INFLUENCES OF CUSTOMER PERSONALITY TRAITS ON CO-CREATIONAL ACTIVITIES

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ABSTRACT

Very limited research exists that studies how customer personality traits influence the participation in the value co-creation process, nor does there exists much research on the further intention to use the brand or new products and services offered by the brand. This thesis aims to fill this gap, exploring consumer personality traits, specifically extraversion, innovativeness, risk taking propensity and openness to experience, to actively engage in co-creating value, in the context of mobile operators. The author develops a conceptual model of the independent variable's – customer personality traits and co-creation – and the influence they have on the dependent variables intention to use the mobile operator or its new products or services in the future. For this study, a survey was conducted that resulted in a sample size of 196 respondents. Participants were asked to self-assess their behavior in relation to their mobile operator, and respond to some questions about their personality. The results show that not all customer personality traits influence co-creational activities. Personality traits and co-creation positively influence the intention to buy new products or services offered by the company or brand, however, co-creational activities do not have a positive effect on the intention to buy an existing product or service from the company. All hypotheses except two where therefore confirmed. These findings have implications for mobile operator firms on how to conduct their businesses regarding their target group, for managers involved in new product and service marketing, and for future research on the topic of personality trait's influence on co-creation and innovation.

This master thesis is one of a series of papers and reports published by the Center for Service Innovation (CSI). CSI is a coordinated effort by NHH to focus on the innovation challenges facing the service sector and involves 20 business and academic partners. It aims to increase the quality, efficiency and commercial success of service innovations and to enhance the innovation capabilities of its business and academic partners. CSI is funded through a significant eight-year grant from the Research Council of Norway and has recently obtained status as a Centre for Research-based Innovation (SFI).

Keywords: customer personality traits, co-creation, intention to use, mobile service operator

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1. INTRODUCTION

Customers are dissatisfied with choosing from available products and services provided by companies, based solely on the belief about what the market needs. Consumers are more and more "connected, informed, empowered, and active consumers" (Prahalad & Ramaswamy, 2004b, p. 6). They want to influence the value chain not only at the buying stage. Companies can no longer "act autonomously, design products, develop production processes, craft marketing messages, and control sales channels with little or no interference from consumers" (Prahalad & Ramaswamy, 2004a, p. 5). They have understood that the traditional concept of a market is outdated. In order to create value they need to integrate consumers in all stages of the production. This trend in the market makes co-creation very relevant. Consumers are therefore valued for their active and fruitful roles and as a source of innovation (Füller, 2010). Therefore, co-creation brings different stakeholders together, allowing the customer to "co-construct the service experience to suit their context" and jointly produce a mutually valued outcome (Prahalad & Ramaswamy, 2004b, p. 8).

Research shows that co-creation has many positive effects on consumers, companies and brand experience (Nysveen & Pedersen, 2014) (Prahalad & Ramaswamy, 2004c): Amongst others, consumer's talents are recognized, ideas are adapted and integrated, and loyalty is created (Roberts, Hughes, & Kertbo, 2013). Likewise, if consumers enjoy their participation in co-creation it can entail hedonic benefits for them, such as the opportunities for self-expression, entertainment, and exploration (Nambisan & Baron, 2007). Co-creation can stimulate consumers' senses, increase consumer's feeling on belonging with the brand or dedication, as well as stimulate learning and understanding of product-related solutions (Nysveen & Pedersen, 2014). For companies it can mean that they can use resources from outside their company to create more value (Lusch & Vargo, 2006). It is very important for companies to understand how to stimulate co-creation in order to increase productivity (Lovelock & Young, 1979), deliver superior service (Schneider & Bowen, 1995), and yield competitive advantage (Bendapudi & Leone, 2003).

One important factor influencing and stimulating co-creation is motivation. Consumers seek information, satisfaction of their needs, fame, finding friends, fun, fulfillment, or fortune. "But

these motivations also depend on the co-creators personality" (Roth, 2011). However, so far there exists no research on how customer personality traits potentially influence the participation in the value co-creation process. This knowledge could help businesses approach individuals and stimulate them to conduct co-creational activities together in a more suitable way, and would have therefore a great importance for managers. This is therefore simultaneously the motivation behind this thesis. Hence, the purpose of this thesis is to study influences of customer personality traits on co-creation activities.

1.2. RESEARCH QUESTIONS

Co-creation can happen at many relationship stages between customers and a company/brand, from the ideation stage through to the final usage stage (Füller, Mühlbacher, Matzler, & Jawecki, 2010; Piller, Ihl, & Vossen, 2011). Also, co-creation is understood as a process with various activity types (Payne, Storbacka, & Frow, 2008). Therefore, co-creation can be divided into subcategories such as co-production or new product development (Vargo & Lusch, 2004). This thesis conceptualizes co-creation as "the degree to which consumers actively participate with companies in improving existing solutions or find new solutions to create more value both for the consumer and the company" (Nysveen & Pedersen, 2014, p. 811). Later an explanation will be provided on how this concept differs from involvement, engagement, co-production etc.

Relationships with like-minded people are best built in neutral environments, such as virtual communities. They can strengthen interpersonal ties and develop social bonds between members, but also between members and the company/brand (Occhiocupo & Friess, 2013). However, the focus of most studies concentrates on the partition of the business side, but fails to look at different types of customers, especially their personality traits. As all people have different personality traits, this thesis aims to find out if these traits influence the co-creation between customers and a company/brand. A comprehensive framework is needed to guide research in this area. Therefore, the first research question (RQ) asks:

RQ1: *Do customer personality traits influence customer's co-creation with a company/brand?*

Consumers are actively engaging in the value co-creation process of companies (Payne, Storbacka, & Frow, 2008; Füller, 2010; Vargo & Lusch, 2004). However, offering value to the customers is no longer enough. A company must see that it stays profitable. Hence, besides offering higher value it must also ensure sales of its products and services. A positive attitude towards a product that results from a closer preference fit of co-created products, can subsequently lead to purchase intentions (Hoyer, Chandy, Dorotic, Krafft, & Singh, 2010). However, there exists also the risk of co-creators becoming competition. They may develop competing versions and eventually be "unwilling to purchase a firm's new release" (Hoyer, Chandy, Dorotic, Krafft, & Singh, 2010, p. 293). Questions that emerge now are: Does co-creation lead to a higher intention to use the company/brand in the future? And do these activities influence customers' intention to use new products or services offered by the company/brand in the future? Consequently, the next research questions are:

RQ2a: *Does customers' participation in co-creation influence their intention to use the company/brand in the future?*

RQ2b: *Does customers' participation in co-creation influence their intention to use new products or services offered by the company/brand in the future?*

Research questions one and two point to the importance of studying influences of personality traits on co-creation and influences of co-creation on intention to use the company/brand in the future. In addition, it is important to control for direct influences of customer personality traits on the intention to use the company/brand in the future. For that reason, research questions 3a and 3b are formulated this way:

RQ3a: *Do customer personality traits influence customers' intention to use the company/brand in the future?*

RQ3b: *Do customer personality traits influence customers' intention to use new products or services offered by the company/brand in the future?*

1.3. CONTRIBUTIONS

This thesis has several contributions. Articles integrating co-creational activities mainly look into the importance of motivations to co-create (Occhiocupo & Friess, 2013; Roberts, Hughes, & Kertbo, 2013; Fernandes & Remelhe, 2015), reasons to co-create (Ophof, 2013), or the influence of co-creation on brand experience (Prahalad & Ramaswamy, 2004b). However, the influence of customer personality on co-creation and the intention to use the company/brand in the future, has not yet been studied. By closing the research gap, the reader is able to get a better understanding of the concept of co-creation as a whole.

In addition, the theoretical contribution of this thesis lies on the approach to include personality traits in an overall co-creation framework, inspired by Hoyer et al (2010). It is important to not only look at the different motivators that influence co-creation, such as financial, social, technological and psychological factors, but also have a closer look at the customers themselves. The "conceptual framework of consumer co-creation" by Hoyer et al. (2010, p. 284) serves as an inspiration for the generation of the aforementioned new framework, which is introduced and further explained in chapter 2.

Finally, this paper contributes to managements' understanding of the importance of co-creation. Useful suggestions range from involving the right customers with the right personality traits, to accurately addressing and capturing the interest of customers that participate in co-creation. It is essential to know which characteristics motivate their co-creation best and to maintain lead users as satisfied customers with the intention to keep on using the company/brand in the future.

1.4. OUTLINE OF THE THESIS

The thesis continues with a discussion of the relevant existing literature, namely on the definitions of personality traits, co-creation and the intention to use the company/brand or a new product/service in the future. Hypotheses are then presented, the methodological approach is described, and study results are presented. The thesis closes with the limitations of the paper, the conclusion and recommendations.

2. LITERATURE

It was in 1979 when Lovelock and Young wrote the first academic work about co-production named "consequences of customer participation in production of services" (Bendapudi & Leone, 2003). Normann and Ramírez (1993) later ascertained that successful companies focus on value creation rather than themselves or their industry – together with their customers. Prahalad and Ramaswamy (2004b) and Füller (2003) directed their research towards the co-creation of (new) value, as company values shifted more and more to personalized consumer experiences. The next significant contribution to literature, however, was by Vargo and Lusch, who talked about 'value in use' in their publication 'Evolving to a new dominant logic for marketing' (2004). The paper listed foundational premises (FP), defining what Service-Dominant (S-D) Logic is and moved away from a Good-Dominant (G-D) Logic. However, since the wording of FP6 was still a very G-D logic term, as several marketing scholars pointed out, Vargo and Lusch changed FP6 in 2006 from 'The customer is always a *co-producer* of value' to 'The customer is always a *co-creator* of value' (Lusch & Vargo, 2006). Since then, research has developed further as scholars admit the growing importance of the consumer's co-creation of value with companies. The Marketing Science Institute listed "integrating consumers into the innovation process or co-creation" as one of their top research priorities in 2008-2010 (Hoyer, Chandy, Dorotic, Krafft, & Singh, 2010, p. 283). The importance is also underlined with the number of retrieved hits on Google. The terms 'cocreation' and 'co-creation' together had 95,25million hits on 8 March 2016. This proves the interest of people around the world in this content area. On Google Scholar, both terms reached 2,95million results, which indicate a serious discussion in academic circles.

How Co-creation Relates to Customer Involvement

Customer involvement can vary from customer to customer and depends on how each person chooses to create his own unique experiences (Prahalad & Ramaswamy, 2004b). Different involvement levels have different effects on the outcomes of co-creation: "The higher the involvement of consumers in co-creation the more positive the outcomes will be" (van der Lof, 2013, p. 14). If consumers are given full empowerment in the selection of new products and the development of new products, customer involvement is highest (Fuchs & Schreier, 2011). Therefore, one can say that customer involvement measures the degree of dedication

of customers in co-creation. Usually 3% to 10% of participants frequently get involved with innovations (Füller, Matzler, & Hoppe, 2008).

How Co-creation Relates to Customer Engagement

Concepts such as customer participation and involvement represent antecedents to customer brand engagement (Brodie, Juric, Ilic, & Hollebeek, 2011). However, brand engagement goes beyond co-creation towards having a deeper and more meaningful connection over time (Kumar, Donkers, Venkatesan, Wiesel, & Tillmanns, 2010). It encompasses behavioral, cognitive, relational and affective dimensions. Behavioral dimensions are ranging from negative, such as "organizing public actions against a firm" to positive, such as "posting a positive brand message on a blog" (van Doorn, et al., 2010, p. 254). Cognitive dimensions are about the "level of concentration" the customer has on the engagement object (Nysveen & Pedersen, 2014, p. 814). Relational and affective dimensions cover the dedication and the feeling of belonging of the customer, their vigor and interaction. These exhibitions usually have a brand or company focus but they can also be directed to a much larger network of actors, including "other current and potential customers, suppliers, general public, and firm employees" (van Doorn, et al., 2010, p. 254). Brodie et al. find that the engagement of consumers transforms into "consumer loyalty, satisfaction, empowerment, connection, commitment and trust" (2011, p. 6). Therefore, customer engagement's relationship to co-creation can be seen as the extension of mere involvement, as it includes an interactive relationship where the customer engages on several different levels with the company/brand.

How Co-creation relates to Co-design and Co-production

Co-design focuses more on the act of designing a core offer together, rather than producing it. That makes it a "specific instance of co-creation" (Sanders & Stappers, 2008, p. 6). Sanders and Stappers further refer with co-design to "the creativity of designers and people not trained in design working together in the design development process" (2008, p. 6). Now, one can say that co-production implements the proposed solution from co-design. Its focus lays rather on the 'making'. As the word 'co-production' already indicates, doing -or producing- is about buying raw material and making something new out of it (McDougall, 2012). Co-

production is sometimes used interchangeably with co-creation. However, the relationship between co-creation and co-production and co-design is simply that co-creation summarizes both steps in one comprehensive term.

Why consumers engage in co-creation activities and what motivates them is covered e.g. by Roberts et al. (2013), Fernandes and Remelhe (2015), Füller (2010), Nambisan and Baron (2009), Ophof (2013) and Occhiocupo & Friess (2013). Roberts et al. (2013) argues that customers' motivators differ depending on the situations of co-creation. Innovating independently of the firm appears to be driven by egocentric motives, innovating directly in collaboration with the firm appears to be driven by opportunity- (or goal-) related motives (Roberts, Hughes, & Kertbo, 2013). Innovating as part of a community appears to be driven by altruistic motives (Roberts, Hughes, & Kertbo, 2013). Consumers are motivated by the belief in the benefit of engaging in such an activity (Nambisan & Baron, 2007), with a sense of voluntarism and reciprocity, to interact and to cooperate (Fernandes & Remelhe, 2015). According to Füller (2010), most users are motivated by "a combination of intrinsic […], internalized extrinsic motives […] and entirely extrinsic motives" (Fernandes & Remelhe, 2015, p. 7).

Hoyer et al (2010) list four relevant factors of motivation that influence the individual's engagement in co-creation. These factors are 'financial', 'social', 'technical/knowledge' and 'psychological'. The financial factor is about "financial rewards, either directly in the form of monetary prizes or profit sharing from the firm that engages in co-creation with them, or indirectly, through the intellectual property that they might receive, or through the visibility that they might receive from or engaging in co-creation competitions" (p. 288). The social factor includes "the benefits deriving from the social and relational ties that develop over time among the participating entities" (Nambisan & Baron, 2009, p. 391). It can be expressed in form of titles or any other visible symbol of their unique contribution. The technical or knowledge factor is about the desire to acquire company specific knowledge that is perceived as valuable by the consumer. Last but not least, the psychological factor comprises a sense of self-expression and pride, that some customers engage in co-creation fully out of altruistic reasons (Ophof, 2013). Others may be motivated due to "high involvement or dissatisfaction

with the product" (Hoyer, Chandy, Dorotic, Krafft, & Singh, 2010, p. 289). The relevance of these motivators is confirmed by Ophof (2013), who distinguishes between six types of motivations that overlap with Hoyer et al.'s. They are 'financial', 'learning/knowledge', 'hedonic', 'personal', 'social', and 'psychological'. The hedonic factors are "sources of highly interesting and pleasurable as well as mentally stimulating experiences" (Nambisan & Baron, 2009, p. 391). The personal factor is concerned with gains in reputation, status, and achieving self-efficacy in terms of materialistic forms of personal motivation. However, this factor shows certain similarities with the social and psychological factors from Hoyer et al.. Overall, it can be said that motivation differs a lot between customers, depending on the situation, the type of co-creation, and the factors motivating individuals (Bughin, 2014).

Arts et al. (2011) states that a lot of research has been conducted to find consumer traits of an individual that indicate a likeliness to adopt an innovation. Nevertheless, the academic literature lacks the study of customer personality traits' influence on co-creation or the intention to use a company/brand in the future.

Scholars found that the outcomes of co-creational activities can be either firm-related, such as "efficiency, effectiveness, and increased complexity"; or customer related, such as the "fit with consumer needs, relationship building, engagement and satisfaction" (Hoyer, Chandy, Dorotic, Krafft, & Singh, 2010, p. 284). So far, there has been little research examining the effect of co-creational activities on the intention to use the company/brand in the future.

Figure 1 shows that customer's personality traits are the independent variables for this model. The traits are made up of openness to experience, risk taking propensity, innovativeness, and extraversion, which are subject to this research. The traits were chosen based on their universality and fit to the research topic: Openness to experience and extraversion are recognized as two of five broad dimensions used to describe the human personality. Risk taking propensity and innovativeness are personality traits that are highly related to innovation, and therefore linked to co-creation and future intentions to use products and services. It is assumed that individuals with high scores on these four traits will have a higher intention to engage in co-creation, the intention to use the brand's products or services in the future, as well as use new products or services offered by the company in the future. Next,

their influence on co-creation is investigated. Both co-creation and personality traits might affect the intention to use the company/brand in the future, as well as the intention to use new porducts or services offered by the company/brand in the future. This is visualized on the right side. This research model will help the reader get a good understanding of the constructs and their relationships.

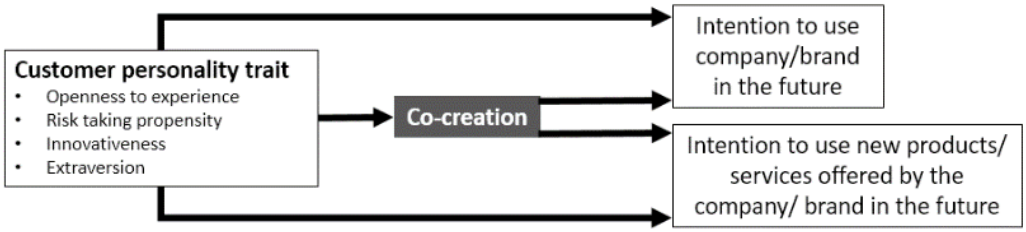

Figure 1: *Research Model*

The following subchapters of the literature review will give an overview on the definitions of personality traits, co-creation and the intention to use, and how they are used within this thesis.

2.1. PERSONALITY TRAITS

Personality traits are important, as they are habitual patterns of behavior, thought and emotion that are relatively stable across contexts and time (Roccas, Saggiv, Schwartz, & Knafo, 2002; Kassin, 2003; Hilgard, Atkinson, & Atkinson, 1975). It is therefore reasonable to take customer personality traits as a reference for customer's influence on co-creational activities, as they don't change as much over time as motivators or beliefs. Furthermore, the big-five taxonomy is found universally applicable across cultures (Ferguson, Paulin, & Bergeron, 2010). It includes dichotomous scales of extraversion, agreeableness, emotional stability, consciousness, and openness to experience. Measuring the influence of customer personality traits on co-creation can easily be generalized and therefore help companies approach their customers in the most effective way.

Plenty of research has been conducted to identify traits from consumers that are probable to adopt innovation. Here, it is distinguished between sociodemographics, such as age, gender, level of education and income; and psychographics, such as innovativeness, opinion leadership, media proneness and involvement (Arts, Frambach, & Bijmolt, 2011). Psychographics is the quantitative examination of consumers' life-styles, personality, and

demographic characteristics (Babin & Harris, 2014). The focus of this thesis will lie on the psychographic personality traits 'openness to experience', 'risk taking propensity', 'innovativeness' and 'extraversion'. As they are universal traits and could be of great importance to advance scientific research on co-creation. The following subchapters will explain these terms in detail.

2.1.1. OPENNESS TO EXPERIENCE

The first customer personality trait examined in this thesis is 'openness to experience'. Being part of the Big Five, this trait is important and has been heavily investigated by scholars. Mowen's 3M Model sees 'openness' as an elemental trait, which is made up by "genetic predispositions and early learning experiences" (Bosnjak, Galesic, & Tuten, 2007, p. 599). Furthermore, McCrae (1992, p. 1) regards openness to experience as "recurrent need to enlarge and examine experience". He describes that openness to experience is organized in specific areas, to which a person can be open or closed. These specific areas are divided in the six facets, two of which are important in terms of co-creation: 'Openness to ideas' can mean intellectual curiosity and open-mindedness. 'Openness to actions' can mean being adaptable, valuing experimentation and liking novelty (Homan, et al., 2008). Based on these findings, the first hypothesis states:

H1: *Openness to experience has a positive effect on co-creation.*

Individuals high on this trait are imaginative, curious, creative, innovative, original, reflective, untraditional, and broad-minded (Barick & Mount, 1991; Zhao & Seibert, 2006). They are willing to explore novel ideas, tolerate, and consider unfamiliar and new experiences (Costa & McCrae, 1992; Zhao & Seibert, 2006). Open individuals have "a strong intellectual curiosity and often seek out new and unconventional experiences and ideas" (Le Pine, Colquitt, & Erez, 2000) Individuals low on openness to experience can be "conventional, narrow in interests, and unanalytical" (Zhao & Seibert, 2006, p. 261).

Openness to experience describes individuals that are curious, willing to explore novel ideas, and consider new experiences and ideas. The expected effect on intention to use the company/brand or its new products/services should therefore be positive. Subsequently, hypotheses 2a and 2b state:

H2a: *Openness to experience has a positive effect on the intention to use the brand/company in the future.*

H2b: *Openness to experience has a positive effect on the intention to use new products or services provided by the brand/company in the future.*

2.1.2. RISK TAKING PROPENSITY

If a person pursues a goal, value, option or outcome, but the "behavior in question could lead to more than one outcome" and some of these outcomes are "undesirable or even dangerous", the individual took a risk (Byrnes, Miller, & Schafer, 1999, p. 367). However, Byrnes admits that this definition is very broad and that seemingly harmless behavior such as telling a joke, compared to harmful behavior such as drunk driving, both fall under this description. Then again "behaviors can be appropriately defined as risky even when the person performing these actions is unaware of possible negative consequences" (Byrnes, Miller, & Schafer, 1999, p. 368). This means people don't necessarily have to be aware that they are taking risks, as there are many instances when risk is taken out of naiveté. This is in line with Byrnes et al., who suggest that "the category of risky behaviors is not an equivalence class" (1999, p. 367). Thus, prototypical and less prototypical cases of risk can fall into the same category.

Sitkin and Pablo (1992) set out a model for risk taking where they suggest two key inputs: risk perception and risk propensity. Perceived risk is viewed in terms of a "subjective expectation of a potential loss across six dimensions" (Quintal, Phau, Sims, & Cheah, 2016, p. 176). The six dimensions are: financial, performance, psychological, social, physical, and time risk. 'Financial risk' occurs when monetary loss arises from having to repair, replace or refund a purchase. 'Performance risk' applies when the purchase will not function as wanted or anticipated. It is a trade-off between product lifespan and its investment cost. 'Psychological risk' is the negative reaction after a purchase, such as anxiety or regret, if the purchase didn't deliver the expected benefit. 'Social risk' occurs when other people's opinions of the consumer are affected by the purchase. 'Physical risk' applies when the consumer's health or safety is at risk as a result from the purchase. 'Time risk' refers to the opportunity cost of waste of time or the purchase taking too much time in relation to finding the right benefits for the right price.

The second customer personality trait examined in this thesis is 'risk taking propensity'. Individuals high on this trait show more risky behaviors than others or are willing to engage in actions with a higher chance of distressing outcomes (Byrnes, Miller, & Schafer, 1999). Sitkin and Pablo define risk propensity as "the tendency of a decision maker either to take or to avoid risks" (1992, p. 12). Based on Sitkin and Pablo (1992), Byrnes et al. (1999), and Nicholson et al. (2001) this thesis defines risk propensity as the rate with which individuals take or don't take different kinds of risks (i.e. the six types of risk described earlier) across time and situations.

By engaging in co-creational activities, the customer is taking some risk: The individual is ready to express his ideas, emotions and beliefs to other people. However, the outcome – in this case the reaction from others – is not clear: The idea can be accepted by the co-creating firm, or can be rejected, which would be a negative experience for the customer. Individuals engaging in co-creational activities are therefore predicted to have a higher risk taking propensity. Hence, hypothesis 3 states:

H3: *Risk taking propensity has a positive effect on co-creation.*

When evaluating a brand, each dimension of perceived risk is expected to have an adverse impact on the intention to purchase (Quintal, Phau, Sims, & Cheah, 2016; Chen & He, 2003; Kozak, Crotts, & Law, 2007). Now, if a customer has high or low risk taking propensity, the decision to use a company/brand in the future, should not be influenced negatively, as the customer already knows what to expect, based on previous purchases. Therefore, hypothesis 4a states:

H4a: *Risk taking propensity has a positive effect on the intention to use the brand/company in the future.*

If this brand/company now offers a new product or service, the customer can't estimate correctly all possible risks. Noble et al. (2009) describe for generation Y that "consumers may view social risk as a balance between their individualism and their desire to conform to society" (Quintal, Phau, Sims, & Cheah, 2016, p. 177). For example, to blend in with the crowd,

consumers will choose the endorsed brands, and to blend out and keep a unique identity they will not choose endorsed brands. Customers' high risk taking propensity would therefore have a positive effect on the intention to use the new product or service. However, customers' low risk taking propensity is assumed to have a negative effect on the intention to use the new product or service, especially if the customers want to blend in. Consequently, the expected effect on intention to use the company/brand's new products or services should therefore be negative. Hypothesis 4b states:

H4b: *High risk taking propensity has a positive effect on the intention to use new products or services provided by the brand/company in the future.*

2.1.3. INNOVATIVENESS

The third customer personality trait examined is 'customer innovativeness'. It is a personality construct that all individuals have, to a greater or lesser degree (Midgley & Dowling, 1978; Rogers, 1983; Citrin, Sprott, Silverman, & Stern Jr, 2000). Innovative consumers are most often described as "dynamic, curious, communicative, stimulation-seeking, venturesome, and cognitive individual" (Wood & Swait, 2002; Goldsmith, 1983). Since value co-creation deals with innovations of some sort, having a personality trait like innovativeness is considered to correlate. Hence, hypothesis 5 states:

H5: *Innovativeness has a positive effect on co-creation.*

Compared with non-innovators, innovators have e.g. "higher levels of income, education, opinion leadership, […] are usually younger and have more favorable attitudes toward risk" (Lassar, Manolis, & Lassar, 2005, p. 179; Rogers, 1983). They also differentiate themselves from peers as they judge and decide independently of the communicated experience of others (Manning, Bearden, & Madden, 1995; Midgley & Dowling, 1978). Hence, hypothesis 6a states:

H6a: *Innovativeness has a positive effect on the intention to use the brand/company in the future.*

Based on Steenkamp et al. (1999), innate innovativeness is defined as the ‘‘predisposition to buy new and different products and brands rather than remain with previous choices and consumer patterns’’ (Roehrich, 2004, p. 671). It can be said that consumer innovativeness is a good determinant of new product adoption (Citrin, Sprott, Silverman, & Stern Jr, 2000). “The greater a consumer's independence in evaluating new products, the greater his propensity toward early trial” (Manning, Bearden, & Madden, 1995, p. 337). Furthermore, innovative consumers tend to buy new products faster and more frequently than their peers as they are constantly seeking novel stimuli, uniqueness and difference (Roehrich, 2004; Manning, Bearden, & Madden, 1995). Hence, hypothesis 6b states:

H6b: *Innovativeness has a positive effect on the intention to use new products or services provided by the brand/company in the future.*

2.1.4. EXTRAVERSION

The fourth customer personality trait examined is ‘extraversion’. This trait is used in most personality measures, such as the Big Five model, the three-factor model (Eysenck, 1950) and Myer-Briggs Type Indicator (Briggs, 1943), which shows that extraversion is a prominent factor in personality psychology with an important role in major taxonomies of personality (Judge, Higgins, Thoresen, & Barrick, 1999).

Extraverts are active, energetic, cheerful, enthusiastic, dominant, gregarious, talkative and sociable people with “a preference for interpersonal interactions” (Ferguson, Paulin, & Bergeron, 2010, p. 29; Costa & McCrae, 1992; Zhao & Seibert, 2006). People high on extraversion seek excitement and stimulation, like to volunteer, and voice their opinion (Costa & McCrae, 1992; Bekker, 2005; Cullen & Morse, 2011). These are important traits for co-creation. Furthermore, Amiel and Sargent (2004) found that individuals with high extraversion are generally more willing to share information online, although they spend less time online than individuals with low extraversion. So when they do spend time online, they interact purposefully, voice their opinion and are willing to share information (Cullen & Morse, 2011). People low on extraversion are rather reserved, quiet and enjoy being alone (Zhao & Seibert, 2006). Based on these findings, hypothesis 7 states:

H7: *Extraversion has a positive effect on co-creation.*

Rogers (1983) states that the desire to gain social status is one of the most important motivations for individuals in deciding to adopt an innovation. “Those high in extraversion are naturally inclined to care about their image and other social consequences of behaviors, and therefore are more likely to form intentions to act based upon their perceptions of the opinions of significant others” (Devaraj, Easley, & Crant, 2008, p. 97). Devaraj et al. (2008) found further that extraversion moderates the relationship between subjective norms and intentions to use technology, such that for individuals with higher extraversion the relationship is stronger. Therefore, hypotheses 8a and 8b state:

H8a: *Extraversion has a positive effect on the intention to use the brand/company in the future.*

H8b: *Extraversion has a positive effect on the intention to use new products or services provided by the brand/company in the future.*

2.2. CO-CREATION

The term ‘co-creation’, coined in 2000 by Prahalad and Ramaswamy, indicates a joint value creation. Yet the scholars’ opinions vary widely about who should be involved, when, what should be created, and in what way (Sanders & Stappers, 2008).

Nysveen and Pederson (2014) Hoyer et al. (2010) and Prahalad and Ramaswamy (2004a) (2004b) specify the performers as ‘consumers/customers’ and ‘companies’ or ‘suppliers’. For Sanders and Stappers (2008, p. 6) they are simply “two or more people”. Co-creation can happen in a variety of circumstances (Hoyer, Chandy, Dorotic, Krafft, & Singh, 2010), through “shared inventiveness, co-design, or shared production” (Lusch & Vargo, 2006, p. 284). Prahalad and Ramaswamy (2004a) call co-creation the collaborative and joint work in an innovation process, which can be further divided into co-ideation, co-design, co-development and co-creation of new products or services. It is by no means the company “trying to please the customer” (Prahalad & Ramaswamy, 2004b, p. 8). Van Doorn (2010, p. 254) goes into more detail, describing that behaviors such as “making suggestions to improve the consumption

experience, helping and coaching service providers, and helping other customers to consume better" are all facets of co-creation. According to Lusch and Vargo (2006, p. 284), co-creation involves "the (customer) participation in the creation of the core offering itself". Nysveen and Pederson (2014, p. 811) take a more holistic view and perceive consumers to create more value for both parties through participating in "improving existing solutions or finding new solutions". Füller also speaks of collaboration as "developing relevant new products together" (van Dijk, 2011, p. 10). Sanders and Stappers (2008, p. 6) simply define co-creation as "any act of collective creativity". Should a customer experience no personal satisfaction with the current product or the experience it provides, he is likely to engage in behavior that changes this situation (Roberts, Hughes, & Kertbo, 2013). Co-creation takes place when the customer participates through "spontaneous, discretionary behaviors" (van Doorn, et al., 2010, p. 254).

In this thesis, co-creation is a synthesis of the various understandings, based on Nysveen and Pedersen (2014). Co-creation is defined as joint creation of mutual value - by both the company and the customer - by jointly defining and solving problems in daily consumption situations (Nysveen & Pedersen, 2014).

Value co-creation enhances consumer engagement and leads to more favourable assessments of the organization (Payne, Storbacka, & Frow, 2008; Auh, Bell, McLeod, & Shih, 2007). The individual engaging in a co-creational activity finds increased value in the company's product or service offer (Franke & Piller, 2004; Schreier & Fuchs, 2012). Consumers' emotional engagement with a company/brand enhances their intention to purchase (Payne, Storbacka, & Frow, 2008). Now, it is assumed that co-creating a new product or service should pass the perceived value increase on to this new product or service, especially when it increases the customer's personal satisfaction. This, in turn, should increase the customer's intention to use the new product or service launched by the company in the future. Therefore, hypothesis 9 and 10 state:

H9: *Co-creation has a positive effect on the intention to use the brand/company in the future.*

H10: *Co-creation has a positive effect on the intention to use new products or services provided by the brand/company in the future.*

2.3. INTENTION TO USE

Literature speaks of 'behavioral intention', 'intention to use', 'intention to buy', and 'purchase intention' alternately. All these terms have a common definition: an individual intends to buy or use a good or service in the future. "Behavioral intention is an individual's subjective probability of performing a specified behavior, and is the major determinant of actual usage behavior" (Kuo & Yen, 2009, p. 103). Van der Heijden (2003, p. 542) even states that "intention to behave is the sole determinant of actual behavior". The 'Theory of Reasoned Action' Model (TRA) states that a specific behavior performance is determined by the person's behavioral intention to perform such behavior (Davis, Bagozzi, & Warshaw, 1989). Similar to TRA, the 'Technology Acceptance Model' (TAM) shows that the actual use (i.e. of computers) is determined by the behavioral intention to use. Davis et al. (1989, p. 997) state in their conclusion that "people's computer use can be predicted reasonably well from their intentions".

However, consumers weigh attributes differently in situations of purchase intention and purchase behavior, causing a discrepancy in intention and behavior (Arts, Frambach, & Bijmolt, 2011). "91% of the variance [in purchase behavior] is not captured by purchase intent" (Synovate, 2007, p. 4). The correlation between behavioral intention and actual behavior is even lower for new products, compared to existing ones (Arts, Frambach, & Bijmolt, 2011). Explanations for this gap range from change of intentions, over biased estimates in research, to the inability of the customer to anticipate unexpected events that may affect the adoption decision.

Being aware that the intention to use does not represent the actual purchase intention, it is still its best indicator. Nevertheless, as this thesis is limited in time and financial resources, interviewees were not asked to actually buy a product to measure their buying behavior. Individuals were questioned about their intentions to use (new) products and services by a familiar brand/company, which should merely represent their future behavior.

3. METHOD

According to the researcher's knowledge, the connection between customer's personality traits and the influence on co-creational activities has not been made in previous academic work. It distinguishes the study from other papers that focused on the influence of motivators on co-creational activities.

The following table's goal is to demonstrate the expected effects from the chosen antecedents on co-creational activities and the intention to use, based on the literature review and formulated hypotheses.

Table 1: *Definitions and expected effects of customer personality traits on co-creational activities and intention to use or keep on using the company/brand.*

Antecedent	Definition	Effect on Co-creation	Effect on Intentions
Extraversion	Represents sociability, cheerfulness, and optimism. Extraverts seek out new opportunities and excitement	Positive	Positive
Innovativeness	The general propensity of a consumer to adopt new products	Positive	Positive
Openness to experiences	The general propensity of a consumer to be open-minded and adaptable towards new things	Positive	Positive
(High) Risk taking propensity	The frequency with which consumers tend to take different risks across time and situations	Positive	Positive

The scope of the research covers the opinions of individuals who own and use a smartphone and have previously engaged in co-creational activities with their mobile operator. The thesis adopted a descriptive quantitative approach. A statistical research was performed that provided data describing the attitude of the population under analysis. The obtained results were then analyzed in order to draw meaningful generalizations.

3.1. PROCEDURE

The method used in this research is the survey, which was conducted online. The questionnaire method allows the author to obtain a higher percentage of responses (e.g. compared to telephone surveys), uninfluenced by third parties (e.g. the interviewer).

The collection of the relevant data from participants was executed in the following manner:

1. An introduction text presented the author and explained the necessity of the survey to the participant.

> Thank you for taking the time to complete the survey.
>
> This survey is an important part of my master thesis at the Norwegian School of Economics (NHH). The survey takes approximately 5 minutes to complete. It is voluntary to participate. The responses are anonymous and will be used only for research purposes.
>
> If you have questions or concerns, please contact Manuela Twrsnick at manu_twrsnick@hotmail.com.
> Thank you!
>
> Manuela Twrsnick
> Masters Candidate, Norwegian School of Economics, Bergen, Norway

2. Then, a short explanation was provided to describe the settings for the survey. The participant was asked to proceed to the survey only when meeting the criteria for the target population. This was essential for the correct data collection of the study, however, it was not controlled for.

> Individuals who own and use a smartphone need to have a contract with a mobile operator in order to make phone calls, send messages or use the internet. Telephone companies usually have very similar offers, differing mostly in price and service quality. Services can include wireless network infrastructure, data transmission, telephony, messaging, billing, customer care, roaming etc.
>
> Please relate the following questions to your mobile operator. If you are a customer of more than one mobile operator, relate the questions to what you consider your main mobile operator.
>
> If you are not a customer of a mobile operator, please exit the study now.

3. A battery of questions was run to obtain vital information for the investigation. The questionnaire is included in the Appendix 1.
4. To finish, the author conducted a series of classification and identification questions.

Results represent opinions of those who had access to the Internet, went to the survey website, and chose to complete the survey. The survey was available for two weeks, from April 19th until May 3rd 2016.

3.2. SAMPLE

3.2.1. TARGET GROUP

Mobile operators where chosen as an empirical context, as mobile operators often leave their customers much space to individualy create their smartphone plan, or they interact to jointly create the best customer experience. The target group includes individuals who own and use a smartphone and who have previously engaged in co-creational activities with their mobile

operators. The number of worldwide smartphone users for 2016 is forcasted to reach 2.08 billion (Statista, 2015). Co-creation with mobile operators can range from expressing personal needs, ideas, concerns or suggestions to the company, to participating in decision making, crowdsourcing, challenge platforms, or co-creation communities of the mobile operator. The biggest mobile operators all have ways in which customers can engage in co-creation; be it online co-creation communities (Telefonica, AT&T, Vodafone), co-creation company space and innovation centers (Telekom, Telstra, Verizon, Vodafone), collaboration on wikis (BT Group), workshops (O_2), co-designing (TeliaSonera), co-producing (Orange) or co-ideating (Telekom, O_2)[1].

3.2.2. SAMPLING METHOD

In any type of research it is difficult to get a true random sample. In this case, with a population of 2.08 billion people, defining a representative sampling frame is not possible. That is why the author chose the nonprobability technique: a convenience sample is not representing the population, however, it gives an insight to the subject. Limited by time, money and manpower, subjects were selected based on their accessibility and personal and intentional investigator judgment.

3.2.3. SAMPLING PLAN

The survey was conducted online. Individuals were sent a link to the survey via email and on Social Media. The link was also posted on Facebook walls and groups, enabling people to fill it out without having been asked directly. Only people that were customers of a mobile operator were asked to participate in the survey.

[1] Telefonica: http://www.mormedi.com/work/telefonica-consumer-centric-shift
AT&T: http://www.pwc.com/us/en/technology-forecast/2012/issue2/features/feature-creating-openeing-apis.html
Vodafone: http://www.vodafone.com/business/global-enterprise/innovation
Telekom: http://www.laboratories.telekom.com/public/Deutsch/Netzwerk/Pages/Creation-Center.aspx
Telstra: http://www.cmo.com.au/article/546191/cocreating_customers_australiansuper_digital_innovation_journey/
Verizon: http://downstream.com/verizoninnovationcenter
BT Group: http://www.globalservices.bt.com/uk/en/news/bt-to-empower-global-collaboration
O2: https://makerclub.org/blog/2015/08/05/intro-to-o2-think-big-workshops/
TeliaSonera: https://books.google.co.uk/books?id=9wXyBwAAQBAJ&pg=PA604&lpg=PA604&dq=teliasonera+co-creation&source=bl&ots=DqWq7afamo&sig=1lP8UO4-ojGDNU2hQo3A7Wbg9gQ&hl=de&sa=X&ved=0ahUKEwiIyub__J_NAhUqCMAKHWBUAUwQ6AEIIzAA#v=onepage&q=teliasonera%20co-creation&f=false
Orange: http://www.inc.com/diane-hessan/mobile-giant-used-consumer-collaboration-to-innovate.html

3.2.4. SAMPLE SIZE

A total of 333 people accessed the survey, of which 196 completed their responses. 37,6% did not go further than the introduction text and 3,7% of respondents did not answer more than the first two questions. Therefore, solely the completed answers were considered in the analysis. The response rate of 59% is appropriate to eliminate sample bias from the perspective of questionnaire distribution method, and also enough for an effective analysis (Sekaran, 2003). The recommended number required to conduct a multiple regression analysis is a sample size five times higher than the number of latent variables. In this case, having seven variables, the minimum number of respondents was 35 samples. Since the sample size of the current study is 196, multiple regressions can be used to test if there is support for the proposed model.

3.2.5. SAMPLE DESCRIPTION

Gender

The study resulted in a valid participation of 196 individuals, of which 49.49% were women (97) and 50.51% were men (99). This is a very representative result, as it reflects the reality.

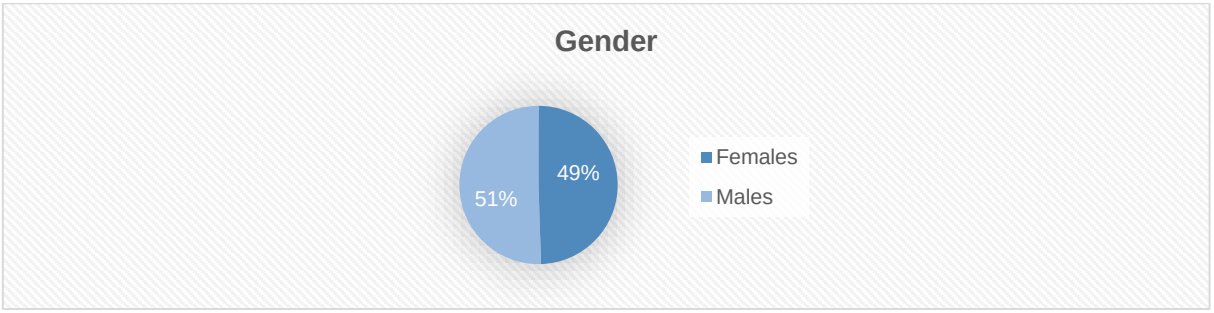

Figure 2: *Percentage of participants, by gender.*

Age

The age span was measured in six intervals:

1. Individuals between 15 years and 24 years
2. Individuals between 25 years and 34 years
3. Individuals between 35 years and 44 years
4. Individuals between 45 years and 54 years

5. Individuals between 55 years and 64 years
6. Individuals older than 64 years

It can be seen that the highest amount of responses came from the age group between 25 and 34 years with a percentage of 53.57% (105), followed by the age group of 15 to 24 year olds with 25% (49). The interval of 35 to 44 years came third with 9.18% (18), and 45 to 54 year olds made up 5.10% of the responses (10). Only 4.59% of answers came from 55 to 64 year olds (9) and the least answers generated the individuals older than 64 years with 2.55% (5).

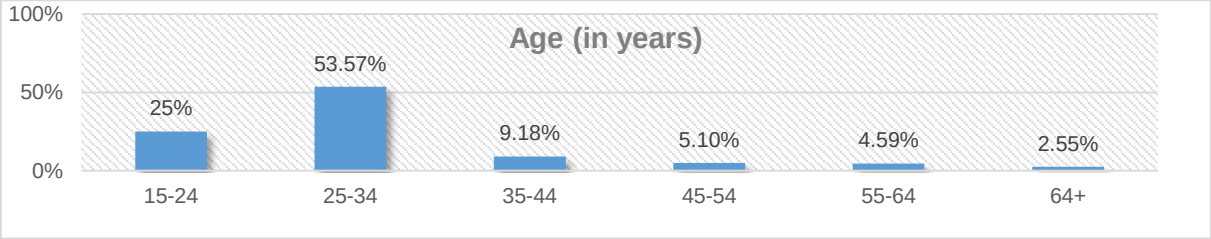

Figure 3: *Percentage of participants, by age groups.*

The age distribution is not representative of the smartphone using population. Although it is mostly the younger generations that have an extensive use of smartphones, the majority of older generations also own and use them. The results of the study are biased by the availability of people that agreed to participate in the study.

Education

Education was measured in four categories:

1. Individuals with primary education
2. Individuals with secondary education
3. Individuals with a University or College education below or equal 3 years
4. Individuals with a University or College education above or equal 3 years

With 76%, most respondents (149) had a university or college education of more than three years, followed by 18.37% of respondents (36) with university or college education below or equal three years. 5.10% of respondents (10) had a secondary education and one respondent had only primary education.

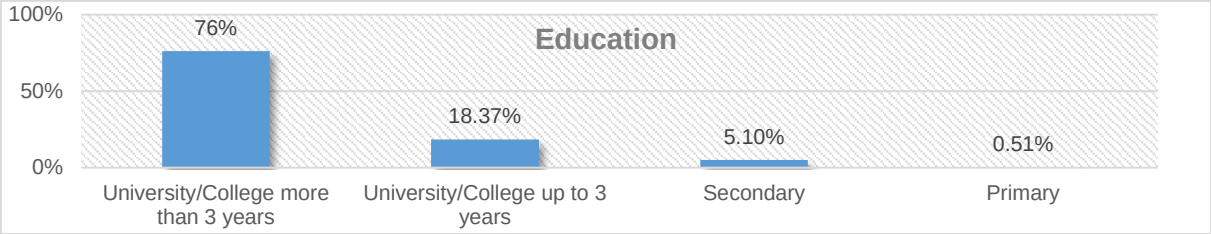

Figure 4: *Percentage of respondents, by education.*

The educational level of the respondents of the survey is higher than the average western educational level and therefore not very representative. For 2015 the educational attainment in the U.S. for example shows that most people had a University or College education of up to three years (56.4%), followed by a University or College education of more than three years (32%), and the least amount of individuals with a primary and secondary education (11.7%) (U.S. Department of Commerce, 2015). Therefore, the sample does not represent the population very well in terms of education, as too many respondents have a very high level of education.

3.3. MEASURES

Most of the measures in the study are based on previously validated measurement scales. Personality trait items included 'openness to experience' (inspired by John et al., 1991), 'risk taking propensity' (inspired by Wang and Cheung, 2004), 'innovativeness' was measured with "I am curious about various things" and "I think it is very interesting to try new things" (inspired by Hung et al., 2003; Yang, 2005), and "In general, I am among the first in my circle of friends to buy a new product or service from mobile operators when it is available" and "If I hear that a new product or service from a mobile operator is available to purchase, I would be interested enough to buy it"(inspired by Goldsmith and Hofacker, 1991), and 'extraversion' (Inspired by John et al., 1991). The wording of all items is shown in Table 2.

Co-creation was measured by six items: "I often express my personal needs to my mobile operator", "I often suggest how my mobile operator can improve its services" and "participate in decisions about how my mobile operator offers its services" where inspired by Chan, Yim and Lam, 2010; "I often find solutions of my problems together with my mobile operator" was inspired by Prahalad and Ramaswamy, 2004b; "I am actively involved when my mobile operator develops new solutions for me" was inspired by Chan et al., 2010; and "My mobile

operator encourages customers to create solutions together" was inspired by Nysveen and Pedersen (2014).

Intention to use of the company/brand or a new product or service release by them was measured by four items: "I intend to use my mobile operators' service for the next 12 months" and "I intend to buy new products or services from my mobile operator within the next 12 months" were inspired by Huang, 2015; "I plan to use my mobile operators' service in the future" and "I plan to buy new products or services from my mobile operator in the future" were inspired by Taylor and Todd, 1995; and Karahanna and Straub, 1999.

Table 2: *Item Wording and Dimensions.*

Dimension	Items
Openness to experience (OTE)	I see myself as someone who is original, comes up with new ideas
	I see myself as someone who is curious about many different things
	I see myself as someone who is sophisticated in art, music, or literature
	I see myself as someone who has an active imagination
	I see myself as someone who has many artistic interests
Risk Taking Propensity (RSK)	I believe that higher risks are worth taking
	I enjoy taking risks
	I have a strong proclivity for high-risk
	I see myself as adventurous
Innovativeness (INO)	I am curious about various things
	I think it is very interesting to try new things
	Generally speaking, I like to accept new things
	In general, I am among the first in my circle of friends to buy a new product or service from mobile operators when it is available
	If I hear that a new product or service from a mobile operator is available to purchase, I would be interested enough to buy it
Extraversion (EXT)	I see myself as someone who is talkative
	I see myself as someone who is full of energy
	I see myself as someone who has assertive personality
	I see myself as someone who is outgoing, sociable
	I see myself as someone who generates a lot of enthusiasm
Co-Creation (COC)	I often express my personal needs to my mobile operator
	I often suggest how my mobile operator can improve its services
	I participate in decisions about how my mobile operator offers its services
	I often find solutions of my problems together with my mobile operator
	I am actively involved when my mobile operator develops new solutions for me
	My mobile operator encourages customers to create solutions together
Intention to use brand (ITU_B)	I intend to use my mobile operators' service for the next 12 months
	I plan to use my mobile operators' service in the future
Intention to use new products/ services of brand (ITU_NEW)	I intend to buy new products or services from my mobile operator within the next 12 months
	I plan to buy new products or services from my mobile operator in the future

3.4. DATA ANALYSIS

This subchapter will analyse the obtained data through the factor analysis with maximum likelihood and oblique rotation, and multiple regression analysis.

3.4.1. FACTOR ANALYSIS

The number of factors was determined by the author to be seven, as this explained as much of the variance in the original data set as possible. To interpret the factors, they were rotated with the oblique approach, hoping for strong loadings of the variables on each of the components. The Kaiser-Meyer-Olkin Measure (KMO) value is .873 (above .6), and the Bartlett's Test is significant (p=.000), approving that factor analysis is the appropriate procedure. The Total Variance Explained table in SPSS showed seven factors with Eigenvalues loading higher than 1, accumulating to 74,5%. The Pattern Matrix showed that the convergent validity for one item had loadings lower than 0,4; which is why the item 'INO_new_ITB' ("If I hear that a new product or service from a mobile operator is available to purchase, I would be interested enough to buy it") was deleted. Two items, namely 'INO_1st_new' ("In general, I am among the first in my circle of friends to buy a new product or service from mobile operators when it is available") and 'OTE_curious' ("I see myself as someone who is curious about many different things") were loading on another factor than expected, which is why they were deleted to clean the data set. No outliers were found in the data screening process. The new KMO value is .862, Bartlett's Test is unchanged (p=.000), the cumulative Eigenvalue of the first seven factors increased to 76,5%. The new and cleaned pattern matrix results can be seen in Table 3 in the Appendix. Table 4 now shows the dimensions with the leftover included items and their Cronbach's alpha respectively.

Table 4: *New Items and Dimensions' List with Cronbach's Alpha.*

Dimension	Items	Cronbach's α
Openness to experience (OTE)	I see myself as someone who is original, comes up with new ideas	0.86
	I see myself as someone who is sophisticated in art, music, or literature	
	I see myself as someone who has an active imagination	
	I see myself as someone who has many artistic interests	
Risk Taking Propensity (RSK)	I believe that higher risks are worth taking	0.89
	I enjoy taking risks	
	I have a strong proclivity for high-risk	
	I see myself as adventurous	
Innovativeness (INO)	I am curious about various things	0.81
	I think it is very interesting to try new things	
	Generally speaking, I like to accept new things	
Extraversion (EXT)	I see myself as someone who is talkative	0.87
	I see myself as someone who is full of energy	

	I see myself as someone who has assertive personality	
	I see myself as someone who is outgoing, sociable	
	I see myself as someone who generates a lot of enthusiasm	
Co-Creation (COC)	I often express my personal needs to my mobile operator	0.89
	I often suggest how my mobile operator can improve its services	
	I participate in decisions about how my mobile operator offers its services	
	I often find solutions of my problems together with my mobile operator	
	I am actively involved when my mobile operator develops new solutions for me	
	My mobile operator encourages customers to create solutions together	
Intention to use brand (ITU_B)	I intend to use my mobile operators' service for the next 12 months	0.90
	I plan to use my mobile operators' service in the future	
Intention to use new products/ services of brand (ITU_NEW)	I intend to buy new products or services from my mobile operator within the next 12 months	0.78
	I plan to buy new products or services from my mobile operator in the future	

As can be seen in Table 4, Cronbach's alpha of this study lies between 0.78 and 0.90, indicating a high reliability of the measures with very significant loadings. Therefore, the study concludes that the scales can be applied for the analysis with acceptable reliability.

3.4.2. DESCRIPTIVES

Using the shape descriptors skewness and kurtosis, the symmetric nature of the data set was tested.

Table 5: *Skewness and Kurtosis Analysis Computed with SPSS, with Min, Max, Mean, and Standard Deviation.*

Dimension	N	Skewness		Kurtosis		Min	Max	Mean	Stand. Dev.
	Statistics	Statistics	Std. Error	Statistics	Std. Error				
Openness to experience (OTE)	196	-.559	.174	-0.86	.346	1,00	7,00	4,553	1,3491
Co-Creation (COC)	196	1.527	.174	1.732	.346	1,00	6,67	2,006	1,2183
Extraversion (EXT)	196	-.964	.174	.973	.346	1,00	7,00	4,938	1,2566
Innovativeness (INO)	196	-1.209	.174	1.751	.346	1,00	7,00	5,299	1,3243
Risk taking propensity (RSK)	196	.030	.174	-.701	.346	1,00	7,00	4,040	1,4242
Intention to use brand in the future (ITU_B)	196	-.743	.174	-.586	.346	1,00	7,00	5,114	1,9144
Intention to use new products/services of the brand (ITU_NEW)	196	.108	.174	-.911	.346	1,00	7,00		1,7892

Table 5 shows for all constructs the skewness test and kurtosis test. Skewness values range from -1.209 to 1.527, therefore laying outside the recommended range of -1 and +1 (Hair, Black, Babin, Anderson, & Tatham, 2006). COC and INO are highly skewed, the distributions are far from symmetrical. COC is positively skewed, indicating that most individuals don't

engage in co-creation. INO is negatively skewed, as most individuals describe themselves as very innovative. OTE, EXT and ITU_B are moderately negatively skewed, which indicates that the majority of respondents are open to experience, rather extraverted and have a positive intention of using their mobile operator in the future. RSK and ITU_NEW are approximately symmetric, indicating that respondents neither have a high or low risk taking propensity, nor are positively or negatively inclined to buying new products or services offered by their mobile operator in the future. Kurtosis values range from -.911 to 1.751 and indicate that fewer and less extreme outliers are produced.

The next step was to find out the relationship among the independent variables, and whether they were highly correlated (i.e. multicollinearity existed) or not. Since the correlation between each of the independent variables was below .557, which is lower than the recommended value of .700, no multicollinearity could be observed (Pallant, 2013).

Table 6: *Correlations Among the Subscales of the Constructs Computed with SPSS.*

	ITU_B	COC	EXT	INO	RSK	OTE
COC	.111					
EXT	.272**	.158*				
INO	.371**	.098	.491**			
RSK	.135*	.237**	.422**	.529**		
OTE	.287**	.175**	.444**	.557**	.410**	
ITU_NEW	.429**	.316**	.192**	.236**	.137*	.127*

** Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

However, the relationship between independent and dependent variables in the study was lower than .300 for all cases except ITU_B and INO (.371), indicating that there is only a low to very low correlation between them. The collinearity diagnostic produced values that verified these findings: Tolerance was for COC .927, EXT .689, INO .542, RSK .652 and OTE .636, so multiple correlation with other variables is low and there is a low possibility of multicollinearity. Variance inflation factors were for COC 1.079, EXT 1.452, INO 1.844, RSK 1.533 and OTE 1.572, which is well below 10 and indicated no violation of the multicollinearity assumption (Pallant, 2013). Correlation was observed to be highest between variables that were predicted to correlate, such as INO and OTE (.557), INO and RSK (.529) and INO and EXT (.491), indicating convergent validity.

3.4.3. ASSUMPTION FOR MULTIPLE REGRESSION ANALYSIS

To examine the research questions and explore the relationships between the continous dependent variables 'intention to use the mobile operator in the future' (ITU_B) or 'intention to use new products or services offered by the mobilde operator in the future' (ITU_NEW) respectively with the independent personality trait variables and 'co-creation', a standard multiple regression analysis was conducted. Literature recommends to have a sample size of N > 50 + 8m (where m = number of independent variables) (Pallant, 2013). This is the case in this study, with 196 > 50 + 8x5. As the dependent variable ITU_B is moderately skewed, more cases than 90 are needed. Having more than double the amount of respondents, the sample size is adequate for the analysis.

The Normal Probability Plots for ITU_B and ITU_NEW show the points at a reasonably straight diagonal line from bottom left to top right, suggesting homoscedasticity and no major deviations from normality. Having a look at SPSS's computed Scatterplots of the standardized residuals for both ITU_B and ITU_NEW, it can be seen that the residuals are roughly rectangularly distributed, with most points close to 0. Checking extreme values with Mahalanobis Distance, the number of outlying residuals was two (values were 26.116 and 21.919, where five independent variables allow for a critical value not higher than 20.520); too few to take any further action (Pallant, 2013, p. 151).

To find out how much variance in ITU_B and ITU_NEW can be accounted for by the set of independent variables, R^2 and Adjusted R^2 values were computed and analyzed. For ITU_B, R^2 is 17,1% and Adjusted R^2 is 14,9%. For ITU_NEW, R^2 is 15,2% and Adjusted R^2 is 12,9%. Since the sample is not very big, it is recommended to use the Adjusted R^2 value as reference, as it corrects the rather optimistic overestimation of the true value in the population of R^2 (Pallant, 2013). The study reaches statistical significance; p<.0005. Hence, it can be seen that the independent variables explain 15% of the variance in intention to use the mobile operator in the future. The strongest significant unique contribution is made by INO with 32,9% (sig. .000). The results show that RSK is contributing 14,8%, EXT 11,6%, OTE 9,9% and COC 7,8%. However, these variables have sig. values greater than .05, which might indicate an overlap with other independent variables. 13% of the independent variables explain the intention to use the new product or service offered by the mobile operator in the future. Here, the strongest significant unique contribution is made by COC with 30,7% (sig. .000), followed with 23,9% by INO (sig.

.009). The variables EXT with a contribution of 8,7%, as well as RSK and OTE both with a contribution of 7% do not have sig. values greater than .05.

Table 7 shows that INO is the only statistically significant value for ITU_B, and that COC and INO are the only statistically significant values for ITU_NEW. This means that for every one unit increase in INO for ITU_B and ITU_NEW, and COC for ITU_NEW, the dependent variables will increase by .329, .239 and .307 respectively.

Table 7: *Standardized Beta Coefficients, T-values and P-values from Multiple Regression Analysis.*

	ITU_B			ITU_NEW		
	Std. beta	**t-value**	**Sig.**	**Std. beta**	**t-value**	**Sig.**
COC	.078	1.135	.258	.307	4.430	.000
EXT	.116	1.463	.145	.087	1.081	.281
INO	.329	3.665	.000	.239	2.631	.009
RSK	-.148	-1.805	.073	-.07	-.848	.397
OTE	.099	1.198	.232	-.07	-.832	.406

4. RESULTS

The results of the multiple regression analyses will be presented as followed, since multiple regression can only test the influences on one dependent variable at a time: 1) the influence of personality traits on co-creation; 2) the influence of co-creation on intention to use the brand in the future; 3) the influence of co-creation on intention to use the new product or service offered by the company or brand in the future; 4) the influence of personality traits and co-creation on intention to use the brand in the future; 5) the influence of personality traits and co-creation on intention to use new products or services offered by the company in the future. The two dependent variables are 'intention to use the mobile operator in the future' and 'intention to use new products or services offered by the mobile operator in the future'. The four independent variables are 'extraversion', 'innovativeness', 'risk taking propensity', and 'openness to experience'.

Before discussing the findings in more detail, Figure 5 will give an overview of the edited research model, including standardized beta coefficients and adjusted R^2 values for the variables.

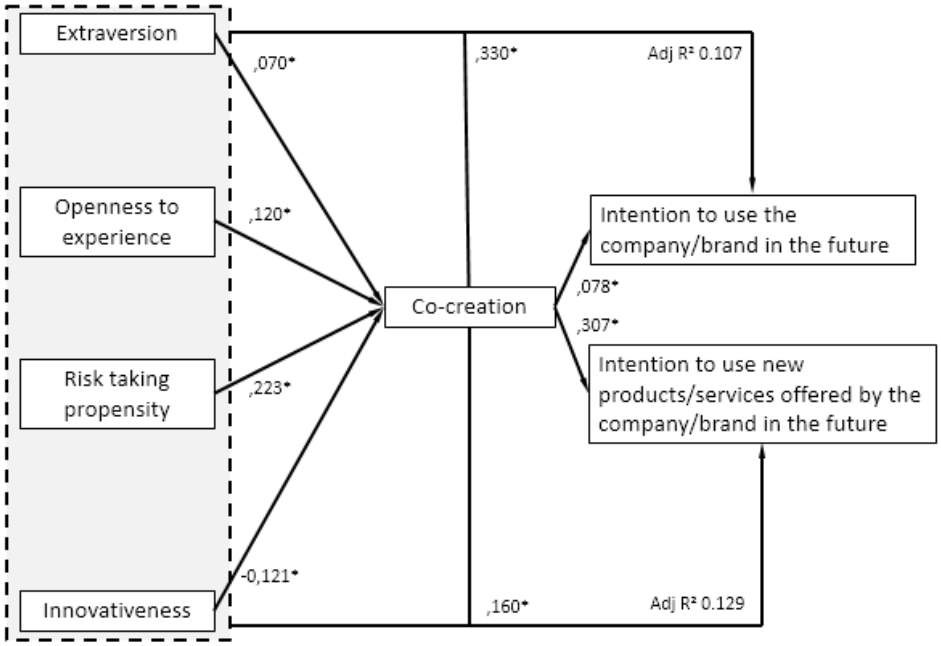

Figure 5: *Research Model with Standardized Beta Coefficients (values with *) and Adjusted R^2.*

First, this study hypothesized that customer personality traits are positively related to co-creation. Specifically, the four hypotheses involved are:

H1: *Openness to experience has a positive effect on co-creation.*
H3: *Risk taking propensity has a positive effect on co-creation.*
H5: *Innovativeness has a positive effect on co-creation.*
H7: *Extraversion has a positive effect on co-creation.*

Hence, COC was regressed on four dimensions of OTE and RSK, three dimensions of INO and five dimensions of EXT. The findings show that 1) openness to experience was positively and significantly related to co-creation ($p<0.01$), 2) risk taking propensity was positively and significantly related to co-creation ($p<0.01$), and 3) extraversion was positively and significantly related to co-creation ($p<0.05$). Therefore, hypotheses 1, 3 and 7 were supported. Innovativeness was not significantly related to co-creation, therefore hypothesis 5 was not supported. Hence, a variation in co-creation was explained by OTE, RSK and EXT. The percentage of explanation was as much as 76,4% (adj R^2= 0.764).

Second, the study hypothesized that co-creation is positively related to intention to use the brand/company in the future. There is one hypothesis that describes this assumption, which is:

H9: *Co-creation has a positive effect on the intention to use the brand/company in the future.*

ITU_B was regressed on six dimensions of COC. Co-creation was not significantly related to intention to use the company/brand in the future, therefore hypothesis 9 was not supported. Hence, a variation in intention to use the mobile operator in the future was not explained by co-creation.

Third, the study hypothesized that co-creation is positively related to intention to use a new product or service offered by the brand/company in the future. There hypothesis that describes this assumption is:

H10: *Co-creation has a positive effect on the intention to use new products or services provided by the brand/company in the future.*

ITU_NEW was regressed on six dimensions of COC. Co-creation was positively and significantly related to intention to use the new product or service offered by the brand/company in the future ($p<0.01$). The findings suggest that higher co-creation would result in higher intention to use the new product or service offered by the mobile operator in the future. Therefore, hypothesis 10 was supported. Hence, a variation in intention to use the new product or service offered by the mobile operator in the future was explained by co-creation. The percentage of explanation was as much as 30,7% (adj $R^2= 0.307$).

Fourth, the study hypothesized that customer personality traits and co-creation are positively related to intention to use. There are four hypotheses that specify this assumption, which are:

H2a: *Openness to experience has a positive effect on the intention to use the brand/company in the future.*

H4a: *Risk taking propensity has a positive effect on the intention to use the brand/company in the future.*

H6a: *Innovativeness has a positive effect on the intention to use the brand/company in the future.*

H8a: *Extraversion has a positive effect on the intention to use the brand/company in the future.*

ITU_B was regressed on five dimensions of OTE and RSK, three dimensions of INO, five dimensions of EXT, and six dimensions of COC. The findings show that 1) openness to experience was positively and significantly related to intention to use the brand/company in the future ($p<0.01$), 2) risk taking propensity was positively and significantly related to intention to use the brand/company in the future ($p<0.05$), 3) innovativeness was positively and significantly related to intention to use the brand/company in the future ($p<0.01$), 4) extraversion was positively and significantly related to intention to use the brand/company in the future ($p<0.01$), and 5) co-creation was not significantly related to intention to use the company/brand in the future. The findings suggest that higher innovativeness would result in higher intention to use the mobile operator in the future. Therefore, hypotheses 2a, 4a, 6a and 8a were supported. Hence, a variation in intention to use the mobile operator in the future was explained by all personality traits. The percentage of explanation was as much as 69,2% (accumulated adj $R^2= 0.692$).

Fifth, ITU_NEW was regressed on four dimensions of OTE and RSK, three dimensions of INO, five dimensions of EXT and six dimensions of COC. The following hypotheses focus on this:

H2b: *Openness to experience has a positive effect on the intention to use new products or services provided by the brand/company in the future.*

H4b: *Low risk taking propensity has a negative effect on the intention to use new products or services provided by the brand/company in the future.*

H6b: *Innovativeness has a positive effect on the intention to use new products or services provided by the brand/company in the future.*

H8b: *Extraversion has a positive effect on the intention to use new products or services provided by the brand/company in the future*

The findings show that 1) openness to experience was positively and significantly related to intention to use the new product or service offered by the brand/company in the future ($p<0.05$), 2) risk taking propensity was positively and significantly related to intention to use

the new product or service offered by the brand/company in the future ($p<0.05$), 3) innovativeness was positively and significantly related to intention to use the new product or service offered by the brand/company in the future ($p<0.01$), 4) extraversion was positively and significantly related to intention to use the new product or service offered by the brand/company in the future ($p<0.01$), and 5) co-creation was positively and significantly related to intention to use the new product or service offered by the brand/company in the future ($p<0.01$). The findings suggest that higher innovativeness would result in higher intention to use the new product or service offered by the mobile operator in the future. Therefore, hypotheses 2b, 4b, 6b and 8b were supported. Hence, a variation in intention to use the new product or service offered by the mobile operator in the future was explained by all personality traits and co-creation. The percentage of explanation was as much as 23,9% (adj R^2= 0.239).

5. LIMITATIONS

It is important to note the limitations of the study involved in this thesis. An important limitation, as previously mentioned, is the extent of generalisability to worldwide mobile operator users from the existing sample. Participants were younger and more educated then the general population, which can have a negative influence on the results. Future research would benefit from the use of a larger, more international sample of mobile operator users that have a more balanced education. Working together with mobile operators could help access those customers.

Since the relationship between the variables was only investigated in regard to mobile operators, it may be hard to generalize and transpose the findings to other situations, too. Future research could test the questionnaire in a different scenario, e.g. with banks or supermarkets.

The choice of problem, to focus only on personality traits influence on co-creation and intention to use the brand and new products or services from the brand stems from the limitation in the scope of the study. A very closely related problem, namely the influence of personality traits on co-creation and the following intention to use the new product or service that was co-created together, was first considered by the author and later rejected for

feasibility reasons. However, it would be interesting for future research to measure intention to use and then also include actual intention to buy a co-created product or service.

This thesis understood the term co-creation very holistically, so managers could be interested in repeating the study with a more focused view on e.g. customer personality traits influences on co-design or co-production.

Customer personality traits were measured with four variables, being 'extraversion', 'innovativeness', 'openness to experience' and 'risk taking propensity'. However, personality traits consist of many more variables, such as balanced, compassionate, discreet, generous, patriotic or sentimental, just to name a few. Future research could conduct a study that measures different positive and negative personality traits, in order to capture a broader picture of the participants' character.

6. CONCLUSIONS, IMPLICATIONS AND FUTURE RESEARCH

6.1. CONCLUSIONS

The following Table 8 shows which hypotheses was supported and which was not supported by the analysis.

Table 8: *List of Supported and Not Supported Hypotheses.*

Hypotheses	Supported/ Not Supported
H1: Openness to experience has a positive effect on co-creation.	Supported
H2a: Openness to experience has a positive effect on the intention to use the brand/company in the future.	Supported
H2b: Openness to experience has a positive effect on the intention to use new products or services provided by the brand/company in the future.	Supported
H3: Risk taking propensity has a positive effect on co-creation.	Supported
H4a: Risk taking propensity has a positive effect on the intention to use the brand/company in the future.	Supported
H4b: Low risk taking propensity has a negative effect on the intention to use new products or services provided by the brand/company in the future.	Supported
H5: Innovativeness has a positive effect on co-creation.	Not Supported
H6a: Innovativeness has a positive effect on the intention to use the brand/company in the future.	Supported
H6b: Innovativeness has a positive effect on the intention to use new products or services provided by the brand/company in the future.	Supported
H7: Extraversion has a positive effect on co-creation.	Supported
H8a: Extraversion has a positive effect on the intention to use the brand/company in the future.	Supported

H8b: Extraversion has a positive effect on the intention to use new products or services provided by the brand/company in the future.	Supported
H9: Co-creation has a positive effect on the intention to use the brand/company in the future.	Not Supported
H10: Co-creation has a positive effect on the intention to use new products or services provided by the brand/company in the future.	Supported

Hence, it can be seen that most hypotheses where supported by the analysis, except for two; H5 and H9. This means that only three personality traits have a positive effect on co-creation, excluding innovativeness. The percentage of explanation was as high as 76,4%. All personality traits have a positive effect on the intention to use a brand/company in the future. The percentage of explanation for this was as high as 69,2%. All personality traits together with co-creation have a positive effect on the intention to use a brand/company's new product or service in the future, the explanation percentage being 23,9%. Co-creation has also alone a positive effect on the intention to use the new products or services offered by the company/brand in the future (30,7%), however this is not true for the existing products and services from the company. A change in intention to use the brand/company in the future would stem by a third from a change in the personality trait innovativeness. A change in intention to use a new product or service by the brand/company in the future would stem by 30% from a change in co-creation and 23,9% from a change in the personality trait innovativeness.

6.2. IMPLICATIONS AND FUTURE RESEARCH

This study has contributed to understand the effects that personality traits can have on co-creational activities and intention to use in the field of mobile operators. The analysis of the findings from the conducted survey provide interesting results on the personality traits' influence on co-creation. Not all personality traits have the same kind of influence on co-creation and intention to use. It is important to look at traits one by one and consider them individually. Since the thesis is only looking at four types of personality traits, future research could conduct a similar study with different personality traits.

It can be seen that innovativeness has no positive influence on co-creation. Future research could focus on the cause for this – is it because innovative people seek something new, and if they co-created with the firm they will not be satisfied anymore with an existing product or

service, but only a new one? The survey results show that individuals considered themselves as very innovative, but also not highly engaged in co-creation. This could have biased the results, as the survey asked people to only participate if they were co-creators.

When people with high openness to experience, risk taking propensity and extraversion say they would intent to buy an existing or new product or service from the company or brand, would they also follow up on this intention? A long-term study could find out more about this. And last but not least, a qualitative study could try and find out what would motivate co-creating customers of mobile operators to increase their intention to buy an existing product or service by the company in the future.

The analysis also revealed that there is no support for the assumption that co-creation has a positive effect on the intention to use the company/brand in the future. The implications for companies and managers and what this result can mean for them is crucial. At the end of the day, all co-creational activities that the company engages in, have to pay off somehow. The manager's interest can be centred on the target group and their personality traits. Learning who the company deals with, and how his or her personality traits amongst other things might affect co-creational activities is important for success. Knowing that co-creating individuals are not positively influenced to use the existing products or services provided by the company could lead to a shift in focus on which products the company should sell to these individuals.

7. REFERENCES

Amiel, T., & Sargent, S. L. (2004). Individual differences in internet usage motives. *Computers in Human Behavior, 20*, 711-726.

Arts, J. W., Frambach, R. T., & Bijmolt, T. H. (2011). Generalizations on consumer innovation adoption: A meta-analysis on drivers of intention and behavior. *International Journal of Research in Marketing*, 134-144.

Auh, S., Bell, S. J., McLeod, C. S., & Shih, E. (2007). Co-production and customer loyalty in financial services. *Journal of Retailing, 83(3)*, 359-370.

Babin, B. J., & Harris, E. (2014). *CB - Consumer Behavior, Student Edition 6.* Andover: 4ltr Press.

Barick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology,44*, 1-26.

Bekker, R. (2005). Participation in Voluntary Associations: Relations with Resources, Personality, and Political Values. *Political Psychology, 26(3)*, 439-454.

Bendapudi, N., & Leone, R. (2003). Psychological Implications of Customer Participation in Co-Production. *Journal of Marketing, 67(1)*, 14-28.

Bosnjak, M., Galesic, M., & Tuten, T. (2007). Personality determinants of online shopping: Explaining online purchase intentions using a hierarchical approach. *Journal of Business Research, 60*, 597-605.

Briggs, K. C. (1943). *The Myers-Briggs Type Indicator, Form M.* Consulting Psychologists Press.

Brodie, R. J., Juric, B., Ilic, A., & Hollebeek, L. D. (2011). Consumer engagement in a virtual brand community: An exploratory Analysis. *Journal of Business Research* , 1-10.

Bughin, J. (2014, December). *Three ways companies can make co-creation pay off*. Retrieved from McKinsey: http://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/three-ways-companies-can-make-co-creation-pay-off

Byrnes, J. P., Miller, D. C., & Schafer, W. D. (1999). Gender Differences in Risk Taking: A Meta-Analysis. *Psychological Bulletin, 125(3)*, 367-383.

Chen, R., & He, F. (2003). Examination of brand knowledge, perceived risk and consumers' intention to adopt an online retailer. *TQM Business Excellence, 14(6)*, 677-693.

Citrin, A. V., Sprott, D. E., Silverman, S. N., & Stern Jr, D. E. (2000). Adoption of Internet shopping: the role of consumer innovativeness. *Industrial Management & Data Systems, 100(7)*, 294-300.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory manual.* Odessa, USA: Psychological Assessment Resources.

Cullen, R., & Morse, S. (2011). Who's Contributing: Do Personality Traits Influence the Level and Type of Participation in Online Communities. *Hawaii International Conference on System Sciences*, (p. 11). Hawaii.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science, 35(8)*, 982-1003.

Devaraj, S., Easley, R. F., & Crant, J. M. (2008). How does Personality Matter? Relating the Five-Factor Model to Technology Acceptance and Use. *Information Systems Research, 19(1)*, 93-105.

Eysenck, H. J. (1950). *Dimensions of Personality.* New Brunswick, USA and London, UK: Transaction Publishers.

Ferguson, R. J., Paulin, M., & Bergeron, J. (2010). Customer sociability and the total service experience. *Journal of Service Management, 21(1)*, 25-44.

Fernandes, T., & Remelhe, P. (2015). How to engage customer in co-creation: customer's motivations for collaborative innovation. *Journal of Strategic Marketing*, 1-16.

Franke, N., & Piller, F. (2004). Value creation by toolkits for user innovation and design: the case of the watch market. *Journal of Product Innovation Management, 21*, 401-415.

Fuchs, C., & Schreier, M. (2011). Customer empowerment in new product development. *Journal of product innovation management, 28*, 17-32.

Füller, J. (2003). Community based innovation - A method to utilize the innovative potential of online communities by integrating its members into NPD. *The Vienna/MIT International Workshop on User Innovation and Open Source Software.* Vienna.

Füller, J. (2010). Refining Virtual Co-Creation from a Consumer Perspective. *California Management Review, 52(2)*, 98-122.

Füller, J., Matzler, K., & Hoppe, M. (2008). Brand Community Members as a Source of Innovation. *Journal of Product Innovation Management, 25*, 608-619.

Füller, J., Mühlbacher, H., Matzler, K., & Jawecki, G. (2010). Customer empowerment through internet-based co-creation. *Journal of Management Information Systems, 10(3)*, 71-102.

Goldsmith, R. E. (1983). Psychographics and new product adoption: An exploratory study. *Perceptual and Motor Skills, 57*, 1071-1076.

Hair, J. F., Black, B., Babin, B., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate Data Analysis, 6th Edition.* Pearson.

Hilgard, E., Atkinson, R., & Atkinson, R. (1975). *Introduction to Psychology, 6th ed.* New York, USA: Harcourt Brace Jovanovich.

Hollebeek, L. (2011a). Exploring customer brand engagement: definitions and themes. *Journal of Strategic Marketing, 19(7)*, 599-610.

Hollebeek, L. (2011b). Demystifying customer brand engagement: exploring the loyalty nexus. *Journal of Marketing Management, 27(7-8)*, 785-807.

Homan, A. C., Hollenbeck, J. R., Humphrey, S. E., van Knippenberg, D., Ilgen, D. R., & van Kleef, G. A. (2008). Facing differences with an open mind: Openness to experience, salience of intra-group differences, and performance of diverse work groups. *Academy of Management Journal, 51*, 1204-1222.

Hoyer, W. D., Chandy, R., Dorotic, M., Krafft, M., & Singh, S. S. (2010). Consumer Cocreation in New Product Development. *Journal of Service Research, 13(3)*, 283-296.

Hung, S. Y., Ku, C. Y., & Chang, C. M. (2003). Critical factors of WAP services adoption: An empirical study. *Electronic Commerce Research and Applications, 2(1)*, 46-60.

Jacob, F., & Rettinger, B. (2011). *The Role of customer co-production in value creation.* Capri, Italy.

Jarque, C. M., & Bera, A. K. (1980). Efficient tests for normality, homoscedasticity and serial independence of regression residuals. *Economic Letters, 6(3)*, 255-259.

Judge, T. A., Higgins, C. A., Thoresen, C. J., & Barrick, M. R. (1999). The Big Five Personality Traits, General Mental Ability, and Career Success Across the Life Span. *Personnel Psychology, 52(3)*, 621-652.

Karahanna, E., & Straub, D. W. (1999). The psychological origins of perceived usefulness and ease-of-use. *Information and Management, 35(4)*, 237-250.

Kassin, S. (2003). *Psychology.* USA: Prentice-Hall, Inc.

Kozak, M., Crotts, J. C., & Law, R. (2007). The impact of the perception of risk on international travelers. *International Journal of Tourism Research, 9*, 233-242.

Kumar, V., Donkers, L., Venkatesan, R., Wiesel, T., & Tillmanns, S. (2010). Undervalued or overvalued customers: capturing total customer engagement value. *Journal of Service Research, 13(3)*, 297-310.

Kuo, Y., & Yen, S. (2009). Towards an understanding of the behavioral intention to use 3G mobile value-added services. *Computers in Human Behavior, 25*, 103-110.

Lassar, W. M., Manolis, C., & Lassar, S. S. (2005). The relationship between consumer innovativeness, personal characteristics, and online banking adoption. *International Journal of Bank Marketing, 23(2)*, 176-199.

Le Pine, J. A., Colquitt, J. A., & Erez, A. (2000). Adaptability to changing task contexts: Effects of general cognitive ability, conscientiousness, and openness to experience. *Personnel Psychology, 53*, 563-593.

Lovelock, C. H., & Young, R. F. (1979). Look to Consumers to Increase Productivity. *Harvard Business Review, 57(May-June)*, 168-178.

Lusch, R. F., & Vargo, S. L. (2006). Service-dominant logic: reactions, reflections and refinements. *Marketing Theory, 6(3)*, 281-288.

Manning, K. C., Bearden, W. O., & Madden, T. J. (1995). Consumer Innovativeness and the Adoption Prcess. *Journal of Consumer Psychology, 4(4)*, 329-345.

McCrae, R. R. (1992). Openness to Experience as a Basic Dimension of Personality. *Annual Convention of the American Psychological Association* (p. 13). Washington DC, USA: Eric.

McDougall, S. (2012, 11 01). *Co-production, co-design and co-creation: what is the difference?* Retrieved from Stakeholder Design: http://www.stakeholderdesign.com/co-production-versus-co-design-what-is-the-difference/

McNamara, S. (2002). *Consumer Involvement Theory*. Retrieved from AdCracker: http://www.adcracker.com/involvement/Consumer_Involvement_Theory.htm

Midgley, D. F., & Dowling, G. R. (1978). Innovativeness: the concept and its measurement. *Journal of Consumer Research, 4*, 229-242.

Nambisan, S., & Baron, R. A. (2007). Interactions in virtual customer environments: implications for products support and customer relationship management. *Journal of Interactive Marketing, 21(2)*, 42-62.

Nambisan, S., & Baron, R. A. (2009). Virtual Customer Environments: Testing a Model of Voluntary Participation in Value Co-creation Activities. *Journal of Product Innovation Management, 26(4)*, 388-406.

Nicholson, N., Fenton-O'Creevy, M., Soane, E., & Willman, P. (2001). Risk Propensity and Personality. *London Business School, Centre of Organisational Research*.

Noble, S. M., Haytko, D. L., & Phillips, J. (2009). What drives college-age Generation Y consumers? *Journal of Business Research, 62*, 617-628.

Normann, R., & Ramirez, R. (1993). From Value Chain to Value Constellation: Designing Interactive Strategy. *Harvard Business Review, July-August*, 65–77.

Nysveen, H., & Pedersen, P. E. (2014). Influences of co-creation on brand experience: The role of brand engagement. *The Market Research Society*, 807-832.

Nysveen, H., Pedersen, P. E., & Thorbjørnsen, H. (2005). Explaining intention to use mobile chat services: moderating effects of gender. *Journal of Consumer Marketing, 22(5)*, 247-256.

Occhiocupo, N., & Friess, M. (2013). Exploring what motivates consumers to co-create value in virtual fashion communities.

Ophof, S. (2013). *Motives for customers to engage in co-creation activities.* Enschede, The Netherlands: University of Twente, Faculty of Management and Governance.

Pallant, J. (2013). *SPSS Survival Manual. A step by step guide to data analysis using SPSS for Windows, 6th edition.* Berkshire: Allen & Unwin.

Payne, A. F., Storbacka, K., & Frow, P. (2008). Managing the co-creation of value. *Journal of the Academy of Marketing Science, 36*, 83-96.

Piller, F., Ihl, C., & Vossen, A. (2011). A typology of customer co-creation in the innovation process. In H. Hanekop, & V. Wittke, *New forms of collaborative production and innovation: Economic, social, legal and technical characteristics and conditions.* Göttingen, Germany: Lichtenberg Kolleg at the University of Goettingen.

Prahalad, C. K., & Ramaswamy, V. (2004a). Co-creating unique value with customers. *Strategy & Leadership, 32(3)*, 4-9.

Prahalad, C. K., & Ramaswamy, V. (2004b). Co-Creation Experiences: The next practice in value creation. *Journal of Interactive Marketing, 18(3)*, 5-14.

Prahalad, C. K., & Ramaswamy, V. (2004c). *The Future of Competition: Co-creating Unique Value with Customers.* Boston, MA: Harvard Business School Publishing.

Quintal, V., Phau, I., Sims, D., & Cheah, I. (2016). Factors influencing generation Y's purchase intentions of prototypical versus me-too brands. *Journal of Retailing and Consumer Services, 30*, 175-183.

Roberts, D., Hughes, M., & Kertbo, K. (2013). Exploring consumers' motivations to engage in innovation through co-creation activities. *European Journal of Marketing, 48(1/2)*, 147-169.

Roccas, S., Saggiv, L., Schwartz, S. H., & Knafo, A. (2002). The big five factors and personal values. *Personality and and Social Psychology Bulletin, 6*, 789-801.

Roccas, S., Saggiv, L., Schwartz, S. H., & Knafo, A. (2002). The big five factors and personal values. *Personality and Social Psychology Bulletin, 6*, 789-801.

Roehrich, G. (2004). Consumer innovativeness. Concepts and measurements. *Journal of Business Research, 57*, 671– 677.

Rogers, E. M. (1983). *Diffusion of Innovations.* New York, USA: The Free Press.

Roth, Y. (2011, March 2). *Who participates in co-creation, and what do participants expect?* Retrieved from Yannig Roth: http://yannigroth.com/2011/03/02/motivations-expectations-participates-co-creation/

Sanders, E. B., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign, 4(1)*, 5-18.

Schneider, B., & Bowen, D. E. (1995). *Winning the Service Game.* Boston: Harvard Business School Press.

Schreier, M., & Fuchs, C. D. (2012). The innovation effect of user design: exploring consumers' innovation perceptions of firms selling products designed by users. *Journal of Marketing, 76(5)*, 18-32.

Sekaran, U. (2003). *Research method for business: A skill building approach, 4th edition.* John Wiley & Sons.

Sitkin, S. B., & Pablo, A. L. (1992). Reconceptualising the determinants of risk behavior. *Academy of Management Review, 17(1)*, 9-38.

Statista. (2015, August). *Number of smartphone users worldwide from 2014 to 2019 (in millions)* . Retrieved from The Statistics Portal: http://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/

Steenkamp, J. B., Hofstede, F., & Wedel, M. (1999). A cross-national comparison into the national cultural antecedents of consumer innovativeness. *Journal of Marketing, 63(2)*, 55-69.

Synovate. (2007). Getting real about prediction in marketing research. *In Hofmeyr Jan (Ed.), International Director of Innovation*. Cape Town: Synovate Brand and Communication Practice.

Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research, 6(2)*, 144-176.

Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review, 110(3)*, 403-421.

U.S. Department of Commerce. (2015). *Educational Attainment*. Retrieved from United States Census Bureau: https://www.census.gov/hhes/socdemo/education/data/cps/historical/

van der Heijden, H. (2003). Factors influencing the usage of websites: the case of a generic portal in The Netherlands. *Information & Management, 40*, 541-549.

van der Lof, N. (2013). *Co-creation: Obtaining an advantage through the involvement of consumers.* Twente: Faculty of Behavioral Sciences, University of Twente.

van Dijk, J. (2011). *The effects of co-reation on brand and product perceptions.* Wageningen, Netherlands: Wageningen University - Department of Social Sciences.

van Doorn, J., Lemon, K. N., Mittal, V., Nass, S., Pick, D., Pirner, P., & Verhoef, P. C. (2010). Customer Engagement Behavior: Theoretical Foundations and Research Directions. *Journal of Service Research, 13(39*, 253-266.

Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing, 68(1)*, 1-17.

Wood, S. L., & Swait, J. (2002). Psychological Indicators of Innovation Adoption: Cross-Classification Based on Need for Cognition and Need for Change. *Journal of Consumer Psychology, 12(1)*, 1-13.

Yang, K. C. (2005). Exploring factors affecting the adoption of mobile commerce in Singapore. *Telematics and Informatics, 22(3)*, 257-277.

Zhao, H., & Seibert, S. E. (2006). The Big Five Personality Dimensions and Entrepreneurial Status: A Meta-Analytical Review. *Journal of Applied Psychology, 91(2)*, 259-271.

10. APPENDIX

Appendix 1: *Survey Questions*

Regarding your relationship with the mobile operator, please specify your level of agreement or disagreement on the following scale from 1 to 7, where 1= I completely disagree and 7= I completely agree.

	1	2	3	4	5	6	7
I often express my personal needs to my mobile operator.	○	○	○	○	○	○	○
I often suggest how my mobile operator can improve its services.	○	○	○	○	○	○	○
I participate in decisions about how my mobile operator offers its services.	○	○	○	○	○	○	○
I often find solutions of my problems together with my mobile operator.	○	○	○	○	○	○	○
I am actively involved when my mobile operator develops new solutions for me.	○	○	○	○	○	○	○
My mobile operator encourages customers to create solutions together.	○	○	○	○	○	○	○

Regarding your intention to use your mobile operator or new products and services launched by your mobile operator in the future, please specify your level of agreement or disagreement on the following scale from 1 to 7, where 1= I completely disagree and 7= I completely agree.

	1	2	3	4	5	6	7
I intend to use my mobile operators' service for the next 12 months.	○	○	○	○	○	○	○
I plan to use my mobile operators' service in the future.	○	○	○	○	○	○	○
I intend to buy new products or services from my mobile operator within the next 12 months.	○	○	○	○	○	○	○
I plan to buy new products or services from my mobile operator in the future.	○	○	○	○	○	○	○

Regarding your personality, please specify your level of agreement or disagreement on the following scale from 1 to 7, where 1= I completely disagree and 7= I completely agree.

	1	2	3	4	5	6	7
I see myself as someone who generates a lot of enthusiasm.	○	○	○	○	○	○	○
I see myself as someone who is outgoing, sociable.	○	○	○	○	○	○	○
I see myself as someone who has assertive personality.	○	○	○	○	○	○	○
I see myself as someone who is full of energy.	○	○	○	○	○	○	○
I see myself as someone who is talkative.	○	○	○	○	○	○	○
If I hear that a new product or service from a mobile operator is available to purchase, I would be interested enough to buy it.	○	○	○	○	○	○	○
In general, I am among the first in my circle of friends to buy a new product or service from mobile operators when it is available.	○	○	○	○	○	○	○
Generally speaking, I like to accept new things.	○	○	○	○	○	○	○
I think it is very interesting to try new things.	○	○	○	○	○	○	○
I am curious about various things.	○	○	○	○	○	○	○
I see myself as adventurous.	○	○	○	○	○	○	○
I have a strong proclivity for high-risk.	○	○	○	○	○	○	○
I enjoy taking risks.	○	○	○	○	○	○	○
I believe that higher risks are worth taking.	○	○	○	○	○	○	○
I see myself as someone who has many artistic interests.	○	○	○	○	○	○	○
I see myself as someone who has an active imagination.	○	○	○	○	○	○	○
I see myself as someone who is sophisticated in art, music, or literature.	○	○	○	○	○	○	○
I see myself as someone who is curious about many different things.	○	○	○	○	○	○	○
I see myself as someone who is original, comes up with new ideas.	○	○	○	○	○	○	○

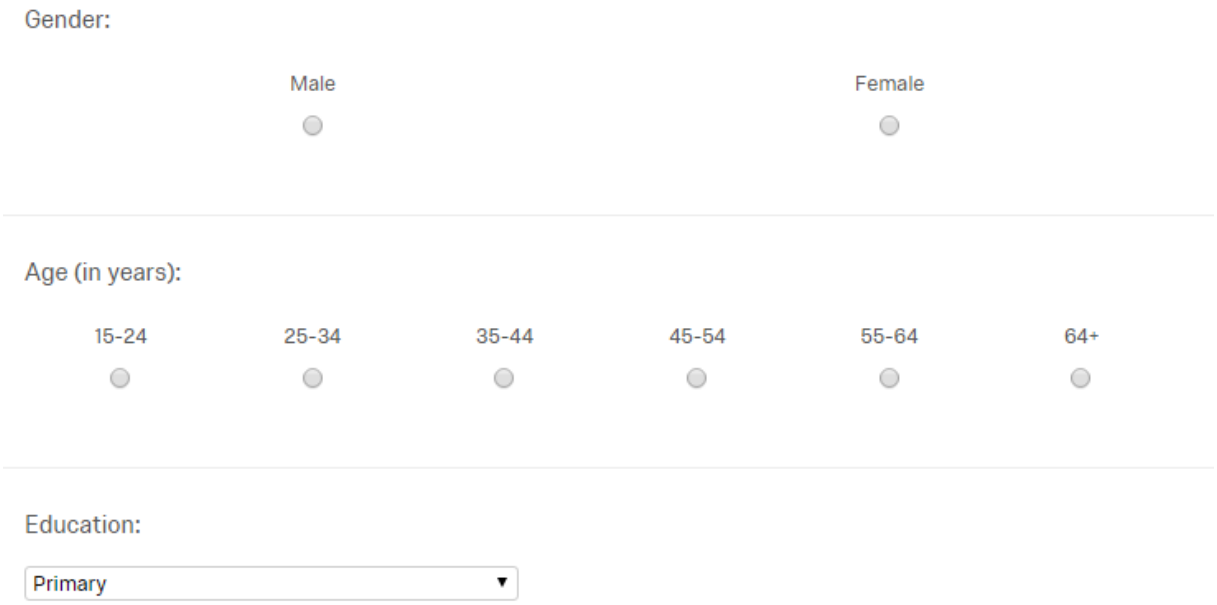

Table 3: *Pattern Matrix combuted with SPSS.*

	COC	EXT	RSK	OTE	INO	ITU-N	ITU-B
I am actively involved whenmy mobile operator develops new solutions for me.	0,813						
I often suggest how my mobile operator can improve its servies.	0,795						
I participate in decisions about how my mobile operator offers its services.	0,794						
I often express my personal needs to my mobile operator.	0,746						
I often find solutions of my problems together with my mobile operator.	0,743						
My mobile operator encourages customers to create solutions together.	0,694						
I see myself as someone who is outgoing, sociable.		0,851					
I see myself as someone who is talkative.		0,741					
I see myself as someone who generates a lot of enthusiasm.		0,729					
I see myself as someone who is full of energy.		0,686					
I see myself as someone who has assertive personality.		0,660					
I believe that higher risks are worth taking.			0,877				

I have a strong proclivity for high-risk.	0,862				
I enjoy taking risks.	0,860				
Generally speaking, I like to accept new things.		0,792			
I think it is very interesting to try new things.		0,719			
I am curious about various things.		0,711			
I see myself as adventurous.		0,499			
I see myself as someone who is sophisticated in art, music, or literature.			0,782		
I see myself as someone who has many artistic interests.			0,714		
I see myself as someone who has an active imagination.			0,708		
I see myself as someone who is original, comes up with new ideas.			0,536		
I intend to use my mobile operators' service for the next 12 months.				0,961	
I plan to use my mobile operators' service in the future.				0,756	0,307
I plan to buy new products or services from my mobile operator in the future.					0,853
I intend to buy new products or services from my mobile operator within the next 12 months.					0,638