, 1981), this study is based; (1) on twenty in-depth semi-structured interviews with users; (2) and on twenty in-depth semi-structured interviews that were conducted with professional digital marketing

managers, marketing managers, or professional agents that were hired to introduce (and to maintain) the online co-creation practice for a company; so both actors of the co-creation activity are considered (Gummesson & Mele, 2010). Twenty interviews with each group of the participants are considered to form a satisfactory amount of the interviews in qualitative research (Bertaux, 1981; Creswell, 1998).

In the first part, the purposive sampling was chosen as sampling approach where the participants are chosen according to predetermined criteria (Lincoln & Guba, 1985; Patton, 1990) in our case the definition of the user: "individual who can access the Internet, via computer or mobile device, within the home where the individual lives. This indicator does not record use, or frequency of use, but only access. In order to have access, the hardware equipment must be in working conditions, the Internet subscription service must be active, and the individual household member must have access to it at any time (there must be no barriers preventing the individual from using the Internet)" (InternetLiveStats, 2017). Furthermore, the user does not have an age limit (neither minimum, nor maximum).

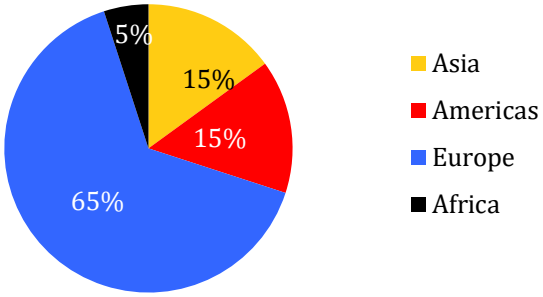
The total number of users worldwide in 2016 was 3,424,971,237, as calculated by using data by International Telecommunication Union (ITU), World Bank, and United Nations Population Division (InternetLiveStats, 2017). As of July 2013, the Internet users were distributed in the following way by regions:




Source: Internet Live Stats, 2013; (elaboration of data by International Telecommunication Union (ITU) and United Nations Population Division).

Twenty individuals were selected for the interviews are Internet users, from those ten males and ten females of different nationalities; aged between 23 and 61 years old (Appendix 2).

**Distribution of the interviewed users by regions**




The interviews were conducted in the period of October-November 2016. Each interview took 23 min on average (DiCicco-Bloom & Crabtree, 2006). The interviews were started with explanation of the concept and giving some examples to make the interviewee more confident and informed about the subject. The complete guide is presented in Appendix 1.

In the second part of the study, the marketing practitioners were interviewed. The marketers were selected in LinkedIn database using purposive sampling, according to their skills and previous experience in co-creation. The search was conducted by looking for "digital marketing", "co-creation", "co-creation project", and "social media skills". Afterwards, the message asking for the personal or Skype interview was sent to the selected candidates. Finally, twenty of them agreed to participate in this study, from those nine females and eleven males. The marketers that were not currently involved in the co-creation project online (45%) had been involved in such task from two to five months before the interview.

The in-depth interviews were conducted during May-November of 2016 as a private meeting or via Skype (if the candidate was unavailable for private meeting, or was a resident outside Spain). The guide for the interview with this group of interviewees consisted of (1) asking for describing particular case and personal experience in motivating customers for co-creation on-line in order to define if this person is relevant for the study; (2) and then from this experience he or she was asked to name the barriers that they think might have been the reason of why the customers did not participate in the company's online co-creation practice. The first question was the qualifier and the following question helped in answering the research question.

Non-directive approach (McCracken, 1990) was chosen in order to avoid indicating "the right" answer desired by the interviewer, but controlled (Burgess, 1982). Thus, the

interviews were not limited to the three questions. Hence, interviewer was avoiding leading questions, but rather taking a role of active listener. Both groups were interviewed in English.

Atlas.ti was used as analytical software for applying content analysis technique to the codifying of the interviews' transcripts, as well as generating visible results of the qualitative data gathered during the interviews.

Nine inhibiting factors were determined that seem to influence the customer attitude towards participation in co-creation activities online. The importance and relevance of each deterrent was estimated by identifying the frequency this term or its denotation was used by the interviewee. Therefore, to arrange and analyze the responses the frequency table was prepared. Then, those frequencies were ranked, where the factor with the highest count was placed as number 1. Based on the content analysis performed, two categories of the inhibiting factors are identified post priori, i.e. internal and external.

# 2.4 ANALYSIS AND RESULTS

## 2.4.1 Deterrents to Co-creation Online

The theory of planned behavior (Ajzen, 1985) states that factors that may constrain the performance of a behavior can be classified into internal to the individual (a set of personal characteristics and willpower), while the other factors (that depend on the environment or other person) are situated externally to the individual. Using this theoretical framework and after applying content analysis nine inhibiting factors were detected, and further divided into two subcategories, into internal and external factors.

### *2.4.1.1 Internal Factors*

**Lack of trust**

Trust is defined as "an expectancy of positive (or nonnegative) outcomes that one can receive based on the expected action of another party in an interaction characterized by uncertainty" (Bhattacharya et al., 1998, p. 462). Following this definition, if there is lack of trust a person may expect a negative or nonexistent outcome in an interaction with another party. One of the marketers commented:

*"People think that I'm taking advantage on them. They do not trust the organization." – online strategist, Autodesk.*

The cornerstone of the trust is the organizational reputation building, which can be reached through transparency of business processes, sustainable organizational behavior

within a market, and open dialogue with its customers (Jaworski and Kohli, 2006). One of the interviewed users said:

*"Trust and confidence this is what I want to feel towards the company" – Participant 8 (Tanzania, 24).*

The customer willingness to share information is based on the trust (Bharti et al., 2014). In a trusting environment, people believe that their conduct will result in beneficial consequences because others can cooperate with them and are willing to prolong assistance (Pangil &Chan, 2014). Thus, we can assume that when the user does not have enough trust for the organization, it can negatively affect his attitude towards participation in co-creation online.

**Technology anxiety**

Both the organizations and customers can benefit from the use of the Internet-based platforms, however there are users who feel uncomfortable exploiting some technological interfaces (Meuter et al., 2003). One of the participants mentioned:

*"I'm spending a lot of time online. However, I still have feeling that technology is a lot smarter than I am, and with one wrong click, my telephone will be broken." – Participant 5 (Spain, 64).*

Companies should be aware of how the technology anxiety degree impacts the level of participation in the online projects. Dyck and Smither (1994) found that older people feel less confident and more technology anxious than the young people. Furthermore, Teo (2001) studied how the age as a demographic variable influences the Internet usage activities. The research found out that age is negatively related to messaging and downloading activities. One of the marketers commented:

*"New generation is not afraid of the technology. They know that it's here to help." – digital marketing planner, Teritori Creativo.*

As co-creation is highly comunicational process, we can assume that the elder the person the more anxious and less self-confident he or she is towards participation in co-creation online.

**No shared values with brand**

Rokeach (1973) defined a value as "an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence (p. 5). Moreover, values can drive behaviour: "a value is a single belief that transcendentally guides actions and judgements across specific objects and situations" (Rokeach, 1968, p. 160). One of the interviewees said:

*"If you ask me, which brand I will support in co-creation – Barcelona FC or Real Madrid FC, I would definitely choose my team, Barca FC. I can't be helping the company that is totally against my likes and beliefs." – Participant 10 (Spain, 23).*

Fang et al. (2012) state that the awareness of the values that a brand transmits to the public as its brand image, takes a significant part in affecting customers' motivation to participate in any activities proposed by this company. One of such activities will be a co-creation project in the Internet-based platforms. The professional says:

*"You need to be a fan. So when there is no bonding or need of the product people won't help." – brand manager and developer, Boekenbo).*

Therefore, we can suggest an assumption of a connection of how users perceive the reputation of the brand and its values and their willingness to help.

**Skepticism**

Consumer doubt or skepticism is applied by user in order to protect himself from misleading marketing practice (Mangleburg & Bristol, 1998).

*"I want to be sure that if my idea will be chosen as the best one among the others, it will be protected and reserved under my name" – Participant 11 (Turkey, 25).*

Co-founder of Mindful Leading says: "*they [customers] experience the fear of not being heard among a huge number of other voices."*

Skepticism assists consumers in keeping themselves from fraud and deceptive claims (Mangleburg & Bristol, 1998). However, when accumulated and widespread, consumer skepticism can challenge marketing practice efficiency (Pollay & Mittal, 1993). One of such marketing practices is co-creation online, and one of the reasons of not participating can be customers' skepticism towards this marketing practice.

**Inertia**

The opinion formation is a complex abstractive construct that is impacted by the presence of different types of social influences. According to Das et al., (2015), one of such factors can be the majority effect. This effect is caused by the existence of a large group of individuals that share similar opinions.

*"I think a lot of people consider it's something strange. Maybe if one person starts to participate in co-creation activities maybe his/her friends will follow." - digital planner, Escribá.*

Huang and Yu (1999) defined inertia as a non-conscious form of human emotion. If in the individual is prone to inertia and his or her reference group has negative attitudes towards

participation in co-creation activities online, there is a possibility that an individual will be influenced and his personal attitudes will also be changed in a similar way.

*"I remember one survey I was filling in. I stopped on one of the questions as it was too long to read, and I gave up the whole process" – Participant 4 (Italy, 27).*

Individuals that are disposed to inertness tend to avoid long questions (Pauwels, 2004). Furthermore, one of the marketers said:

*"The deadline is very necessary. Without it the users may postpone their participation to indefinite period" – co-creation strategist, Humantific.*

The research by Battistella et al. (2015) suggests that fixed project deadline can be used as an incentive for the virtual communities of practice that participate in the development of web applications. Therefore, it can be assumed that the absence of the deadline may be a stimulus of growing inertia in the users intention to participate in co-creation online.

**Technology perceived ease of use**

Perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320). One of the interviewed customer said:

*"I'm not interested in difficult questions. I would rather prefer yes/no type, or something that wouldn't require minimum effort from my side" – Participant 10 (Spain, 24).*

Davis (1989) also suggested that a function perceived to be easier to use is more probable to be executed by users. Applying this to our study, the technology perceived ease of use may affect the participation in co-creation online.

#### *2.4.1.2. External Factors*

**Task Layout**

According to Ansari and Mela (2003), well-prepared communication channels not only facilitate customer decisions, but also reduce excessive information flow; this in turn, yields relevant products and highly satisfied customers. One of the marketers explained:

*"So many things are going on so they [customers] are overloaded by the information." – digital marketing consultant, Appszoom.*

The way the task is explained is perceived by the customers as one of the parts of the task layout. If the user experience information overload he or she may not be able to "respond" to some of the messages (Jones et al., 2004), in our case the co-creation task.

*"[…]a trouble understanding of the task. Many times you give text instructions, but some people do not understand. There is kind of a barrier...any kind of a difficulty would serve as a reason to give up." – senior consultant, Leap Vision.*

When the task is complicated it negatively affects the desire to solve a problem (Wright & Brehm, 1989). In addition, previous research has discovered that people will activate their energy when the incentives to do so are satisfactory, but will stop to do so when the result is unclear or less significant for them (Brehm & Self, 1989).

**No offline meeting**

Understanding social bonds development among users is essential for user participation in co-creation online (Yin et al., 2015). One of the marketers said:

*"You can't have co-creation campaigns fully online, you need offline and online together. If you do the blending then people can actually be activated truly in a social process. If you just have it online it simply does not work." – consultant, Co-creation design.*

McCully et al. (2011) claim that although offline interactions reinforce relationships of the online community members, these interactions weaken the community's sustainability in terms of online involvement.

**Personal availability**

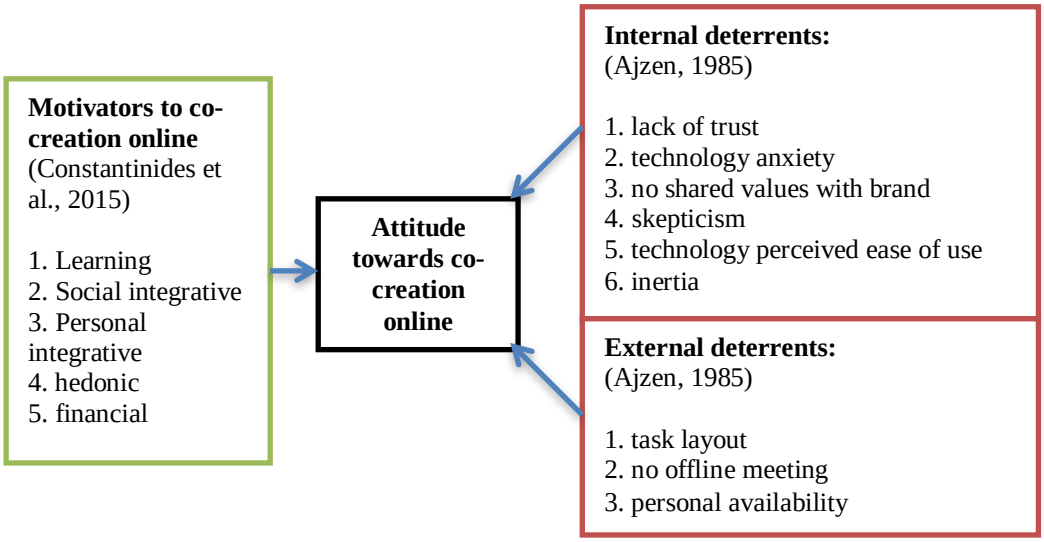
According to the research conducted by Holland and Baker (2001), time constraints influence customers' level of participation in the Internet-based activities. Indeed, "I do not have time for this" reason was the most frequently mentioned factor by the customers during the interview process.

*"I just have so many things to do, that when I come home the Internet and social media are the sources to relax. I do not want to spend my free time on any projects". – Participant 1 (Bulgaria, 24).*

Hence, marketers should consider a personal availability of the customer, and offer convenient schedules, as time constraint can negatively influence the attitude towards participation in co-creation online.

The identified deterrents divided into two groups of internal and external (Ajzen, 1985) and previously explored motivators by Constantinides et al. (2015) and their possible effect on the attitude towards co-creation are visually presented in the Figure 2 below.

**Figure 2. Schema of deterrents and their effects on attitude towards co-creation online.**




### 2.4.2. Frequency Table

The total number of nine inhibiting factors extracted from the data provided by both customers and marketing professionals is enumerated in the Table 3. Afterwards, how many times the factor was mentioned by respondents (first column – by customers; second column – by marketers) was calculated for its frequency.

We can see that eight barriers were identified by customers, however nine were mentioned by the working professionals.

**Table 3. Inhibiting factors that influence customer participation in co-creation online.**

| # | Factor | Frequencies of customers | Frequencies of marketers |
|---|---|---|---|
| 1 | Task layout | 15 | 9 |
| 2 | Skepticism | 13 | 15 |
| 3 | Personal availability | 12 | 8 |
| 4 | Technology anxiety | 10 | 16 |
| 5 | Inertia | 10 | 12 |
| 6 | Lack of trust | 9 | 10 |
| 7 | No shared values with brand | 9 | 6 |
| 8 | Technology perceived ease of use | 5 | 6 |
| 9 | No offline meeting | 0 | 2 |

### 4.3. Rank Correlation Table

The eight common factors mentioned by both groups of the interviewees were ranked in descending order (Table 4) according to their frequency. The ranks for the factors that have the same frequency were averaged ((6+7)/2=6.5) and assigned a “tied” scores. The factor “No offline meeting” was not considered, as the customer group of respondents did not mention it.

**Table 4. Rank wise classification of inhibiting factors in co-creation online**

| # | Factors | Ranks customers | Ranks marketers |
|---|---|---|---|
| 1 | Task layout | 1 | 5 |
| 2 | Skepticism | 2 | 2 |
| 3 | Personal availability | 3 | 6 |
| 4 | Technology anxiety | 4.5 | 1 |
| 5 | Inertia | 4.5 | 3 |
| 6 | Lack of trust | 6.5 | 4 |
| 7 | No shared values with brand | 6.5 | 7.5 |
| 8 | Technology perceived ease of use | 7 | 7.5 |

In order to analyze the correlation between two sets of ranks Spearman's rank correlation was applied. The frequency ranks for customers group and marketers group are these two variables, respectively. The formula of Spearman's rank correlation for the tied ranks is the following:

$$\rho = \frac{\sum_i (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_i (x_i - \bar{x})^2 \sum_i (y_i - \bar{y})^2}}$$

The Spearman's correlation coefficient in this case is $\rho = 0.387$, which indicates the medium association between ranks of the customers' group and marketers' group. This signifies that marketers rank the barriers to co-creation online differently from the customers that may lead to the inappropriate marketing techniques used to encourage customer participation in co-creation projects online.

# 2.5 FUTURE RESEARCH PROPOSITIONS

Following the propositions developed on the basis of the literature review and taking together the information generated from the interviews four major propositions for the future research can be developed:

Proposition 1: Deterrents to co-create can be divided into two subgroups: internal, referring to the customer's personal barriers; and external, those that are caused by the companies or external environment.

Proposition 2: Internal deterrents to co-create online consists of lack of trust, technology anxiety, not having shared values with brand, skepticism, technology perceived ease of use, and inertia.

Proposition 3: External barriers to co-create online consists of task layout, no offline meeting, and personal availability.

Proposition 4: Deterrents to co-create have a negative influence on user's attitude towards participation in co-creation online.

## 2.6 DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

Value co-creation is still an emerging topic not only for academia but also for companies that want to be innovative and follow recent marketing trends. One of these trends as has been discussed in this paper is co-creation using Internet-based platforms (Sawhney et al., 2005). As it provides many benefits to the company (e.g. competitive advantage, increased brand loyalty, etc.), managers should know how to involve as many as possible users in such activities.

In this exploratory study, the barriers to co-creation online were identified and compared by customers' and marketing professionals' rankings. Based on the twenty in-depth interviews with users and twenty in-depth interviews with marketing professionals, nine factors were found that might prevent a user from inserting effort to co-creation online. Another finding is that, the defined barriers have distinctive ranking from customers' and managerial sides ($\rho = 0.387$). Based on the mentioned results, a number of theoretical and practical implications can be offered regarding the role of inhibiting factors to co-creation online.

The study complements exisiting value co-creation literature in two major ways: first of all, following the research line proposed by Hoyer et al. (2010) the online dimension have been added to the study of the deterrents to co-creation: nine inhibiting factors that prevent users from co-creation online have been defined. These new findings not only broaden the comprehension of the concept of value co-creation online but also serve as important parameters to be included in the studies of co-creation in the Internet-based platforms.

Secondly, applying the conceptual theory of Gummesson and Mele (2010) the constraining factors have been identified by both of the actors of co-creation online (users and marketers).

Some of the results go in line with the previous literature findings. The barrier "task layout" was previously mentioned by Ardichvili et al. (2003) who named it as "too difficult problem". The concepts of the deterrents "skepticism" and "lack of trust" appeared in the research of Gerber and Hui (2013). The similarity of the deterrents "technological anxiety" and "technological perceived ease of use" was found in the study by Balaji and Roy (2017) who referred to them as a determinants "ease of use" and "aesthetic appeal". The factors "personal availability", "inertia", and "no shared values" are defined for the first time in this

study and these can complement the understanding of the longitudinal perspective of inertia, predisposicion of personal availability and also the level of individualism of the value generation.

A number of managerial implications can be derived from this research. The nine restraining factors are suggested to be divided into six internal and three external. This finding makes managers understand what are the potential problems to be confronted when launching a co-creation project to an online public. Being aware of those factors a marketer should think not only how to increase users' motivation but also how to weaken the negative effect of the deterrents. Furthermore, knowing the external factors practitioners may decide to confront them first, whereas the ways to diminish the effect of internal deterrents (which are more user-related) need to be further explored. For example, the effect of the deterrent 'task layout' can be relatively easily minimized by providing a user-friendly and accessible platform for co-creation; the solution for the barrier 'no offline meeting' can be provided by organizing an assembly of the users if their number is defined and limited; in order to decrease the effect of the deterrent 'personal availability' the manager can provide an open access to the platform, thus giving an opportunity to the customers to be flexible in their time organization.

It is important to point out that the second finding suggests that there is medium association between ranks of the users' and managers' group. This result can indicate that managers and users may weight the inhibiting factors differently. Therefore, the current paper offers managers a preliminary guide to comprehension of the users' deterrents rating.

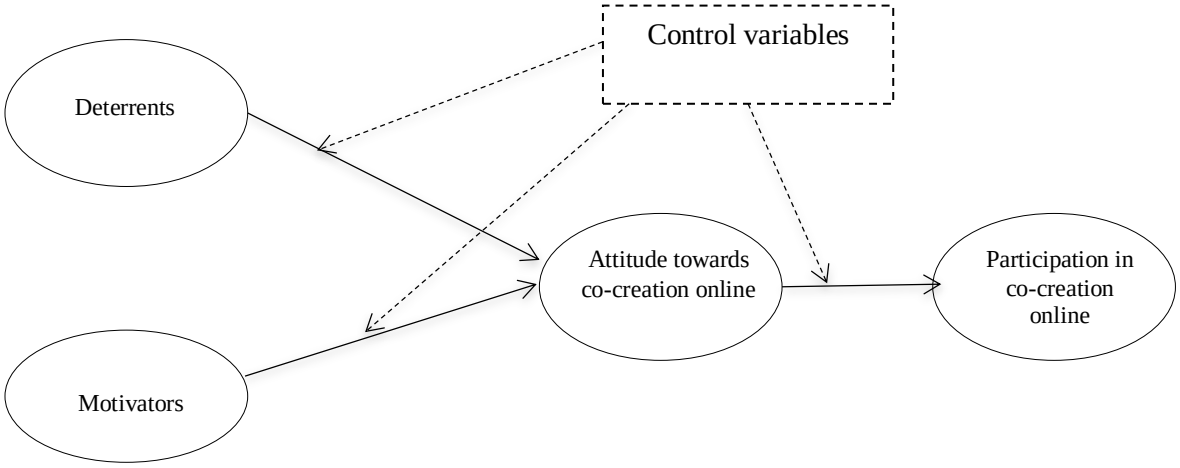
# 2.7 LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

As this study is the first that investigated qualitatively customers' barriers to co-creation online, it has many limitations that should be seen as possible directions for future research. Although there are already some results that might be used by practitioners, there is still some extensive work that must be done by the researchers.

First of all, there is a need for the quantitative study to generalize the findings. Taking into consideration the previous study on motivational factors to co-creation on-line (Constantinides et al., 2015), it would be enlightening to answer some important research questions, for example, to what extent previously identified barriers influence the attitude towards participation in co-creation online? How strong is this effect compared to the motivators? Can this effect vary for different age groups, genders, and/or nationalities? What

can this effect be moderated and/or mediated by? Structural equation modeling is a possible technique that can be applied to respond these interrogations. Figure 3 summarizes the possible model to be considered and structural equation modeling is anticipated as the possible technique that can be applied to respond these interrogations.

**Figure 3. Research Model**




Secondly, one of the limitations of this study is that it does not explain how to combat the deterrents. The topic has arisen several times during the interviews, however the way of battling deterrents in the case of 35% of the marketers, was providing the participants with some valuable tangible resources. The future research should explore the ways of confronting each of the barriers, in order to provide managers with a practical tool to be utilized when launching the co-creation projects online. The future studies should also consider including both users and marketers, in order to find the objective solutions to each of the predefined deterrent.

Lastly, the study explores barriers to customer participation in co-creation only online. One of the possible research lines is to apply the methodology used by this study for other contexts, for instance, co-creation inside the company with employees, etc.

# 2.8 REFERENCES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## APPENDIX 1. THE GUIDES TO THE INTERVIEWS

The Guide of the Interview with Users:

1. Have you participated in co-creation online?
2. Would you ever want to do so?
3. Can you please outline the reasons for your answer (if no, why not?).

The Guide of the Interview with Marketers:

1. Description of the position and responsibilities of the interviewee;

2. How does he/she understand the concept of the co-creation;

3. Does/Did the company participate in such co-creation online in order to develop new product?

4. What is the case he/she was/is personally involved in?

5. What tools did the company use to motivate customers?

6. What from his/her personal experience can be the reason for customers to be restrained from participation on-line in co-creation for NPD

# APPENDIX 2. PERSONAL INFORMATION OF THE PARTICIPANTS

Personal information of the users:

| # | Company | Position |
|---|---|---|
| **Participant 1** | Bim Bam Roi for Escribà | Digital planner |
| **Participant 2** | Olympus Europe | Ecommerce and digital marketing manager |
| **Participant 3** | Territori Creativo | Digital strategy consultant |
| **Participant 4** | U-Play Online | Marketing manager |
| **Participant 5** | Kellog's | Marketing consultant |
| **Participant 6** | Appszoom | Digital marketing consultant |
| **Participant 7** | TRENDSform | Trend expert |
| **Participant 8** | Autodesk | On-line strategist |
| **Participant 9** | Solved.Fi | CEO |
| **Participant 10** | Leap Vision | Senior Consultant |
| **Participant 11** | CoCreata | Founding partner |
| **Participant 12** | Co-creation Design | Co-creation designer |
| **Participant 13** | Boekenbon | Brand manager and developer |
| **Participant 14** | Awwwards.com | Digital marketing planner |
| **Participant 15** | LEGO Future Lab | Senior concept designer |
| **Participant 16** | Philips | People research and co-creation |
| **Participant 17** | Philips Lighting | Head of co-creation |
| **Participant 18** | Humantific | Co-creation strategist |
| **Participant 19** | Mindful Leading | Co-founder |
| **Participant 20** | Cosentino | Project coordinator |

Personal information of the marketers:

| # | Nationality | Exp | Age | Sex |
|---|---|---|---|---|
| **Participant 1** | Bulgaria | ✓ | 24 | F |
| **Participant 2** | Spain | | 34 | M |
| **Participant 3** | Ukraine | | 61 | M |
| **Participant 4** | Italy | ✓ | 27 | F |
| **Participant 5** | Spain | | 64 | F |
| **Participant 6** | Spain | ✓ | 42 | M |
| **Participant 7** | Mexico | ✓ | 30 | F |
| **Participant 8** | Tanzania | ✓ | 24 | F |
| **Participant 9** | Serbia | | 23 | M |
| **Participant 10** | Spain | | 23 | M |
| **Participant 11** | Turkey | ✓ | 25 | F |
| **Participant 12** | Vietnam | ✓ | 37 | F |
| **Participant 13** | Spain | ✓ | 23 | M |
| **Participant 14** | France | | 24 | F |
| **Participant 15** | Iran | | 30 | M |
| **Participant 16** | Costa Rica | | 25 | M |
| **Participant 17** | Ecuador | ✓ | 39 | M |
| **Participant 18** | Cyprus | ✓ | 30 | F |
| **Participant 19** | Belarus | | 43 | F |
| **Participant 20** | Spain | ✓ | 39 | M |

# CHAPTER THREE

# ANALYSIS OF THE BARRIERS TO CO-CREATE ON-LINE: MULTIGROUP ANALYSIS WITH STRUCTURAL EQUATION MODELING APPROACH

**Purpose:** this study is aimed to empirically measure the effect that the deterrents have on the users' attitude towards co-creation online.

**Design/methodology/approach:** The data from two different Internet societies the UK (306 users) and Spain (307 users) have been collected and compared by performing multigroup analysis across context, age, gender, and education level using structural equation modeling approach.

**Findings:** (1) there is a distinction in the effect of the deterrents have on the attitude moderated by the context: in the case of the UK the deterrents don't have a significant effect on the attitude towards co-creation online; (2) younger men exhibit a higher level of positive attitude and higher effect of the motivators towards attitude; on the contrary old women exhibit a higher level of the deterrents effect ; (3) the individuals with basic education level exhibit a higher level of the deterrents' effect.

**Research limitations/implications:** The generalizability of the results across different cultures requires further examination and cross-validation.

**Practical implications:** The research indicates quantitatively to which degree the deterrents affect the attitude towards co-creation online, which in turn shapes the users' participation behavior. The multigroup analysis of two different Internet cultures (Spain and the UK) provides practitioners with information how different contexts may affect the effect that deterrents and motivators may have of the attitude.

**Originality/value:** The first study up-to-date that empirically examines the effect the deterrents have on the attitude towards co-creation online simultaneously including the relationship that the motivators have on the same attitude.

**Keywords:** co-creation, online, deterrents, PLS-SEM.

# 3.1 INTRODUCTION

During the last decade the concept of co-creation that has arose from the service-dominant logic (Vargo & Lusch, 2004) has gained a lot of attention both from the companies' and academia's sides. Companies are looking for the ways to connect with the customers, and the Internet turned out to be an essential part of the marketing campaigns practically giving an opportunity to reach any user in the online world. Co-creation online became a strategic instrument in engaging customers in the company's activities (Lee, Olson, & Trimi, 2012), and also a tool for gaining a competitive advantage (Payne, Storkbacka, & Frow, 2008; Gouillart, 2014). Accordingly, organizations are concerned in attraction of the customers that wish to contribute their ideas to the co-creation process (Roggeveen, Tsiros, & Grewal, 2012).

As the participation is voluntary-based, the managers are looking for the ways to motivate and encourage users to share their ideas online. Likewise, according to Dabholkar and Sheng (2011), the companies should also pay attention to the other important aspect of the users' participation: understanding the influence of not only motivating but also inhibiting factors that may negatively affect customers' level of contribution to the co-creation practice.

Although there have been a substantive number of papers that have been studying qualitatively and quantitatively the factors that motivate customers to participate in co-creation projects (Hennig-Thurau et al., 2004; Nambisan & Baron, 2009; Constantinides, Brünink, & Lorenzo-Romero, 2015), the literature fails to provide a research that would empirically examine the deterring factors to co-create online.

Furthermore, although the marketing of services emphasizes the importance of demographic factors such as gender, age, and education in consumer behaviors (Verhoef, 2003; Homburg & Giering, 2001; Mittal & Kamakura, 2001) the literature considering the potential effects of demographics in co-creation online is very scarce. Likewise, little is known about the effect of a user's contextual background on his attitudes towards co-creation.

This study targets at satisfying part of this research gap by answering two main research questions:

> RQ1: What is the effect that deterrents and motivators have on the customer's attitude towards co-creation online and how does that in turn affect the customer's participation in co-creation projects online?
>
> RQ2: Is the mentioned effect moderated by the contextual background of the user or / and by his/her age, gender, education level?

In order to answer those questions and to test the model, multigroup analysis and permutation tests were run using the Partial Least Squares Structural Equation Modeling (PLS-SEM).

After this introduction, the paper is organized as follows. The next section is devoted to the literature review and the cultural component of the study. Following theoretical background of the study and hypotheses, the methodology of the research is presented. The subsequent part provides the results of PLS-SEM and multigroup analysis. Following discussion section, the implications and contributions are examined. Finally, limitations and future research lines are presented.

# 3.2 LITERATURE REVIEW

The service-dominant logic (Vargo & Lusch, 2004) literature offers a great amount of the studies that have their research based on motivators to co-creation (Fuller, 2006; Nolan, Brizland, & Macaulay, 2007; Mathwick, Wiertz, & De Ruyter, 2008) and to co-creation online (Nambisan & Baron, 2009; Wasko & Faraj, 2000; Zhang et al., 2015; Constantinides, Brünink, & Lorenzo-Romero, 2015), whereas the literature about inhibiting factors to co-creation online is limited to a short number of studies. The qualitative approach to identify barriers to employees' participation in Caterpillar virtual communities of practice was the first study that tried to identify deterrents to participation in online knowledge sharing practice: information hoarding, fear to loose face, fear to let the colleagues down, more clear directions, to earn the right to post, too difficult problem – are some of the factors defined (Ardichvili et al., 2003).

Later, Porter and Donthu (2006) studied the perceived access barriers to the Internet usage in general. They claim that though access barriers have an important influence, perceptions concerning ease of use and usefulness have a more significant effect on consumer's attitude towards the use of the Internet. Another qualitative study by Gerber and Hui (2013) was dealing with deterrents to participation in crowdfunding online. Correia et al. (2015) mentioned that innovation in terms of co-creation online creates barriers and challenges, however, their paper answers different research question that the current study.

The most recent study by Balaji and Roy (2017) who studied similar concept to deterrents named as "determinants of value cocreation", which are superior functionality, aesthetic appeal, ease of use, and presence.

**Table 5. Previous studies related to the topic of deterrents in co-creation online**

| Authors | Objective | Methodology | Deterrents defined |
|---|---|---|---|
| **Ardichvili et al., 2003** | Motivation and barriers to participation in virtual knowledge-sharing communities of practice | Qualitative: In-depth case study of 3 virtual communities of practice of Caterpillar | Information hoarding, fear to loose face, fear to let the colleagues down, more clear directions, to earn the right to post, to difficult problem |
| **Porter & Donthu, 2006** | Using the technology acceptance model to explain how attitudes determine Internet usage: The role of perceived access barriers and demographics | Quantitative: SEM | Age, education, income and race are associated differentially with beliefs about the Internet, and these beliefs influence a consumer's attitude toward and use of the Internet |
| **Gerber & Hui, 2013** | What motivates and deters particitpation in Crowfunding community? | Qualitative: 83 semi-structures interviews | Fear of failure, lack of trust |
| **Correia et al., 2015** | Marketing communications model for innovation networks | Qualitative: exploratory case study | Mentioned the existence of barriers, but didn't explore them |
| **Balaji & Roy, 2017** | Determinants of value co-creation to the Internet of things | Quantitative: SEM | Superior functionality, aesthetic appeal, ease of use, and presence. |

As we can see from the Table 5, out of three of the articles that have studied deterrents in the Internet environment, two of them have used qualitative approach, and the third quantitative (however, examining barriers to Internet usage in general). There is a clear research gap: no study exists that would quantitatively examine the inhibiting factors to co-creation in the Internet-based platforms.

# 3.3 THEORETICAL BACKGROUND AND HYPOTHESES

To address the research questions this study would apply three major theoretical frameworks: the theory of planned behavior (TPB) (Ajzen, 1991; Fishbein & Ajzen, 1975), which clarifies the role of attitudes towards participation in co-creation projects; uses and gratification theory (U&G) (Katz, Blumler, & Gurevitch, 1974) explaining the positive impact of motivators on the customers' attitudes; and behavior reasoning theory (BRT) (Westaby, 2005) that states there are reasons that can negatively affect attitudes.

### 3.3.1 Theory of the planned behavior

The main foundation of the TPB is that it is more probable for a person to perform a behavior (in our case participation in co-creation online) when he or she has a positive attitude toward this behavior, recognizes that significant others believe that he or she should be engaged in this behavior, and holds control over the projected obstacles (Ajzen, 1991).

Since 1980s the TPB has been applied to investigate the acceptance of computer and Internet technologies (Davis et al., 1989; Kim et al., 2016). Another group of studies incorporated this theory for their research of co-creation online (Cheung & To, 2016; Hau & Kim, 2011; Füller, Faullant, & Matzler, 2010).

The TPB theory states that the motive to engage in a behavior depends on personal attitudes towards this particular behavior (Ajzen, 1991; Fishbein & Ajzen, 1975). A person's attitude toward a particular behavior is described as an assessment of that behavior when choosing to perform it (Kim et al., 2009).

In addition to favorable attitude, the individual should have control over the expected deterrents (Ajzen, 1991). According to the TPB the human's attitude toward a behavior is one of the most important interpreters of both the intention and actual action.

Therefore, the first hypothesis is designed to investigate how positive attitudes towards co-creation would influence positively the participation in co-creation online, bearing in mind the individual's control over the barriers.

*H1: Positive attitude towards co-creation online positively influences customer participation in co-creation online.*

### 3.3.2 Uses and gratifications theory

The U&G theory (Katz, Blumler, & Gurevitch, 1974) states that people use media to satisfy their needs. Indeed, according to Baran and Davis (1995) "the person follows his or her interests, choosing media content according to his or her needs and synthesizes that content to satisfy those needs" (p. 219).

The uses and gratifications theory (Katz, Blumler, & Gurevitch, 1974) distinguishes four different types of benefits (motivators) that users can gain from using media (in our case, participation in co-creation online): cognitive benefits that define strengthening of the comprehending of the environment and information acquisition; social integrative benefits that define strengthening of the consumer's connections with the community; personal integrative benefits that define intensifying the reliability, position, and self-assurance of the consumer; and hedonic or affective benefits that support visual or satisfying experiences. In this study financial benefits are added as proposed by Constantinides, Brünink, and Lorenzo-Romero (2015), in order to study this factor taking into consideration the role of inhibitors.

There is a number of works that have used U&G theory as the framework for their study with the attention on how consumers interact in a particular media environment (Palmgreen, Wenner, & Rayburn, 1981; Perse & Courtright, 1993); and afterwards how these

cooperations with the group using media channels gratify the needs of these consumers (Palmgreen, 1984). More recent studies refer to the use of the U&G framework in the Internet and technology-based settings (Kaye & Johnson, 2002; Parker & Pank, 2000; Stafford, Stafford, & Schkade, 2004).

Rosengren (1974) states that the choice and usage of media is a "goal-directed, purposive, and motivated action" (cited from Urista, Dong, & Day, 2008). As such, the U&G framework offers a suitable theoretical base in this respect. Thus, we propose the following hypothesis:

*H2: Motivators to co-creation online have positive influence on the positive attitude towards co-creation online.*

### 3.3.3 Behavioral reasoning theory

The principal theoretical statement in behavioral reasoning theory (BRT) suggests that "reasons serve as important linkages between people's beliefs, global motives (e.g., attitudes, subjective norms, and perceived control), intentions, and behavior" (Westaby, 2005, p. 97). According to the theory, reasons are "specific subjective factors people use to explain their anticipated behavior (Westaby, 2005, p. 100); furthermore, the reasons have an impact on global motives and intentions, because individuals use them to explain and justify their actions, which endorses and defends their self-esteem.

According to the BRT, the reasons are divided into two subgroups: "reasons for" and "reasons against" towards performing a behavior. Westaby (2005) develops this division based on the psychological studies by Roe, Busemeyer, and Townsend (2001). In the literature these two sub-dimensions also appear as pros/cons (Janis & Mann, 1977), benefits/cost (Thaler, 1999), and facilitators/barriers (Harrison & Liska, 1994; Venkatesh, Morris, Davis, & Davis, 2003).

The BRT also goes in line with the theory of explanation-based decision making (Pennington & Hastie, 1988), which assumes that individuals have positive assessments toward a certain alternative when this alternative is supported by robust reasons that can justify it. This theoretical explanation is also supported by the theories that explain how powerful is the role that justification tools play in a judgment development (Hsee, 1996). Furthermore, according to Bagozzi, Bergami, and Leone (2003) the measures that evaluate reasons and their rationalizations can develop a support for ″grounds for attitude formation″ (p. 931). Wilson et al. (1989) state that the reasons can effect the formation of attitude.

For instance, an individual who has various convincing reasons for performing a behavior would probably stimulate other cognitions that are more related to the behavior, such as a positive attitude toward performing the behavior (Westaby, 2005).

On the other hand, even if an individual has strong "reasons for" towards a behavior, he/she might still resist it due to the 'reasons against' the behavior (Claudy, Garcia, & O'Driscoll, 2015). In context of co-creation online, deterrents constitute specific factors that would reflect individuals "reasons against" that would have an effect on the participation in co-creation projects online. Hence, the second hypothesis is developed:

*H3: Deterrents to co-creation online have a negative influence on the positive attitude towards co-creation online.*

### 3.3.4 Relevance of context in the effect of deterrents and motivators

Literature covering studies on national cultures started in the 1980s states culture is an essential part of management in general and strategy development in particular (Kagono, Nonaka, Sakakibara et al., 1985; Schneider & De Meyer, 1991).

The method of assessing and estimating culture and cultural distinctions has been investigated using the development of a cross-sectional evaluation of national cultures across shared characteristics resulting in quantitative culture evaluations (scores). These national ratings and rankings are then used in research and, by extension, to improve cross-cultural learning among practitioners.

The first such national culture model was developed by Hofstede (1980, 2001, 2010), and until today it continues to be the most popular one. In the beginning Hofstede suggested four national culture dimensions (then five in 2001, and finally six in 2010) and country scores and developed a scale comparison of the nations' cultures. In order to simplify the evaluation of culturally based behavior, the country scores of cultural differences were arranged in a standardized template. This has been proclaimed as a great discovery in supporting the comprehension and learning of the nations' cultures (Triandis, 2004).

Following Hofstede, the GLOBE group (Global Leadership & Organizational Behavior Effectiveness) has developed an analogous culture model (House, Hanges, Javidan, et al., 2004). The new model obtained several parts replicated from Hofstede, however it has also expanded some culture dimensions and scores, therefore offering another methodical assessment of national cultures.

Both models are extensively applied to the studies of management practices in a different cultural context. Not without criticism (Ailon, 2008; Baskerville, 2003; Taras, Steel,

and Kirkman, 2010), Hofstede's approach leads the field[1]. The most important question is if his framework based on the data collected about 45 years ago is still applicable to the today's societies baring in mind how the globalization and the Internet have changed the perception of the world (Beugelsdijk, Maseland, & van Hoorn, 2015). According to Beugelsdijk et al. (2015), who have performed the cohort analysis of Hofstede approach, nations have moved in their indicators, however the differences between countries' values haven't changed. A conclusion of this finding is that the Hofstede model is applicable for the evaluation of the differences of the contemporary societies.

Ronen and Shenkar (1986) have grouped the countries using Hofstede's national culture model into eight clusters:

**Table 6. Clusters by national culture**

| Arab | Near Eastern | Nordic | Germanic | Anglo | Latin European | Latin American | Far Eastern |
|---|---|---|---|---|---|---|---|
| **Abu-Dhabi** | Turkey | Finland | Austria | USA | France | Argentina | Malaysia |
| **Bahrain** | Iran | Norway | Germany | Canada | Belgium | Venezuela | Hong Kong |
| **UAE** | Greece | Denmark | Switzerland | Australia | Spain | Chile | Singapore |
| **Kuwait** | | Sweden | | New Zealand | Italy | Mexico | Vietnam |
| **Oman** | | | | United | Portugal | Peru | Indonesia |
| **Saudi** | | | | Kingdom | | Colombia | |
| **Arabia** | | | | South Africa | | | |

Note: Adapted from Ronen & Shenkar (1986, p. 449).

According to Lehdonvirta and Räsänen (2011) there are distinctions in the ways that online identification is associated with socio-demographic background and how it varies between national contexts. In our case the attitude toward co-creation activities online may vary depending on the socio-cultural background of the users. Therefore,

*H4a: the effect of the positive attitude towards co-creation online on customer participation in co-creation online is moderated by the context.*

*H4b: the effect of motivators on the positive attitude towards co-creation online is moderated by the context.*

*H4c: the effect of deterrents on the positive attitude towards co-creation online is moderated by the context.*

[1] The importance of Hofstede's culture framework is explained by the continuously growing number of citations to his research, placing his studies among the most highly cited works in social science. As of May 2018, Google Scholar generates 149,714 citations to Hofstede, of which 53,892 are citations to the first edition of his book on culture's consequences (Hofstede, 1980) and 71,493 are for the second edition published in 2001. In comparison, the 2004 GLOBE study (House et al., 2004) has 7,678 citations, which is almost 20 times less cited than the works by Hofstede.

### 3.3.5 Relevance of age, gender and education in the effect of deterrents and motivators

The previous research has defined the socioeconomic characteristics of users to be crucial factors in the evaluation of their technological performance (Venkatesh & Morris, 2000; Venkatesh et al., 2003). Furthermore, Venkatesh et al. (2003) stated the necessity to incorporate characteristics such as gender and age to accomplish the descriptive ability of the models examined, as these modifying variables advance the analytical capacity of the model comparing to its original formulation.

**Age**

The significance of the users′ age in the study of their behavior has called the attention in the literature (Harrison & Rainer, 1992). In the computer field of study many researchers have found that IT skills are more easily adapted by younger individuals (Czara et al., 1989; Hubona & Kennick, 1996). Moreover, younger users generally have better experience with the Internet, and features such as practicality and attitude gain greater value for them, whereas older people see more risks, and struggle more in creating complicated commands and give importance upon the awareness of self-efficacy (Trocchia & Janda, 2000). Some researchers have included age as an appropriate variable in the justification of online shopping behavior (Zhang, 2009) and motivation to play online video games (Yee, 2006). The most recent study by Ye, Barreda, Okumus, and Nusair (2019) found that there is a moderating role of consumer age on the relationship between brand experience and online buying intention. Therefore, the following hypotheses are generated:

*H5a: the effect of the positive attitude towards co-creation online on customer participation in co-creation online is moderated by the age: the younger individuals will exhibit a higher level of positive attitude.*

*H5b: the effect of motivators on the positive attitude towards co-creation online is moderated by the age: the younger individuals will exhibit a higher level of motivators' effect.*

*H5c: the effect of deterrents on the positive attitude towards co-creation online is moderated by the age: the older individuals will exhibit a higher level of the deterrents' effect.*

**Gender**

The effect of gender upon online decision-making has been studied with special attention in the field of marketing. It has also been examined in the practice of acceptance of new technology, concluding that the gender of the user affect differently the evaluation of IT characteristics and their use (Gefen & Straub, 1997). Numerous explanations have been developed by the researchers for the gender discrepancies involving risk perception (Bhatnagar, Misra, & Rao, 2000) and users' attitude towards technology (Brunner & Bennett,

1997). The most extensively examined cause is that females seem to be more anxious with risk related with online behavior than males do (Bartel-Sheehan, 1999; Kolsaker & Payne 2002). Furthermore, the research developed by Seock and Bailey (2008) found that men and women presented significant distinctions in their buying orientations, online information requests and shopping experiences. Following this, Chen, Yan, Fan, and Gordon (2015) discovered that gender has a significant moderating effect in on the perceived benefit on intention to purchase online, where males are the most advantage placed consumer group. Therefore, the following can be hypothesized:

*H6a: the effect of the positive attitude towards co-creation online on customer participation in co-creation online is moderated by the gender: the male individuals will exhibit a higher level of positive attitude.*

*H6b: the effect of motivators on the positive attitude towards co-creation online is moderated by the gender: the male individuals will exhibit a higher level of motivators' effect.*

*H6c: the effect of deterrents on the positive attitude towards co-creation online is moderated by the gender: the female individuals will exhibit a higher level of the deterrents' effect.*

**Education level**

Li, Kuo, and Russel (1999) in their research of the impact of demographics on the consumer's online behavior stated that education is a robust factor in predicting online purchasing frequency of the Internet users: a group of better-educated consumers were found to enter into a more frequent online buyer category.

Furthermore, the study of online travel communities by Wang and Fasenmaier (2004) included education level as an important demographic variable. The authors found that there is a difference between online users with different education backgrounds in regard to their requirements to the functionality of the online resource. Individuals with advanced education level (university degree) give more importance to the functionality and social needs than the users with school diploma. In addition, people with advanced level of studies report higher levels of participation. Therefore, the following hypotheses are developed:

*H7a: the effect of the positive attitude towards co-creation online on customer participation in co-creation online is moderated by the education level: the individuals with advanced education level will exhibit a higher level of positive attitude.*

*H7b: the effect of motivators on the positive attitude towards co-creation online is moderated by the education level: the individuals with advanced education level will exhibit a higher level of motivators' effect.*

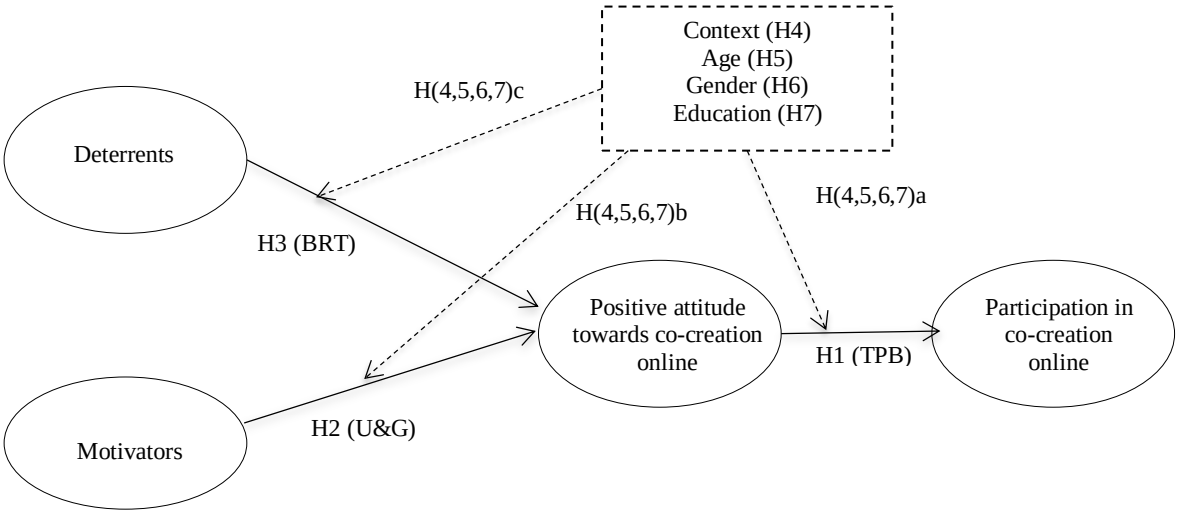
*H7c: the effect of deterrents on the positive attitude towards co-creation online is moderated by the education level: the female individuals with basic education level will exhibit a higher level of the deterrents' effect.*

# 3.4 METHODOLOGY

### 3.4.1 Sample

In order to choose representative samples that would have a distinct context, the countries' clusters developed by Ronen and Shenkar (1986) was chosen as a guiding framework. Therefore, two clusters, Anglo and Latin European were selected to test the model; United Kingdom was selected as a country from the Anglo cluster and Spain was selected as an example of Latin European country. These two countries are further compared using Hofstede's six dimensions. The clear difference is noticed in 5 scores out of six (see figure 5), meaning that Spain and the UK have different cultures following Hofstede (1980).

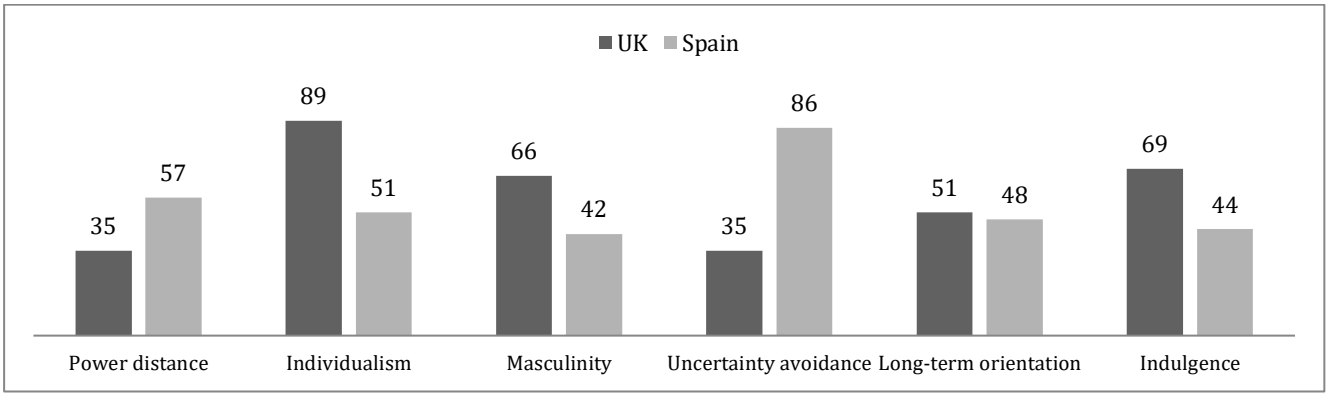
**Figure 4. Research Model**




- *Power distance* is defined as "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally" (p. 139). Spain has a hierarchical society, in other words people acknowledge a hierarchical structure in which everyone's place doesn't require additional justification. On the other hand in United Kingdom people believe that differences amongst society should be minimized.
- *Individualism* means "the relationship between the individual and the collectivity which prevails in a given society" (p. 148). Spain is one of the few Collectivist countries (score 51) in Europe. In this type of society people prefer belong to "group". Scoring 89 the UK is reaching one of the highest of the Individualist scores, surpassed only by Australia and the USA. The only way to be happy for the British is through self-actualization.

- *Masculinity* signifies that the people are ambitious and guided by achievement, competition, and success. The British are the example of a Masculine society where people are hardworking and result-driven. On the other hand Spain scores 42 on this dimension, which means that the Spanish people are looking for harmony: so divergence is not well-accepted or extreme competitiveness valued.
- *Uncertainty avoidance* is defined as "the extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these" (p. 150). If there is a dimension that describes Spain the best, it is this one, as it has reached a score of 86. Spanish like to introduce rules for everything, and any slight change produces stress. At the score of 35 the UK is a society that is content to wake up not planning the day.
- *Long-term orientation* explains "how every society has to maintain some links with its own past while dealing with the challenges of the present and future" (p. 152). Despite an intermediate score of 48, Spanish people like to live "today", without a great worry about the future. In this dimension Britain doesn't show clear preference.
- Indulgence is defined "the extent to which people try to control their desires and impulses" (p. 153). Scoring low on this dimension Spain is not an indulgent society. The British on the contrary may be considered as a society that displays a disposition to fulfill their impulses and wishes with respect to enjoying life.

**Figure 5. Hofstede's cultural dimensions**




Note: Adapted from https://www.hofstede-insights.com/country-comparison/spain,the-uk/

As the current study is researching how the users of different cultures perform the behavior in the Internet settings, the degree of country's industrialization of Spain and UK is analyzed following the methodology of Lehdonvirta and Räsänen (2011).

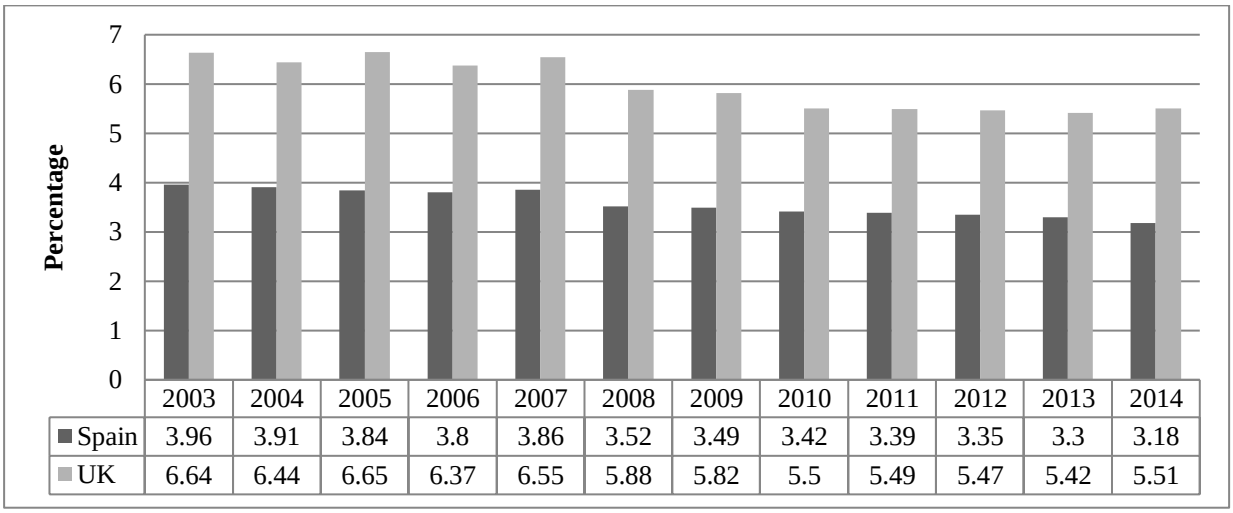
The relative degree of country's industrialization may vary from between 'pre-industrial', 'industrial' and 'post-industrial' societies. Industrial and technological

advancements in overall have lead to the reorganization of numerous societies since the Second World War. Lately, comparative analyses have been emphasizing what refers to the most highly modernized societies as 'new economies' or 'information societies' and stressing the role of Information and Communication Technologies (ICTs). In comparative researches of information societies, the acceptance and use of ICTs are considered to be the vital measures of 'new economies' growth (Castells & Himanen, 2002; van Dijk, 2005).

The Internet is one of the factors that effects the economic development and productivity of the country (Wallsten, 2003; Ho, Kauffman, & Liang, 2007) because it suggests a wide range of options for business (Indjikian & Siegel, 2005). The level of use of Internet is growing in many developing countries but there are still important distinctions (Wallsten, 2003) due to social and economic state of the country that may lead to the unequal access to the Internet.

Comparing UK and Spain the value added at factor cost in the ICT sector as % of total value added at factor cost should be calculated (Eurostat, 2018).

**Figure 6. Percentage of the ICT sector on GDP**




| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spain | 3.96 | 3.91 | 3.84 | 3.8 | 3.86 | 3.52 | 3.49 | 3.42 | 3.39 | 3.35 | 3.3 | 3.18 |
| UK | 6.64 | 6.44 | 6.65 | 6.37 | 6.55 | 5.88 | 5.82 | 5.5 | 5.49 | 5.47 | 5.42 | 5.51 |

Adapted from http://ec.europa.eu/eurostat/web/digital-economy-and-society/overview.

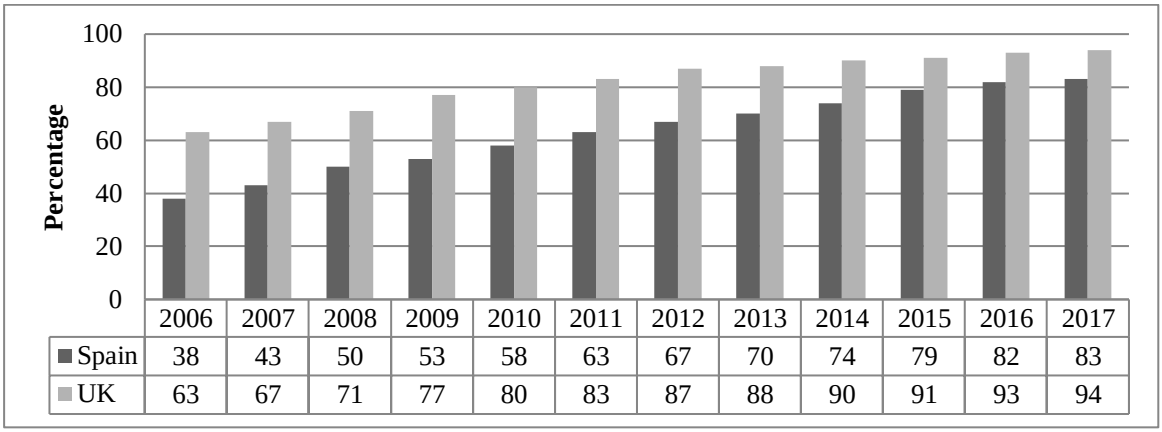

As we can see from the graph above UK is ahead of Spain 1.66 times on average during the period of 2003-2014. Both countries have observed a decrease of the percentage of the ICT sector on its GDP after the financial crisis in 2008: Spain has a negative change of 0.78%, whereas UK 1.13%.

Another important approach to compare two countries is the level of the Internet access that have households of the chosen countries.

During 2006-2017 Spain has increased the level of Internet access in the households by 45%, more than double from the initial point in 2006. The UK also has gained 31%,

meaning 1.49 times increase since 2006. Nowadays, Britain is the leader with 94% of Internet access, having 9% difference comparing to the level of access of Spanish households.

**Figure 7. Level of Internet access-households**

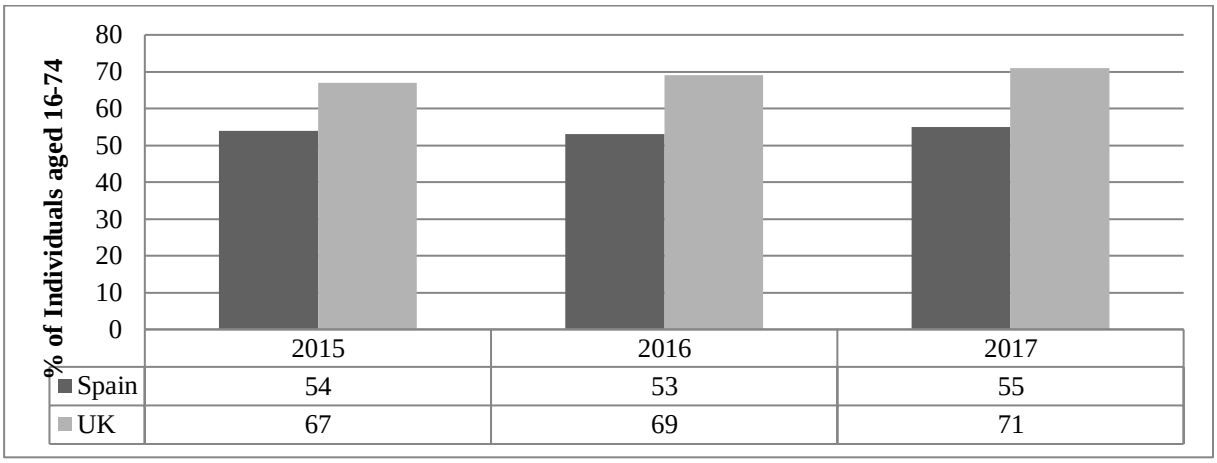



| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spain | 38 | 43 | 50 | 53 | 58 | 63 | 67 | 70 | 74 | 79 | 82 | 83 |
| UK | 63 | 67 | 71 | 77 | 80 | 83 | 87 | 88 | 90 | 91 | 93 | 94 |

Adapted from http://ec.europa.eu/eurostat/web/digital-economy-and-society/overview. Copyright 2018 by Eurostat.

According to Eurostat (2018), the basic or above basic overall digital skills characterize the two supreme levels of the general digital skills indicator, which is a complex indicator constructed of particular behaviors performed by persons aged 16-74 on the Internet in the four exact areas (information, communication, problem solving, content creation). The below graph is based on the EU survey on the ICT usage in households.

**Figure 8. Individuals who have basic or above basic overall digital skill**




| | 2015 | 2016 | 2017 |
|---|---|---|---|
| Spain | 54 | 53 | 55 |
| UK | 67 | 69 | 71 |

Adapted from http://ec.europa.eu/eurostat/web/digital-economy-and-society/overview. Copyright 2018 by Eurostat.

Based on these three different approaches, it is feasible to argue that the United Kingdom and Spain are the countries that represent a set of distinctive types of online societies. First, Spain can be viewed as a 'young online society', where the Internet usage has become common habit for people only lately. Second, the UK can be regarded as an 'old online society' comparing to Spain.

Having all of the mentioned dissimilarities, Spain and UK can be viewed as two countries that will provide two different samples of users with a probability of having different attitudes towards co-creation online.

### 3.4.2 Data collection

Based on the prior literature and current study context, we designed a survey that reflected the reasons that may serve as motivators and deterrents to customer's attitude towards co-creation online. This provisional survey was sent via social media websites including Facebook and LinkedIn in order to test the comprehension and correctness of the questionnaire. On the basis of 136 responses some of the questions were reorganized and paraphrased for easier understanding.

The data collection was performed by two independent companies: Netquest was hired in Spain, and SmartSurvey for data collection in the UK. The finalized survey was sent to the sample of Spanish and UK population: 307 completed responses were obtained from the Spanish sample and 306 valid responses from the UK. The results are presented in Table 3.

We can observe that in UK the number of the users who have previously participated in co-creation online is three times higher than those from Spain (Table 7). Furthermore, 81.52% on average from those who have previous experience responded that they would like to repeat. In addition, 67.56% from those who have never participated in a co-creation project online have a desire to try.

While it seems that the percentage of potential users who would like to be a part of co-creation online is quite high, there are 30.34% in total of users that either don't want to repeat or even don't express the desire to try for the first time participating in co-creation projects online. In other words companies have almost 1/3 of the potential users that they can reach by knowing what are the reasons for not participating.

In order to test the proposed model, the empirical study was implemented. First, based on the prior literature and current study context, we designed a survey that reflected the reasons that may serve as motivators and deterrents to customer's attitude towards co-creation online. This provisional survey was sent via social media websites including Facebook and LinkedIn in order to test the comprehension and correctness of the questionnaire. On the basis of 136 responses some of the questions were reorganized and paraphrased for easier understanding. The updated finalized survey was sent to the two representative samples of Internet users of Spain and the Great Britain.

**Table 7. Demographic information**

| Variable | Category | Numbers | | | Percentage | | |
|---|---|---|---|---|---|---|---|
| | | Total | Spain (N=307) | UK (N=306) | Total | Spain (N=307) | UK (N=306) |
| **Gender** | Male | 298 | 151 | 147 | 48.61% | 49.19% | 48.04% |
| | Female | 315 | 156 | 159 | 51.39% | 50.81% | 51.96% |
| **Age** | 0-17 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 18-24 | 78 | 42 | 36 | 12.72% | 13.68% | 11.76% |
| | 25-34 | 116 | 53 | 63 | 18.92% | 17.26% | 20.59% |
| | 35-44 | 142 | 69 | 73 | 23.16% | 22.48% | 23.86% |
| | 45-54 | 105 | 62 | 43 | 17.13% | 20.20% | 14.05% |
| | 55-64 | 101 | 47 | 54 | 16.48% | 15.31% | 17.65% |
| | 65-74 | 66 | 34 | 32 | 10.77% | 11.07% | 10.46% |
| | 75+ | 5 | 0 | 5 | 0.82% | 0 | 1.63% |
| **Education** | High school graduate | 258 | 146 | 112 | 42.09% | 47.56% | 36.60% |
| | Technical training | 127 | 55 | 72 | 20.72% | 17.92% | 23.53% |
| | Bachelor's degree | 151 | 71 | 80 | 24.63% | 23.13% | 26.14% |
| | Master's degree | 59 | 27 | 32 | 9.62% | 8.79% | 10.46% |
| | Doctorate degree | 18 | 8 | 10 | 2.94% | 2.61% | 3.27% |
| **Previous participation in co-creation on-line** | YES | 92 | 23 | 69 | 15.01% | 7.49% | 22.55% |
| | NO | 521 | 284 | 237 | 84.99% | 92.51% | 77.45% |
| **From those who participated, if he/she wants to repeat** | YES | 75 | 18 | 57 | 81.52% | 78.26% | 82.61% |
| | NO | 17 | 5 | 12 | 18.48% | 21.74% | 17.39% |
| **From those who didn't participate, if he/she wants to try** | YES | 359 | 192 | 160 | 67.56% | 67.61% | 67.51% |
| | NO | 169 | 92 | 77 | 32.44% | 32.39% | 32.49% |

Finally, following the successful validation of reliability and validity of the study, the acquired data were analyzed with Structured Equation Modeling (SEM) using SmartPLS 3.0 software.

### 3.4.3 Technique of analysis

Stata13 software was implemented to perform the exploratory and confirmatory factor analyses. Afterwards, a PLS-SEM approach was employed with SmartPLS 3.0 (Ringle, Wende, & Becker, 2015) to conduct data analysis. PLS is suitable for current study due to the following reasons: first of all, this study's complex model includes both reflective and formative constructs; secondly, multivariate normal data is not strictly necessary (see Appendix 1) (Lin et al., 2014).

### 3.4.4 Measurement of variables

For the constructs of the study, the multi-item scales were generated on the basis of previous literature. The scales for customer participation in co-creation online, attitude towards co-creation, and motivators to co-create were adapted from Constantinides, Brünink, and Lorenzo-Romero (2015). The scales for deterrents were adapted from the previous qualitative research and also a significant number of the studies were those deterrents were

mentioned (Ardichvili et al., 2003; Giebelhausen et al., 2014; Mathwick et al., 2008; Nolan et al., 2007; Porter & Donthu, 2006; Venkatesh & Davis, 2000; Zhao et al., 2015). In addition, the problem of multicollinearity was assessed using the variance inflation factors (VIFs): there is no multicollinearity detected in the model, all VIFs are less than 5 (Ringle et. al., 2015), see Appendix 4.

All these measures used a five-point Likert scale response format, where "1" corresponded to "strongly disagree" and "5" "strongly agree". The scales of final survey are presented in Appendix 5.

'Deterrents' is a second-order formative construct, which is composed of eight first-order reflective constructs described in detail in Table 8. The formative nature of the 'deterrent' construct can be explained using the framework developed by Coltman et al. (2008) including theoretial and empirical considerations. Theory-wised, "latent construct is determined as a combination of its indicators" (p. 1255), indeed, 'deterrents' construct is *formed* by eight indicators; secondly, variation in the 'deterrents' construct does not produce variation in the item measures, whereas variation in item measures causes variation in the 'deterrent' construct; thirdly, the items that form the 'deterrent' construct are not interchangeable, moreover, dropping or adding an item may produce a change in the theoretical domain of the construct.

In terms of the empirical considerations, the items should have the same directional relationship (Cronbach, 1951; Nunnally & Bernstein,1994), "items may not have similar significance of relationships with the antecedents/consequences as the construct" (Coltman et al., 2008, p.1255). The exploratory factor analysis was run for entire data-sample (N=613), and separately for both countries, Spain (N=307) and UK (N=306) in order to confirm the same number of factors for both samples (see Appendix 5).

'Motivators' construct is the second-order formative construct, which is composed of the five first-order reflective constructs (see Appendix 5). The formative nature is explained in the same way as for the 'deterrents' construct.

The confirmatory factor analysis approach was undertaken in order to confirm the validity of the items previously studied by Constantinides, Brünink, and Lorenzo-Romero (2015). The results are presented in the Appendix 5.

'Attitude' and 'participation' are both first order reflective constructs. The confirmatory factor analysis approach was undertaken in order to confirm the validity of the items previously studied by Constantinides, Brünink, and Lorenzo-Romero (2015). The results are presented in the Appendix 5.

**Table 8. The constructs' items**

| Variable | Adapted from |
|---|---|
| **Technology anxiety** | Meuter et al., (2003), Dyck & Smither (1994), Teo (2001) |
| **Lack of trust** | Jaworski & Kohli, (2006), Bharti et al., (2014) |
| **Skepticism** | Mangleburg & Bristol, (1998), Pollay & Mittal, (1993) |
| **Personal availability** | Holland & Baker, (2001) |
| **Task layout** | Ansari & Mela (2003), Wright & Brehm, (1989) |
| **No shared values** | Rokeach, (1973) |
| **No offline meeting** | McCully et al., (2011) |
| **Inertia** | Mullins et al., (2014) , Pauwels, (2004) |
| **Learning** | Constantinides, Brünink, & Lorenzo-Romero (2015) |
| **Social cognitive** | Hennig-Thurau et al., (2004); Nambisan & Baron, (2009) |
| **Personal integrative** | |
| **Hedonic Integrative** | |
| **Finacial** | |
| **Attitude** | Constantinides, Brünink, & Lorenzo-Romero, (2015), Westaby, (2005) |
| **Particpation** | |

### 3.4.5 Common method bias (CMB)

According to Kock (2015) the phenomenon of common method bias, in the context of partial least squares structural equation model (PLS-SEM), is produced by the measurement technique applied in an SEM study, and not by the system of causes and effects in the model under examination. For instance, the implied communal desirability to answer the questions of the survey in a particular manner may cause the indicators to share some quantity of common variation.

In order to ensure that the current study is not contaminated with common method bias, variance inflation factors (VIFs) were generated for all latent variables in the model using the SmartPLS software. Kock (2015) states "the occurrence of a VIF greater than 3.3 is proposed as an indication of pathological collinearity, and also as an indication that a model may be contaminated by common method bias. Therefore, if all VIFs resulting from a full collinearity test are equal to or lower than 3.3, the model can be considered free of common method bias" (p.7). As we can see from the table below, all VIF values are less than 3.3, therefore this study is not contaminated with common method bias (Kock, 2015).

**Table 9. Variance inflation factors**

| | Attitude | Deterrents | Motivators | Participation |
|---|---|---|---|---|
| **Attitude** | -- | 1.676 | 1.253 | 1.688 |
| **Deterrents** | 1.039 | -- | 1.047 | 1.030 |

| | | | | |
|---|---|---|---|---|
| **Motivators** | 1.777 | 2.394 | -- | 1.677 |
| **Participation** | 1.810 | 1.780 | 1.268 | -- |

# 3.5 RESULTS

### 3.5.1 PLS-SEM Analysis

**Outer Model Analysis**

The model was tested through PLS-SEM using full dataset. The validity of the first order constructs of the measurement model was assessed using convergent validity and discriminant validity tests. The convergent validity is defined as a degree to which ITEMS that belong to the same construct, complete each other (John & Benet-Martinez, 2000). The convergent validity was evaluated by measuring factor loadings (should be significant and higher than 0.5 (Straub, 1989), composite reliabilities (CR) which should be higher than 0.6 (Bagozzi & Yi, 1988). In our model, all the factor loadings and composite reliabilities fall in the acceptable ranges and are significant at the 0.01 level.

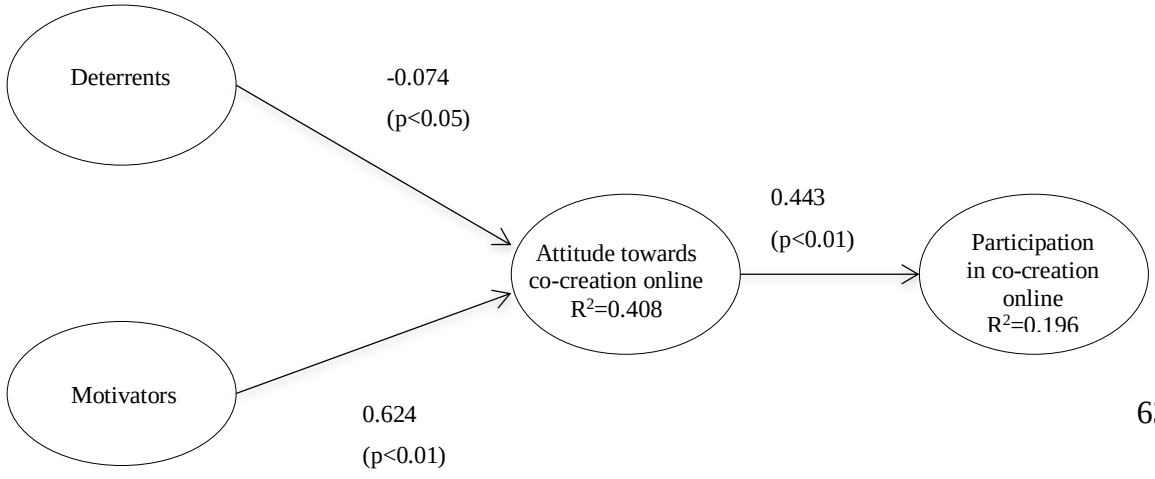
Discriminant validity "is supported when the average shared variance of a construct and its indicators exceed the shared variance with every other construct of the model" (Assaker, 2014, p. 220). In the current study the average variance extracted (AVE) for all constructs exceeds 0.5 (Fornell & Larcker, 1981).

The internal reliability of scales was assessed using Cronbach's alpha; this indicator was superior than 0.7 for all constructs (Hair et al., 1998), (see Appendix 5).

**Inner Model Analysis and Path Estimates**

We estimated path coefficients using bootstrapping. The path coefficients for entire sample (N=613) shows that (fig. 9): the attitude towards co-creation has a significant positive affect on the participation in co-creation online (β=0.443, *p*-value <0.01), which supports the hypothesis 1; the deterrents have a significant negative effect on the attitude (β= -0.074, *p*-value <0.1), supporting hypothesis 2; the motivators has a significant positive affect on the attitude (β=0.624, *p*-value <0.01), confirming hypothesis 3.

**Figure 9. Results for proposed hypothesized model (N=613).**



### 3.5.2 Multigroup analysis

#### 3.5.2.1 Context

The validated model was examined through multigroup analysis to determine if the context may affect the results generated for entire sample. For the outer model the discriminant and convergent validity were assessed separately for UK and Spanish sample. The results show (see Appendix 5) that factor loadings are higher than 0.5, CR>0.6, AVE>0.5, and Cronbach's alpha is higher than 0.7 for all constructs for both samples. Furthermore, no statistically significant difference was detected across the samples' results (p>0.05). Therefore, this outcome suggests that the construct measurements and meanings are consistent across two samples. This proves that misinterpretation is not a problem in the model and that the inner (structural) model can be examined.

The invariability of the model was tested before running the bootstrapping. The partial invariability was detected: there are 3 factor loadings with p-value <0.05, (see Appendix 8). According to Byrne, Shavelson, and Muthén (1989) the full equivalence is not strictly necessary to make a comparison across groups, meaning that if at least two items per latent variable are invariable, multigroup assessment can be performed validly. This argument has also found support of Steenkamp and Baumgartner (1998).

Using bootstrapping the path coefficients for Spanish (N=307) and UK sample (N=306) were calculated (see Table 10). The last column presents the results of t-test, which shows if there is a significant difference between the path coefficients between the groups.

**Table 10. Multigroup analysis across Spain and UK**

| | **N=613** | | **Spain (N=307)** | | **UK (N=306)** | | **t-test** |
|---|---|---|---|---|---|---|---|
| | Coeff. | *p* | Coeff. | *p* | Coeff. | *p* | |
| **Attitude→Participation** | 0.443 | <0.01 | 0.385 | <0.01 | 0.553 | <0.01 | 0.986 |
| **Motivators→Attitude** | 0.624 | <0.01 | 0.536 | <0.01 | 0.681 | <0.01 | 0.970 |
| **Deterrents→Attitude** | -0.074 | <0.05 | -0.13 | <0.01 | -0.03 | 0.613 | 0.900 |

There is a strong significant effect of positive attitude towards co-creation online on the customers' participation in co-creation projects online, and there is no statistically significant difference between the samples from Spain and the UK. Therefore, the hypothesis H4a is rejected. Similarly, motivators have strong significant effect on the positive attitude towards co-creation online, and there is no significant difference detected across the samples of Spain and the United Kingdom, thus, the hypothesis H4b is also rejected. Interesting finding is that deterrents have strong negative effect on the attitude only for Spanish sample; in the case of the UK, the findings suggest that the effect is not statistically significant.

Therefore the hypothesis H4c can't be rejected, and the effect of deterrents on the positive attitude is moderated by the context.

#### 3.5.2.2 Age and gender

In order to perform the multigroup analysis of age and gender, first of all these two variables were checked if there is a correlation between them. The variables are highly related ($p<0.01$). Therefore, the entire sample was divided into four groups: young women (N=123) and young men (N=71) (age is less or equal to 34), old women (N=181) and old men (N=222) (age more than 35). The outer model analysis confirmed that the construct measurements and meanings are consistent across four groups (see Appendix 5). The results of the partial invariability of the outer loadings of the constructs across these four groups are presented in the Appendix 8. The results of the bootstrapping inner model are presented in Table 11; Table 12 shows if there is a significant difference of the effects across four groups.

**Table 11. Multigroup analysis across age and gender**

| | **WY(N=123)** | | **MY(N=71)** | | **WO (N=181)** | | **MO (N=222)** | |
|---|---|---|---|---|---|---|---|---|
| | Coeff. | *p* | Coeff. | *p* | Coeff. | *p* | Coeff. | *p* |
| **Attitude→Participation** | 0.405 | <0.01 | 0.645 | <0.01 | 0.417 | <0.01 | 0.445 | <0.01 |
| **Motivators→Attitude** | 0.683 | <0.01 | 0.724 | <0.01 | 0.558 | <0.01 | 0.593 | <0.01 |
| **Deterrents→Attitude** | -0.001 | 0.986 | -0.029 | 0.679 | -0.211 | 0.013 | -0.058 | 0.395 |

**Table 12. T-test for multigroup analysis across age and gender**

| | **Attitude→Participation** | **Motivators→Attitude** | **Deterrents→Attitude** |
|---|---|---|---|
| **WY-WO** | 0.534 | 0.144 | 0.033 |
| **MY-MO** | 0.016 | 0.079 | 0.375 |
| **WY-MY** | 0.988 | 0.659 | 0.396 |
| **WO-MO** | 0.617 | 0.610 | 0.922 |

Positive attitude has a strong positive effect across all four groups, although there is significant statistical difference ($p<0.05$) found between young and old men: the effect of positive attitude on the participation of young men is stronger than the one of old men. Therefore, the hypothesis H5a can't be rejected for the case of young-old men.

The effect of motivators on the positive attitude is statistically significant for all four samples. The t-test shows that there is a significant difference of this effect for young and old men: young men have stronger effect of motivation on the positive attitude. Similarly, the hypothesis H5b can't be rejected for the case of young-old men.

The deterrents to co-create online have significant negative effect on the attitude only for the sample of women who are older than 35. Also, t-test found that there is a statistical

difference between young and old women. Thus, the hypothesis H5c can't be rejected for the case of young-old women.

#### 3.5.2.3 Education

The entire sample was divided into two groups: the individuals with basic education (high school diploma, N=385) and people with advanced education (university degree, N=228). The same steps were undertaken in order to prove the consistence of the outer model across two groups (see Appendix 6). The results of the partial invariability of the outer loadings of the constructs across two groups are presented in the Appendix 8. The results of the bootstrapping are presented below:

**Table 13. Multigroup analysis across education level**

| | **Basic Educ.** | | **Advanced Educ.** | | **T-test** |
|---|---|---|---|---|---|
| | Coeff. | *p* | Coeff. | *p* | |
| **Attitude→Participation** | 0.409 | <0.01 | 0.499 | <0.01 | 0.111 |
| **Motivators→Attitude** | 0.626 | <0.01 | 0.623 | <0.01 | 0.522 |
| **Deterrents→Attitude** | -0.102 | 0.084 | -0.033 | 0.505 | 0.103 |

The effects of the attitude and motivators are strong and positive across both groups, and the difference between the path coefficients is not significant, therefore the hypotheses H6a and H6b can be rejected.

Deterrents have a significant negative effect on the attitude when the individual has a basic education; the effect is statistically different for two samples, hence, we can't reject the hypothesis H6c.

## 3.6 DISCUSSION AND CONCLUSIONS

Drawing on theory of planned behavior (Ajzen, 1991), behavior reasoning theory theory (Westaby, 2005), and users and gratification theory (Katz, Blumler, & Gurevitch, 1974), this research has examined the effect that deterrents and motivators have on the user's attitude towards co-creation and how this attitude in turn affects the participation behavior in co-creation projects across two different contexts (Spain and the UK), age groups(older or younger than 35 years old), genders (male or female), and education levels (basic or advanced education). The total sample included 613 Internet users, where 307 where users from Spain and 306 where users from the UK.

In the first hypothesis (H1) it was proposed that positive attitude towards co-creation has a positive effect on participation behavior of the users. The strong positive effect of the attitude on the customers' participation in the co-creation projects was found to be statistically significant for the entire sample, for both context samples, and for samples with different

education levels. These findings support the empirical evidence on the significance of user's attitude towards participation (Constantinides, Brünink, & Lorenzo-Romero, 2015). However, the analysis of different age-gender groups detected that for young men this effect is stronger than for the men older than 35 (supporting the hypothesis H5a). This can finding suggests that young males having the positive attitude will be more predisposed to participate in the co-creation projects online.

The second hypothesis (H2) examined the effect that the motivators have on the attitude towards co-creation online. This hypothesis was strongly supported for the entire sample and for both context groups, without identifying a significant difference in the effect between them. These findings go in line with Constantinides, Brünink, and Lorenzo-Romero (2015) and support their previous results. Furthermore, there is no moderating effect that the education level has on the effect that motivators have on the positive attitude, as the hypothesis H6b was rejected. Conversely, when comparing the different age-gender groups, the difference between young and old men was identified; with 90% significance level motivators have higher effect on the positive attitude for young men than for the older group of individuals. In other words, the motivation stimuli have higher effect on the younger generation of males.

The third hypothesis (H3) proposed that deterrents to co-creation online have a negative effect on the positive attitude. It was strongly supported for both context samples taken together under 95% significance level, and for Spanish users under 90% significance level. However, it was rejected for the UK sample ($p>0.1$). This finding suggests that the deterrents to co-creation online don't have a significant effect on the positive attitude for the UK users supporting the hypothesis H6c; this result also goes in line with Hofstede (1980) that the UK and Spanish users have a different Internet culture. This result can also suggest that users from a culture high in power distance and uncertainty avoidance and low in individualism, masculinity, and indulgence (similar to Spain) would be more disposed to the effect of the deterrents to co-creation online.

Furthermore, the multigroup analysis of the age-gender groups has revealed the 95% significance level of the difference between the effect of the deterrents on the attitude among young and old women. This finding proposes that for the old women the deterrents to co-creation online have a significant and stronger negative effect than for the young women.

The results are summarized in Table 14.

**Table 14. The analysis results**

| | | |
|---|---|---|
| **H1** | **Positive attitude towards co-creation online positively influences customer participation in co-creation online.** | **Can't be rejected** |
| **H2** | Motivators to co-creation online have positive influence on the positive attitude towards co-creation online. | Can't be rejected |
| **H3** | Deterrents to co-creation online have a negative influence on the positive attitude towards co-creation online. | Can't be rejected |
| **H4a** | The effect of the positive attitude towards co-creation online on customer participation in co-creation online is moderated by the context. | Rejected |
| **H4b** | The effect of motivators on the positive attitude towards co-creation online is moderated by the context. | Rejected |
| **H4c** | The effect of deterrents on the positive attitude towards co-creation online is moderated by the context. | Can't be rejected |
| **H5a** | The effect of the positive attitude towards co-creation online on customer participation in co-creation online is moderated by the age: the younger individuals will exhibit a higher level of positive attitude. | Partially rejected: for women |
| **H5b** | The effect of motivators on the positive attitude towards co-creation online is moderated by the age: the younger individuals will exhibit a higher level of motivators' effect. | Partially rejected: for women |
| **H5c** | The effect of deterrents on the positive attitude towards co-creation online is moderated by the age: the older individuals will exhibit a higher level of the deterrents' effect. | Partially rejected: for men |
| **H6a** | The effect of the positive attitude towards co-creation online on customer participation in co-creation online is moderated by the gender: the male individuals will exhibit a higher level of positive attitude. | Rejected |
| **H6b** | The effect of motivators on the positive attitude towards co-creation online is moderated by the gender: the male individuals will exhibit a higher level of motivators' effect. | Rejected |
| **H6c** | The effect of deterrents on the positive attitude towards co-creation online is moderated by the gender: the female individuals will exhibit a higher level of the deterrents' effect. | Rejected |
| **H7a** | The effect of the positive attitude towards co-creation online on customer participation in co-creation online is moderated by the education level: the individuals with advanced education level will exhibit a higher level of positive attitude. | Rejected |
| **H7b** | The effect of motivators on the positive attitude towards co-creation online is moderated by the education level: the individuals with advanced education level will exhibit a higher level of motivators' effect. | Rejected |
| **H7c** | The effect of deterrents on the positive attitude towards co-creation online is moderated by the education level: the individuals with basic education level will exhibit a higher level of the deterrents' effect. | Can't be rejected |

## 3.7 IMPLICATIONS AND CONTRIBUTIONS

A number of managerial and theoretical implications can be derived from this research. First of all, from the point of the academia, this is the first study up-to-date that empirically examines the effect the deterrents have on the attitude towards co-creation online simultaneously including the relationship that the motivators have on the same attitude. Therefore, current research is of the importance for the academia as it suggests the model of formative and reflective constructs to measure deterrents and motivators simultaneously and also opens the new streams for the future research.

From the managerial point of view, this research indicates quantitatively to which degree the deterrents affect the attitude towards co-creation online, which in turn shapes the users' participation behavior. The multigroup analysis of two different Internet cultures (Spain and the UK) provides practitioners with information how different contexts may affect the effect that deterrents and motivators may have of the attitude. It was found that the users from "old online societies" (in this study the users from the United Kingdom) don't experience a significant effect of the deterrents on the attitude; on the other hand for the "young online societies" (as for the Spanish users) this effect is significant.

Furthermore, the multigroup analysis of different age-gender groups has revealed that the effect of attitude towards participation and motivators towards attitude is stronger for the young men than for the older ones; likewise, the effect of the deterrents on the attitude is stronger in the case of younger women. This gives practitioners an idea that it's more efficiently to target young men and young women for the co-creation practices online.

The third multigroup analysis has found that for the individuals with advanced education the deterrents don't provide a significant effect on the positive attitude towards co-creation online.

Following the results obtained from the current analysis, managers should understand that users from different contexts, age groups, genders, and education levels might perceive the barriers and motivators to co-creation online differently. Hence, they should adapt the marketing strategy to each of the context appropriately. The different samples studied here, gives a manager an idea of what set of individuals is more efficiently to consider as a target group for the co-creation initiatives online.

## 3.8 LIMITATIONS AND FUTURE RESEARCH

There are some limitations in this study that should be seen as a possibility for the academics for the future research. First of all, the entire sample is divided into two distinct

contexts - the users from the UK and Spain. Therefore, the generalizability of these results across different cultures requires further examination and cross-validation.

Secondly, the control variables were limited to age groups, genders, and educational levels. It would be enlightening to study what moderating and mediating effects may have the relationship between deterrents and attitude, and between attitude and participation. These effects may include the perceived risk of use, the brand reputation, the brand loyalty of the customer to name some of them.

Thirdly, this study doesn't examine the ways to combat the deterrents. The future research may define those methods and include them to the structural model.

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# APPENDIX 3. NORMALITY TEST (PROB>CHI2)

| | N=614 | ES | UK | WY | MY | WO | MO | Basic educ | High educ |
|---|---|---|---|---|---|---|---|---|---|
| **DETERRENTS** | | | | | | | | | |
| **Technology anxiety** | | | | | | | | | |
| TANX1 | 0.0121 | 0.0209 | 0.4148 | 0.1471 | 0.4087 | 0.7328 | 0.2746 | 0.3397 | 0.0133 |
| TANX2 | 0.0001 | 0.0040 | 0.0065 | 0.0660 | 0.0032 | 0.0593 | 0.3185 | 0.0180 | 0.0022 |
| TANX3 | 0.0000 | 0.0081 | 0.0071 | 0.1235 | 0.0241 | 0.2045 | 0.0554 | 0.0420 | 0.0002 |
| TANX4 | 0.0439 | 0.5465 | 0.0791 | 0.6754 | 0.2045 | 0.7921 | 0.1446 | 0.1665 | 0.0124 |
| TANX5 | 0.0000 | 0.0008 | 0.0046 | 0.0329 | 0.0421 | 0.0198 | 0.0134 | 0.0030 | 0.0001 |
| TANX6 | 0.0000 | 0.0002 | 0.0086 | 0.0415 | 0.4321 | 0.0065 | 0.0051 | 0.0006 | 0.0004 |
| **Lack of trust** | | | | | | | | | |
| LT1 | 0.6120 | 0.6517 | 0.1363 | 0.7529 | 0.9639 | 0.6316 | 0.3762 | 0.0917 | 0.4547 |
| LT2 | 0.9541 | 0.6783 | 0.6103 | 0.8548 | 0.4518 | 0.8913 | 0.2504 | 0.1500 | 0.1657 |
| LT3 | 0.2261 | 0.0627 | 0.1654 | 0.7547 | 0.7742 | 0.1111 | 0.0684 | 0.0209 | 0.7845 |
| LT4 | 0.8660 | 0.0452 | 0.2936 | 0.6509 | 0.8933 | 0.9181 | 0.2617 | 0.5139 | 0.2268 |
| **Skepticism** | | | | | | | | | |
| SKEP1 | 0.5947 | 0.2582 | 0.9595 | 0.8803 | 0.0327 | 0.4112 | 0.0619 | 0.1853 | 0.7493 |
| SKEP2 | 0.0118 | 0.0025 | 0.3121 | 0.4604 | 0.8715 | 0.0205 | 0.0379 | 0.0114 | 0.4270 |
| SKEP3 | 0.5920 | 0.6919 | 0.3733 | 0.6722 | 0.5370 | 0.4462 | 0.1390 | 0.5975 | 0.2273 |
| SKEP4 | 0.0289 | 0.1442 | 0.0685 | 0.3345 | 0.0543 | 0.0023 | 0.1015 | 0.0050 | 0.9623 |
| SKEP5 | 0.5945 | 0.8792 | 0.4791 | 0.6505 | 0.3744 | 0.3172 | 0.3347 | 0.0862 | 0.6015 |
| SKEP6 | 0.5863 | 0.5304 | 0.5917 | 0.8120 | 0.7915 | 0.4103 | 0.2693 | 0.0533 | 0.2104 |
| SKEP7 | 0.2397 | 0.9983 | 0.0588 | 0.3285 | 0.2257 | 0.9600 | 0.1245 | 0.0429 | 0.8308 |
| **Daily life** | | | | | | | | | |
| DL1 | 0.0605 | 0.1298 | 0.4608 | 0.2181 | 0.5993 | 0.8292 | 0.4790 | 0.3107 | 0.1813 |
| DL2 | 0.0026 | 0.0358 | 0.1019 | 0.0751 | 0.1796 | 0.4173 | 0.2130 | 0.0884 | 0.0109 |
| DL3 | 0.2506 | 0.5066 | 0.3644 | 0.2479 | 0.6574 | 0.9514 | 0.7593 | 0.9396 | 0.0436 |
| **Task layout** | | | | | | | | | |
| TLAY1 | 0.1719 | 0.1339 | 0.2352 | 0.9998 | 0.5875 | 0.0132 | 0.1213 | 0.0370 | 0.9216 |
| TLAY2 | 0.0256 | 0.3270 | 0.0702 | 0.4437 | 0.6681 | 0.0879 | 0.0121 | 0.0067 | 0.7206 |
| TLAY3 | 0.1553 | 0.0877 | 0.3738 | 0.8120 | 0.2817 | 0.2615 | 0.0583 | 0.0521 | 0.9081 |
| TLAY4 | 0.0012 | 0.0006 | 0.2208 | 0.2525 | 0.8115 | 0.0068 | 0.0011 | 0.0009 | 0.3308 |
| **No shared values** | | | | | | | | | |
| SHVAL1 | 0.0038 | 0.0053 | 0.0711 | 0.2379 | 0.6824 | 0.0106 | 0.0181 | 0.0005 | 0.4979 |
| SHVAL2 | 0.0009 | 0.0015 | 0.1405 | 0.1568 | 0.9349 | 0.0420 | 0.0001 | 0.0000 | 0.5465 |
| SHVAL3 | 0.1128 | 0.4388 | 0.0865 | 0.0578 | 0.8954 | 0.2320 | 0.2953 | 0.0326 | 0.6852 |
| **No offline meeting** | | | | | | | | | |
| NOFFM1 | 0.0532 | 0.2820 | 0.1411 | 0.6345 | 0.2237 | 0.3866 | 0.1289 | 0.0307 | 0.5368 |
| NOFFM2 | 0.0453 | 0.5162 | 0.0988 | 0.4179 | 0.3087 | 0.3920 | 0.0553 | 0.1346 | 0.0943 |
| NOFFM3 | 0.0347 | 0.1178 | 0.3118 | 0.6871 | 0.0216 | 0.5903 | 0.7479 | 0.5952 | 0.0128 |
| NOFFM4 | 0.4753 | 0.5296 | 0.7071 | 0.6503 | 0.3950 | 0.2385 | 0.1631 | 0.0497 | 0.5002 |
| **Inertia** | | | | | | | | | |
| INER1 | 0.5490 | 0.4096 | 0.5335 | 0.3924 | 0.6708 | 0.6337 | 0.4658 | 0.0746 | 0.5435 |
| INER2 | 0.9390 | 0.5931 | 0.4163 | 0.5474 | 0.1306 | 0.3619 | 0.6422 | 0.8498 | 0.5260 |
| INER3 | 0.0100 | 0.1684 | 0.0313 | 0.3512 | 0.1944 | 0.1794 | 0.5812 | 0.3330 | 0.0196 |
| INER4 | 0.0001 | 0.0044 | 0.0134 | 0.0089 | 0.0853 | 0.1773 | 0.0898 | 0.0356 | 0.0010 |
| INER5 | 0.1321 | 0.0499 | 0.6623 | 0.3353 | 0.5573 | 0.3908 | 0.4319 | 0.9155 | 0.0667 |
| **MOTIVATORS** | | | | | | | | | |
| **Learning** | | | | | | | | | |
| LEARN1 | 0.0000 | 0.0000 | 0.0003 | 0.0789 | 0.1378 | 0.0005 | 0.0027 | 0.0004 | 0.0000 |
| LEARN2 | 0.0000 | 0.0003 | 0.0026 | 0.0277 | 0.0372 | 0.0384 | 0.0131 | 0.0031 | 0.0001 |
| LEARN3 | 0.0000 | 0.0045 | 0.0013 | 0.5378 | 0.0300 | 0.0115 | 0.0053 | 0.0030 | 0.0007 |
| **Social Cognitive** | | | | | | | | | |
| SOCOGN1 | 0.1785 | 0.0447 | 0.7250 | 0.4498 | 0.8590 | 0.2270 | 0.1791 | 0.2466 | 0.2638 |
| SOCOGN2 | 0.1244 | 0.0758 | 0.4947 | 0.4699 | 0.1902 | 0.4044 | 0.1410 | 0.1063 | 0.1734 |
| SOCOGN3 | 0.0247 | 0.0184 | 0.4445 | 0.4318 | 0.1252 | 0.1459 | 0.1049 | 0.0733 | 0.0822 |
| **Personal Integrative** | | | | | | | | | |
| PERSINT1 | 0.1466 | 0.1222 | 0.3762 | 0.3698 | 0.2536 | 0.8736 | 0.3520 | 0.5819 | 0.1201 |
| PERSINT2 | 0.0004 | 0.0578 | 0.0105 | 0.1273 | 0.2342 | 0.0427 | 0.0228 | 0.3136 | 0.0001 |
| PERSINT3 | 0.0009 | 0.0118 | 0.0502 | 0.6492 | 0.0367 | 0.1430 | 0.0025 | 0.0270 | 0.0089 |
| PERSINT4 | 0.0034 | 0.0098 | 0.1764 | 0.3507 | 0.1608 | 0.0251 | 0.1338 | 0.0905 | 0.0155 |
| **Hedonic Integrative** | | | | | | | | | |
| HEDINT1 | 0.0003 | 0.0208 | 0.0189 | 0.0579 | 0.3748 | 0.0251 | 0.0261 | 0.0031 | 0.0340 |
| HEDINT2 | 0.0000 | 0.0082 | 0.0003 | 0.1684 | 0.0711 | 0.0505 | 0.0013 | 0.0002 | 0.0106 |
| HEDINT3 | 0.0000 | 0.0025 | 0.0000 | 0.0658 | 0.0498 | 0.0000 | 0.0347 | 0.0007 | 0.0000 |
| HEDINT4 | 0.0000 | 0.0186 | 0.0012 | 0.0508 | 0.1141 | 0.0042 | 0.0111 | 0.0012 | 0.0019 |
| **Financial Integrative** | | | | | | | | | |
| FININT1 | 0.1283 | 0.0309 | 0.0205 | 0.5127 | 0.3989 | 0.1834 | 0.1557 | 0.1572 | 0.1736 |
| FININT2 | 0.0073 | 0.0273 | 0.0276 | 0.4732 | 0.1260 | 0.0665 | 0.0992 | 0.0506 | 0.0509 |
| FININT3 | 0.0084 | 0.0392 | 0.0218 | 0.7094 | 0.2496 | 0.2162 | 0.0707 | 0.0165 | 0.2370 |
| FININT4 | 0.0153 | 0.1611 | 0.0122 | 0.0430 | 0.6841 | 0.1063 | 0.0725 | 0.1548 | 0.0164 |
| **POSITIVE ATTITUDE** | | | | | | | | | |
| AtC1 | 0.0000 | 0.0011 | 0.0004 | 0.0011 | 0.0927 | 0.1404 | 0.0026 | 0.0000 | 0.0031 |
| AtC2 | 0.0001 | 0.0222 | 0.0030 | 0.4736 | 0.0108 | 0.0194 | 0.1740 | 0.0002 | 0.0870 |
| AtC3 | 0.0210 | 0.0471 | 0.3341 | 0.0224 | 0.1476 | 0.6299 | 0.2649 | 0.2616 | 0.0530 |
| **PARTICIPATION** | | | | | | | | | |
| CP1 | 0.0252 | 0.2754 | 0.0524 | 0.4759 | 0.2596 | 0.3977 | 0.1165 | 0.0872 | 0.1580 |
| CP2 | 0.0002 | 0.0000 | 0.0084 | 0.2804 | 0.0363 | 0.0256 | 0.0140 | 0.0098 | 0.0109 |
| CP3 | 0.0008 | 0.0101 | 0.0499 | 0.1569 | 0.4587 | 0.0442 | 0.0223 | 0.0095 | 0.0387 |

# APPENDIX 4. ASSESSMENT OF MULTICOLLINEARITY

1. Entire sample:

| | Attitude | Deterrents | Motivators | Participation |
|---|---|---|---|---|
| **Attitude** | -- | 1.676 | 1.253 | 1.688 |
| **Deterrents** | 1.039 | -- | 1.047 | 1.030 |
| **Motivators** | 1.777 | 2.394 | -- | 1.677 |
| **Participation** | 1.810 | 1.780 | 1.268 | -- |

2. Context

| | Attitude | | Deterrents | | Motivators | | Participation | |
|---|---|---|---|---|---|---|---|---|
| | ES | UK | ES | UK | ES | UK | ES | UK |
| **Attitude** | -- | -- | 1.562 | 1.861 | 1.260 | 1.449 | 1.577 | 1.859 |
| **Deterrents** | 1.266 | 1.006 | -- | -- | 1.267 | 1.001 | 1.207 | 1.002 |
| **Motivators** | 1.555 | 2.598 | 1.929 | 3.318 | -- | -- | 1.645 | 1.859 |
| **Participation** | 1.601 | 2.598 | 1.512 | 2.592 | 1.362 | 1.450 | -- | -- |

3. Age and gender

| | Attitude | | | | Deterrents | | | | Motivators | | | | Participation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WY | MY | WO | MO | WY | MY | WO | MO | WY | MY | WO | MO | WY | MY | WO | MO |
| **Attitude** | -- | -- | -- | -- | -- | -- | -- | -- | 1.842 | 1.842 | 1.842 | 1.842 | 1.672 | 1.672 | 1.672 | 1.672 |
| **Deterrents** | 1.038 | 1.038 | 1.038 | 1.038 | 1.754 | 1.754 | 1.754 | 1.754 | 1.061 | 1.061 | 1.061 | 1.061 | 1.028 | 1.028 | 1.028 | 1.028 |
| **Motivators** | 1.778 | 1.778 | 1.778 | 1.778 | 2.395 | 2.395 | 2.395 | 2.395 | -- | -- | -- | -- | 1.660 | 1.660 | 1.660 | 1.660 |
| **Participation** | 1.811 | 1.811 | 1.811 | 1.811 | 1.872 | 1.872 | 1.872 | 1.872 | 1.810 | 1.810 | 1.810 | 1.810 | -- | -- | -- | -- |

4. Education level

| | Attitude | | Deterrents | | Motivators | | Participation | |
|---|---|---|---|---|---|---|---|---|
| | BE | HE | BE | HE | BE | HE | BE | HE |
| **Attitude** | -- | -- | 1.754 | 1.754 | 1.842 | 1.842 | 1.672 | 1.672 |
| **Deterrents** | 1.038 | 1.038 | -- | -- | 1.061 | 1.061 | 1.028 | 1.028 |
| **Motivators** | 1.778 | 1.778 | 2.395 | 2.395 | -- | -- | 1.660 | 1.660 |
| **Participation** | 1.811 | 1.811 | 1.872 | 2.872 | 1.810 | 1.810 | -- | -- |

# APPENDIX 5. OUTER MODEL ANALYSIS . FOR THE ENTIRE SAMPLE AND MULTIGROUP BY CONTEXT

| *DETERRENTS TO CO-CREATE ONLINE* | Factor Loading | | | Cronbach's Alpha | | | CR | | | AVE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK |
| ***Technology anxiety*** | | | | | | | | | | | | |
| TANX1 I don't think that my ideas would benefit the project I'm participating in | 0.8134 | 0.8209 | 0.7946 | | | | | | | | | |
| TANX2 I feel that I am incompetent to share my thinking for this project | 0.8412 | 0.8231 | 0.8486 | | | | 0.918 | | | | | |
| TANX3 I am sure that I don't have enough knowledge/experience in order to participate in this on-line project | 0.8287 | 0.8141 | 0.8486 | 0.893 | 0.887 | 0.893 | | 0.914 | 0.918 | 0.651 | 0.639 | 0.652 |
| TANX4 I am not confident that my experience satisfy the objectives of the project | 0.8022 | 0.8195 | 0.7864 | | | | | | | | | |
| TANX5 I think that my age is a constraint for participating in the co-creation projects on-line | 0.7880 | 0.7729 | 0.7872 | | | | | | | | | |
| TANX6 There are younger people out there who would be more confident in handling on-line projects | 0.7650 | 0.7450 | 0.7751 | | | | | | | | | |
| **Lack of trust** | | | | | | | | | | | | |
| LT1 The company that I am helping by participating in the on-line project will always keep the promises it makes | 0.8950 | 0.9812 | 0.8998 | | | | | | | | | |
| LT2 The company that I am helping by participating in the on-line project would not knowingly do anything to disrespect my ideas | 0.8706 | 0.8048 | 0.9150 | 0.907 | 0.888 | 0.918 | 0.935 | 0.923 | 0.942 | 0.782 | 0.750 | 0.802 |
| LT3 The company that I am helping by participating in the on-line project behave in a consistent manner | 0.8735 | 0.8570 | 0.8826 | | | | | | | | | |
| LT4 The company that I am helping by participating in the on-line project is truthful in dealing with all the members | 0.8977 | 0.9082 | 0.8848 | | | | | | | | | |
| **Skepticism** | | | | | | | | | | | | |
| SKEP1 I am not going to be compensated at all | 0.6401 | 0.6729 | 0.6115 | | | | | | | | | |
| SKEP2 Some of other participants will be rewarded more than I will | 0.7259 | 0.6761 | 0.7585 | | | | | | | | | |
| SKEP3 My ideas belong only to me and are not to be shared with wide community unless protected by the copyright law | 0.6643 | 0.6624 | 0.6691 | 0.864 | 0.856 | 0.869 | 0.896 | 0.891 | 0.900 | 0.554 | 0.540 | 0.565 |
| SKEP4 It is not clearly stated that my idea will be mentioned under my name | 0.7089 | 0.6845 | 0.7402 | | | | | | | | | |
| SKEP5 I feel that company is so big that it would not hear my voice among the others | 0.8227 | 0.8300 | 0.8135 | | | | | | | | | |
| SKEP6 My idea will be lost among the others | 0.8259 | 0.8144 | 0.8324 | | | | | | | | | |
| SKEP7 I think that this huge company will not pay attention to all the ideas | 0.8007 | 0.7387 | 0.8119 | | | | | | | | | |
| **Daily life** | | | | | | | | | | | | |
| DL1 I do not have free time for co-creation projects online | 0.9022 | 0.9271 | 0.8756 | 0.871 | 0.880 | 0.865 | 0.921 | 0.926 | 0.918 | 0.795 | 0.806 | 0.788 |
| DL2 My family/work obligations take too much of my personal time | 0.8709 | 0.8650 | 0.8817 | | | | | | | | | |
| DL3 My everyday schedule is very busy, co-creation online would occupy to much time | 0.9021 | 0.9010 | 0.9053 | | | | | | | | | |
| **Task layout** | | | | | | | | | | | | |
| TLAY1 The task is described in a complicated manner | 0.8382 | 0.8179 | 0.8570 | | | | | | | | | |
| TLAY2 There is an overload of information | 0.8167 | 0.7648 | 0.8556 | 0.809 | 0.757 | 0.841 | 0.875 | 0.847 | 0.894 | 0.637 | 0.581 | 0.678 |
| TLAY3 The task of the project is not clear and understandable | 0.8012 | 0.8107 | 0.7967 | | | | | | | | | |
| TLAY4 I do not find the website of co-creation project to be easy to use | 0.7331 | 0.6460 | 0.7818 | | | | | | | | | |
| **No shared values** | | | | | | | | | | | | |
| SHVAL1 I do not share the purpose of this company | 0.8794 | 0.8925 | 0.8688 | 0.847 | 0.831 | 0.860 | 0.907 | 0.898 | 0.915 | 0.765 | 0.747 | 0.782 |
| SHVAL2 I do not agree with the vision of the company | 0.8912 | 0.8668 | 0.9111 | | | | | | | | | |
| SHVAL3 I do not feel committed to the goals of this online co-creation project | 0.8545 | 0.8339 | 0.8724 | | | | | | | | | |
| **No offline meeting** | | | | | | | | | | | | |
| NOFFM1 I want to see people with who I'm going to work in co-creation | 0.8437 | 0.8428 | 0.8505 | | | | | | | | | |
| NOFFM2 I would like to interact in person with other participants of the co-creation project | 0.7101 | 0.5638 | 0.8107 | 0.758 | 0.677 | 0.818 | 0.840 | 0.768 | 0.878 | 0.571 | 0.482 | 0.643 |
| NOFFM3 It bothers me to use machine when I could talk with a person instead | 0.7710 | 0.7334 | 0.8138 | | | | | | | | | |
| NOFFM4 I believe there can't be a co-creation only online | 0.7180 | 0.7031 | 0.7413 | | | | | | | | | |
| **Inertia** | | | | | | | | | | | | |
| INER1 I feel that my reference group would not consider participating in co-creation projects online | 0.7375 | 0.7462 | 0.7236 | | | | | | | | | |
| INER2 My friends are saying that co-creation online is senseless | 0.7829 | 0.7384 | 0.8200 | | | | | | | | | |
| INER3 I will do it only if my friends will join me in the project | 0.8009 | 0.7635 | 0.8233 | 0.824 | 0.782 | 0.847 | 0.877 | 0.852 | 0.891 | 0.588 | 0.537 | 0.621 |
| INER4 When I see a complicated question I quit | 0.8125 | 0.7987 | 0.8173 | | | | | | | | | |
| INER5 I am creative only when I feel the time pressure | 0.6970 | 0.6028 | 0.7515 | | | | | | | | | |

| *MOTIVATORS TO CO-CREATE ONLINE* | Factor Loading | | | Cronbach's Alpha | | | CR | | | AVE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK |
| **Learning** | | | | | | | | | | | | |
| LEARN1 Enhance my knowledge about the product and its usage | 0.8939 | 0.8944 | 0.8932 | 0.870 | 0.863 | 0.876 | 0.920 | 0.916 | 0.923 | 0.794 | 0.785 | 0.801 |
| LEARN2 Enhance my knowledge on product trends, related products and technology | 0.9048 | 0.8884 | 0.9182 | | | | | | | | | |
| LEARN3 Help me make better product decisions as consumers | 0.8739 | 0.8744 | 0.8730 | | | | | | | | | |
| ***Social Cognitive*** | | | | | | | | | | | | |
| SOCOGN1 Expand my personal network | 0.8574 | 0.8453 | 0.8669 | 0.838 | 0.810 | 0.858 | 0.902 | 0.887 | 0.914 | 0.755 | 0.724 | 0.779 |
| SOCOGN2 Raise my status/reputation as product expert in my personal network | 0.8887 | 0.8763 | 0.8984 | | | | | | | | | |
| SOCOGN3 Enhance the strength of my affiliation with the customer community | 0.8609 | 0.8319 | 0.8822 | | | | | | | | | |
| ***Personal Integrative*** | | | | | | | | | | | | |
| PERSINT1 They are likely to positively affect my professional career | 0.6765 | 0.5876 | 0.7546 | 0.845 | 0.826 | 0.862 | 0.897 | 0.888 | 0.907 | 0.689 | 0.669 | 0.710 |
| PERSINT2 Offer me satisfaction from influencing product design and development | 0.8745 | 0.8826 | 0.8692 | | | | | | | | | |
| PERSINT3 Offer me satisfaction from influencing product usage by other customers | 0.8838 | 0.8648 | 0.9005 | | | | | | | | | |
| PERSINT4 Offer me satisfaction from helping design better products | 0.8667 | 0.8972 | 0.8385 | | | | | | | | | |
| ***Hedonic Integrative*** | | | | | | | | | | | | |
| HEDINT1 Contribute in spending some enjoyable and relaxing time | 0.8526 | 0.8454 | 0.8573 | 0.876 | 0.864 | 0.885 | 0.915 | 0.907 | 0.921 | 0.729 | 0.710 | 0.744 |
| HEDINT2 Contribute in fun and pleasure | 0.8711 | 0.8511 | 0.8884 | | | | | | | | | |
| HEDINT3 Entertain and stimulate my mind | 0.8646 | 0.8702 | 0.8606 | | | | | | | | | |
| HEDINT4 Offer me enjoyment deriving from problem solving, idea generation, etc. | 0.8253 | 0.8030 | 0.8432 | | | | | | | | | |
| ***Financial/Material Integrative*** | | | | | | | | | | | | |
| FININT1 Enhance my financial position directly | 0.8064 | 0.8069 | 0.8035 | 0.819 | 0.778 | 0.843 | 0.880 | 0.857 | 0.895 | 0.648 | 0.599 | 0.680 |
| FININT2 Contribute in creating cheaper products | 0.7917 | 0.7432 | 0.8219 | | | | | | | | | |
| FININT3 Enhance my financial position indirectly. (e.g. by buying products offering higher value) | 0.8372 | 0.8124 | 0.8528 | | | | | | | | | |
| FININT4 Deliver non-financial rewards. (e.g. free samples, beta products) | 0.7855 | 0.7363 | 0.8200 | | | | | | | | | |

| *ATTITUDE TOWARDS CO-CREATION* | Factor Loading | | | Cronbach's Alpha | | | CR | | | AVE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK |
| AtC1. Companies must make it possible for users to be involved in the development of new products/services. | 0.8169 | 0.8515 | 0.7861 | 0.784 | 0.808 | 0.762 | 0.874 | 0.886 | 0.863 | 0.698 | 0.722 | 0.678 |
| AtC2. Users must be able to test product concepts before these are launched. | 0.8423 | 0.8442 | 0.8434 | | | | | | | | | |
| AtC3. Intensive involvement of final customers in the new product development process results in better products/services. | 0.8475 | 0.8545 | 0.8402 | | | | | | | | | |

| *PARTICIPATION IN CO-CREATION ONLINE* | Factor Loading | | | Cronbach's Alpha | | | CR | | | AVE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK |
| CP1. I participated in co-creation activities online when no financial or other type of reward was offered. | 0.9101 | 0.9340 | 0.8820 | 0.754 | 0.701 | 0.802 | 0.849 | 0.798 | 0.884 | 0.668 | 0.623 | 0.719 |
| CP2. I rated a product or service after purchase out of my own initiative. | 0.6356 | 0.4755[2] | 0.7594 | | | | | | | | | |
| CP3. I rated a product or service after purchase because I was invited to do so by the seller | 0.8996 | 0.9251 | 0.8963 | | | | | | | | | |

[2]According to Fernandez-Jimenez et al. (2013), the value of factor loading should be more than 0.3.

# APPENDIX 6. MULTIGROUP OUTER MODEL ANALYSIS (AGE-GENDER).

| Deterrents | Factor Loading | | | | Cronbach's Alpha | | | | CR | | | | AVE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WY | MY | WO | MO | WY | MY | WO | MO | WY | MY | WO | MO | WY | MY | WO | MO |
| ***Technology anxiety*** | | | | | | | | | | | | | | | | |
| TANX1 | 0.8096 | 0.7966 | 0.8546 | 0.7832 | | | | | | | | | | | | |
| TANX2 | 0.8326 | 0.8328 | 0.8686 | 0.8269 | | | | | | | | | | | | |
| TANX3 | 0.7936 | 0.8218 | 0.8364 | 0.8556 | 0.858 | 0.878 | 0.910 | 0.878 | 0.895 | 0.908 | 0.930 | 0.922 | 0.587 | 0.621 | 0.691 | 0.665 |
| TANX4 | 0.7634 | 0.7424 | 0.8626 | 0.7984 | | | | | | | | | | | | |
| TANX5 | 0.7307 | 0.7981 | 0.7757 | 0.8234 | | | | | | | | | | | | |
| TANX6 | 0.6589 | 0.7345 | 0.7949 | 0.8031 | | | | | | | | | | | | |
| **Lack of trust** | | | | | | | | | | | | | | | | |
| LT1 | 0.9036 | 0.8323 | 0.9148 | 0.8968 | | | | | | | | | | | | |
| LT2 | 0.8387 | 0.8333 | 0.8748 | 0.8970 | 0.909 | 0.846 | 0.909 | 0.901 | 0.936 | 0.896 | 0.952 | 0.931 | 0.785 | 0.685 | 0.832 | 0.772 |
| LT3 | 0.8991 | 0.7579 | 0.9146 | 0.8634 | | | | | | | | | | | | |
| LT4 | 0.9019 | 0.8838 | 0.9427 | 0.8562 | | | | | | | | | | | | |
| **Skepticism** | | | | | | | | | | | | | | | | |
| SKEP1 | 0.6635 | 0.6007 | 0.6491 | 0.6551 | | | | | | | | | | | | |
| SKEP2 | 0.7559 | 0.6354 | 0.7652 | 0.7308 | | | | | | | | | | | | |
| SKEP3 | 0.6505 | 0.6186 | 0.6892 | 0.6633 | 0.865 | 0.832 | 0.887 | 0.865 | 0.896 | 0.875 | 0.912 | 0.897 | 0.554 | 0.503 | 0.601 | 0.556 |
| SKEP4 | 0.7219 | 0.6788 | 0.7208 | 0.7074 | | | | | | | | | | | | |
| SKEP5 | 0.7977 | 0.7976 | 0.8659 | 0.8368 | | | | | | | | | | | | |
| SKEP6 | 0.8007 | 0.8133 | 0.8669 | 0.8213 | | | | | | | | | | | | |
| SKEP7 | 0.8054 | 0.7872 | 0.8383 | 0.7846 | | | | | | | | | | | | |
| **Daily life** | | | | | | | | | | | | | | | | |
| DL1 | 0.9070 | 0.8927 | 0.9003 | 0.9029 | | | | | | | | | | | | |
| DL2 | 0.8352 | 0.8869 | 0.8964 | 0.8704 | 0.855 | 0.838 | 0.884 | 0.882 | 0.912 | 0.903 | 0.928 | 0.927 | 0.775 | 0.756 | 0.810 | 0.809 |
| DL3 | 0.8987 | 0.8282 | 0.9050 | 0.9248 | | | | | | | | | | | | |
| **Task layout** | | | | | | | | | | | | | | | | |
| TLAY1 | 0.7740 | 0.8380 | 0.9052 | 0.8376 | | | | | | | | | | | | |
| TLAY2 | 0.7876 | 0.7982 | 0.8502 | 0.8332 | 0.744 | 0.807 | 0.870 | 0.808 | 0.839 | 0.875 | 0.912 | 0.897 | 0.566 | 0.634 | 0.721 | 0.636 |
| TLAY3 | 0.7365 | 0.7862 | 0.8600 | 0.8053 | | | | | | | | | | | | |
| TLAY4 | 0.7089 | 0.7601 | 0.7759 | 0.7094 | | | | | | | | | | | | |
| **No shared values** | | | | | | | | | | | | | | | | |
| SHVAL1 | 0.8656 | 0.8956 | 0.8853 | 0.8782 | | | | | | | | | | | | |
| SHVAL2 | 0.8979 | 0.8653 | 0.9095 | 0.9794 | 0.848 | 0.836 | 0.872 | 0.830 | 0.908 | 0.921 | 0.901 | 0.898 | 0.766 | 0.753 | 0.796 | 0.746 |
| SHVAL3 | 0.8631 | 0.8425 | 0.8826 | 0.8346 | | | | | | | | | | | | |
| **No offline meeting** | | | | | | | | | | | | | | | | |
| NOFFM1 | 0.8357 | 0.8343 | 0.8803 | 0.8216 | | | | | | | | | | | | |
| NOFFM2 | 0.7053 | 0.8415 | 0.7110 | 0.6593 | 0.691 | 0.762 | 0.807 | 0.754 | 0.780 | 0.848 | 0.871 | 0.837 | 0.483 | 0.582 | 0.630 | 0.568 |
| NOFFM3 | 0.7646 | 0.6974 | 0.8080 | 0.7759 | | | | | | | | | | | | |
| NOFFM4 | 0.5672 | 0.6777 | 0.7824 | 0.7743 | | | | | | | | | | | | |
| **Inertia** | | | | | | | | | | | | | | | | |
| INER1 | 0.6047 | 0.8445 | 0.7778 | 0.7155 | | | | | | | | | | | | |
| INER2 | 0.7737 | 0.8027 | 0.7336 | 0.8114 | | | | | | | | | | | | |
| INER3 | 0.7981 | 0.7718 | 0.8095 | 0.8127 | 0.787 | 0.870 | 0.820 | 0.783 | 0.855 | 0.906 | 0.874 | 0.879 | 0.544 | 0.658 | 0.582 | 0.594 |
| INER4 | 0.7944 | 0.8274 | 0.8039 | 0.8199 | | | | | | | | | | | | |
| INER5 | 0.6983 | 0.8090 | 0.6879 | 0.6860 | | | | | | | | | | | | |

| Motivators | Factor Loading | | | | Cronbach's Alpha | | | | CR | | | | AVE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WY | MY | WO | MO | WY | MY | WO | MO | WY | MY | WO | MO | WY | MY | WO | MO |
| **Learning** | | | | | | | | | | | | | | | | |
| LEARN1 | 0.8564 | 0.8369 | 0.9300 | 0.9183 | | | | | | | | | | | | |
| LEARN2 | 0.9176 | 0.8676 | 0.9237 | 0.9068 | 0.820 | 0.834 | 0.902 | 0.873 | 0.893 | 0.901 | 0.939 | 0.933 | 0.737 | 0.752 | 0.837 | 0.823 |
| LEARN3 | 0.7973 | 0.8955 | 0.8899 | 0.8966 | | | | | | | | | | | | |
| ***Social Cognitive*** | | | | | | | | | | | | | | | | |
| SOCOGN1 | 0.7470 | 0.8793 | 0.9175 | 0.8543 | | | | | | | | | | | | |
| SOCOGN2 | 0.8588 | 0.8930 | 0.9223 | 0.8786 | 0.732 | 0.839 | 0.903 | 0.831 | 0.849 | 0.903 | 0.939 | 0.899 | 0.652 | 0.766 | 0.837 | 0.748 |
| SOCOGN3 | 0.8143 | 0.8366 | 0.9051 | 0.8613 | | | | | | | | | | | | |
| ***Personal Integrative*** | | | | | | | | | | | | | | | | |
| PERSINT1 | 0.5885 | 0.8092 | 0.7005 | 0.6010 | | | | | | | | | | | | |
| PERSINT2 | 0.8248 | 0.7756 | 0.9097 | 0.9059 | 0.804 | 0.836 | 0.871 | 0.842 | 0.874 | 0.891 | 0.913 | 0.897 | 0.638 | 0.672 | 0.726 | 0.690 |
| PERSINT3 | 0.8665 | 0.8917 | 0.8815 | 0.9055 | | | | | | | | | | | | |
| PERSINT4 | 0.8823 | 0.7972 | 0.9003 | 0.8715 | | | | | | | | | | | | |
| ***Hedonic Integrative*** | | | | | | | | | | | | | | | | |
| HEDINT1 | 0.8107 | 0.7993 | 0.8989 | 0.8610 | | | | | | | | | | | | |
| HEDINT2 | 0.8756 | 0.8244 | 0.9133 | 0.8642 | 0.868 | 0.809 | 0.920 | 0.873 | 0.910 | 0.874 | 0.943 | 0.913 | 0.716 | 0.635 | 0.806 | 0.724 |
| HEDINT3 | 0.8470 | 0.8127 | 0.8911 | 0.8849 | | | | | | | | | | | | |
| HEDINT4 | 0.8516 | 0.7519 | 0.8882 | 0.7919 | | | | | | | | | | | | |
| ***Financial Integrative*** | 0.7400 | 0.8232 | 0.8396 | 0.8173 | | | | | | | | | | | | |
| FININT1 | 0.7177 | 0.7838 | 0.8313 | 0.8129 | | | | | | | | | | | | |
| FININT2 | 0.7938 | 0.7507 | 0.8730 | 0.8681 | 0.725 | 0.787 | 0.857 | 0.853 | 0.828 | 0.862 | 0.903 | 0.900 | 0.547 | 0.610 | 0.700 | 0.693 |
| FININT3 | 0.7074 | 0.7657 | 0.8032 | 0.8325 | | | | | | | | | | | | |
| FININT4 | | | | | | | | | | | | | | | | |

| | Factor Loading | | | | Cronbach's Alpha | | | | CR | | | | AVE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Positive Attitude** | WY | MY | WO | MO | WY | MY | WO | MO | WY | MY | WO | MO | WY | MY | WO | MO |
| AtC1 | 0.7016 | 0.8497 | 0.8228 | 0.8563 | | | | | | | | | | | | |
| AtC2 | 0.8033 | 0.8769 | 0.8338 | 0.8710 | 0.665 | 0.854 | 0.798 | 0.806 | 0.816 | 0.912 | 0.881 | 0.885 | 0.597 | 0.775 | 0.712 | 0.720 |
| AtC3 | 0.8144 | 0.9132 | 0.8743 | 0.8184 | | | | | | | | | | | | |

| | Factor Loading | | | | Cronbach's Alpha | | | | CR | | | | AVE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Participation** | WY | MY | WO | MO | WY | MY | WO | MO | WY | MY | WO | MO | WY | MY | WO | MO |
| CP1 | 0.9171 | 0.8766 | 0.9013 | 0.9283 | | | | | | | | | | | | |
| CP2 | 0.4298 | 0.6808 | 0.6223 | 0.6727 | 0.659 | 0.715 | 0.745 | 0.794 | 0.764 | 0.841 | 0.828 | 0.876 | 0.589 | 0.641 | 0.642 | 0.711 |
| CP3 | 0.9158 | 0.8316 | 0.9053 | 0.9162 | | | | | | | | | | | | |

# APPENDIX 7. MULTIGROUP OUTER MODEL ANALYSIS (EDUCATION).

| Deterrents | Factor Loading | | Cronbach's Alpha | | CR | | AVE | |
|---|---|---|---|---|---|---|---|---|
| | Basic education | High education | Basic education | High education | Basic education | High education | Basic education | High education |
| ***Technology anxiety*** | | | | | | | | |
| TANX1 | 0.8063 | 0.8256 | | | | | | |
| TANX2 | 0.8336 | 0.8507 | | | | | | |
| TANX3 | 0.8228 | 0.8369 | 0.896 | 0.888 | 0.920 | 0.915 | 0.657 | 0.643 |
| TANX4 | 0.8222 | 0.7737 | | | | | | |
| TANX5 | 0.7903 | 0.7853 | | | | | | |
| TANX6 | 0.7873 | 0.7326 | | | | | | |
| **Lack of trust** | | | | | | | | |
| LT1 | 0.9074 | 0.8789 | | | | | | |
| LT2 | 0.8714 | 0.8707 | 0.914 | 0.897 | 0.940 | 0.928 | 0.796 | 0.763 |
| LT3 | 0.8857 | 0.8566 | | | | | | |
| LT4 | 0.9040 | 0.8890 | | | | | | |
| **Skepticism** | | | | | | | | |
| SKEP1 | 0.6696 | 0.5955 | | | | | | |
| SKEP2 | 0.7265 | 0.7214 | | | | | | |
| SKEP3 | 0.6476 | 0.6899 | | | | | | |
| SKEP4 | 0.7440 | 0.6554 | 0.872 | 0.852 | 0.901 | 0.888 | 0.569 | 0.535 |
| SKEP5 | 0.8307 | 0.8134 | | | | | | |
| SKEP6 | 0.8281 | 0.8278 | | | | | | |
| SKEP7 | 0.8102 | 0.7875 | | | | | | |
| **Daily life** | | | | | | | | |
| DL1 | 0.9075 | 0.8937 | | | | | | |
| DL2 | 0.8692 | 0.8737 | 0.871 | 0.872 | 0.921 | 0.921 | 0.795 | 0.796 |
| DL3 | 0.8979 | 0.9092 | | | | | | |
| **Task layout** | | | | | | | | |
| TLAY1 | 0.8739 | 0.7841 | | | | | | |
| TLAY2 | 0.8434 | 0.7790 | 0.824 | 0.786 | 0.884 | 0.862 | 0.657 | 0.609 |
| TLAY3 | 0.8102 | 0.7874 | | | | | | |
| TLAY4 | 0.7062 | 0.7720 | | | | | | |
| **No shared values** | | | | | | | | |
| SHVAL1 | 0.8902 | 0.8659 | | | | | | |
| SHVAL2 | 0.8904 | 0.8921 | 0.861 | 0.828 | 0.915 | 0.897 | 0.744 | 0.782 |
| SHVAL3 | 0.8725 | 0.8299 | | | | | | |
| **No offline meeting** | | | | | | | | |
| NOFFM1 | 0.8340 | 0.8583 | | | | | | |
| NOFFM2 | 0.7093 | 0.7117 | 0.744 | 0.766 | 0.829 | 0.853 | 0.552 | 0.594 |
| NOFFM3 | 0.7599 | 0.7867 | | | | | | |
| NOFFM4 | 0.7041 | 0.7357 | | | | | | |
| **Inertia** | | | | | | | | |
| INER1 | 0.7632 | 0.7062 | | | | | | |
| INER2 | 0.7973 | 0.7635 | | | | | | |
| INER3 | 0.7837 | 0.8246 | 0.824 | 0.827 | 0.876 | 0.879 | 0.587 | 0.593 |
| INER4 | 0.7917 | 0.8401 | | | | | | |
| INER5 | 0.6924 | 0.7078 | | | | | | |

| Motivators | Factor Loading | | Cronbach's Alpha | | CR | | AVE | |
|---|---|---|---|---|---|---|---|---|
| | Basic education | High education | Basic education | High education | Basic education | High education | Basic education | High education |
| **Learning** | | | | | | | | |
| LEARN1 | 0.9019 | 0.8829 | | | | | | |
| LEARN2 | 0.9190 | 0.8818 | 0.889 | 0.837 | 0.931 | 0.902 | 0.819 | 0.754 |
| LEARN3 | 0.8936 | 0.8404 | | | | | | |
| ***Social Cognitive*** | | | | | | | | |
| SOCOGN1 | 0.8535 | 0.8624 | | | | | | |
| SOCOGN2 | 0.8840 | 0.8947 | 0.833 | 0.845 | 0.900 | 0.906 | 0.749 | 0.763 |
| SOCOGN3 | 0.8590 | 0.8635 | | | | | | |
| ***Personal Integrative*** | | | | | | | | |
| PERSINT1 | 0.6848 | 0.6608 | | | | | | |
| PERSINT2 | 0.9033 | 0.8287 | 0.859 | 0.822 | 0.906 | 0.883 | 0.710 | 0.657 |
| PERSINT3 | 0.8965 | 0.8654 | | | | | | |
| PERSINT4 | 0.8658 | 0.8688 | | | | | | |
| ***Hedonic Integrative*** | | | | | | | | |
| HEDINT1 | 0.8643 | 0.8345 | | | | | | |
| HEDINT2 | 0.8668 | 0.8789 | 0.883 | 0.845 | 0.920 | 0.908 | 0.741 | 0.711 |
| HEDINT3 | 0.8880 | 0.8991 | | | | | | |
| HEDINT4 | 0.8233 | 0.8302 | | | | | | |
| ***Financial Integrative*** | | | | | | | | |
| FININT1 | 0.7951 | 0.8246 | | | | | | |
| FININT2 | 0.8179 | 0.7511 | 0.825 | 0.810 | 0.884 | .875 | 0.656 | 0.636 |
| FININT3 | 0.8473 | 0.8214 | | | | | | |
| FININT4 | 0.7798 | 0.7932 | | | | | | |

| | Factor Loading | | Cronbach's Alpha | | CR | | AVE | |
|---|---|---|---|---|---|---|---|---|
| **Positive Attitude** | Basic education | High education | Basic education | High education | Basic education | High education | Basic education | High education |
| AtC1 | 0.8189 | 0.8140 | | | | | | |
| AtC2 | 0.8560 | 0.8227 | 0.795 | 0.768 | 0.880 | 0.865 | 0.709 | 0.681 |
| AtC3 | 0.8515 | 0.8421 | | | | | | |

| | Factor Loading | | Cronbach's Alpha | | CR | | AVE | |
|---|---|---|---|---|---|---|---|---|
| **Participation** | Basic education | High education | Basic education | High education | Basic education | High education | Basic education | High education |
| CP1 | 0.9097 | 0.9131 | | | | | | |
| CP2 | 0.5952 | 0.6868 | 0.735 | 0.780 | 0.843 | 0.858 | 0.658 | 0.682 |
| CP3 | 0.9048 | 0.8939 | | | | | | |

# APPENDIX 8. MEASUREMENT OF INVARIABILITY OF THE MODEL

| | SP-UK | MY-MO | WY-WO | MY-WY | MO-WO | BE-HE |
|---|---|---|---|---|---|---|
| **P5A_1 <- Lack of trust** | 0.711 | 0.914 | 0.696 | 0.069 | 0.178 | 0.868 |
| **P5A_1 <- deterrents** | 0.662 | 0.762 | 0.393 | 0.336 | 0.741 | 0.591 |
| **P5A_10 <- tech. anx.** | 0.732 | 0.759 | 0.978 | 0.902 | 0.509 | 0.878 |
| **P5A_10 <- deterrents** | 0.839 | 0.251 | 0.951 | 0.979 | 0.419 | 0.399 |
| **P5A_2 <- Lack of trust** | 1.000 | 0.914 | 0.773 | 0.596 | 0.699 | 0.476 |
| **P5A_2 <- deterrents** | 0.758 | 0.563 | 0.316 | 0.796 | 0.958 | 0.418 |
| **P5A_3 <- Lack of trust** | 0.801 | 0.895 | 0.632 | 0.038 | 0.072 | 0.765 |
| **P5A_3 <- deterrents** | 0.649 | 0.896 | 0.160 | 0.262 | 0.952 | 0.466 |
| **P5A_4 <- Lack of trust** | 0.147 | 0.328 | 0.954 | 0.198 | 0.000* | 0.757 |
| **P5A_4 <- deterrents** | 0.369 | 0.720 | 0.129 | 0.238 | 0.838 | 0.596 |
| **P5A_5 <- tech. anx.** | 0.296 | 0.502 | 0.856 | 0.413 | 0.067 | 0.281 |
| **P5A_5 <- deterrents** | 0.920 | 0.797 | 0.812 | 0.367 | 0.362 | 0.115 |
| **P5A_6 <- tech. anx.** | 0.805 | 0.403 | 0.779 | 0.533 | 0.159 | 0.262 |
| **P5A_6 <- deterrents** | 0.958 | 0.519 | 0.566 | 0.508 | 0.467 | 0.038* |
| **P5A_7 <- tech. anx.** | 0.827 | 0.736 | 0.731 | 0.589 | 0.788 | 0.286 |
| **P5A_7 <- deterrents** | 0.766 | 0.837 | 0.541 | 0.346 | 0.735 | 0.109 |
| **P5A_8 <- tech. anx.** | 0.145 | 0.809 | 0.954 | 0.284 | 0.063 | 0.897 |
| **P5A_8 <- deterrents** | 0.635 | 0.935 | 0.549 | 0.044 | 0.340 | 0.615 |
| **P5A_9 <- tech. anx.** | 0.680 | 0.557 | 0.773 | 0.921 | 0.851 | 0.624 |
| **P5A_9 <- deterrents** | 0.949 | 0.360 | 0.745 | 0.958 | 0.919 | 0.691 |
| **P5B_1 <- Inertia** | 0.429 | 0.046 | 0.990 | 0.992 | 0.112 | 0.876 |
| **P5B_1 <- deterrents** | 0.983 | 0.256 | 0.982 | 0.982 | 0.370 | 0.873 |
| **P5B_2 <- Inertia** | 0.942 | 0.568 | 0.245 | 0.651 | 0.936 | 0.788 |
| **P5B_2 <- deterrents** | 0.838 | 0.645 | 0.157 | 0.650 | 0.976 | 0.632 |
| **P5B_3 <- Inertia** | 0.902 | 0.621 | 0.618 | 0.492 | 0.517 | 0.177 |
| **P5B_3 <- deterrents** | 0.912 | 0.222 | 0.689 | 0.950 | 0.690 | 0.468 |
| **P5B_5 <- Task layout_** | 0.866 | 0.466 | 0.999 | 0.852 | 0.010* | 0.993 |
| | **SP-UK** | **MY-MO** | **WY-WO** | **MY-WY** | **MO-WO** | **BE-HE** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **P5B_5 <- deterrents** | 0.921 | 0.473 | 0.959 | 0.647 | 0.065 | 0.928 |
| **P5B_6 <- Task layout_** | 0.992 | 0.604 | 0.912 | 0.589 | 0.188 | 0.972 |
| **P5B_6 <- deterrents** | 0.989 | 0.328 | 0.883 | 0.545 | 0.041* | 0.993 |
| **P5B_8 <- Task layout_** | 0.552 | 0.571 | 0.969 | 0.747 | 0.120 | 0.684 |
| **P5B_8 <- deterrents** | 0.983 | 0.466 | 0.799 | 0.613 | 0.244 | 0.829 |
| **P5B_9 <- deterrents** | 0.975 | 0.353 | 0.721 | 0.861 | 0.616 | 0.166 |
| **P5B_9 <- Inertia** | 0.749 | 0.419 | 0.665 | 0.767 | 0.579 | 0.066 |
| **P5C_10 <- Skepticism** | 0.754 | 0.428 | 0.780 | 0.429 | 0.085 | 0.722 |
| **P5C_10 <- deterrents** | 0.843 | 0.373 | 0.913 | 0.674 | 0.097 | 0.655 |
| **P5C_2 <- Daily life** | 0.010* | 0.578 | 0.461 | 0.438 | 0.558 | 0.607 |
| **P5C_2 <- deterrents** | 0.695 | 0.341 | 0.557 | 0.597 | 0.364 | 0.049 |
| **P5C_3 <- Daily life** | 0.654 | 0.322 | 0.792 | 0.763 | 0.298 | 0.386 |
| **P5C_3 <- deterrents** | 0.709 | 0.296 | 0.242 | 0.433 | 0.452 | 0.127 |
| **P5C_4 <- Daily life** | 0.619 | 0.994 | 0.852 | 0.142 | 0.708 | 0.511 |
| **P5C_4 <- deterrents** | 0.876 | 0.566 | 0.979 | 0.641 | 0.056 | 0.581 |
| **P5C_5 <- NoSHVAL** | 0.237 | 0.240 | 0.569 | 0.796 | 0.440 | 0.747 |
| **P5C_5 <- deterrents** | 0.703 | 0.131 | 0.219 | 0.677 | 0.516 | 0.485 |
| **P5C_6 <- NoSHVAL** | 0.971 | 0.617 | 0.750 | 0.287 | 0.128 | 0.548 |
| **P5C_6 <- deterrents** | 0.994 | 0.687 | 0.886 | 0.446 | 0.164 | 0.615 |
| **P5C_7 <- NoSHVAL** | 0.898 | 0.500 | 0.718 | 0.330 | 0.088 | 0.923 |
| **P5C_7 <- deterrents** | 0.954 | 0.649 | 0.584 | 0.364 | 0.431 | 0.555 |
| **P5C_8 <- Skepticism** | 0.239 | 0.848 | 0.951 | 0.404 | 0.161 | 0.707 |
| **P5C_8 <- deterrents** | 0.499 | 0.912 | 0.953 | 0.232 | 0.120 | 0.821 |
| **P5C_9 <- Skepticism** | 0.672 | 0.592 | 0.957 | 0.533 | 0.079 | 0.509 |
| **P5C_9 <- deterrents** | 0.748 | 0.767 | 0.985 | 0.362 | 0.027 | 0.683 |
| **P5D_1 <- Skepticism** | 0.261 | 0.550 | 0.443 | 0.376 | 0.483 | 0.840 |
| **P5D_1 <- deterrents** | 0.690 | 0.291 | 0.441 | 0.575 | 0.410 | 0.884 |
| | **SP-UK** | **MY-MO** | **WY-WO** | **MY-WY** | **MO-WO** | **BE-HE** |
| **P5D_2 <- Skepticism** | 0.910 | 0.833 | 0.614 | 0.133 | 0.308 | 0.565 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **P5D_2 <- deterrents** | 0.870 | 0.804 | 0.897 | 0.351 | 0.184 | 0.654 |
| **P5D_3 <- Skepticism** | 0.561 | 0.688 | 0.601 | 0.376 | 0.454 | 0.203 |
| **P5D_3 <- deterrents** | 0.818 | 0.856 | 0.499 | 0.310 | 0.739 | 0.229 |
| **P5D_4 <- Skepticism** | 0.844 | 0.630 | 0.471 | 0.332 | 0.459 | 0.911 |
| **P5D_4 <- deterrents** | 0.861 | 0.663 | 0.605 | 0.374 | 0.410 | 0.775 |
| **P5D_6 <- Task layout_** | 0.949 | 0.381 | 0.772 | 0.689 | 0.324 | 0.130 |
| **P5D_6 <- deterrents** | 0.930 | 0.560 | 0.610 | 0.508 | 0.471 | 0.564 |
| **P5E_2 <- deterrents** | 0.994 | 0.064 | 0.104 | 0.864 | 0.765 | 0.139 |
| **P5E_2 <- Inertia** | 0.992 | 0.052 | 0.316 | 0.905 | 0.539 | 0.314 |
| **P5E_3 <- NOOFFM** | 0.730 | 0.342 | 0.838 | 0.707 | 0.111 | 0.161 |
| **P5E_3 <- deterrents** | 0.945 | 0.477 | 0.948 | 0.894 | 0.342 | 0.276 |
| **P5E_4 <- NOOFFM** | 1.000 | 0.034* | 0.776 | 0.958 | 0.267 | 0.282 |
| **P5E_4 <- deterrents** | 1.000 | 0.155 | 0.922 | 0.952 | 0.259 | 0.179 |
| **P5E_5 <- NOOFFM** | 0.626 | 0.899 | 0.464 | 0.116 | 0.294 | 0.161 |
| **P5E_5 <- deterrents** | 0.994 | 0.642 | 0.902 | 0.635 | 0.264 | 0.080 |
| **P5E_6 <- NOOFFM** | 0.706 | 0.921 | 0.727 | 0.325 | 0.531 | 0.708 |
| **P5E_6 <- deterrents** | 1.000 | 0.787 | 0.920 | 0.713 | 0.467 | 0.787 |
| **P6A_1 <- motivators** | 0.403 | 0.760 | 0.706 | 0.424 | 0.519 | 0.912 |
| **P6A_1 <- learning** | 0.421 | 0.975 | 0.994 | 0.331 | 0.288 | 0.810 |
| **P6A_10 <- motivators** | 0.556 | 0.988 | 0.902 | 0.299 | 0.755 | 0.983 |
| **P6A_10 <- pers integr** | 0.034* | 0.930 | 0.801 | 0.089 | 0.247 | 0.597 |
| **P6A_2 <- motivators** | 0.869 | 0.704 | 0.921 | 0.491 | 0.167 | 0.867 |
| **P6A_2 <- learning** | 0.920 | 0.798 | 0.691 | 0.145 | 0.184 | 0.939 |
| **P6A_3 <- motivators** | 0.703 | 0.717 | 0.900 | 0.927 | 0.807 | 0.977 |
| **P6A_3 <- learning** | 0.501 | 0.551 | 0.969 | 0.977 | 0.615 | 0.966 |
| **P6A_4 <- motivators** | 0.791 | 0.091 | 0.958 | 0.942 | 0.076 | 0.986 |
| **P6A_4 <- Social cognitive** | 0.812 | 0.174 | 1.000 | 0.987 | 0.011* | 0.524 |
| **P6A_5 <- motivators** | 0.832 | 0.541 | 0.855 | 0.743 | 0.518 | 0.887 |
| **P6A_5 <- Social cognitive** | 0.900 | 0.376 | 0.986 | 0.836 | 0.061 | 0.348 |
| | **SP-UK** | **MY-MO** | **WY-WO** | **MY-WY** | **MO-WO** | **BE-HE** |
| **P6A_6 <- motivators** | 0.465 | 0.639 | 0.968 | 0.609 | 0.121 | 0.583 |
| **P6A_6 <- Social cognitive** | 0.914 | 0.688 | 0.997 | 0.647 | 0.046 | 0.270 |
| **P6A_7 <- motivators** | 0.942 | 0.014* | 0.740 | 0.955 | 0.104 | 0.422 |
| **P6A_7 <- pers integr** | 0.993 | 0.010* | 0.825 | 0.977 | 0.098 | 0.545 |
| **P6A_8 <- motivators** | 0.719 | 0.782 | 0.907 | 0.492 | 0.448 | 0.988 |
| **P6A_8 <- pers integr** | 0.366 | 0.976 | 0.985 | 0.322 | 0.430 | 0.993 |
| **P6A_9 <- motivators** | 0.866 | 0.220 | 0.956 | 0.975 | 0.422 | 0.949 |
| **P6A_9 <- pers integr** | 0.947 | 0.574 | 0.792 | 0.837 | 0.758 | 0.911 |
| **P6B_1 <- motivators** | 0.945 | 0.188 | 0.893 | 0.939 | 0.292 | 0.967 |
| **P6B_1 <- hedonic** | 0.762 | 0.782 | 0.980 | 0.555 | 0.110 | 0.824 |
| **P6B_2 <- motivators** | 0.921 | 0.264 | 0.967 | 0.725 | 0.036* | 0.569 |
| **P6B_2 <- hedonic** | 0.934 | 0.660 | 0.929 | 0.217 | 0.042* | 0.250 |
| **P6B_3 <- motivators** | 0.203 | 0.973 | 0.585 | 0.031 | 0.421 | 0.986 |
| **P6B_3 <- hedonic** | 0.283 | 0.939 | 0.796 | 0.208 | 0.445 | 0.962 |
| **P6B_4 <- motivators** | 0.635 | 0.832 | 0.816 | 0.198 | 0.204 | 0.972 |
| **P6B_4 <- hedonic** | 0.800 | 0.740 | 0.845 | 0.087 | 0.013* | 0.472 |
| **P6B_5 <- motivators** | 0.988 | 0.056 | 0.861 | 0.998 | 0.788 | 0.597 |
| **P6B_5 <- financial** | 0.654 | 0.325 | 0.964 | 0.964 | 0.417 | 0.233 |
| **P6B_6 <- motivators** | 0.920 | 0.503 | 0.991 | 0.852 | 0.113 | 0.902 |
| **P6B_6 <- financial** | 0.906 | 0.689 | 0.987 | 0.769 | 0.260 | 0.949 |
| **P6B_7 <- motivators** | 0.993 | 0.635 | 0.854 | 0.564 | 0.267 | 0.585 |
| **P6B_7 <- financial** | 0.923 | 0.930 | 0.912 | 0.337 | 0.425 | 0.709 |
| **P6B_8 <- motivators** | 0.999 | 0.746 | 0.928 | 0.695 | 0.385 | 0.701 |
| **P6B_8 <- financial** | 0.948 | 0.867 | 0.901 | 0.644 | 0.677 | 0.418 |
| **P7_1 <- attitude** | 0.027 | 0.560 | 0.780 | 0.830 | 0.761 | 0.284 |
| **P7_4 <- attitude** | 0.592 | 0.344 | 0.865 | 0.971 | 0.786 | 0.821 |
| **P7_5 <- attitude** | 0.275 | 0.011* | 0.807 | 0.971 | 0.155 | 0.881 |
| **P8_1 <- participation** | 0.002 | 0.989 | 0.596 | 0.185 | 0.557 | 0.473 |
| **P8_3 <- participation** | 1.000 | 0.276 | 0.839 | 0.981 | 0.881 | 0.344 |
| **P8_4 <- participation** | 0.006* | 0.998 | 0.373 | 0.026* | 0.560 | 0.288 |

# CHAPTER FOUR
# THE ROLE OF PRIOR EXPERIENCE, PERCEIVED RISK, BRAND REPUTATION, AND BRAND TRUST IN CO-CREATION ONLINE

**Purpose:** The previous chapters have developed and tested a model that included for the first time both the effect of the deterrents and motivators in co-creation online. This study is built on the theoretical background of the previous chapter and is aimed to extend the implications for the practitioners and academia by not only adding moderating effects of perceived risk of use, brand reputation, and mediation effect of brand trust; but also by testing the advanced model performing multigroup analysis using context and previous experience in co-creation as the control variables.

**Design/methodology/approach:** PLS-SEM approach is applied in order to answer the research questions.

**Findings:** (1) There is a significant moderation effect of perceived risk of use for Spanish users, for experienced users, and for experienced users from Spain; (2) there is a significant moderation effect of brand reputation only for Spanish users; (3) there is a partial mediation effect of brand trust for the UK users, for non-experienced users, and for the experienced users from UK; (4) there is a full mediation effect of brand trust for Spanish non-experienced users.

**Research limitations/implications:** the results of this study are affected by the generalizability. Future research may think of other effects that have not been covered in the current study.

**Practical implications:** (1) the company should target a group that comes from the more Internet developed society; (2) the highest participation rate in the co-creation project online can be expected if targeting experienced users as they show stronger effect of the motivators having on attitude which in turn also affects more strongly on the participation behavior; (3) The *highest participation level* in a co-creation project online is expected if targeting the users that come from the Internet developed society and with previous experience in co-creation.

**Originality/value:** improvement of the previously tested model including moderating and mediating effects.

**Keywords:** co-creation, online, prior experience, perceived risk, brand reputation, brand trust deterrents, PLS-SEM.

# 4.1 INTRODUCTION

In the second chapter of the thesis the possible barriers to co-creation online were identified applying the exploratory methodology; the third chapter was dedicated to analyze the effect of the defined barriers and motivators have on the positive attitude towards co-creation online, and how this relationship is moderated by the context, age, gender, and education level of the users. The results have shown that (1) there is a distinction in the effect of the deterrents have on the attitude moderated by the context: in the case of the more experienced online society (the UK) the deterrents don't have a significant effect on the attitude towards co-creation online; (2) there is a distinction among young individuals of different genders in the effect of attitude towards participation and the effect of motivators towards attitude: younger men exhibit a higher level of positive attitude and higher effect of the motivators towards attitude; on the contrary old women exhibit a higher level of the deterrents effect; (3) the education level has a moderating effect on the deterrents towards attitude: the individuals with basic education level exhibit a higher level of the deterrents' effect.

The fourth part of the current study is dedicated to an enrichment of the model with the widely-used concepts in the online marketing studies: perceived risk of use (Faqih, 2013; Littler & Melanthiou, 2006; Tarpey & Peter, 1975), brand reputation (Casaló et. al., 2009; Jarvenpaa & Tractinsky, 1999; Selnes, 1998), brand trust (Chatterjee & Chaudhuri, 2005; Reichheld & Schefter, 2000; Urban, Sultan & Qualls, 2000), and prior experience in co-creation online (Koyuncu & Lien 2003; Thamizhvanan & Xavier, 2013). As we can see from the Table 15, there is a lack of research that would investigate how those concepts influence users' behavior in an online co-creation environment.

**Table 15. Related marketing research**

| Concept | Author(s) | Purpose |
|---|---|---|
| Perceived risk | Faqih, 2013 | Investigate the influence of perceived risk and Internet self-efficacy on the consumers' intentions to use online channels for purchases |
| Perceived risk | Littler & Melanthiou, 2006 | Identify some of the major risks and uncertainties associated with a new Internet service during the early stages of its market development. |
| Perceived risk, perceived return | Tarpey & Peter, 1975 | Compare and analyze three consumer decision strategies |
| Perceived privacy, security, usability, reputation, consumer trust | Casaló et. al., 2009 | Analyze the trust-commitment relationship in the online banking |
| Trust | Jarvenpaa & Tractinsky, 1999 | A cross-cultural validation of an Internet consumer trust model |
| Trust and satisfaction | Selnes, 1998 | Study interrelationship between trust and |

| | | |
|---|---|---|
| | | satisfaction |
| Brand trust, advertising efficiency | Chatterjee & Chaudhuri, 2005 | Research whether trust facilitates obtaining superior brand outcomes in terms of market share and advertising efficiency |
| Trust, customers' loyalty | Reichheld & Schefter, 2000 | Examine the trust to retain customer's loyalty |
| Web-site brand trust | Urban, Sultan & Qualls, 2000 | Study to build trust at each phase of the acceptance process |
| Online experience, online purchasing behavior | Koyuncu & Lien 2003 | Investigate how people with more online experiences behave in an online shopping process |
| Online trust and prior online purchase experience | Thamizhvanan & Xavier, 2013 | Identify the determinants of online purchase intention among youth in the Indian context |

This study targets at satisfying part of this research gap and also follow the suggested future research lines mentioned in the second chapter by answering three main research questions:

RQ1: Do perceived risk of use and brand reputation have a moderating effect on the relationship between positive attitude and participation in co-creation online?

RQ2: Does a brand trust have a mediating effect on the relationship between deterrent and attitude, or / and motivators on attitude?

RQ3: Are the mentioned effects moderated by the contextual background of the user or / and by his/her previous experience in co-creation online?

In order to answer those questions and to test the model, multigroup analysis and permutation tests were run using the Partial Least Squares Structural Equation Modeling (PLS-SEM).

After this introduction, the paper is organized as follows. The next section is devoted to the theoretical backgrownd and the hypotheses development. Following the methodology, the results of PLS-SEM multigroup analyses are presented. The subsequent part provides the discussion section, followed by the implications and contributions of the research. Finally, limitations and future research lines are presented.

# 4.2 THEORETICAL BACKGROUND AND HYPOTHESES

### 4.2.1 Perceived risk of use

Risk, in general terms, signifies the perceived likelihood of damage or loss (Rousseau et al., 1998). The perceived risk is defined as a "consumer's perceptions of the uncertainty and the possible undesirable consequences of purchasing a product or service" (Littler & Melanthiou, 2006, p.432). Perceived risk of Internet use indicates the degree to which a user

considers it is insecure to use the web or that undesirable consequences are possible (Grazioli & Jarvenpaa, 2000).

Many characteristics of the Internet produce more prominent doubts in Internet behaviors (Forsythe and Shi, 2003). Using web browsing feels secure for many users, but performing some transactions online can turn into an immense trap for some of them (McKnight, Choudhury, & Kacmar, 2002). For instance, personal information theft and misuse has increased significantly over the past years (O'Brien, 2000), causing great insecurity about the web navigating. The recent cases such as a Facebook data breach by hackers, who stole information of 14 mil accounts (Forbes, 2018) made the governments to reinforce drastically the application of privacy laws.

Perceiving high probability of online risk will unfavorably affect consumer disposition to give personal information, track seller instructions, and, eventually, perform a behavior (purchasing online (Tarpey & Peter, 1975; Grazioli & Jarvenpaa, 2000), transacting with web-based seller and participating in projects online (McKnight, Choudhury, & Kacmar, 2002). Heijden, Verghagen, and Creemers (2003) have found that the 'perceived risk' directly affected the attitude towards purchasing online.

Also, the risk has frequently been acknowledged to be a main reason in deterring users from acceptance of new know-hows such as a co-creation online practice (Littler & Melanthiou, 2006). Leclercq, Hammedi, and Poncin (2016) stated that the absene o the perceived risk and developed level of trust is a key success component of value co-creation practice. The Internet has the features to intensify weaknesses and produce opinions that unfavorably affect the users' disposition to contribute in Internet co-creation projects (Faqih, 2013). Considering the public nature of online channel, which suggests practically no defense against mistreatments, users may accordingly experience some risk when participating in online co-creation.

Therefore, the following hypothesis has been generated:

*H1: the perceived risk of use has a negative effect on the relationship between positive attitude towards co-creation online and participation.*

### 4.2.2 Brand reputation

Brand reputation was defined by Selnes (1998) as the perception of the customer of service quality related with the brand name. The concept of reputation has been described at the general company's position and it has been often associated with the business image (Dowling, 1994) and the corporate reliability (Jarvenpaa et al., 2007). Moreover, reputation is

based on the relations built in the past by the organization and its customers, in the way that it converts into an indication for future company's actions (Ganesan, 1994).

When applying those concepts to the Internet environment, and specifically to the social networks, brand reputation would be the outcome of the assessment between what users are promised to obtain and what they finally achieve from the online information sharing with the company (Casaló et. al., 2009). One of the characteristics that complicates the improvement of online relations is the lack of physical presence of the actors, which makes users to identify a greater risk when an information sharing is carried out through the Internet (Harris & Goode, 2004).

In reference to this finding, Casalo et al. (2007) have proposed that the improvement of brand reputation may assist in diminishing the ambiguity felt by the users in the online setting (Casalo et al., 2007). Thus, online brand reputation would demonstrate the honesty of the company and how much it cares about the social network users and their needs. For example, the positive reputation of Amazon has assisted in enhancing its sales (Barnes & Vidgen, 2000).

Therefore, in a co-creation project online, brand reputation would reveal a consistent behavior of the users, showing positive attitude towards co-creation online. Keeping in mind the previous deliberations, we propose our second hypothesis:

*H2: the brand reputation has a positive effect on the relationship between attitude and participation in co-creation online.*

### 4.2.3 Brand trust

There has been given a lot of attention to the concept of trust in the literature of different areas of knowledge - sociology, psychology and economics (Delgado-Ballester & Luis Munuera-Alemán, 2001; Rousseau, Sitkin, Burt, & Camerer, 1998). Afterwards, the previous literature findings have been adjusted for use in marketing and branding (Dowell et al., 2013).

There is a certain confusion that might appear when analyzing brand reputation and brand trust concepts, as there are studies that investigate the relationship between them. For instance, Jarvenpaa and Tractinsky (1999) discovered that the trust in a web store is positively affected by perceived reputation; the study by Grazioli and Jarvenpaa (2000) found that reputation is a factor that positively influences trust in an e-shopping. Likewise, in the broader trust research, reputation has long been seen as an important fragment for building trust (Dasgupta, 1988; Barber, 1983; Doney and Cannon, 1997). However, this study focuses on

the conceptual difference between brand trust and brand reputation that is derived from the definitions of these concepts.

The brand trust is defined as "the confidence a consumer develops in the brand's reliability and integrity" (Chatterjee & Chaudhuri, 2005, p. 2). This definition draws one's attention not only to the developing nature of trust, but also that the concept of trust is a function of a consumer's experience. McAllister (1995) differentiated trust into two types: emotional or warm trust (when a person gives the importance to another individual's interest) and rational or cognitive trust (when an individual thinks that another can solve a given job). The author also stated that consumer's knowledge and the "good reasons" assist in taking trust judgments. These definitions make reference to the two key aspects of trust: the emotional (intentions and reliability) and the functional (conduct and trustworthiness) (Portal, Abratt, & Bendixen, 2018).

With the growth of relationship marketing, defined as "having all marketing activities directed toward establishing, developing and maintaining successful relational exchanges" (Morgan & Hunt, 1994, p.22), trust has been given more weight in branding (Delgado-Ballester & Luis Munuera-Alemán, 2001). According to Vargo and Lusch (2011) a relationship between customer and brand should be connective and continuous. Chatterjee and Chaudhuri (2005) suggest that brand-consumer communications provide the grounds for the improvement of brand trust by extensively developing brand awareness for brands that experience greater levels of trust.

Furthermore, the brand trust offers two great advantages for an organization: consumers can easier retrieve in their memory the brand if they trust this brand; trusted brands create a learning barrier for the competitive companies' brands. Chaudhuri and Holbrook (2001) stated that brand trust could increase consumer's brand loyalty. Morgan and Hunt (1994) suggested that trust serves as a basis to commitment in B2B context as well. In the online environment, trust has been referred to as a significant part in achieving consumers' favorable behaviors (Reichheld & Schefter, 2000; Urban, Sultan & Qualls, 2000).

According to the social exchange theory, the theory of reasoned action and the theory of planned behavior, the mediating role of trust signifies a social pressure instrument that can function as a main tool for defining behavioral intentions (Aryee et al., 2002; More & Tzafrir, 2009). According to Amine (2008) and Huang et al. (2010), the negative or positive attributes that affect attitude on consumers' intentions to obtaining products is mediated by their judgment about these products. Therefore, consumer trust in a product brand may be seen as a consumer's judgment, and can have a mediation effect on the attitude. In line with the

previous argument, we suggest that trust is a mediating variable in the relationship between deterrents and motivators and their effect on the user's attitude towards behavior (participating in co-creation online).

*H3a: the brand trust has a mediating effect on the relationship between deterrents to co-creation online and positive attitude towards co-creation online.*

*H3b: the brand trust has a mediating effect on the relationship between motivators to co-creation online and positive attitude towards co-creation online.*

### 4.2.4 Relevance of context

As in the second chapter it would be enlightening to study the effect of context, in our case the comparison of two different Internet cultures of Spain and the UK.

*H4: the context moderates the effects of (a) the positive attitude towards co-creation online on customer participation in co-creation online; (b) motivators on the positive attitude towards co-creation online; (c) deterrents on the positive attitude towards co-creation online; (d) the moderating effect of perceived risk of use; (e) the moderating effect of brand reputation ; (f) the mediating effect of brand trust on the relationship between motivators and attitude; (g) the mediating effect of brand trust on the relationship between deterrents and attitude.*

### 4.2.5 Relevance of previous experience in co-creation

Upcoming behavior of user is predefined by his/her previous experiences (Thamizhvanan & Xavier, 2013). There are two major ways of the evolvement of theoretical conceptualization of the effect of previous experience in the literature. First, it is argued that the previous experience in using the Internet would considerably reduce the amount of time and mental efforts needed for both learning and performing online activity and therefore should lead to a higher probability of online behavior. Koyuncu and Lien (2003) claimed that experience with the Internet would decrease the time needed to navigate websites and search for information thereby increasing the probability of online purchase. Similarly, Citrin et. al. (2000) stated that more experience with the Internet would give users the required abilities and self-confidence for trying the web shopping.

Second, the theory of diffusion of innovations (Rogers, 2003) suggests that innovation that is compatible with previously generated ideas would simplify the implementation of the new ideas. Past experience with the Internet services, such as online shopping, e-banking, the participation in social media can be applied by users to evaluate the co-creation online in terms of the risks, convenience, and results (Naseri & Elliott, 2011).

Therefore, our fifth group of hypotheses suggests the following:

*H5: the previous experience in co-creation online moderates the effects of (a) the positive attitude towards co-creation online on customer participation in co-creation online; (b) the motivators have on the positive attitude towards co-creation online; (c) the deterrents have on the positive attitude towards co-creation online; (d) the moderating effect of perceived risk of use; (e) the moderating effect of brand reputation; (f) the mediating effect of brand trust on the relationship between motivators and attitude; (g) the mediating effect of brand trust on the relationship between deterrents and attitude.*

# 4.3 METHODOLOGY

### 4.3.1 Sample and data collection

The data used in the current research were previously collected for the second and the third chapter of the thesis.

### 4.3.2 Technique of analysis

Stata13 software was implemented to perform the exploratory and confirmatory factor analyses. Afterwards, a PLS-SEM approach was employed with SmartPLS 3.0 (Ringle, Wende, & Becker, 2015) to conduct data analysis. PLS is suitable for current study due to the following reasons: first of all this study's complex model includes both reflective and formative constructs; secondly, multivariate normal data is not strictly necessary (see Appendix 9) (Lin et al., 2014).

### 4.3.3 Measurement of variables

For the constructs of the study, the multi-item scales were generated on the basis of previous literature. The scales for customer participation in co-creation online, attitude towards co-creation, and motivators and deterrents to co-create were already presented in the second chapter and they had been obtained from previous research (Constantinides, Brünink, & Lorenzo-Romero, 2015; Ardichvili et al., 2003; Giebelhausen et al., 2014; Mathwick et al., 2008; Nolan et al., 2007; Porter & Donthu, 2006; Venkatesh & Davis, 2000; Zhao et al., 2015). The scale for perceived risk of use was adapted from Corbitt et al. (2003); the scale for brand reputation from Cretu and Brodie (2007); and the scale for the brand trust was derived from Chatterjee and Chaudhuri (2005) (see table 16).

In addition, the problem of multicollinearity was assessed using the variance inflation factors (VIFs): there is no multicollinearity detected in the model, all VIFs are less than 5 (Ringle et. al., 2015), see Appendix 10.

All these measures used a five-point Likert scale response format, where "1" corresponded to "strongly disagree" and "5" "strongly agree". The scales of final survey are presented in Appendix 11.

'Deterrents' is a second-order formative construct, which is composed of eight first-order reflective constructs. 'Motivators' construct is the second-order formative construct, which is composed of the five first-order reflective constructs (see Appendix 11). 'Attitude' and 'participation' are both first order reflective constructs. The confirmatory factor analysis approach was undertaken in order to confirm the validity of the items previously studied by Constantinides, Brünink, and Lorenzo-Romero (2015). The results are presented in the Appendix 11.

'Perceived risk of use', 'brand reputation', and 'brand trust' are first order reflective constructs. The method of confirmatory factor analysis was applied to prove the validity of the items provided by Corbitt et al., (2003), Cretu and Brodie (2007), and Chatterjee and Chaudhuri (2005) respectively.

The 'Previous experience in co-creation' variable was collected through dummy variables adapted from Thompson, Higgins, and Howell (1994).

### 4.3.4 Common method bias (CMB)

According to Kock (2015) the phenomenon of common method bias, in the context of partial least squares structural equation model (PLS-SEM), is produced by the measurement technique applied in an SEM study, and not by the system of causes and effects in the model under examination. For instance, the implied communal desirability to answer the questions of the survey in a particular manner may cause the indicators to share some quantity of common variation. In order to ensure that the current study is not contaminated with common method bias, variance inflation factors (VIFs) were generated for all latent variables in the model using the SmartPLS software. Kock (2015) states "the occurrence of a VIF greater than 3.3 is proposed as an indication of pathological collinearity, and also as an indication that a model may be contaminated by common method bias.

**Figure 10. Research Model**

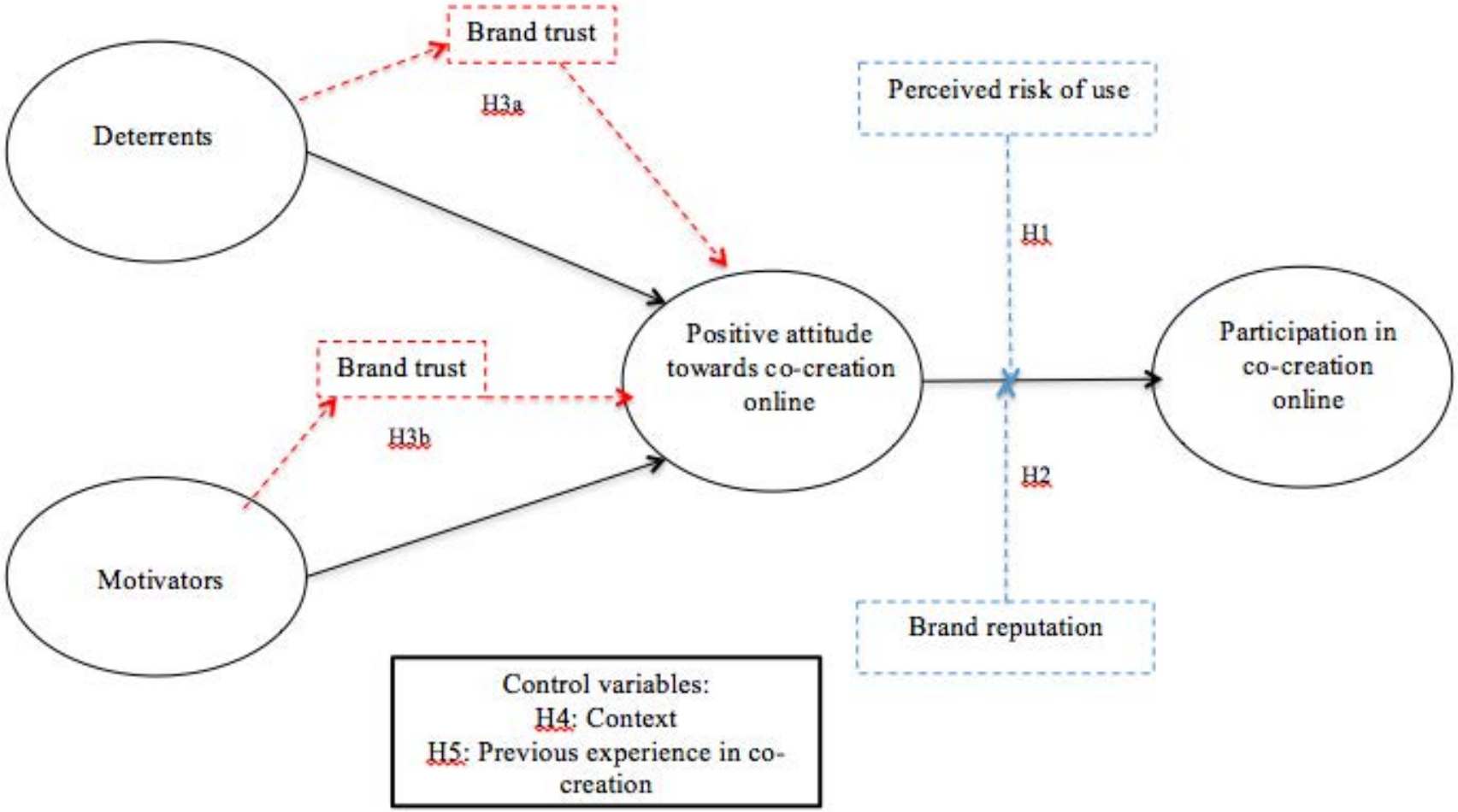


**Table 16. Constructs' items**

| Variable | Adapted from |
|---|---|
| **Technology anxiety** | Meuter et al., (2003), Dyck & Smither (1994), Teo (2001) |
| **Lack of trust** | Jaworski & Kohli, (2006), Bharti et al., (2014) |
| **Skepticism** | Mangleburg & Bristol, (1998), Pollay & Mittal, (1993) |
| **Personal availability** | Holland & Baker, (2001) |
| **Task layout** | Ansari & Mela (2003), Wright & Brehm, (1989) |
| **No shared values** | Rokeach, (1973) |
| **No offline meeting** | McCully et al., (2011) |
| **Inertia** | Mullins et al., (2014) , Pauwels, (2004) |
| **Learning**<br>**Social cognitive**<br>**Personal integrative**<br>**Hedonic Integrative**<br>**Finacial** | Constantinides, Brünink, & Lorenzo-Romero (2015)<br>Hennig-Thurau et al., (2004); Nambisan & Baron, (2009) |
| **Attitude**<br>**Participation** | Constantinides, Brünink, & Lorenzo-Romero, (2015); Westaby, (2005) |
| **Perceived risk of use** | Corbitt et al., (2003) |
| **Brand reputation** | Cretu & Brodie, (2007) |
| **Brand trust** | Chatterjee & Chaudhuri, (2005) |
| **Previous experience in co-creation online** | Thompson, Higgins, & Howell, (1994) |

Therefore, if all VIFs resulting from a full collinearity test are equal to or lower than 3.3, the model can be considered free of common method bias" (p.7). As we can see from the table below, all VIF values are less than 3.3, therefore this study is not contaminated with common method bias (Kock, 2015).

**Table 17. Variance inflation factors**

| | **Attitude** | **Deterrents** | **Motivators** | **Participation** | **Perceived risk of use** | **Brand reputation** | **Brand trust** |
|---|---|---|---|---|---|---|---|
| **Attitude** | -- | 1.852 | 1.703 | 1.932 | 1.907 | 1.814 | 1.909 |
| **Deterrents** | 1.124 | -- | 1.130 | 1.120 | 1.015 | 1.129 | 1.126 |
| **Motivators** | 2.138 | 2.331 | -- | 1.868 | 2.420 | 2.353 | 2.414 |
| **Participation** | 1.789 | 1.799 | 1.375 | -- | 1.791 | 1.788 | 1.748 |
| **Perceived risk of use** | 1.138 | 1.062 | 1.173 | 1.157 | -- | 1.182 | 1.175 |
| **Brand reputation** | 1.909 | 1.192 | 1.980 | 2.047 | 2.032 | -- | 1.661 |
| **Brand trust** | 1.842 | 1.586 | 1.862 | 1.831 | 1.867 | 1.524 | -- |

# 4.4 RESULTS

### 4.5.1 PLS-SEM Analysis

**Outer Model Analysis**

The model was tested through PLS-SEM using full dataset. The validity of the first order constructs of the measurement model was assessed using convergent validity and discriminant validity tests. The convergent validity is defined as a degree to which items that belong to the same construct, complete each other (John & Benet-Martinez, 2000). The convergent validity was evaluated by measuring factor loadings (should be significant and higher than 0.5 (Straub, 1989), composite reliabilities (CR) which should be higher than 0.6 (Bagozzi & Yi, 1988). In our model, all the factor loadings and composite reliabilities fall in the acceptable ranges and are significant at the 0.01 level.

Discriminant validity "is supported when the average shared variance of a construct and its indicators exceed the shared variance with every other construct of the model" (Assaker, 2014, p. 220). In the current study the average variance extracted (AVE) for all constructs exceeds 0.5 (Fornell & Larcker, 1981).

The internal reliability of scales was assessed using Cronbach's alpha; this indicator was superior than 0.7 for all constructs (Hair et al., 1998), (see Appendix 11).

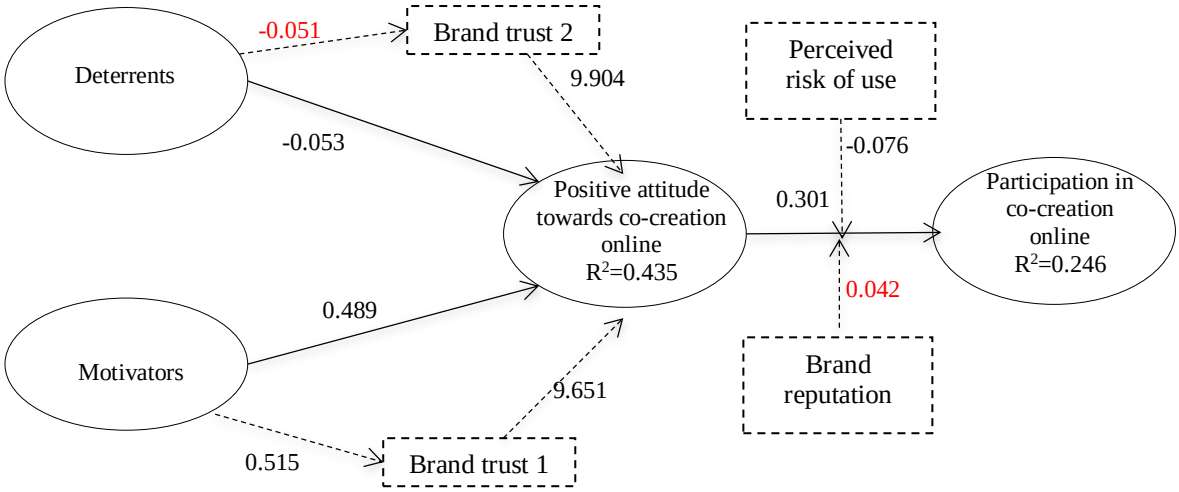
**Inner Model Analysis and Path Estimates**

We estimated path coefficients using bootstrapping. The path coefficients for entire sample (N=613) shows that (fig. 11): the attitude towards co-creation has a significant positive effect on the participation in co-creation online ($\beta$=0.301, *p*-value <0.01), the deterrents have a significant negative effect on the attitude ($\beta$= -0.053, *p*-value <0.1), the motivators has a significant positive affect on the attitude ($\beta$=0.489, *p*-value <0.01), all of the mentioned support the results of the second chapter.

The moderator effects were assessed using product indicator approach, because the all the constructs involved in the moderation analysis are reflective. The perceived risk of use has a significant negative effect on the relationship between positive attitude and participation in co-creation online ($\beta$=-0.076, *p*-value<0.05), supporting the first hypothesis. The brand reputation has no significant moderating effect on the relationship between attitude and participation in co-creation online $\beta$=0.042, *p*-value =0.204), therefore the second hypothesis is not supported.

In the case of the mediating effect of brand trust, the results show that there is a partial mediation effect between motivators and attitude (*p*-value<0.1), but no effect between deterrents and attitude (*p*-value =0.357), therefore the third hypothesis is partially rejected.

**Figure 11. Results for proposed hypothesized model (N=613).**




### 4.5.2 Multigroup analyses

#### 4.5.2.1 Context

The model studied for the entire dataset was assessed through multigroup analysis in order to determine if the context may cause significant differences between two subgroups – the UK and Spanish samples. The outer model analysis was performed for both samples separately. The results show (see Appendix 11) that factor loadings are higher than 0.5, CR>0.6, AVE>0.5, and Cronbach's alpha is higher than 0.7 for all constructs for both samples.

In order to prove that misinterpretation is not a problem in the studied model the invariability across two samples was tested before running the bootstrapping. The partial invariability was detected: there are 8 items with p-value <0.05, (see Appendix 14). According to the argument by Byrne, Shavelson, and Muthén (1989), and also supported by Steenkamp and Baumgartner (1998), the full equivalence is not strictly necessary to make a comparison across groups, meaning that if at least two items per latent variable are invariable, multigroup assessment can be performed validly.

Using bootstrapping the path coefficients for Spanish (N=307) and UK sample (N=306) were calculated (see Table 18). The last column presents the results of t-test, which

shows if there is a significant difference between the path coefficients between the groups. The non-parametric approach to PLS-MGA was applied for moderator effects.

**Table 18. Multigroup analysis across Spain and UK**

| | N=613 | | Spain (N=307) | | UK (N=306) | | t-test |
|---|---|---|---|---|---|---|---|
| | Coeff. | *p* | Coeff. | *p* | Coeff. | *p* | |
| **Attitude→Participation** | 0.301 | <0.01 | 0.179 | <0.01 | 0.379 | <0.01 | 0.972 |
| **Motivators→Attitude** | 0.489 | <0.01 | 0.430 | <0.01 | 0.536 | <0.01 | 0.857 |
| **Deterrents→Attitude** | -0.053 | <0.1 | -0.062 | <0.1 | -0.012 | 0.826 | 0.774 |
| **Perceived risk of use** | -0.076 | <0.05 | -0.091 | <0.1 | -0.061 | 0.310 | 0.639 |
| **Brand reputation** | 0.042 | 0.212 | 0.082 | <0.1 | 0.022 | 0.638 | 0.181 |
| **Motivators→Brand trust 1** | 0.515 | <0.01 | 0.473 | <0.01 | 0.571 | <0.01 | 0.893 |
| **Brand trust 1→Attitude** | -9.651 | <0.1 | -11.821 | 0.262 | -10.588 | <0.1 | 0.527 |
| **Deterrents →Brand trust 2** | -0.051 | 0.254 | -0.074 | 0.174 | -0.021 | 0.775 | 0.716 |
| **Brand trust 2→Attitude** | 9.904 | <0.1 | 12.075 | 0.262 | 10.814 | <0.1 | 0.473 |

Attitude has a significant positive effect on the participation and motivators have a significant positive effect on the attitude, however there is no significant difference in the path-coefficients across samples, therefore the hypothesis H4a and H4b are rejected. Deterrents have significant negative effect on the attitude for Spanish sample, conversely this effect is not significant for the UK sample; the hypothesis H4c can't be rejected. The moderating effect of perceived risk of use is significant Spain and not significant for the UK, therefore hypothesis H4d can't be rejected. Although there was no moderating effect of brand reputation detected for the entire sample, it appears that for Spain it is and for the UK sample it is not; hypothesis H4e can't be rejected. For the UK sample, similarly to the result obtained for the entire sample, there is a significant mediating effect of brand trust on the relationship between motivators and attitude, however it was not detected for Spain; hypothesis H4f can't be rejected. Finally, there was no mediating effect of brand trust observed on the relationship between deterrents and attitude either for Spain or the UK; hypothesis H4g is rejected.

#### 4.5.2.2 Multigroup analysis across previous experience in co-creation online

The second multigroup analysis of the moderating effect of previous experience in co-creation online has included (1) the outer model analysis (see Appendix 4), where all the constructs for both samples has been proved valid (the factor loadings>0.5, CR>0.6, AVE>0.5, and Cronbach's alpha >0.7); (2) the invariability analysis across two samples (see Appendix 6), where only one item is with p-value <0.05; (3) running the bootstrapping multigroup analysis, the results are presented in the table 19.

**Table 19. Multigroup analysis across previous experience in co-creation online**

| | Experience n=294 | | No experience n=319 | | T-test |
|---|---|---|---|---|---|
| | Coeff. | *p* | Coeff. | *p* | |
| **Attitude→Participation** | 0.350 | <0.01 | 0.181 | <0.05 | <0.05 |
| **Motivators→Attitude** | 0.560 | <0.01 | 0.396 | <0.01 | <0.05 |
| **Deterrents→Attitude** | -0.058 | 0.132 | -0.054 | 0.326 | 0.527 |
| **Perceived risk of use** | -0.144 | <0.05 | -0.031 | 0.655 | 0.890 |
| **Brand reputation** | 0.013 | 0.781 | 0.040 | 0.523 | 0.633 |
| **Motivators→Brand trust 1** | 0.562 | <0.01 | 0.433 | <0.01 | <0.1 |
| **Brand trust 1→Attitude** | -6.879 | 0.118 | -19.402 | <0.05 | <0.1 |
| **Deterrents →Brand trust 2** | -0.081 | 0.244 | -0.050 | 0.408 | 0.634 |
| **Brand trust 2→Attitude** | 7.088 | <0.1 | 19.683 | <0.05 | 0.920 |

Attitude has a significant positive effect on the participation and motivators have a significant positive effect on the attitude, and there is a significant difference in the path-coefficients across samples, therefore the hypothesis H5a and H5b can't be rejected. The motivators has more effect on the positive attitude, which in turn has more effect on the participation for the people who have had experience in co-creation online before.

Deterrents have a significant negative effect on the attitude neither for experienced sample, nor for the inexperienced one; the hypothesis H5c is rejected. The moderating effect of perceived risk of use is significant for sample with previous experience in co-creation and not significant for the inexperienced, therefore hypothesis H5d can't be rejected. It also appears that neither for experienced group nor for the inexperienced one the moderating effect of brand reputation is not significant; hypothesis H5e is rejected. For the inexperienced sample, there is a significant mediating effect of brand trust on the relationship between motivators and attitude, however it was not detected for experienced group; hypothesis H5f can't be rejected. Finally, there was no mediating effect of brand trust observed on the relationship between deterrents and attitude either for experienced or the inexperienced; hypothesis H5g is rejected.

#### 4.5.2.3 Multigroup analysis across previous experience in co-creation online and context

Due to the fact that the results of two previously performed multigroup analyses where slightly restricted in the useful marketing information that can be obtained, the multigroup analysis across four groups combining two variables of context and experience was undertaken. The results of outer model analyses are presented in Appendix 5, where the factor loadings are higher than 0.5, CR>0.6, AVE>0.5, and Cronbach's alpha >0.7; the invariability

check is presented in Appendix 14. The path coefficients for each of the group are presented in the table 20, and the significance comparison of those in the table 21.

**Table 20. Multigroup analysis across previous experience and context**

| | ESexp(N=120) | | ESnoexp(N=187) | | UKexp (N=174) | | UKnoexp (N=132) | |
|---|---|---|---|---|---|---|---|---|
| | Coeff. | *p* | Coeff. | *p* | Coeff. | *p* | Coeff. | *p* |
| **Attitude→Participation** | 0.159 | <0.1 | 0.118 | <0.01 | 0.472 | <0.01 | 0.280 | <0.1 |
| **Motivators→Attitude** | 0.419 | <0.01 | 0.389 | 0.156 | 0.666 | <0.01 | 0.374 | <0.01 |
| **Deterrents→Attitude** | -0.018 | 0.786 | -0.084 | <0.1 | -0.047 | 0.299 | -0.055 | 0.973 |
| **Perceived risk of use** | -0.147 | <0.1 | -0.072 | 0.350 | -0.056 | 0.507 | -0.032 | 0.854 |
| **Brand reputation** | 0.045 | 0.498 | 0.106 | 0.172 | 0.066 | 0.952 | 0.008 | 0.495 |
| **Motivators→Brand trust 1** | 0.503 | <0.01 | 0.388 | <0.01 | 0.586 | <0.01 | 0.531 | <0.01 |
| **Brand trust 1→Attitude** | -10.52 | 0.164 | -23.9 | <0.1 | -6.74 | <0.1 | -16.7 | 0.16 |
| **Deterrents →Brand trust 2** | -0.177 | <0.05 | -0.055 | 0.942 | -0.028 | 0.775 | -0.142 | 0.194 |
| **Brand trust 2→Attitude** | 10.729 | 0.157 | 24.162 | <0.1 | 6.911 | <0.1 | 17.063 | 0.151 |

**Table 21. T-test for multigroup analysis across context and previous experience**

| | Attitude→ Participation | Motivators→ Attitude | Deterrents→ Attitude | Moder. Perceived risk of use | Moder. Brand reputation | Med. BT1 | Med BT2 |
|---|---|---|---|---|---|---|---|
| **ESexp-UKexp** | 0.997 | 0.974 | 0.355 | 0.769 | 0.299 | 0.640 | 0.938 |
| **ESnoep-UKnoexp** | 0.797 | 0.474 | 0.747 | 0.742 | 0.079 | 0.535 | 0.138 |
| **ESexp-ESnoexp** | 0.364 | 0.407 | 0.226 | 0.734 | 0.731 | 0.222 | 0.851 |
| **UKexp-UKnoexp** | 0.162 | 0.041 | 0.657 | 0.697 | 0.297 | 0.204 | 0.062 |

There is a full mediation effect of brand trust on motivators towards positive attitude for the group from Spain without experience in co-creation online; and there is a partial mediation effect of brand trust on motivators towards positive attitude for the group from UK with experience in co-creation online. There is a significant difference in the path-coefficients of effect of motivators towards attitude between UK-experienced and UK-inexperienced group: for the experienced subgroup motivators have a stronger effect on the positive attitude. There is a significant negative effect of the deterrents on the positive attitude was detected only for Spanish-inexperienced subgroup. The moderating effect of perceived risk of use was observed only for Spanish-experienced subgroup. There is no moderating effect of brand reputation observed for any of the subgroups.

# 4.6 DISCUSSION AND CONCLUSIONS

In the current study the structural equation model analysis were run four times: for the (1) entire dataset, using multigroup for (2) context, (3) previous experience in co-creation online, and also combining the two latter variables (4). The analyses have revealed some interesting and sometimes unexpected results.

The first SEM run determined that brand reputation has no moderation effect on the relationship between attitude and participation in co-creation online. This discovery does not go in line with Barnes and Vidgen (2000), who found that positive reputation of Amazon affected positively the buying behavior of the online customers. Apparently, brand reputation in the case of co-creation online doesn't create the expected moderating effect online shopping. This finding should give a clear hint for the marketers that brand reputation is indeed not significant for the users as might logically seem when deciding to participate in co-creation online. Perceived risk of use was found to have a strong negative moderation effect, in other words the riskier the user perceives the project the less participation can be expected. Brand trust has shown a partial mediation effect on the relationship between motivators and attitude. This unexpected result may signify that one marketing strategy can't be applied to all the users with the same level of anticipated realization.

The first multigroup analysis of different contexts has revealed some discrepancies between two datasets: (1) confirming the findings of the second chapter deterrents do not have a significant effect on the attitude for the UK users; (2) the perceived risk of use has no significant moderating effect on the relationship between attitude and participation for the UK user; (3) brand reputation has a significant moderating effect on the relationship between attitude and participation for the Spanish user; (4) there is a partial mediation effect of the brand trust between motivators and attitude revealed only for the UK. These findings suggest that the UK and Spain as countries representing two different Internet cultures give distinct level of importance to the marketing concepts.

The second multigroup analysis was run separating users with previous experience in co-creation versus those who had none. Users who had experience in co-creation online show stronger effect of the motivators on attitude and attitude on participation than users who had no practice in such projects. In other words people who have already participated have more favorable attitude and will participate more probably than those who haven't. Furthermore, experience doesn't have a statistically significant moderating effect on the effect of deterrents. Perceived risk of use has moderating effect only for the group of users with previous

experience; this can signify that having previous knowledge of the co-creation practice online can make a user more risk sensitive, which can decrease participation behavior. Brand reputation doesn't have a moderating effect for either of the studied groups. There is a partial mediation effect of the brand trust between motivators and attitude for non-experienced users.

The third multigroup combining context and experience variables were run in order to give more insights for the marketers on how to target different groups of users with mentioned characteristics. Deterrents have a significant negative effect on the attitude only for Spanish users with no experience in co-creation online; marketers should think that this group of users is more exposed to the internal and external inhibiting factors; therefore, it would be more complicated to use them in the co-creation projects online. Perceived risk of use has a significant moderating effect only for Spanish users with previous experience; this brings more light to the finding discovered in the second multigroup, adding that users coming from the less Internet developed countries, are those who are expected to have more risk sensitive attitude towards participation behavior. Brand reputation is not significant for any group. Brand trust has a full mediation between motivators and attitude for the users Spain with no previous experience. Motivators have a significantly higher effect on the attitude for users with experience from the UK than those without it.

All the above discussion is summarized in the table 22 in order to present the findings in a more visual and comprehensive way. The symbol "---" signifies that the effect of the construct was found to be not statistically significant for a particular data group.

**Table 22. Findings of the SEMs**

| Multigroup analysis | Group | Motivators→ Attitude | Deterrents→ Attitude | Attitude → Participation | Mod. Perceived risk of use | Mod. Brand reputation | Med. Brand trust (motivators) |
|---|---|---|---|---|---|---|---|
| 1 | **Spain** | Significant/ No difference | significant | Significant/ No difference | significant | significant | --- |
| | **UK** | | --- | | --- | --- | partial |
| 2 | **Experience** | higher | --- | higher | significant | --- | --- |
| | **No experience** | significant | | significant | --- | | partial |
| 3 | **SP_exp** | significant | --- | Significant/ no difference | significant | --- | --- |
| | **SP_noexp** | --- | Significant | | --- | | full |
| | **UK_exp** | Higher than no experience | --- | | | | partial |
| | **UK_noexp** | significant | --- | | | | --- |

# 4.7 IMPLICATIONS AND CONTRIBUTIONS

A number of managerial and theoretical implications can be derived from this research. First of all, this paper is of a special value for academia as it develops the marketing model studied in the second chapter for co-creation online by adding the moderating and

mediating effects. This not only proves the nature of reflective and formative constructs developed in the previous works but also offers the new lines for the future research.

Although the theoretical implications are essential in this study, the main focus of the current research is given to the managerial implications. The marketers can derive certain conclusions from the paper and apply them in their professional practice:

1. If knowing only the context of the users: the company should target a group that comes from the more Internet developed society. This will help in avoiding the effect of the internal and external deterrents, the moderating effect of perceived risk of use and of brand reputation, meaning that the project can be developed without considering whether a reputation of a particular brand is perceived as positive or negative by the users.

2. If knowing whether the users had previous experience in co-creation online: the highest participation rate in the co-creation project online can be expected if targeting experienced users as they show stronger effect of the motivators having on attitude which in turn also affects more strongly on the participation behavior; however, in this case marketers should be attentive to the moderating effect of perceived risk of use, as such users are expected to be more risk sensitive than those who don't have previous experience.

3. The marketer knows both the context and if the user had previous experience in co-creation online:

- The *highest participation level* in a co-creation project online is expected if targeting the users that come from the Internet developed society and with previous experience in co-creation, due to the higher effect that motivators have on attitude, the deterrents do not have a significant effect on attitude, there is neither moderation effect of perceived risk of use nor of brand reputation that may affect participation behavior. The only variable to pay attention to is brand trust which has a partial mediation effect between motivators and attitude.
- The lowest participation level in a co-creation project online is expected if targeting users from the less developed Internet society and with no previous experience in co-creation online; these users are expected to be exposed not only to the negative effect of the deterrents have on the attitude, but also to the full mediating effect of brand trust between motivators and attitude.

# 4.8 LIMITATIONS AND FUTURE RESEARCH

There are some limitations in the current research that should be viewed as an opportunity for developing the future research. First of all, similarly to the second chapter the

sample is divided into two distinct contexts - the users from the UK and Spain. Therefore, the results of this study are affected by the generalizability. It would be enlightening to include more countries in order to reexamine and cross-validate the present findings.

Secondly, the control variables were limited to previous experience separately and also combined with context. It would be interesting to combine the results of the second chapter applying the control variables of age, gender, and education level to the developed model.

Thirdly, only some variables were tested to have moderating and mediating effects – among them perceived risk of use, brand reputation, brand trust, and previous experience in co-creation. Future research may think of other effects that have not been covered in the current study.

Fourthly, the current model can be reviewed from the company's point of view. Would it be appropriate to use for the company with developed marketing or entrepreneurial orientation? Do users perceive the difference between such companies and how does that affect their decision to participate in co-creation online?

Lastly, this study doesn't examine the ways to combat the deterrents. The future research may define those methods and include them to the structural model.

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# APPENDIX 9. NORMALITY TEST (PROB>CHI2)

| | N=613 | ES | UK | EX | NoEX | ES_ex | UK_ex | ES_noex | UK_noex |
|---|---|---|---|---|---|---|---|---|---|
| DETERRENTS | | | | | | | | | |
| Technology anxiety | | | | | | | | | |
| **TANX1** | 0.0121 | 0.0209 | 0.4148 | 0.0045 | 0.8241 | 0.0393 | 0.1048 | 0.1809 | 0.1048 |
| **TANX2** | 0.0001 | 0.0040 | 0.0065 | 0.0000 | 0.3695 | 0.0027 | 0.0003 | 0.2122 | 0.0043 |
| **TANX3** | 0.0000 | 0.0081 | 0.0071 | 0.0003 | 0.0565 | 0.0736 | 0.0196 | 0.2322 | 0.0196 |
| **TANX4** | 0.0439 | 0.5465 | 0.0791 | 0.0141 | 0.2747 | 0.1364 | 0.0514 | 0.8748 | 0.0514 |
| **TANX5** | 0.0000 | 0.0008 | 0.0046 | 0.0000 | 0.0345 | 0.0054 | 0.0001 | 0.0392 | 0.0001 |
| **TANX6** | 0.0000 | 0.0002 | 0.0086 | 0.0000 | 0.0314 | 0.0306 | 0.0074 | 0.0325 | 0.0074 |
| Lack of trust | | | | | | | | | |
| **LT1** | 0.6120 | 0.6517 | 0.1363 | 0.1217 | 0.0434 | 0.3764 | 0.2548 | 0.1613 | 0.2548 |
| **LT2** | 0.9541 | 0.6783 | 0.6103 | 0.0519 | 0.0446 | 0.5260 | 0.1201 | 0.0788 | 0.1201 |
| **LT3** | 0.2261 | 0.0627 | 0.1654 | 0.4354 | 0.0012 | 0.2621 | 0.2806 | 0.0107 | 0.2806 |
| **LT4** | 0.8660 | 0.0452 | 0.2936 | 0.1006 | 0.1097 | 0.0263 | 0.2025 | 0.1214 | 0.2025 |
| Skepticism | | | | | | | | | |
| **SKEP1** | 0.5947 | 0.2582 | 0.9595 | 0.3916 | 0.0427 | 0.9358 | 0.2545 | 0.0997 | 0.2545 |
| **SKEP2** | 0.0118 | 0.0025 | 0.3121 | 0.7559 | 0.0007 | 0.3048 | 0.4161 | 0.0018 | 0.4161 |
| **SKEP3** | 0.5920 | 0.6919 | 0.3733 | 0.1870 | 0.1777 | 0.1397 | 0.8238 | 0.6753 | 0.8238 |
| **SKEP4** | 0.0289 | 0.1442 | 0.0685 | 0.8734 | 0.0005 | 0.8866 | 0.9469 | 0.0110 | 0.9469 |
| **SKEP5** | 0.5945 | 0.8792 | 0.4791 | 0.3306 | 0.0131 | 0.5001 | 0.4442 | 0.1646 | 0.4442 |
| **SKEP6** | 0.5863 | 0.5304 | 0.5917 | 0.3332 | 0.1222 | 0.6159 | 0.4252 | 0.0993 | 0.4252 |
| **SKEP7** | 0.2397 | 0.9983 | 0.0588 | 0.0615 | 0.0739 | 0.4362 | 0.1276 | 0.5997 | 0.1276 |
| Daily life | | | | | | | | | |
| **DL1** | 0.0605 | 0.1298 | 0.4608 | 0.0079 | 0.8059 | 0.1155 | 0.0897 | 0.6436 | 0.0897 |
| **DL2** | 0.0026 | 0.0358 | 0.1019 | 0.0005 | 0.5714 | 0.0066 | 0.0565 | 0.7365 | 0.0565 |
| **DL3** | 0.2506 | 0.5066 | 0.3644 | 0.0197 | 0.8581 | 0.2925 | 0.0572 | 0.6729 | 0.0572 |
| Task layout | | | | | | | | | |
| **TLAY1** | 0.1719 | 0.1339 | 0.2352 | 0.4265 | 0.0032 | 0.8851 | 0.4563 | 0.0093 | 0.4563 |
| **TLAY2** | 0.0256 | 0.3270 | 0.0702 | 0.1976 | 0.0000 | 0.5720 | 0.3900 | 0.0531 | 0.3900 |
| **TLAY3** | 0.1553 | 0.0877 | 0.3738 | 0.6260 | 0.0276 | 0.8236 | 0.4653 | 0.0371 | 0.4653 |
| **TLAY4** | 0.0012 | 0.0006 | 0.2208 | 0.6624 | 0.0001 | 0.1000 | 0.8001 | 0.0000 | 0.8001 |
| No shared values | | | | | | | | | |
| **SHVAL1** | 0.0038 | 0.0053 | 0.0711 | 0.9151 | 0.0000 | 0.4103 | 0.9497 | 0.0010 | 0.9497 |
| **SHVAL2** | 0.0009 | 0.0015 | 0.1405 | 0.8933 | 0.0000 | 0.3796 | 0.7367 | 0.0001 | 0.7367 |
| **SHVAL3** | 0.1128 | 0.4388 | 0.0865 | 0.8091 | 0.0271 | 0.9427 | 0.6346 | 0.0940 | 0.6346 |
| No offline meeting | | | | | | | | | |
| **NOFFM1** | 0.0532 | 0.2820 | 0.1411 | 0.1116 | 0.0191 | 0.2172 | 0.3086 | 0.1173 | 0.3086 |
| **NOFFM2** | 0.0453 | 0.5162 | 0.0988 | 0.0684 | 0.0224 | 0.3277 | 0.2217 | 0.2424 | 0.2217 |
| **NOFFM3** | 0.0347 | 0.1178 | 0.3118 | 0.0002 | 0.9106 | 0.0311 | 0.0108 | 0.9819 | 0.0188 |
| **NOFFM4** | 0.4753 | 0.5296 | 0.7071 | 0.3852 | 0.0138 | 0.6413 | 0.6416 | 0.1020 | 0.6416 |
| Inertia | | | | | | | | | |
| **INER1** | 0.5490 | 0.4096 | 0.5335 | 0.0185 | 0.0038 | 0.0495 | 0.2235 | 0.0261 | 0.2235 |
| **INER2** | 0.9390 | 0.5931 | 0.4163 | 0.0120 | 0.0246 | 0.2557 | 0.0404 | 0.0239 | 0.0404 |
| **INER3** | 0.0100 | 0.1684 | 0.0313 | 0.0055 | 0.9281 | 0.0854 | 0.0342 | 0.7914 | 0.0342 |
| **INER4** | 0.0001 | 0.0044 | 0.0134 | 0.0002 | 0.0261 | 0.0023 | 0.0008 | 0.0271 | 0.0008 |
| **INER5** | 0.1321 | 0.0499 | 0.6623 | 0.4164 | 0.0127 | 0.0345 | 0.0267 | 0.0438 | 0.0674 |
| MOTIVATORS | | | | | | | | | |
| Learning | | | | | | | | | |
| **LEARN1** | 0.0000 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0001 | 0.0070 | 0.0022 | 0.0070 |
| **LEARN2** | 0.0000 | 0.0003 | 0.0026 | 0.0000 | 0.0006 | 0.0006 | 0.0083 | 0.0046 | 0.0083 |
| **LEARN3** | 0.0000 | 0.0045 | 0.0013 | 0.0003 | 0.0008 | 0.0359 | 0.0043 | 0.0188 | 0.0043 |
| Social Cognitive | | | | | | | | | |
| **SOCOGN1** | 0.1785 | 0.0447 | 0.7250 | 0.3414 | 0.0409 | 0.7129 | 0.4312 | 0.0028 | 0.4312 |
| **SOCOGN2** | 0.1244 | 0.0758 | 0.4947 | 0.0454 | 0.0088 | 0.1924 | 0.1752 | 0.0044 | 0.1752 |
| **SOCOGN3** | 0.0247 | 0.0184 | 0.4445 | 0.0680 | 0.0038 | 0.8814 | 0.1023 | 0.0006 | 0.1023 |
| Personal Integrative | | | | | | | | | |
| **PERSINT1** | 0.1466 | 0.1222 | 0.3762 | 0.0167 | 0.1026 | 0.1153 | 0.0982 | 0.0151 | 0.0982 |
| **PERSINT2** | 0.0004 | 0.0578 | 0.0105 | 0.0001 | 0.0127 | 0.0315 | 0.0093 | 0.1115 | 0.0093 |
| **PERSINT3** | 0.0009 | 0.0118 | 0.0502 | 0.0001 | 0.0214 | 0.0002 | 0.0456 | 0.1878 | 0.0456 |
| **PERSINT4** | 0.0034 | 0.0098 | 0.1764 | 0.0059 | 0.0216 | 0.0011 | 0.2629 | 0.1057 | 0.2629 |
| Hedonic Integrative | | | | | | | | | |
| **HEDINT1** | 0.0003 | 0.0208 | 0.0189 | 0.0033 | 0.0048 | 0.0413 | 0.0626 | 0.0646 | 0.0626 |
| **HEDINT2** | 0.0000 | 0.0082 | 0.0003 | 0.0019 | 0.0001 | 0.6285 | 0.0070 | 0.0060 | 0.0070 |
| **HEDINT3** | 0.0000 | 0.0025 | 0.0000 | 0.0000 | 0.0000 | 0.0023 | 0.0002 | 0.0252 | 0.0002 |
| **HEDINT4** | 0.0000 | 0.0186 | 0.0012 | 0.0000 | 0.0261 | 0.1134 | 0.0004 | 0.0875 | 0.0004 |
| Financial Integrative | | | | | | | | | |
| **FININT1** | 0.1283 | 0.0309 | 0.0205 | 0.2513 | 0.0116 | 0.5533 | 0.0212 | 0.0013 | 0.0212 |
| **FININT2** | 0.0073 | 0.0273 | 0.0276 | 0.0265 | 0.0022 | 0.4647 | 0.0367 | 0.0094 | 0.0367 |
| **FININT3** | 0.0084 | 0.0392 | 0.0218 | 0.1964 | 0.0010 | 0.6986 | 0.1545 | 0.0046 | 0.1545 |
| **FININT4** | 0.0153 | 0.1611 | 0.0122 | 0.0698 | 0.0106 | 0.9029 | 0.0247 | 0.0515 | 0.0247 |
| POSITIVE ATTITUDE | | | | | | | | | |
| **AtC1** | 0.0000 | 0.0011 | 0.0004 | 0.0000 | 0.0004 | 0.0006 | 0.0023 | 0.0167 | 0.0023 |
| **AtC2** | 0.0001 | 0.0222 | 0.0030 | 0.0000 | 0.1173 | 0.1226 | 0.0006 | 0.0490 | 0.0006 |
| **AtC3** | 0.0210 | 0.0471 | 0.3341 | 0.0024 | 0.3010 | 0.0974 | 0.0312 | 0.0922 | 0.0312 |
| PARTICIPATION | | | | | | | | | |
| **CP1** | 0.0252 | 0.2754 | 0.0524 | 0.2610 | 0.0439 | 0.6739 | 0.1086 | 0.1940 | 0.1086 |
| **CP2** | 0.0002 | 0.0000 | 0.0084 | 0.0191 | 0.1743 | 0.1047 | 0.1810 | 0.0349 | 0.1810 |
| **CP3** | 0.0008 | 0.0101 | 0.0499 | 0.0056 | 0.0080 | 0.0242 | 0.0085 | 0.0006 | 0.0085 |
| PERCEIVED RISK OF USE | | | | | | | | | |
| **PRU1** | 0.1252 | 0.4994 | 0.2098 | 0.1522 | 0.0629 | 0.3061 | 0.4032 | 0.0911 | 0.4032 |
| **PRU2** | 0.1240 | 0.1976 | 0.1976 | 0.0058 | 0.2559 | 0.0076 | 0.0351 | 0.0988 | 0.0351 |
| **PRU3** | 0.5009 | 0.6482 | 0.6482 | 0.1177 | 0.3666 | 0.0958 | 0.4291 | 0.7847 | 0.4291 |
| BRAND REPUTATION | | | | | | | | | |
| **BR1** | 0.0000 | 0.0001 | 0.0338 | 0.0000 | 0.0294 | 0.0080 | 0.0150 | 0.0033 | 0.0150 |
| **BR2** | 0.0001 | 0.0009 | 0.0450 | 0.0009 | 0.0201 | 0.0279 | 0.0378 | 0.0172 | 0.0378 |
| **BR3** | 0.0000 | 0.0002 | 0.0053 | 0.0000 | 0.0305 | 0.0059 | 0.0033 | 0.0077 | 0.0033 |
| **BR4** | 0.0000 | 0.0000 | 0.0095 | 0.0000 | 0.0418 | 0.0008 | 0.0019 | 0.0140 | 0.0019 |
| **BR5** | 0.0000 | 0.0500 | 0.0123 | 0.0003 | 0.0011 | 0.0158 | 0.0204 | 0.0037 | 0.0204 |
| **BR6** | 0.0035 | 0.0004 | 0.0390 | 0.0038 | 0.1284 | 0.0796 | 0.0083 | 0.0971 | 0.0083 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **BR7** | 0.0000 | 0.0000 | 0.0111 | 0.0000 | 0.0785 | 0.0884 | 0.0056 | 0.0297 | 0.0056 |
| | | | | BRAND TRUST | | | | | |
| **BT1** | 0.0000 | 0.0000 | 0.0053 | 0.0003 | 0.0000 | 0.0586 | 0.0044 | 0.0009 | 0.0044 |
| **BT2** | 0.0005 | 0.0001 | 0.4252 | 0.0323 | 0.0052 | 0.0014 | 0.1619 | 0.0052 | 0.1619 |
| **BT3** | 0.0000 | 0.0000 | 0.0028 | 0.0000 | 0.0002 | 0.0057 | 0.0006 | 0.0020 | 0.0006 |
| **BT4** | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0017 | 0.0003 | 0.0014 | 0.0003 |

# APPENDIX 10. ASSESSMENT OF MULTICOLLINEARITY

## 1. Entire sample

| | **Attitude** | **Deterrents** | **Motivators** | **Participation** | **Perceived risk of use** | **Brand reputation** | **Brand trust** |
|---|---|---|---|---|---|---|---|
| **Attitude** | -- | 1.852 | 1.703 | 1.932 | 1.907 | 1.814 | 1.909 |
| **Deterrents** | 1.124 | -- | 1.130 | 1.120 | 1.015 | 1.129 | 1.126 |
| **Motivators** | 2.138 | 2.331 | -- | 1.868 | 2.420 | 2.353 | 2.414 |
| **Participation** | 1.789 | 1.799 | 1.375 | -- | 1.791 | 1.788 | 1.748 |
| **Perceived risk of use** | 1.138 | 1.062 | 1.173 | 1.157 | -- | 1.182 | 1.175 |
| **Brand reputation** | 1.909 | 1.192 | 1.980 | 2.047 | 2.032 | -- | 1.661 |
| **Brand trust** | 1.842 | 1.586 | 1.862 | 1.831 | 1.867 | 1.524 | -- |

## 2. Context

| | **Attitude** | | **Deterrents** | | **Motivators** | | **Participation** | | **Perceived risk of use** | | **Brand reputation** | | **Brand trust** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ES | UK | ES | UK | ES | UK | ES | UK | ES | UK | ES | UK | ES | UK |
| **Attitude** | -- | -- | 1.61 | 2.24 | 1.52 | 1.99 | 1.67 | 2.23 | 1.61 | 1.92 | 1.62 | 2.07 | 1.64 | 2.31 |
| **Deterrents** | 1.05 | 1.18 | -- | -- | 1.03 | 1.21 | 1.05 | 1.20 | 1.02 | 1.02 | 1.05 | 1.03 | 1.04 | 1.08 |
| **Motivators** | 1.73 | 2.78 | 1.83 | 2.89 | -- | -- | 1.72 | 2.16 | 1.86 | 2.89 | 1.86 | 2.67 | 1.89 | 2.76 |
| **Participation** | 1.53 | 2.59 | 1.53 | 2.58 | 1.39 | 1.58 | -- | -- | 1.50 | 2.60 | 1.52 | 2.58 | 1.49 | 2.58 |
| **Perceived risk of use** | 1.23 | 1.17 | 1.27 | 1.04 | 1.26 | 1.19 | 1.72 | 2.16 | -- | -- | 1.30 | 1.05 | 1.29 | 1.13 |
| **Brand reputation** | 1.80 | 2.13 | 1.02 | 1.98 | 1.81 | 2.28 | 1.85 | 2.34 | 1.86 | 1.01 | -- | -- | 1.48 | 1.90 |
| **Brand trust** | 1.82 | 1.98 | 1.46 | 1.59 | 1.83 | 1.98 | 1.80 | 1.98 | 1.85 | 1.24 | 1.47 | 1.63 | -- | |

## 3. Experience

| | **Attitude** | | **Deterrents** | | **Motivators** | | **Participation** | | **Perceived risk of use** | | **Brand reputation** | | **Brand trust** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ex | NoEx | Ex | NoEx | Ex | NoEx | Ex | NoEx | Ex | NoEx | Ex | NoEx | Ex | NoEx |
| **Attitude** | -- | -- | 2.08 | 1.65 | 1.86 | 1.52 | 2.16 | 1.65 | 2.17 | 1.61 | 2.04 | 1.56 | 2.17 | 1.62 |
| **Deterrents** | 1.38 | 1.00 | -- | -- | 1.36 | 1.00 | 1.35 | 1.08 | 1.04 | 1.00 | 1.37 | 1.00 | 1.37 | 1.00 |
| **Motivators** | 2.28 | 1.90 | 2.52 | 2.07 | -- | -- | 2.20 | 1.53 | 2.64 | 2.05 | 2.58 | 2.01 | 2.68 | 2.07 |
| **Participation** | 1.70 | 1.69 | 1.75 | 1.68 | 1.41 | 1.25 | -- | -- | 1.71 | 1.69 | 1.71 | 1.69 | 1.70 | 1.63 |
| **Perceived risk of use** | 1.39 | 1.06 | 1.08 | 1.09 | 1.40 | 1.08 | 1.36 | 1.09 | -- | -- | 1.42 | 1.10 | 1.43 | 1.08 |
| **Brand reputation** | 2.14 | 1.71 | 1.05 | 1.76 | 2.21 | 1.78 | 2.29 | 1.84 | 2.18 | 1.84 | -- | -- | 1.82 | 1.50 |
| **Brand trust** | 1.96 | 1.70 | 1.59 | 1.67 | 1.93 | 1.73 | 1.97 | 1.67 | 1.99 | 1.73 | 1.57 | 1.41 | -- | -- |

## 4. Context and experience

| | **Attitude** | | | | **Deterrents** | | | | **Motivators** | | | | **Participation** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno |
| **Attitude** | -- | -- | -- | -- | 1.64 | 2.54 | 1.48 | 1.99 | 1.50 | 2.17 | 1.44 | 1.88 | 1.60 | 2.59 | 1.53 | 2.01 |
| **Deterrents** | 1.19 | 1.32 | 1.02 | 1.04 | -- | -- | -- | -- | 1.16 | 1.21 | 1.02 | 1.06 | 1.94 | 1.30 | 1.03 | 1.05 |
| **Motivators** | 1.68 | 2.97 | 1.73 | 2.85 | 1.71 | 2.78 | 1.74 | 2.67 | -- | -- | -- | -- | 1.70 | 2.72 | 1.61 | 1.68 |
| **Participation** | 1.51 | 2.36 | 1.42 | 2.71 | 1.50 | 2.33 | 1.42 | 2.71 | 1.43 | 1.76 | 1.24 | 1.4 | -- | -- | -- | -- |
| **Perceived risk of use** | 1.36 | 1.27 | 1.26 | 1.03 | 1.25 | 1.04 | 1.22 | 1.03 | 1.39 | 1.21 | 1.23 | 1.04 | 1.70 | 1.31 | 1.34 | 1.05 |
| **Brand reputation** | 1.98 | 2.25 | 1.63 | 2.04 | 1.82 | 2.09 | 1.56 | 2.21 | 2.06 | 2.30 | 1.63 | 2.31 | 2.12 | 2.34 | 1.68 | 2.37 |
| **Brand trust** | 1.97 | 1.92 | 1.62 | 2.04 | 1.74 | 1.32 | 1.41 | 1.91 | 1.89 | 1.91 | 1.66 | 2.03 | 1.94 | 1.94 | 1.62 | 2.00 |

| | **Perceived risk of use** | | | | **Brand reputation** | | | | **Brand trust** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **ESex** | **UKex** | **ESno** | **UKno** | **ESex** | **UKex** | **ESno** | **UKno** | **ESex** | **UKex** | **ESno** | **UKno** |
| **Attitude** | 1.62 | 2.51 | 1.45 | 1.78 | 1.49 | 2.58 | 1.51 | 1.71 | 1.59 | 2.71 | 1.48 | 2.022 |
| **Deterrents** | 1.08 | 1.07 | 1.03 | 1.04 | 1.20 | 1.22 | 1.02 | 1.06 | 1.16 | 1.14 | 1.02 | 1.04 |
| **Motivators** | 1.80 | 2.89 | 1.69 | 2.96 | 1.74 | 2.89 | 1.81 | 2.67 | 1.73 | 2.76 | 1.86 | 2.78 |
| **Participation** | 1.33 | 2.4 | 1.42 | 2.71 | 1.50 | 2.37 | 1.41 | 2.71 | 1.46 | 2.38 | 1.38 | 2.67 |
| **Perceived risk of use** | -- | -- | -- | -- | 1.37 | 1.27 | 1.37 | 1.04 | 1.37 | 1.18 | 1.33 | 1.05 |
| **Brand reputation** | 1.99 | 1.50 | 1.69 | 1.27 | -- | -- | -- | -- | 1.62 | 1.92 | 1.36 | 1.92 |
| **Brand trust** | 1.85 | 1.20 | 1.66 | 1.64 | 1.52 | 1.59 | 1.34 | 1.65 | -- | -- | -- | -- |

# APPENDIX 11. OUTER MODEL ANALYSIS. FOR THE ENTIRE SAMPLE AND MULTIGROUP BY CONTEXT

| *DETERRENTS TO CO-CREATE ONLINE* | **Factor Loading** | | | **Cronbach's Alpha** | | | **CR** | | | **AVE** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK |
| ***Technology anxiety*** | | | | | | | | | | | | |
| TANX1 I don't think that my ideas would benefit the project I'm participating in | 0.8134 | 0.8209 | 0.7946 | | | | | | | | | |
| TANX2 I feel that I am incompetent to share my thinking for this project | 0.8412 | 0.8231 | 0.8486 | | | | | | | | | |
| TANX3 I am sure that I don't have enough knowledge/experience in order to participate in this on-line project | 0.8287 | 0.8141 | 0.8486 | 0.893 | 0.887 | 0.893 | 0.918 | 0.914 | 0.918 | 0.651 | 0.639 | 0.652 |
| TANX4 I am not confident that my experience satisfy the objectives of the project | 0.8022 | 0.8195 | 0.7864 | | | | | | | | | |
| TANX5 I think that my age is a constraint for participating in the co-creation projects on-line | 0.7880 | 0.7729 | 0.7872 | | | | | | | | | |
| TANX6 There are younger people out there who would be more confident in handling on-line projects | 0.7650 | 0.7450 | 0.7751 | | | | | | | | | |
| **Lack of trust** | | | | | | | | | | | | |
| LT1 The company that I am helping by participating in the on-line project will always keep the promises it makes | 0.8950 | 0.9812 | 0.8998 | | | | | | | | | |
| LT2 The company that I am helping by participating in the on-line project would not knowingly do anything to disrespect my ideas | 0.8706 | 0.8048 | 0.9150 | 0.907 | 0.888 | 0.918 | 0.935 | 0.923 | 0.942 | 0.782 | 0.750 | 0.802 |
| LT3 The company that I am helping by participating in the on-line project behave in a consistent manner | 0.8735 | 0.8570 | 0.8826 | | | | | | | | | |
| LT4 The company that I am helping by participating in the on-line project is truthful in dealing with all the members | 0.8977 | 0.9082 | 0.8848 | | | | | | | | | |
| **Skepticism** | | | | | | | | | | | | |
| SKEP1 I am not going to be compensated at all | 0.6401 | 0.6729 | 0.6115 | | | | | | | | | |
| SKEP2 Some of other participants will be rewarded more than I will | 0.7259 | 0.6761 | 0.7585 | | | | | | | | | |
| SKEP3 My ideas belong only to me and are not to be shared with wide community unless protected by the copyright law | 0.6643 | 0.6624 | 0.6691 | 0.864 | 0.856 | 0.869 | 0.896 | 0.891 | 0.900 | 0.554 | 0.540 | 0.565 |
| SKEP4 It is not clearly stated that my idea will be mentioned under my name | 0.7089 | 0.6845 | 0.7402 | | | | | | | | | |
| SKEP5 I feel that company is so big that it would not hear my voice among the others | 0.8227 | 0.8300 | 0.8135 | | | | | | | | | |
| SKEP6 My idea will be lost among the others | 0.8259 | 0.8144 | 0.8324 | | | | | | | | | |
| SKEP7 I think that this huge company will not pay attention to all the ideas | 0.8007 | 0.7387 | 0.8119 | | | | | | | | | |
| **Daily life** | | | | | | | | | | | | |
| DL1 I do not have free time for co-creation projects online | 0.9022 | 0.9271 | 0.8756 | 0.871 | 0.880 | 0.865 | 0.921 | 0.926 | 0.918 | 0.795 | 0.806 | 0.788 |
| DL2 My family/work obligations take too much of my personal time | 0.8709 | 0.8650 | 0.8817 | | | | | | | | | |
| DL3 My everyday schedule is very busy, co-creation online would occupy to much time | 0.9021 | 0.9010 | 0.9053 | | | | | | | | | |
| **Task layout** | | | | | | | | | | | | |
| TLAY1 The task is described in a complicated manner | 0.8382 | 0.8179 | 0.8570 | | | | | | | | | |
| TLAY2 There is an overload of information | 0.8167 | 0.7648 | 0.8556 | 0.809 | 0.757 | 0.841 | 0.875 | 0.847 | 0.894 | 0.637 | 0.581 | 0.678 |
| TLAY3 The task of the project is not clear and understandable | 0.8012 | 0.8107 | 0.7967 | | | | | | | | | |
| TLAY4 I do not find the website of co-creation project to be easy to use | 0.7331 | 0.6460 | 0.7818 | | | | | | | | | |
| **No shared values** | | | | | | | | | | | | |
| SHVAL1 I do not share the purpose of this company | 0.8794 | 0.8925 | 0.8688 | 0.847 | 0.831 | 0.860 | 0.907 | 0.898 | 0.915 | 0.765 | 0.747 | 0.782 |
| SHVAL2 I do not agree with the vision of the company | 0.8912 | 0.8668 | 0.9111 | | | | | | | | | |
| SHVAL3 I do not feel committed to the goals of this online co-creation project | 0.8545 | 0.8339 | 0.8724 | | | | | | | | | |
| **No offline meeting** | | | | | | | | | | | | |
| NOFFM1 I want to see people with who I'm going to work in co-creation | 0.8437 | 0.8428 | 0.8505 | | | | | | | | | |
| NOFFM2 I would like to interact in person with other participants of the co-creation project | 0.7101 | 0.5638 | 0.8107 | 0.758 | 0.677 | 0.818 | 0.840 | 0.768 | 0.878 | 0.571 | 0.482 | 0.643 |
| NOFFM3 It bothers me to use machine when I could talk with a person instead | 0.7710 | 0.7334 | 0.8138 | | | | | | | | | |
| NOFFM4 I believe there can't be a co-creation only online | 0.7180 | 0.7031 | 0.7413 | | | | | | | | | |
| **Inertia** | | | | | | | | | | | | |
| INER1 I feel that my reference group would not consider participating in co-creation projects online | 0.7375 | 0.7462 | 0.7236 | | | | | | | | | |
| INER2 My friends are saying that co-creation online is senseless | 0.7829 | 0.7384 | 0.8200 | | | | | | | | | |
| INER3 I will do it only if my friends will join me in the project | 0.8009 | 0.7635 | 0.8233 | 0.824 | 0.782 | 0.847 | 0.877 | 0.852 | 0.891 | 0.588 | 0.537 | 0.621 |
| INER4 When I see a complicated question I quit | 0.8125 | 0.7987 | 0.8173 | | | | | | | | | |
| INER5 I am creative only when I feel the time pressure | 0.6970 | 0.6028 | 0.7515 | | | | | | | | | |

| *MOTIVATORS TO CO-CREATE ONLINE* | Factor Loading | | | Cronbach's Alpha | | | CR | | | AVE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK |
| **Learning** | | | | | | | | | | | | |
| LEARN1 Enhance my knowledge about the product and its usage | 0.8939 | 0.8944 | 0.8932 | 0.870 | 0.863 | 0.876 | 0.920 | 0.916 | 0.923 | 0.794 | 0.785 | 0.801 |
| LEARN2 Enhance my knowledge on product trends, related products and technology | 0.9048 | 0.8884 | 0.9182 | | | | | | | | | |
| LEARN3 Help me make better product decisions as consumers | 0.8739 | 0.8744 | 0.8730 | | | | | | | | | |
| ***Social Cognitive*** | | | | | | | | | | | | |
| SOCOGN1 Expand my personal network | 0.8574 | 0.8453 | 0.8669 | 0.838 | 0.810 | 0.858 | 0.902 | 0.887 | 0.914 | 0.755 | 0.724 | 0.779 |
| SOCOGN2 Raise my status/reputation as product expert in my personal network | 0.8887 | 0.8763 | 0.8984 | | | | | | | | | |
| SOCOGN3 Enhance the strength of my affiliation with the customer community | 0.8609 | 0.8319 | 0.8822 | | | | | | | | | |
| ***Personal Integrative*** | | | | | | | | | | | | |
| PERSINT1 They are likely to positively affect my professional career | 0.6765 | 0.5876 | 0.7546 | | | | | | | | | |
| PERSINT2 Offer me satisfaction from influencing product design and development | 0.8745 | 0.8826 | 0.8692 | 0.845 | 0.826 | 0.862 | 0.897 | 0.888 | 0.907 | 0.689 | 0.669 | 0.710 |
| PERSINT3 Offer me satisfaction from influencing product usage by other customers | 0.8838 | 0.8648 | 0.9005 | | | | | | | | | |
| PERSINT4 Offer me satisfaction from helping design better products | 0.8667 | 0.8972 | 0.8385 | | | | | | | | | |
| ***Hedonic Integrative*** | | | | | | | | | | | | |
| HEDINT1 Contribute in spending some enjoyable and relaxing time | 0.8526 | 0.8454 | 0.8573 | | | | | | | | | |
| HEDINT2 Contribute in fun and pleasure | 0.8711 | 0.8511 | 0.8884 | 0.876 | 0.864 | 0.885 | 0.915 | 0.907 | 0.921 | 0.729 | 0.710 | 0.744 |
| HEDINT3 Entertain and stimulate my mind | 0.8646 | 0.8702 | 0.8606 | | | | | | | | | |
| HEDINT4 Offer me enjoyment deriving from problem solving, idea generation, etc. | 0.8253 | 0.8030 | 0.8432 | | | | | | | | | |
| ***Financial/Material Integrative*** | | | | | | | | | | | | |
| FININT1 Enhance my financial position directly | 0.8064 | 0.8069 | 0.8035 | | | | | | | | | |
| FININT2 Contribute in creating cheaper products | 0.7917 | 0.7432 | 0.8219 | 0.819 | 0.778 | 0.843 | 0.880 | 0.857 | 0.895 | 0.648 | 0.599 | 0.680 |
| FININT3 Enhance my financial position indirectly. (e.g. by buying products offering higher value) | 0.8372 | 0.8124 | 0.8528 | | | | | | | | | |
| FININT4 Deliver non-financial rewards. (e.g. free samples, beta products) | 0.7855 | 0.7363 | 0.8200 | | | | | | | | | |

| *ATTITUDE TOWARDS CO-CREATION* | Factor Loading | | | Cronbach's Alpha | | | CR | | | AVE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK |
| AtC4. Companies must make it possible for users to be involved in the development of new products/services. | 0.8169 | 0.8515 | 0.7861 | 0.784 | 0.808 | 0.762 | 0.874 | 0.886 | 0.863 | 0.698 | 0.722 | 0.678 |
| AtC5. Users must be able to test product concepts before these are launched. | 0.8423 | 0.8442 | 0.8434 | | | | | | | | | |
| AtC6. Intensive involvement of final customers in the new product development process results in better products/services. | 0.8475 | 0.8545 | 0.8402 | | | | | | | | | |

| *PARTICIPATION IN CO-CREATION ONLINE* | Factor Loading | | | Cronbach's Alpha | | | CR | | | AVE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK |
| CP1. I participated in co-creation activities online when no financial or other type of reward was offered. | 0.9101 | 0.9340 | 0.8820 | 0.754 | 0.701 | 0.802 | 0.849 | 0.798 | 0.884 | 0.668 | 0.623 | 0.719 |
| CP2. I rated a product or service after purchase out of my own initiative. | 0.6356 | 0.4755[3] | 0.7594 | | | | | | | | | |
| CP3. I rated a product or service after purchase because I was invited to do so by the seller | 0.8996 | 0.9251 | 0.8963 | | | | | | | | | |

[3]According to Fernandez-Jimenez et al. (2013), the value of factor loading should be more than 0.3.

| *MODERATING / MEDIATING EFFECTS* | **Factor Loading** | | | **Cronbach's Alpha** | | | **CR** | | | **AVE** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK | N=613 | ES | UK |
| **Perceived risk of use** | | | | | | | | | | | | |
| PRU1 I believe that online participation in co-creation online is risky because they may lead to financial loss for me. | 0.8773 | 0.8629 | 0.8901 | | | | | | | | | |
| PRU2 I believe that online participation in co-creation online is risky because they may cause others to think less highly of me. | 0.8318 | 0.8171 | 0.8435 | 0.775 | 0.765 | 0.840 | 0.869 | 0.865 | 0.831 | 0.690 | 0.681 | 0.628 |
| PRU3 I believe that online participation in co-creation online is risky because they may lead to a time loss for me | 0.8069 | 0.7949 | 0.8178 | | | | | | | | | |
| **Brand reputation** | | | | | | | | | | | | |
| BR1. Brand being well managed by the company | 0.8322 | 0.8348 | 0.8264 | | | | | | | | | |
| BR2. The brand has customer focus | 0.8197 | 0.7919 | 0.8407 | | | | | | | | | |
| BR3. Keeping you informed about what's happening with the company | 0.8559 | 0.8580 | 0.8512 | 0.913 | 0.908 | 0.924 | 0.930 | 0.927 | 0.939 | 0.657 | 0.645 | 0.693 |
| BR4. Being a good corporate citizen | 0.8324 | 0.8145 | 0.8462 | | | | | | | | | |
| BR5. Being product driven | 0.7819 | 0.7497 | 0.8142 | | | | | | | | | |
| BR6. Being successful | 0.7507 | 0.7171 | 0.7927 | | | | | | | | | |
| BR7. Having a reputation for quality | 0.8522 | 0.8466 | 0.8559 | | | | | | | | | |
| **Brand trust** | | | | | | | | | | | | |
| BT1: I trust this brand | 0.9138 | 0.9449 | 0.8751 | | | | | | | | | |
| BT2: I rely on this brand | 0.8750 | 0.9285 | 0.8109 | 0.920 | 0.949 | 0.887 | 0.944 | 0.963 | 0.922 | 0.809 | 0.867 | 0.747 |
| BT3: This is an honest brand | 0.9065 | 0.9278 | 0.8805 | | | | | | | | | |
| BT4: This brand is safe | 0.9015 | 0.9226 | 0.8891 | | | | | | | | | |

# APPENDIX 12. MULTIGROUP OUTER MODEL ANALYSIS (EXPERIENCE).

| Deterrents | Factor Loading | | Cronbach's Alpha | | CR | | AVE | |
|---|---|---|---|---|---|---|---|---|
| | Experience | No experience | Experience | No experience | Experience | No experience | Experience | No experience |
| ***Technology anxiety*** | | | | | | | | |
| TANX1 | 0.8119 | 0.8129 | | | | | | |
| TANX2 | 0.8404 | 0.8435 | | | | | | |
| TANX3 | 0.8287 | 0.8271 | 0.890 | 0.895 | 0.914 | 0.918 | 0.640 | 0.653 |
| TANX4 | 0.7699 | 0.8348 | | | | | | |
| TANX5 | 0.8065 | 0.7703 | | | | | | |
| TANX6 | 0.7582 | 0.7716 | | | | | | |
| **Lack of trust** | | | | | | | | |
| LT1 | 0.8836 | 0.9109 | | | | | | |
| LT2 | 0.8581 | 0.8878 | 0.890 | 0.928 | 0.924 | 0.948 | 0.759 | 0.821 |
| LT3 | 0.8591 | 0.8955 | | | | | | |
| LT4 | 0.8676 | 0.9353 | | | | | | |
| **Skepticism** | | | | | | | | |
| SKEP1 | 0.6464 | 0.6292 | | | | | | |
| SKEP2 | 0.7399 | 0.7042 | | | | | | |
| SKEP3 | 0.6857 | 0.6357 | 0.869 | 0.856 | 0.886 | 0.883 | 0.533 | 0.526 |
| SKEP4 | 0.7122 | 0.7036 | | | | | | |
| SKEP5 | 0.8402 | 0.7936 | | | | | | |
| SKEP6 | 0.8249 | 0.8298 | | | | | | |
| SKEP7 | 0.7864 | 0.8216 | | | | | | |
| **Daily life** | | | | | | | | |
| DL1 | 0.8917 | 0.9136 | 0.863 | 0.880 | 0.913 | 0.915 | 0.779 | 0.784 |
| DL2 | 0.8667 | 0.8753 | | | | | | |
| DL3 | 0.9003 | 0.9040 | | | | | | |
| **Task layout** | | | | | | | | |
| TLAY1 | 0.8372 | 0.8416 | | | | | | |
| TLAY2 | 0.8062 | 0.8333 | 0.796 | 0.801 | 0.751 | 0.872 | 0.524 | 0.695 |
| TLAY3 | 0.8133 | 0.7885 | | | | | | |
| TLAY4 | 0.7677 | 0.6762 | | | | | | |
| **No shared values** | | | | | | | | |
| SHVAL1 | 0.8657 | 0.8995 | 0.831 | 0.871 | 0.899 | 0.902 | 0.747 | 0.756 |
| SHVAL2 | 0.8835 | 0.9056 | | | | | | |
| SHVAL3 | 0.8447 | 0.8693 | | | | | | |
| **No offline meeting** | | | | | | | | |
| NOFFM1 | 0.8356 | 0.8542 | | | | | | |
| NOFFM2 | 0.7506 | 0.6611 | 0.777 | 0.734 | 0.770 | 0.792 | 0.512 | 0.508 |
| NOFFM3 | 0.7930 | 0.7435 | | | | | | |
| NOFFM4 | 0.7173 | 0.7217 | | | | | | |
| **Inertia** | | | | | | | | |
| INER1 | 0.7568 | 0..7063 | | | | | | |
| INER2 | 0.7931 | 0.7670 | 0.847 | 0.785 | 0.887 | 0.854 | 0.614 | 0.540 |
| INER3 | 0.8249 | 0.7677 | | | | | | |
| INER4 | 0.8314 | 0.7849 | | | | | | |
| INER5 | 0.7319 | 0.6400 | | | | | | |

| Motivators | Factor Loading | | Cronbach's Alpha | | CR | | AVE | |
|---|---|---|---|---|---|---|---|---|
| | Experience | No experience | Experience | No experience | Experience | No experience | Experience | No experience |
| **Learning** | | | | | | | | |
| LEARN1 | 0.8737 | 0.9080 | 0.853 | 0.877 | 0.910 | 0.924 | 0.771 | 0.803 |
| LEARN2 | 0.9048 | 0.8989 | | | | | | |
| LEARN3 | 0.8579 | 0.8807 | | | | | | |
| ***Social Cognitive*** | | | | | | | | |
| SOCOGN1 | 0.8146 | 0.8872 | 0.785 | 0.872 | 0.873 | 0.920 | 0.697 | 0.794 |
| SOCOGN2 | 0.8652 | 0.9054 | | | | | | |
| SOCOGN3 | 0.8293 | 0.8838 | | | | | | |
| ***Personal Integrative*** | | | | | | | | |
| PERSINT1 | 0.6932 | 0.6132 | 0.821 | 0.848 | 0.881 | 0.896 | 0.652 | 0.691 |
| PERSINT2 | 0.8306 | 0.9077 | | | | | | |
| PERSINT3 | 0.8660 | 0.8941 | | | | | | |
| PERSINT4 | 0.8333 | 0.8916 | | | | | | |
| ***Hedonic Integrative*** | | | | | | | | |
| HEDINT1 | 0.8253 | 0.8765 | 0.840 | 0.901 | 0.893 | 0.931 | 0.677 | 0.771 |
| HEDINT2 | 0.8601 | 0.8804 | | | | | | |
| HEDINT3 | 0.8341 | 0.8883 | | | | | | |
| HEDINT4 | 0.7688 | 0.8665 | | | | | | |
| ***Financial Integrative*** | | | | | | | | |
| FININT1 | 0.7939 | 0.8066 | 0.789 | 0.835 | 0.862 | 0.888 | 0.609 | 0.666 |
| FININT2 | 0.7712 | 0.7940 | | | | | | |
| FININT3 | 0.8150 | 0.8551 | | | | | | |
| FININT4 | 0.7484 | 0.8158 | | | | | | |

| | Factor Loading | | Cronbach's Alpha | | CR | | AVE | |
|---|---|---|---|---|---|---|---|---|
| | Experience | No experience | Experience | No experience | Experience | No experience | Experience | No experience |
| **Positive Attitude** | | | | | | | | |
| AtC1 | 0.7987 | 0.8309 | 0.769 | 0.783 | 0.866 | 0.874 | 0.683 | 0.698 |
| AtC2 | 0.8506 | 0.8196 | | | | | | |
| AtC3 | 0.8309 | 0.8550 | | | | | | |
| **Participation** | | | | | | | | |
| CP1 | 0.8899 | 0.9225 | 0.764 | 0.774 | 0.794 | 0.860 | 0.597 | 0.687 |
| CP2 | 0.5231 | 0.6465 | | | | | | |
| CP3 | 0.8809 | 0.9112 | | | | | | |

| ***MODERATING / MEDIATING EFFECTS*** | Factor Loading | | Cronbach's Alpha | | CR | | AVE | |
|---|---|---|---|---|---|---|---|---|
| | Exp | No exp | Exp | No exp | Exp | No exp | Exp | No exp |
| **Perceived risk of use** | | | | | | | | |
| PRU1 | 0.8810 | 0.8903 | 0.805 | 0.817 | 0.882 | 0.891 | 0.714 | 0.732 |
| PRU2 | 0.8434 | 0.8638 | | | | | | |
| PRU3 | 0.8196 | 0.8114 | | | | | | |
| **Brand reputation** | | | | | | | | |
| BR1 | 0.7910 | 0.8682 | 0.900 | 0.927 | 0.919 | 0.941 | 0.587 | 0.666 |
| BR2 | 0.7932 | 0.8666 | | | | | | |
| BR3 | 0.8003 | 0.8794 | | | | | | |
| BR4 | 0.8334 | 0.8343 | | | | | | |
| BR5 | 0.7343 | 0.8251 | | | | | | |
| BR6 | 0.7175 | 0.7685 | | | | | | |
| BR7 | 0.8168 | 0.8709 | | | | | | |
| **Brand trust** | | | | | | | | |
| BT1: | 0.8777 | 0.9375 | 0.754 | 0.873 | 0.765 | 0.787 | 0.564 | 0.601 |
| BT2: | 0.8411 | 0.8931 | | | | | | |
| BT3: | 0.8652 | 0.9311 | | | | | | |
| BT4: | 0.8685 | 0.9263 | | | | | | |

# APPENDIX 13. MULTIGROUP OUTER MODEL ANALYSIS (CONTEXT-EXPERIENCE).

| Deterrents | Factor Loading | | | | Cronbach's Alpha | | | | CR | | | | AVE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno |
| ***Technology anxiety*** | | | | | | | | | | | | | | | | |
| TANX1 | 0.8101 | 0.7848 | 0.8115 | 0.8126 | | | | | | | | | | | | |
| TANX2 | 0.7909 | 0.8512 | 0.8380 | 0.8461 | | | | | | | | | | | | |
| TANX3 | 0.7868 | 0.8505 | 0.8189 | 0.8472 | 0.869 | 0.866 | 0.889 | 0.904 | 0.901 | 0.885 | 0.913 | 0.925 | 0.604 | 0.570 | 0.638 | 0.674 |
| TANX4 | 0.8158 | 0.7291 | 0.8077 | 0.8748 | | | | | | | | | | | | |
| TANX5 | 0.7693 | 0.8005 | 0.7686 | 0.7725 | | | | | | | | | | | | |
| TANX6 | 0.6912 | 0.7745 | 0.7675 | 0.7768 | | | | | | | | | | | | |
| **Lack of trust** | | | | | | | | | | | | | | | | |
| LT1 | 0.8969 | 0.8764 | 0.8863 | 0.9480 | | | | | | | | | | | | |
| LT2 | 0.7814 | 0.8917 | 0.8255 | 0.9564 | 0.879 | 0.889 | 0.897 | 0.962 | 0.782 | 0.889 | 0.928 | 0.972 | 0.652 | 0.670 | 0.764 | 0.895 |
| LT3 | 0.8572 | 0.8541 | 0.8608 | 0.9348 | | | | | | | | | | | | |
| LT4 | 0.8916 | 0.8428 | 0.9224 | 0.9501 | | | | | | | | | | | | |
| **Skepticism** | | | | | | | | | | | | | | | | |
| SKEP1 | 0.6458 | 0.6459 | 0.7102 | 0.5162 | | | | | | | | | | | | |
| SKEP2 | 0.6875 | 0.7656 | 0.6588 | 0.7552 | | | | | | | | | | | | |
| SKEP3 | 0.6697 | 0.6900 | 0.6518 | 0.6164 | | | | | | | | | | | | |
| SKEP4 | 0.6898 | 0.7407 | 0.6840 | 0.7356 | 0.860 | 0.872 | 0.854 | 0.860 | 0.889 | 0.778 | 0.887 | 0.804 | 0.538 | 0.689 | 0.531 | 0.606 |
| SKEP5 | 0.8530 | 0.8247 | 0.8066 | 0.7846 | | | | | | | | | | | | |
| SKEP6 | 0.8211 | 0.8191 | 0.8059 | 0.8675 | | | | | | | | | | | | |
| SKEP7 | 0.7840 | 0.7814 | 0.7865 | 0.8693 | | | | | | | | | | | | |
| **Daily life** | | | | | | | | | | | | | | | | |
| DL1 | 0.9102 | 0.8776 | 0.9393 | 0.8723 | 0.878 | 0.857 | 0.878 | 0.878 | 0.924 | 0.715 | 0.921 | 0.847 | 0.803 | 0.678 | 0.797 | 0.655 |
| DL2 | 0.8744 | 0.8706 | 0.8570 | 0.8987 | | | | | | | | | | | | |
| DL3 | 0.9056 | 0.8973 | 0.8936 | 0.9179 | | | | | | | | | | | | |
| **Task layout** | | | | | | | | | | | | | | | | |
| TLAY1 | 0.8301 | 0.8424 | 0.8041 | 0.8881 | | | | | | | | | | | | |
| TLAY2 | 0.7359 | 0.8444 | 0.8009 | 0.8744 | 0.885 | 0.808 | 0.742 | 0.857 | 0.874 | 0.874 | 0.814 | 0.612 | 0.700 | 0.701 | 0.601 | 0.687 |
| TLAY3 | 0.8644 | 0.7935 | 0.7640 | 0.8220 | | | | | | | | | | | | |
| TLAY4 | 0.7351 | 0.7807 | 0.5309 | 0.7847 | | | | | | | | | | | | |
| **No shared values** | | | | | | | | | | | | | | | | |
| SHVAL1 | 0.8994 | 0.8434 | 0.8823 | 0.9183 | 0.836 | 0.830 | 0.827 | 0.912 | 0.897 | 0.872 | 0.874 | 0.933 | 0.743 | 0.698 | 0.699 | 0.824 |
| SHVAL2 | 0.8749 | 0.8919 | 0.8605 | 0.9486 | | | | | | | | | | | | |
| SHVAL3 | 0.8285 | 0.8566 | 0.8422 | 0.9003 | | | | | | | | | | | | |
| **No offline meeting** | | | | | | | | | | | | | | | | |
| NOFFM1 | 0.8107 | 0.8577 | 0.8662 | 0.8307 | | | | | | | | | | | | |
| NOFFM2 | 0.6514 | 0.8115 | 0.5054 | 0.8121 | 0.791 | 0.826 | 0.773 | 0.803 | 0.767 | 0.868 | 0.793 | 0.751 | 0.717 | 0.626 | 0.508 | 0.620 |
| NOFFM3 | 0.7416 | 0.8285 | 0.7268 | 0.7848 | | | | | | | | | | | | |
| NOFFM4 | 0.6747 | 0.7449 | 0.7292 | 0.7426 | | | | | | | | | | | | |
| **Inertia** | | | | | | | | | | | | | | | | |
| INER1 | 0.7593 | 0.7248 | 0.7068 | 0.7188 | | | | | | | | | | | | |
| INER2 | 0.6978 | 0.8250 | 0.7441 | 0.7976 | 0.763 | 0.858 | 0.766 | 0.810 | 0.840 | 0.680 | 0.842 | 0.862 | 0.513 | 0.549 | 0.518 | 0.559 |
| INER3 | 0.7768 | 0.8366 | 0.7469 | 0.7870 | | | | | | | | | | | | |
| INER4 | 0.7780 | 0.8351 | 0.7953 | 0.7730 | | | | | | | | | | | | |
| INER5 | 0.5636 | 0.7717 | 0.5975 | 0.6930 | | | | | | | | | | | | |

| Motivators | Factor Loading | | | | Cronbach's Alpha | | | | CR | | | | AVE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno |
| **Learning** | | | | | | | | | | | | | | | | |
| LEARN1 | 0.9023 | 0.8521 | 0.8777 | 0.9466 | | | | | | | | | | | | |
| LEARN2 | 0.9054 | 0.9024 | 0.8646 | 0.9393 | 0.860 | 0.844 | 0.846 | 0.912 | 0.915 | 0.905 | 0.907 | 0.945 | 0.782 | 0.760 | 0.765 | 0.850 |
| LEARN3 | 0.8448 | 0.8641 | 0.8812 | 0.8795 | | | | | | | | | | | | |
| ***Social Cognitive*** | | | | | | | | | | | | | | | | |
| SOCOGN1 | 0.8415 | 0.7969 | 0.8307 | 0.9342 | | | | | | | | | | | | |
| SOCOGN2 | 0.8686 | 0.8636 | 0.8716 | 0.9367 | 0.780 | 0.788 | 0.807 | 0.924 | 0.867 | 0.875 | 0.878 | 0.951 | 0.686 | 0.701 | 0.707 | 0.867 |
| SOCOGN3 | 0.7896 | 0.8528 | 0.8451 | 0.9241 | | | | | | | | | | | | |
| ***Personal Integrative*** | | | | | | | | | | | | | | | | |
| PERSINT1 | 0.5878 | 0.7716 | 0.5307 | 0.6974 | | | | | | | | | | | | |
| PERSINT2 | 0.8337 | 0.8274 | 0.8959 | 0.9224 | 0.807 | 0.830 | 0.808 | 0.889 | 0.873 | 0.886 | 0.971 | 0.922 | 0.641 | 0.661 | 0.644 | 0.751 |
| PERSINT3 | 0.8526 | 0.8700 | 0.8548 | 0.9416 | | | | | | | | | | | | |
| PERSINT4 | 0.8985 | 0.7855 | 0.8858 | 0.8984 | | | | | | | | | | | | |
| ***Hedonic Integrative*** | | | | | | | | | | | | | | | | |
| HEDINT1 | 0.7964 | 0.8353 | 0.8641 | 0.8895 | | | | | | | | | | | | |
| HEDINT2 | 0.8694 | 0.8579 | 0.8323 | 0.9445 | 0.823 | 0.846 | 0.870 | 0.935 | 0.882 | 0.897 | 0.911 | 0.953 | 0.652 | 0.684 | 0.719 | 0.837 |
| HEDINT3 | 0.8670 | 0.8196 | 0.8613 | 0.9199 | | | | | | | | | | | | |
| HEDINT4 | 0.6975 | 0.7956 | 0.8353 | 0.9038 | | | | | | | | | | | | |
| ***Financial Integrative*** | | | | | | | | | | | | | | | | |
| FININT1 | 0.8002 | 0.7921 | 0.8002 | 0.8218 | | | | | | | | | | | | |
| FININT2 | 0.7291 | 0.7947 | 0.7291 | 0.8544 | 0.733 | 0.817 | 0.790 | 0.872 | 0.825 | 0.879 | 0.855 | 0.912 | 0.543 | 0.645 | 0.596 | 0.723 |
| FININT3 | 0.7496 | 0.8488 | 0.7496 | 0.8530 | | | | | | | | | | | | |
| FININT4 | 0.7007 | 0.7773 | 0.7007 | 0.8722 | | | | | | | | | | | | |

| | Factor Loading | | | | Cronbach's Alpha | | | | CR | | | | AVE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno |
| **Positive Attitude** | | | | | | | | | | | | | | | | |
| AtC1 | 0.8373 | 0.7648 | 0.8435 | 0.8164 | 0.783 | 0.744 | 0.788 | 0.785 | 0.873 | 0.854 | 0.875 | 0.874 | 0.696 | 0.661 | 0.700 | 0.699 |
| AtC2 | 0.8476 | 0.8477 | 0.8162 | 0.8347 | | | | | | | | | | | | |
| AtC3 | 0.8205 | 0.8272 | 0.8536 | 0.8566 | | | | | | | | | | | | |
| **Participation** | | | | | | | | | | | | | | | | |
| CP1 | 0.9375 | 0.8553 | 0.9338 | 0.9040 | 0.793 | 0.735 | 0.719 | 0.851 | 0.705 | 0.850 | 0.822 | 0.911 | 0.574 | 0.656 | 0.641 | 0.773 |
| CP2 | 0.8238 | 0.7052 | 0.5220 | 0.7955 | | | | | | | | | | | | |
| CP3 | 0.9383 | 0.8609 | 0.9151 | 0.9327 | | | | | | | | | | | | |

| *MODERATING / MEDIATING EFFECTS* | Factor Loading | | | | Cronbach's Alpha | | | | CR | | | | AVE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno | ESex | UKex | ESno | UKno |
| **Perceived risk of use** | | | | | | | | | | | | | | | | |
| PRU1 | 0.8736 | 0.8803 | 0.8518 | 0.9389 | 0.757 | 0.818 | 0.767 | 0.875 | 0.859 | 0.764 | 0.866 | 0.987 | 0.671 | 0.567 | 0.683 | 0.746 |
| PRU2 | 0.7686 | 0.8705 | 0.8494 | 0.8819 | | | | | | | | | | | | |
| PRU3 | 0.8187 | 0.8183 | 0.7761 | 0.8625 | | | | | | | | | | | | |
| **Brand reputation** | | | | | | | | | | | | | | | | |
| BR1 | 0.7863 | 0.7809 | 0.8555 | 0.8803 | | | | | | | | | | | | |
| BR2 | 0.5575 | 0.8458 | 0.8521 | 0.8832 | | | | | | | | | | | | |
| BR3 | 0.7767 | 0.8029 | 0.8813 | 0.8778 | 0.834 | 0.912 | 0.923 | 0.935 | 0.873 | 0.929 | 0.938 | 0.947 | 0.566 | 0.621 | 0.654 | 0.690 |
| BR4 | 0.7564 | 0.8525 | 0.8360 | 0.8272 | | | | | | | | | | | | |
| BR5 | 0.5369 | 0.7916 | 0.8085 | 0.8558 | | | | | | | | | | | | |
| BR6 | 0.6078 | 0.7856 | 0.7582 | 0.7948 | | | | | | | | | | | | |
| BR7 | 0.7434 | 0.8263 | 0.8730 | 0.8666 | | | | | | | | | | | | |
| **Brand trust** | | | | | | | | | | | | | | | | |
| BT1: | 0.9301 | 0.8446 | 0.9446 | 0.9210 | | | | | | | | | | | | |
| BT2: | 0.9079 | 0.7989 | 0.9285 | 0.8277 | 0.821 | 0.763 | 0.853 | 0.867 | 0.722 | 0.832 | 0.855 | 0.842 | 0.544 | 0.653 | 0.576 | 0.687 |
| BT3: | 0.8815 | 0.8521 | 0.9365 | 0.9218 | | | | | | | | | | | | |
| BT4: | 0.8804 | 0.8711 | 0.9282 | 0.9306 | | | | | | | | | | | | |

# APPENDIX 14. MEASUREMENT OF INVARIABILITY OF THE MODEL

| Outer Weights | ES-UK | EX-NOEX | ESEx-UKEx | ESno-UKno | ESex-ESno | UKex UKno |
|---|---|---|---|---|---|---|
| **p5a_1 <- Lack of trust** | 0.845 | 0.986 | 0.976 | 0.902 | 0.993 | 0.272 |
| **p5a_10 <- technology anxiety_** | 0.609 | 0.881 | 0.552 | 0.615 | 0.920 | 0.758 |
| **p5a_2 <- Lack of trust** | 0.703 | 0.890 | 0.736 | 0.938 | 0.890 | 0.930 |
| **p5a_3 <- Lack of trust** | 0.629 | 0.944 | 0.827 | 0.912 | 0.970 | 0.916 |
| **p5a_4 <- Lack of trust** | 0.438 | 0.968 | 0.946 | 0.865 | 0.988 | 0.874 |
| **p5a_5 <- technology anxiety_** | 0.624 | 0.217 | 0.442 | 0.797 | 0.196 | 0.609 |
| **p5a_6 <- technology anxiety_** | 0.912 | 0.156 | 0.806 | 0.644 | 0.683 | 0.215 |
| **p5a_7 <- technology anxiety_** | 0.881 | 0.204 | 0.784 | 0.787 | 0.504 | 0.269 |
| **p5a_8 <- technology anxiety_** | 0.232 | 0.912 | 0.081 | 0.820 | 0.411 | 0.914 |
| **p5a_9 <- technology anxiety_** | 0.565 | 0.651 | 0.615 | 0.538 | 0.776 | 0.526 |
| **p5b_1 <- Inertia** | 0.085 | 0.482 | 0.007 | 0.581 | 0.317 | 0.937 |
| **p5b_2 <- Inertia** | 0.765 | 0.229 | 0.525 | 0.888 | 0.460 | 0.869 |
| **p5b_3 <- Inertia** | 0.732 | 0.090 | 0.606 | 0.740 | 0.525 | 0.567 |
| **p5b_5 <- Task layout_** | 0.370 | 0.912 | 0.307 | 0.071 | 0.776 | 0.053 |
| **p5b_6 <- Task layout_** | 0.847 | 0.207 | 0.848 | 0.165 | 0.443 | 0.053 |
| **p5b_8 <- Task layout_** | 0.358 | 0.815 | 0.231 | 0.854 | 0.161 | 0.816 |
| **p5b_9 <- Inertia** | 0.752 | 0.053 | 0.723 | 0.519 | 0.791 | 0.305 |
| **p5c_10 <- Skepticism** | 0.000* | 0.812 | 0.061 | 0.639 | 0.528 | 0.895 |
| **p5c_2 <- Daily life** | 0.709 | 0.593 | 0.412 | 0.741 | 0.862 | 0.803 |
| **p5c_3 <- Daily life** | 0.288 | 0.258 | 0.570 | 0.215 | 0.284 | 0.213 |
| **p5c_4 <- Daily life** | 0.723 | 0.763 | 0.005 | 0.437 | 0.566 | 0.909 |
| **p5c_5 <- No shared values** | 0.673 | 0.282 | 0.673 | 0.688 | 0.283 | 0.296 |
| **p5c_6 <- No shared values** | 0.865 | 0.663 | 0.768 | 0.711 | 0.733 | 0.486 |
| **p5c_7 <- No shared values** | 0.493 | 0.795 | 0.139 | 0.747 | 0.647 | 0.894 |
| **p5c_8 <- Skepticism** | 0.496 | 0.265 | 0.607 | 0.756 | 0.267 | 0.958 |
| **p5c_9 <- Skepticism** | 0.005* | 0.683 | 0.233 | 0.712 | 0.413 | 0.927 |
| **p5d_1 <- Skepticism** | 0.501 | 0.632 | 0.413 | 0.112 | 0.522 | 0.282 |
| **p5d_2 <- Skepticism** | 0.300 | 0.222 | 0.320 | 0.104 | 0.293 | 0.766 |
| **p5d_3 <- Skepticism** | 0.909 | 0.157 | 0.002* | 0.064 | 0.427 | 0.962 |
| **p5d_4 <- Skepticism** | 0.201 | 0.446 | 0.049 | 0.202 | 0.519 | 0.873 |
| **p5e_2 <- Inertia** | 0.245 | 0.218 | 0.079 | 0.581 | 0.448 | 0.849 |
| **p5e_3 <- no offline meeting** | 0.852 | 0.344 | 0.946 | 0.372 | 0.998 | 0.150 |
| **p5e_4 <- no offline meeting** | 0.960 | 0.116 | 0.301 | 0.877 | 0.241 | 0.514 |
| **p5e_5 <- no offline meeting** | 0.278 | 0.863 | 0.970 | 0.074 | 0.999 | 0.196 |
| **p5e_6 <- no offline meeting** | 0.237 | 0.958 | 0.871 | 0.453 | 0.996 | 0.049 |
| **p6a_1 <- learning** | 0.654 | 0.710 | 0.088 | 0.989 | 0.135 | 0.995 |
| **p6a_10 <- pers integr** | 0.011* | 0.994 | 0.000* | 0.765 | 0.297 | 0.999 |
| **p6a_2 <- learning** | 0.808 | 0.573 | 0.390 | 0.968 | 0.257 | 0.923 |
| **p6a_3 <- learning** | 0.450 | 0.895 | 0.541 | 0.600 | 0.781 | 0.821 |
| **p6a_4 <- Social cognitive** | 0.764 | 0.997 | 0.439 | 0.861 | 0.756 | 0.998 |
| **p6a_5 <- Social cognitive** | 0.917 | 0.897 | 0.595 | 0.874 | 0.570 | 0.996 |
| **p6a_6 <- Social cognitive** | 0.707 | 0.767 | 0.479 | 0.678 | 0.634 | 0.940 |
| **p6a_7 <- pers integr** | 0.995 | 0.068 | 0.991 | 0.893 | 0.255 | 0.081 |
| **p6a_8 <- pers integr** | 0.392 | 0.999 | 0.592 | 0.892 | 0.900 | 1.000 |
| **p6a_9 <- pers integr** | 0.830 | 0.891 | 0.430 | 0.982 | 0.464 | 0.984 |
| **p6b_1 <- hedonic integrative** | 0.851 | 0.905 | 0.941 | 0.822 | 0.919 | 0.867 |
| **p6b_2 <- hedonic integrative** | 0.974 | 0.766 | 0.717 | 1.000 | 0.395 | 1.000 |
| **p6b_3 <- hedonic integrative** | 0.273 | 0.976 | 0.170 | 0.908 | 0.623 | 0.993 |
| **p6b_4 <- hedonic integrative** | 0.543 | 0.992 | 0.609 | 0.885 | 0.928 | 0.994 |
| **p6b_5 <- financial integrative** | 0.937 | 0.410 | 0.753 | 0.927 | 0.308 | 0.616 |
| **p6b_6 <- financial integrative** | 0.436 | 0.741 | 0.257 | 0.669 | 0.464 | 0.832 |
| **p6b_7 <- financial integrative** | 0.987 | 0.922 | 0.962 | 0.917 | 0.818 | 0.814 |
| **p6b_8 <- financial integrative** | 0.808 | 0.885 | 0.702 | 0.864 | 0.741 | 0.926 |
| **P7_1 <- attitude** | 0.023* | 0.645 | 0.050 | 0.864 | 0.741 | 0.648 |
| **P7_4 <- attitude** | 0.605 | 0.267 | 0.450 | 0.312 | 0.533 | 0.670 |
| **P7_5 <- attitude** | 0.274 | 0.855 | 0.572 | 0.878 | 0.197 | 0.736 |
| **P8_1 <- participation** | 0.200 | 0.968 | 0.040* | 0.394 | 0.888 | 0.840 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **P8_3 <- participation** | 1.000 | 0.886 | 1.000 | 0.009* | 0.852 | 0.852 |
| **P8_4 <- participation** | 0.000* | 0.960 | 0.081 | 1.000 | 0.968 | 0.998 |
| **attitude * BRep <- ModRep_** | 0.962 | 0.025* | 0.857 | 0.892 | 0.018* | 0.165 |
| **attitude * Prisk_ <- ModRisk** | 0.900 | 0.874 | 0.998 | 0.908 | 0.660 | 0.379 |
| **p10_1 <- BRep** | 0.369 | 0.958 | 0.616 | 0.632 | 0.899 | 0.910 |
| **p10_2 <- BRep** | 0.961 | 0.988 | 1.000 | 0.764 | 1.000 | 0.898 |
| **p10_3 <- BRep** | 0.151 | 0.993 | 0.668 | 0.438 | 0.979 | 0.960 |
| **p10_4 <- BRep** | 0.543 | 0.805 | 0.863 | 0.321 | 0.954 | 0.538 |
| **p10_5 <- BRep** | 0.916 | 0.966 | 0.989 | 0.866 | 0.993 | 0.882 |
| **p10_6 <- BRep** | 0.985 | 0.660 | 0.987 | 0.799 | 0.904 | 0.453 |
| **p10_7 <- BRep** | 0.474 | 0.986 | 0.958 | 0.539 | 0.998 | 0.902 |
| **p12_1 <- BRep** | 0.446 | 0.207 | 0.152 | 0.786 | 0.088 | 0.663 |
| **p13_1 <- Prisk_** | 0.365 | 0.168 | 0.718 | 0.792 | 0.700 | 0.338 |
| **p13_2 <- Prisk_** | 0.277 | 0.616 | 0.174 | 0.307 | 0.878 | 0.769 |
| **p13_3 <- Prisk_** | 0.810 | 0.212 | 0.002* | 0.857 | 0.189 | 0.969 |

# CHAPTER FIVE
# CONCLUSIONS

## 5.1 INTRODUCTION

Value co-creation is still an emerging research subject not only for academic world but also for organizations that look for successful forms of innovation and desire to follow recent marketing trends. One of these marketing advances is co-creation using Internet-based platforms (Sawhney *et al.,* 2005). This thesis was aimed to enrich the value co-creation literature by emphasizing the importance for practitioners taking into account not only the effect of motivational factors but also the effect of the possible barriers that Internet users might experience on their attitude towards co-creation online, which in turn affects their favourable participation behaviour.

With the intention to enhance the results of this thesis as much as possible, the mixed method approach was implemented. The choice of this method is supported by the statement by Jick (1979) "results from multimethods can lead to an enriched explanation of the research problem" (p. 609). One of the benefits of the application of mixed methods in this thesis is enhanced vigor and accuracy of the results of the defined concept of the deterrents to co-creation online and the validity of its constructs.

Firstly, the use of the qualitative study made it possible to identify nine inhibiting factors consisting of internal and external deterrents to co-creation online using semi-structured in-depth interviews. In order to analyze the effect of the defined deterrents on the attitude towards co-creation online the quantitative approach was applied in order to develop reliable and valid scales based on the literature review (see section 3.4.4, table 8). Afterwards, the quantitative approach was used for measuring mediating effect of brand trust and the moderating effects of previous experience, perceived risk of use, and brand reputation.

Regarding the sample of the first qualitative study, according to Bharti et al. (2014) both a customer and a company's marketing professional are essential parts for co-creation, therefore, twenty users with distinctive demographic background and twenty marketers with co-creation experience were interviewed (see Appendix 2). The quantitative part of the thesis uses the data sample of the users from two different cultural contexts, the United Kingdom

and Spain, collected via the Internet by two independent companies SmartSurvey and Netquest respectively (see section 3.4.2, table 7).

This chapter presents a final overview and the conclusions of the three empirical parts of the current thesis that were designed to identify and analyze the concept of deterrents in co-creation online. The theoretical contributions of this dissertation are followed by the presentation of the managerial implications. This thesis concludes with a discussion of the limitations of the research and the suggestion of the future research lines.

# 5.2 THEORETICAL CONTRIBUTIONS

As outlined in chapter one, the purpose of the thesis was directed towards generating an applicable managerial tool that would be effective in co-creation projects online by giving marketers the list of practical recommendations on how to select the right target users' groups that would show better participation rates in an online project based on the empirically proved results. Next, the main theoretical contributions of the three original studies, as shown in Table 23, are discussed in further detail.

**Table 23. Research conclusions**

| | Objective | Theory/ approach | Methodology | Conclusions |
|---|---|---|---|---|
| **Chapter two** | to identify the deterrents to participation in the co-creation process in the Internet-based platforms from the customers' and companies' point of view. | Content analysis, key informant approach, purposive sampling approach | 40 in-depth semi-structured interviews with non-directive approach | In this exploratory study, the barriers to co-creation online were identified and compared by customers' and marketing professionals' rankings. Based on the twenty in-depth interviews with users and twenty in-depth interviews with marketing professionals, nine factors were found that might prevent a user from inserting effort to co-creation online. |
| **Chapter three** | to empirically measure the effect that the deterrents have on the users attitude towards co-creation online and to determine the effect of the context, age, gender, and education level. | Theory of planned behavior, uses and gratifications theory, behavioral reasoning theory, Hofstede's national cultural model | PLS-SEM, EFA, CFA, multigroup analysis | (1) there is a distinction in the effect of the deterrents have on the attitude moderated by the context: in the case of the more experienced online society (the UK) the deterrents don't have a significant effect on the attitude towards co-creation online; (2) there is a distinction among young individuals of different genders in the effect of attitude towards participation and the effect of motivators towards attitude: younger men exhibit a higher level of positive attitude and higher effect of the motivators towards attitude; on the contrary old women exhibit a higher level of the deterrents effect; (3) the education level has a moderating effect on the deterrents towards attitude: the individuals with basic education level exhibit a higher level of the deterrents' effect. |

| | | | | |
|---|---|---|---|---|
| **Chapter four** | to enrich the research model by adding moderating effects of perceived risk of use, brand reputation, and mediation effect of brand trust; to test the advanced model performing multigroup analysis using context and previous experience in co-creation as the control variables. | Perceived risk of use, brand reputation, brand trust, relevance of context and previous experience in co-creation | PLS-SEM, EFA, CFA, multigroup analysis | (1) brand reputation has no moderation effect on the relationship between attitude and participation in co-creation online. Perceived risk of use was found to have a strong negative moderation effect, in other words the riskier the user perceives the project the less participation can be expected. Brand trust has shown a partial mediation effect on the relationship between motivators and attitude (2) UK and Spain as countries representing two different Internet cultures give distinct level of importance to the studied marketing concepts (3) having previous knowledge of the co-creation practice online can make a user more risk sensitive, which can decrease participation behavior. Brand reputation doesn't have a moderating effect for either of the studied groups. There is a partial mediation effect of the brand trust between motivators and attitude for non-experienced users. |

Firstly, following the research line proposed by Hoyer et al. (2010), while there was a flourishing area of studies that investigated how to motivate users to participate in co-creation and co-creation online, there was a need for a research that would investigate the inhibiting factors. As outlined in chapter two, implementing the qualitative research design, this thesis has enhanced the knowledge of the concept of value co-creation by identifying the deterrents to co-creation online. Furthermore, employing the theory by Gummesson and Mele (2010) the inhibiting factors have been defined by both of the actors of co-creation online (users and marketers). These new findings enhance the literature of value co-creation online and also are proved to be important constructs to be included in the studies of co-creation in the Internet-based platforms.

The third chapter identified a research gap and addressed the absence of the empirical research of the effect that both inhibiting factors together with motivational factors (Constantinides et. al., 2015) have on the users' attitude towards co-creation online, and how this attitude further affects the participation behavior in a co-creation online. In this chapter we have developed and empirically proven the model of formative and reflective constructs to measure deterrents and motivators simultaneously for the first time in the academic field of value co-creation.

We have added value to the literature of the theory of planned behavior (Ajzen, 1985) by examining the relationship between positive attitude towards co-creation online and users' favorable participation behavior. The theory of uses and gratifications has been successfully implemented to the SEM following the research by Constantinides et al. (2015) when studying the positive effect of motivators on the attitude towards co-creation online. Based on

the behavioral reasoning theory (Westaby, 2015) we have studied the negative effect the deterrents have on the users' attitude towards co-creation online. Furthermore, in this chapter we fill in the research gap by including the demographic factors such as gender, age, and education level of the user following the methodology of marketing of services studies (Homburg & Giering, 2001; Mittal & Kamakura, 2001; Verhoef, 2003) implementing the Hofstede's national cultural model (Hofstede, 1980; 2001; 2010).

In the fourth chapter we have further sophisticated the marketing model developed in the third chapter by adding the moderating and mediating effects. By doing so we have contributed to the theoretical development of the widely used marketing concepts of perceived risk of use, brand reputation, brand trust, relevance of context and previous experience in co-creation. We have also demonstrated one more time the accuracy and acceptability of the research model and the nature of reflective and formative constructs.

# 5.3 MANAGERIAL IMPLICATIONS

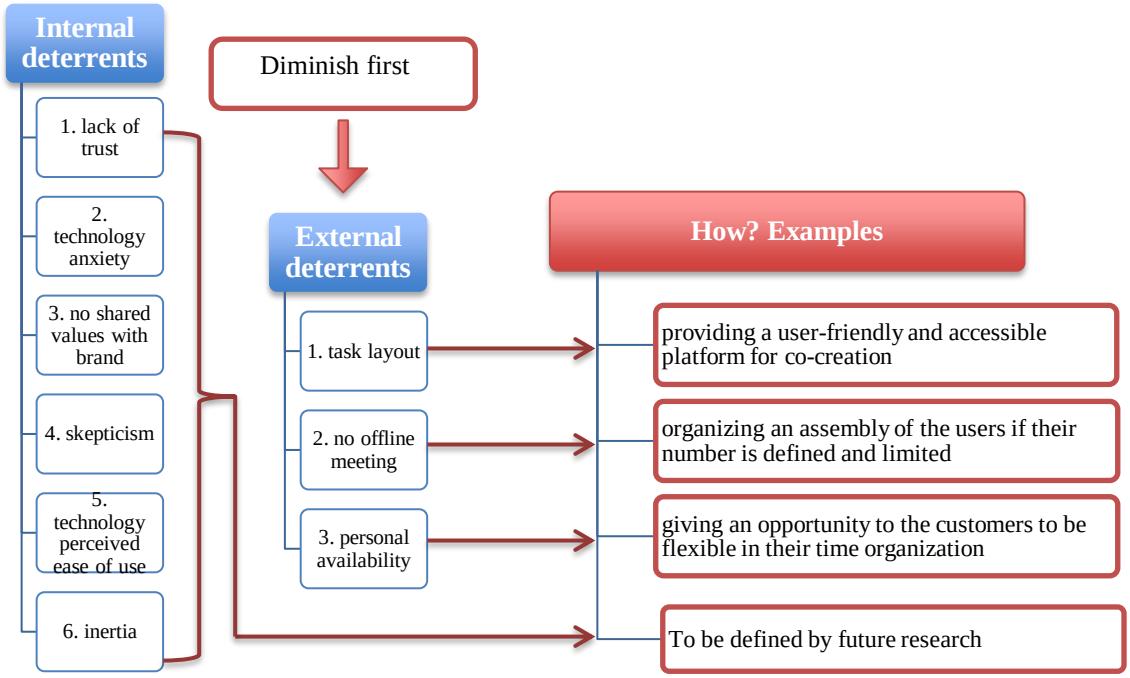
The findings of this thesis have been primarily aimed to lead towards concrete implications in marketing practice and as has been outlined in the general purpose of the study, to serve as a guiding tool for marketing professionals in the implementation and developing phase of co-creation projects online.

In the first empirical study we have identified the nine restraining factors that are suggested to be divided into six internal and three external. This first applicable to the real situation result makes practitioners recognize what are the possible complications to be confronted when launching a co-creation project to an online public. Consequently, being conscious of those inhibiting factors a manager should be focused not only on growing users' motivation but also on reducing the negative influence of the deterrents. Furthermore, being aware of the external factors marketers may choose to tackle them first, however the ways to weaken the impact of internal deterrents (which are more user-related) need to be further investigated by the future academic studies that should include psychological perspective. Figure 12 serves as the visual guide for the practitioners regarding these findings.

Chapter three and four of this thesis are based on the quantitative data analyses that investigated the effects of deterrents and motivators towards co-creation online, to which degree this attitude affects participation in co-creation projects in the Internet-based platforms, what the moderating effects of perceived risk of use, brand reputation, previous experience in co-creation, and mediating effect of brand trust are; and further presented the

various multigroup analyses that enhanced the studied model, first of all, from point of view of the applicability of the results to the real life situations.

**Figure 12. Internal and external deterrents to co-creation online.**




Therefore, managerial implications that are derived from the third and fourth part of this dissertation are assimilated together in order to respond to the general purpose of the study – to provide convenient tool for practitioners. In the table 24 and 25 we intend to visually present the findings that we have obtained from the second and third empirical studies. Marketers should read these tables in the following way depending on the type of information they dispose about the targeted users' groups:

1. Old online society (eg. the UK) VS. Young online society (eg. Spain)

   → *Target old online societies for co-creation online*

   - Deterrents have effect on the attitude only for the young online societies.
   - The moderating effect of perceived risk of use and of brand reputation can be avoided meaning that the project can be developed without considering whether a reputation of a particular brand is perceived as positive or negative by the users.
   - The level of brand trust should be considered for the users from old online societies: it can affect the success of motivational strategy.

2. Age and gender of the users

→ *Target young users (younger 34 years old)*

- Motivators and attitude show stronger effect for young men than for old men.
- For young women deterrents don't have significant effect.

3. Educational level

→ *Target users with advanced educational level*

- Deterrents do not have significant effect for users with advanced studies.

4. Previous experience in co-creation online

→ *Target users who possess previous experience in co-creation online*

- Motivators and attitude show stronger effect for users who participated before in different forms of co-creation online.
- Marketers should be attentive to the moderating effect of perceived risk of use, as such users are expected to be more risk sensitive than those who don't have previous experience.

5. Context and previous experience in co-creation online

→ *Target users that come from the Internet developed society and with previous experience in co-creation*

- Motivators have higher effect on attitude.
- The deterrents do not have a significant effect on attitude.
- There is neither moderation effect of perceived risk of use nor of brand reputation that may affect participation behavior.
- The only variable to pay attention to is brand trust which has a partial mediation effect between motivators and attitude.

Taking these results together to the practice a marketer should also consider the effects of brand reputation, brand trust and perceived risk of use that a user might experience when dealing with co-creation in the Internet-based platforms. These effects might have either positive influence and should be applied by the practitioner in order to enhance users' participation; or neglected, as there would be no favorable result of an influence of such exercise.

A positive moderating effect of brand reputation was found to be significant only for the users from Spain; therefore we suggest to the managers to implement the marketing campaigns for co-creation online based on the brand reputation only for the users from less developed Internet societies in order to achieve higher participation rates.

The negative moderating effect of the perceived risk of use that affects the participation behavior was found significant for Spanish users and for users with experience in co-creation online. This interesting finding can signify that users from young online society and who already participated in any form of co-creation online before would be more risk-alert to the practice that those who have never had such an experience.

Managers should also take into consideration that brand trust as a distinct concept to brand reputation, doesn't show a significant moderating effect between deterrents and attitude for any data group studied; whereas it was found a significant *partial* moderation effect between motivators and attitude for the users from UK, for the group with no previous experience in co-creation, and for the group from the UK with experience. This finding assumes that positive attitude increases with an increase in the effect of motivators but brand trust also mediates the effect. As effect of motivators and brand trust are also positively associated, an increased brand trust also causes increase in positive attitude towards co-creation online. An interesting finding that for the group from Spain with no experience brand trust shows full mediation: this assumes that positive attitude towards co-creation online is present only due to brand trust and that brand trust is associated with only effect of motivators. In other words, managers should be sure that the brand trust is well developed for the group from young online society and with no previous experience, because without brand trust the motivators will not have effect on the positive attitude, and therefore the decrease in participation behavior.

## 5.4 LIMITATIONS AND FUTURE RESEARCH

There are some limitations in this study that should be seen as a possibility for the academics for the future research. First of all, this thesis only suggests the possible ways to combat external deterrents to co-creation online, but provides neither literature review nor an empirical justification for the proposed methods; furthermore, the definition of means to diminish the internal deterrents should also be seen as promising avenue for the future research. As the next step we propose to add the defined techniques to the research model and develop a quantitative study.

Secondly, it would be enlightening to investigate quantitatively the defined barriers using the data collected from marketing professionals in order to generalize the provided results of this thesis.

Thirdly, using the data sample is divided into two groups, old online society (the UK) and young online society (Spain). Hence, there is a limitation of the generalizability of the

results obtained in the third and fourth chapters; we suggest for the future research to cross-validate and examine the current findings across more countries in order to confirm the conclusions of this thesis.

Lastly, this dissertation investigates the effect of the barriers to customer's attitude towards co-creation only in the Internet-based platforms. One of the potential research lines is to apply the mixed method approach of both qualitative and quantitative research designs that was implemented in this thesis for other value co-creation contexts, for instance, co-creation inside the company with employees, etc.

**Table 24. Conclusions of multigroup analyses**

| The effect | ES | UK | WY | WO | MY | MO | BasEdu | AdvEdu | Exp | Noexp | SP_exp | SP_noexp | UK_exp | UK_noexp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Motivators→Attitude** | | | | | | | | | | | | ! | | |
| ***Significant difference*** | **no** | | | | **(MY>>)** | | **no** | | **Exp>>** | | **no** | | **Exp>>** | |
| **Deterrents→Attitude** | ! | | | ! | | | ! | | | | | ! | | |
| ***Significant difference*** | **no** | | **WO>>** | | **no** | | **yes** | | **no** | | **no** | | **no** | |
| **Attitude→Participation** | | | | | | | | | | | | | | |
| ***Significant difference*** | **no** | | **no** | | **MY>>** | | **no** | | **Exp>>** | | **no** | | **no** | |

**Table 25. Conclusions of multigroup analyses. Moderating and mediating effects**

| The effect | ES | UK | Exp | Noexp | SP_exp | SP_noexp | UK_exp | UK_noexp |
|---|---|---|---|---|---|---|---|---|
| **Moderating Perceived risk of use** | | | | | | | | |
| **Moderating Brand reputation** | | | | | | | | |
| **Mediating Brand trust (motivators)** | | partial | | partial | | full | partial | |
| **Mediating Brand trust (deterrents)** | | | | | | | | |

| | |
|---|---|
| | There is a statistically significant effect |
| | There is NO statistically significant effect |
| | There is a statistical difference between the effect of two groups |
| | There is NO statistical difference between the effect of two groups |
| | There is a full mediation effect |
| | There is a partial mediation effect |

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