What are the motivations for customers to co-create online?

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Abstract

This paper discusses the motivations for customers to co-create online. A literature review on co-creation forms the basis for a conceptual model, derived from the uses & gratification theory. Empirical research based on this model is carried out using an online survey. Results reveal that co-creation is not yet fully implemented in society and highlights potential opportunities for success when properly developed. This paper contributes to existing knowledge by offering insight into customers' motivations.

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1. INTRODUCTION

Changing markets, globalization, disruptive technology; the business world changes rapidly (Oblinger & Verville, 1998). These changes enable a shift from the traditional company centric view where companies exchange value, towards the consumer centric view where value is created in collaboration with the customer (Lusch & Vargo (2004). Environments are changing and companies are expected to be more dynamic and flexible to adapt to this movement (Volberda, 1996). An increasing number of companies face the challenge to successfully deal with external forces; leading to changed business models focusing more on creative solutions (Voelpel et al., 2004) as co-creation.

Beelaerts & Santema (2006) state that co-creation can be defined as 'the creation of a partnership between companies and/or institutes and/or customers on sharing knowledge, costs and benefits in order to create unique value for the customer'. One of the main enablers of the use of co-creation is the development of social media. Kaplan & Haenlein (2010) state that Social Media is a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0. This increases the exchange of data through higher interactivity among users. This paper uses the 'uses and gratification theory' (Herzog, 1944; McGuire, 1974) in order to get a better conception of customers' online behaviors. Hereby, the reader gets a better understanding of the motivations of customers to co-create online.

This paper firstly presents a literature review on co-creation. The purpose is to create a consistent overview of results of previous studies. Topics covered are the evolution of co-creation, the position of co-creation within new product development, the distinction between trial base and permanent base co-creation illustrated by contemporary examples, concluding with the uses & gratification theory and model. The aim is to get a better understanding of this upcoming phenomenon, in order to make effective use in business life. From the practical perspective it can be stated that, although developing, there is currently ignorance within companies towards co-creation. A panel survey in 2010 of consumer product strategy professionals revealed that 38% of companies use social media to involve consumers directly in the product creation or innovation process (Williams, 2011). Additionally, a study by McKinsey Global Institute in 2012 showed that 'just 3% of companies are "fully networked" and use social media to interact with customers, partners, and employees'; however another finding was that 90% of social technology using companies do benefit from this. Thus, the value of co-creation is underestimated, whereas a better understanding and cooperation with customers is likely to be beneficial. The scientific relevance of this study can be found in the contribution to identification and understanding the motivations of customers to co-create online. The concept is relatively new; therefore existing literature about this topic is limited. There is a gap between existing knowledge and required knowledge in order to make effective use of co-creation. Researchers are consistent about definitions and theoretical information however, to implement co-creation in the business strategy, a model concerning practical implications is desirable. Therefore, this paper has chosen to extend the literature review by elaborating on the motivators of customers. Currently, there are many papers discussing aspects of co-creation; yet there is not a paper that combines all the existing literature with a model based on the uses & gratification theory. This theory was selected as it allows the researcher to gain insight into the decisions customers make for specific mass media channels; and for this study its applicability to the Internet. Ruggiero (2000) states this as answering the basic questions 'Why people become involved in one particular type of mediated communication or another, and what gratifications they receive from it'. Social media plays a big role as 'interactive platform' connecting customers and suppliers (Lai et al., 2008). This topic is particularly interesting because effective implementation of co-creation requires thorough research; companies have to be aware of consumer behavior in order to anticipate properly.

This paper investigates the impact of customers online behavior on co-creation. The research question emerging from this approach is 'What are the motivations for customers to co-create online?'; specifically in the context of supporting companies to make the ultimate use of co-creation. This question can be answered through an understanding of sub questions as 'what are the business drivers facilitating the emergence of co-creation?'; 'How did market roles change through the years, and what's the effect on consumer influence?'; 'What's the role of social media within these (new product) developments?' and 'How can the uses & gratification theory be applied to explain consumer motivations to co-create online?'

The first part of the paper will give an understanding of the reasons of existence of co-creation. This starts by defining co-creation, the developments, stages and positions illustrated with examples. Subsequently, the uses & gratification theory will be explained, after which the model derived from this theory will be introduced. In the second part, empirical research is carried out. By means of a survey based on the proposed model among 251 participants, the study tries to discover the underlying motivations for customers to co-create. Finally, the paper ends by an interpretation of the results, followed by a conclusion.

2. LITERATURE REVIEW

In order to understand the motivations of customers to co-create online, it is critical to have basic knowledge on the topic co-creation. This section will outline the development of co-creation, the position in everyday businesses and current uses illustrated by examples. Furthermore, the authors introduce the 'uses and gratification model', on which empirical research is based.

2.1 Co-creation

One key aspect of co-creation is the generation of value. According to Holbrook (1996), customer value can be defined as 'an interactive relativistic preference experience'. The reviewed literature shows slightly differing definitions of the concept co-creation. Prahalad et al. (2004) describe it as the customer becoming co-creator of value: the development of customer–supplier relationships through interaction and dialog, whereas according to Vargo & Maglio (2008) the co-creation of value can be defined as 'manufacturers applying their knowledge and skills in the production and branding of the good, and customers applying their knowledge and skills in the use of it in the context of their own lives'. Another definition of a co-creator is 'a collaborative partner who co-creates value with the firm' (Lusch et al., 2007).

It can be concluded that co-creation is a progressive method, used to generate value. There has been a shift from the traditional situation, where firms created value and consumers used value, to a situation where traditional roles are questioned and customers and producers cooperate. The goal is to create optimal unique value in order to meet customers' demands. The next paragraph focuses more on this shift.

2.2 The co-creation evolution: market roles

Lusch & Vargo (2004) used the distinction between Service Dominant logic (SD) and the more traditional Goods Dominant logic (GD) to make better understanding of the concept co-creation. The GD view uses concepts as value-in-exchange and embedded-value, whereas the SD view embraces concepts of the value-in-use and co-creation of value. Instead of firms being informed to market to customers, they are instructed to market with customers, as well as other value-creation partners in the firm's value network (de Chiara, 2012).
Humpreys & Grayson (2008) used the work of Lusch & Vargo, yet they investigated deeper the distinction between the exchange and use of value. Hereby they get more in depth into traditional roles, namely producer (traditional value exchanger) and consumer (value user). Within co-creation these traditional roles are fundamentally shifting; 'consumers collaborate with companies or with other consumers to produce things of value, and thereby create value for companies'. This is a phenomenon Humpreys & Grayson (2008) call 'prosumer'.

This corresponds to Kristensson et al. (2007), who state that the process of co-creation constitutes a more market-oriented perspective on the question of innovation than with customization.

Prahalad & Ramaswamy (2004) discussed the meaning of value and the process of value creation as a shift from a product- and firm-centric view to personalized consumer experiences. Within the traditional view, consumers were 'outside the firm' whereas value was created inside the firm. Value was created through low costs, or according to Vargo & Maglio (2008): 'Traditional models of value creation focus on the firm's output and price'. These traditional roles have to be challenged: 'examine the impact of a convergence of the roles of production (company) and consumption (consumer)'. In the view of co-creation, all points of interaction between the company and the consumer are opportunities for both value creation and usage (Prahalad & Ramaswamy, 2004) The traditional assumption that value can be built into a product during production processes is in line with the goods-dominant view Lusch & Vargo, 2004). The opposite can be seen in the notion of co-creation, and the service-dominant logic: value can only be determined by the user during the consumption, usage, process (Michel et al., 2008; Lusch et al., 2007).

Ramaswamy (2005) mentions globalization, deregulation, outsourcing, and the convergence of industries and technologies as barriers for companies to differentiate themselves from the competition. Thus, companies seek no other way than to gain competitive advantage by the active involvement of customers. Prahalad & Ramaswamy (2004) state that firms should not separate the market from the value process, and that companies have to realize that the role of the customer changes "from isolated to connected, from unaware to informed, from passive to active". This involves more than listening to customers' retrospective accounts of their supposed needs; it also requires active collaboration with the users in a way that leads to a clear understanding of their dormant needs (Lusch et al., 2007). Additionally, political, economic, social and environmental forces constantly affect companies' decision-making (Porter, 1979). The recent recession for instance, made companies more cost saving and therefore forces them to think more innovative; co-creation could also be partly seen as a result of this development.

Internal and external factors affect markets, which in turn forces the traditional division of roles between producer and consumer to shift. Companies refusing to join this development could potentially face competitive disadvantage.

2.3 Advantages

There is a strong tendency towards co-creation for numerous reasons. Payne et al. (2006) state that, when the supplier creates 'superior value propositions' appealing the supplier's target customers, it results in greater opportunities for co-creation. Consequently, the supplier experiences advantages as revenues, profits, etc. Furthermore the lifetime value of desirable customer segments can be maximized (Payne et al., 2006); it assists organizations in exposing the customer's point of view and it improves the front-end process of identifying customers' needs and wants (Lusch and Vargo, 2006). Kambil et al. (1999) also stress that benefits are substantial; co-creation is a new source of competitive advantage that encourages customer loyalty. According to Kristensson et al. (2004), these competitive advantages can be seen in the innovative processes: customers come up with creative superior business opportunities that are more valued by the customer, and more easily implemented. Common sense explains that people generally find it pleasant to have a say in things, especially when their needs can be satisfied faster, better and more precisely. Moreover, R&D costs are significantly lower, other advantages named by Kleemann, Voß & Rieder (2008) are shorter time to market and a higher chance on success in the introduction of new product. Shortly stated; the advantage of co-creation lies in a better coordination and relationship between the traditional buyer and supplier. This leads to competitive advantage in the sense that the supplier is better able to comply with customer's desired value, gaining more insight into customers' demands.

2.4 Challenges & hazards

Although associated with many advantages, there are still issues withholding companies from the implementation of co-creation. Risks as decreased control, fear for the unknown and insufficient knowledge can be named possible causes. Von Hippel (2005) states that open innovation is 'painful and challenging for manufacturers'; as it requires fundamental changes in established business models. Furthermore, due to increased user influence, the social division of jobs will change in disfavor of labor (Cova, 2011). Prahalad & Ramaswamy (2003) agree by stating that people, systems and organizations are difficult to change, and it might take a while to get used to new ways of working. Von Hippel (2005) also mentions that governments and legislation are often aimed at supporting manufacturer's innovation which hinders organizations. Cova (2011) mentions that the biggest difficulty is to 'unlearn'; causing dissatisfaction among existing employees. The entire process is time consuming and requires thorough change management. Except for the organizational disadvantages the employees might experience, there is also the chance that consumer interactivity

works the other way around. Mollick (2005) outlines that communities could also use their power to penalize organizations and create economic damage and disruption. Finally, Plé & Cacarés (2010) use the work of Vargo & Lush (2008c) to explain the downside of co-creation: 'co destruction', as 'an interactional process between service systems that results in a decline in at least one of the systems' well-being'. Misusing resources could lead to disappointments due to unaligned expectations, turning into in incremental innovations which limits the companies capacity to adapt to its competitive environment (Plé & Cacarés, 2010).

2.3 Position of co-creation within new product development

2.3.1 From closed to open innovation

Co-creation exists in several levels as product customization, product improvement, new product development (Wind & Mahajan, 1997) as well as finding new ways for advertising and packaging (Sanders & Stappers, 2008). Co-creation is busy proving itself to be a significant factor within several levels of production; yet probably the biggest sources of value can be found in new product development (NPD). Although companies see the strategic importance of effective new product development as a source of competitive advantage, most NPD activities fail to achieve their anticipated level of success (Lilien et al., 2002). Organizations can no longer afford to solely use their own resources. Existing literature research often continues on the assumption that NPD is an internal firm-based activity (O'hearn & Rindfleisch, 2010), however there exists a shift from the 20th centuries' dominating closed innovation model, characterized by what Chesbrough (2006) refers to as 'self-reliance philosophy', where companies generate, develop and commercialize internal ideas, towards an open innovation model. Chesbrough & Vanhaverbeke (2008) state that open innovation can be seen as a rising model of innovation in which firms draw from R&D that may lie outside their own boundaries. In this newly emerging co-creation paradigm, customers essential participants in the NPD process (O'hearn & Rindfleisch, 2010). Consumer's input is taken into account in new product development; they become valuable resources in the process (Kambil et al., 1999). According to Cooper (1979), one of the main factors in the success of new product development is market knowledge and proficiency; failure in NPD due to a lack of market knowledge can be resolved by co-innovating with the customer in order to have more information about their specific needs.

2.3.2 Development of social media

Another big development since the 1990's is the Internet revolution (Kleemann, Voß & Rieder, 2008). The concept of user participation is also at the heart of the shift that took place in internet uses: from 'top-down content consumption to bottom-up participation' and user-centered content creation (web 2.0) (O'Reilly, 2005). Web 2.0 became known as the main enabler of social media. The quickly developing social media platforms play a significant role as they enable increased interactivity between users; thus between companies and customers. These social media platforms are so called virtual communities, which Porter (2004) refers to as 'aggregations of individuals or business partners who interact around a shared interest, where the interaction is at least partially supported and/or mediated by technology and guided by some protocols or norms'. Von Hippel (2005) acknowledges this connection by stating that 'free and open source software projects are a relatively well-developed and very successful form of Internet-based innovation community'. Within NPD thus, the shift towards open source innovation is supported by the development of social media, as this forms an easy and inexpensive tool for users to communicate their thoughts to manufacturers. This is in line with Chesbrough's (2003) 'virtual customer integration', which is a way to virtually involve customers in every stage of NPD, using their knowledge, creativity, and judgment (Füller et al., 2010). As mentioned before, this also would increase the success rate of innovations. Von Hippel (2005) emphasized that these manufacturers would benefit from communities, as customers would share information, ideas and suggestions without requiring copyrights. This indicates the voluntary interest of the consumer to co-create online. The Internet offers many benefits as opposed to traditional communication channels. It is worldwide accessible, fast and cheap way to interact with other users. There are multiple ways in which consumers can actively participate in innovating with the producer. There exist many interactive platforms on which users can reunite; Kaplan & Haenlein (2010) differentiate between blogs, collaborative projects e.g. Wikipedia, content communities e.g. YouTube, virtual social worlds & game worlds and social networking sites e.g. Facebook. What these social platforms have in common is that users have the ability to create content and interact (Kaplan & Haenlein, 2010). A recent study by Vincenzo Cosenza (2012) has shown that Facebook with over 845 million active users — is the most frequently used social networking site in 126 out of 137 countries analyzed. This illustrates the one of the biggest strengths of social networking sites; they reach a large audience. Other than these general social networking sites, there are also companies that have created their own communities to enable users to interact on an even larger scale; to create their own designs for instance. The next section will elaborate a bit more on these company specific communities.

2.4 Permanent and trial based co-creation: industry examples

As earlier mentioned studies showed (Williams, 2011; McKinsey Global Institute, 2012), many companies do not completely consider the value of co-creation or are not yet aware of the possibilities the web has to offer . Therefore, co-creation is not quite embedded in companies' business models, and is often used on trial base – where co-creation is used in a limited timeframe as independent campaign- as opposed to permanent base, where co-creation is embedded as a source of value in business models and users have the possibility to continuously co-create. In this section both uses will be explained combined with practical examples. Although there are many examples of companies within several industries that use co-creation; literature focusing specifically on industries and sectors is scarce. This makes it difficult to underpin the examples with scientific evidence and draw conclusions. The following companies do not only have active social media accounts on social networking sites, yet they have created their own online communities. This section will try to elaborate on their purposes and motives.

2.4.1 Food Industry

The first industry this paper discusses is the food & beverages industry. In 2010, Lay's decides to change its strategy to differentiate itself from cheaper competitors by introducing its campaign 'Maak de smaak' in the Netherlands. Lays invited customers to invent new flavors. Lay's communicated widely through the use of social media in combination with traditional advertising channels. The impact was significant; according to 'De Communicatiedesk' (2011) Lay's brand preference increased from 44% to 49%. Over 310.000 participants offered more than 678.000 ideas and 184.000 people voted for the best idea; it is fair to state that Lay's exceeded its goals.

Another example is McDonalds. To celebrate its 40th anniversary in 2011, McDonalds came up with the 'Mein Burger' campaign in Germany. Customers were invited to design their own burger, after which the five burgers which obtained the most votes would be taken in production in Germany and Luxembourg. According to 'thisisnotadvertising' (2012), over 116,000 burgers were created, and 12,000 burger advertisements were made during the campaign. About 1.5 million people eventually voted. The revenues of this campaign exceeded any other promotional burger revenues; the campaign reached about 21 million contacts.

Both McDonalds and Lay's started off as trial based examples, but due to the enormous success they decided to repeat the campaigns. However, as the campaigns run for limited time, they cannot be named permanent based co-creation.

An example of permanent base co-creation in the food industry is Starbucks. In 2008, Starbucks began launching its new platform 'my Starbucks idea'. (My Starbucks Idea, 2013) The goal was to involve the customer in the entire innovation process, from product and experience to involvement, while improving the customer experience. The interaction is making this a success. Customers' ideas are really taken into account, resulting in for instance the Starbucks VIP Card (v. Hooijdonk, 2010), new flavors and drive-thru Starbucks'. Over 150,000 ideas were submitted in five years' time, according to Starbucks (2013).

2.4.2 Fashion Industry

Another industry which lends itself perfectly for co-creation activities is the fashion industry. A well-known example of permanent based co-creation is Nike, which has created the Nike+ community in 2006, allowing runners to interact with each other and the brand by constantly offering ideas and tips to improve the product. Stefan Olander, Nike vice president Digital sport, stated in Marketing Week (2012): "in the past, the product was the end point of the customer experience. Now, it's the starting point". The success is significant: about 35million goals are reached every day and over 913million miles have been run using Nike+ (Nike, 2013). It also led to significant financial results. Market share increased between 2006 and 2009 from 47% to 61%, whereas advertising costs decreased by $50million (Cahill, 2011). Co-creation has delivered continuous growth and innovation, as well as ongoing relationships exceed what traditional marketing tools could possibly produce. Moreover, Threadless is an example of permanent co-creation in the fashion industry. People design a t-shirt online, for seven days people can vote and the best t-shirts will be taken into production (v. Leeuwen, 2013). The brand is fully dependent on the Threadless community. The client is the company, the marketing tool and the producer while Threadless only facilitates this process. Threadless has about 2,523,313 global community members, 1,529 designers have earned $7,120,000 and over 278 000 designs have been submitted (Threadless, 2013); which is remarkable success taking into consideration that the brand does not do any advertising.

2.4.3 Electronics

The electronics industry has a couple of key-players that implemented co-creation. In this industry, the production process is more complicated and time consuming than in the food or fashion industry. What the brands in this industry have in common is that their communities are often functioning as a permanent support desk to help people. It also works as a platform where people can suggest improvements. The first example is Nokia. They have created a platform 'Nokia Beta labs' in 2007. Customers can speak their mind in order to improve existing products and create new designs. Users are actively involved in the latest developments of apps, software and devices, while being able to influence the process through feedback and interaction.

Furthermore, in 2007 Dell has launched a website called 'Dell Ideastorm', initiated after negative criticisms led to severe damages to the brand. Users were invited to participate in a collaborative environment where they could share their complaints, suggestions and new product ideas (Hind, 2008). Over 18000 ideas were submitted of which 530 were actually implemented. Over 740 000 votes and 97000 comments have contributed to the growth of Dell (Dell Ideastorm, 2013). According to Bill Johnston (2012), in 2012 the revenues of ideas were about 100 million, purchase frequency is 33% higher and the average value of an idea is 10K dollar.

2.4.4 Airline Industry

In the airline industry many trial base examples of co-creation can be observed. Airlines created campaigns where people could collaborate to create new designs and features. Examples named by Kollou (2010, 2011) are Air New Zealand's 'Aviation Design Academy' in 2010; KLM's 'Battle of Concepts', 'Creative Challenge' and 'Young Designers Competition' in 2009; Virgin Atlantic's V-Jam in 2008 and Airbus 'Fly Your Ideas'in 2008 in order to diminish pollution.; Emirates 'Skywards Future Artist Program' in 2010 and Cathay Pacific 'The Art Of Dessert' Contest in 2010. Especially the premium airlines have proven that open innovation should be captured and that ideas are of significant value to the brands.

From these examples it can be concluded that permanent co-creation is often used as continuous source of value. Especially companies offering services see this as a way to communicate with users in order to improve the relationship. It is becoming a stable factor, which develops through the years. Engaging customers through trial based co-creation on the other hand, is often used to create a buzz serving a strategic goal for companies that have been falling behind. Growth, increasing market share and reviving the brand are motivating factors.

Although the given examples present companies active in the B2C sector, there is a less known, yet potentially powerful B2B sector active as well. According to Gouillart & Deck (2011), technology enables B2B companies to open up and design their operational processes with each other. They also explain the lower awareness as a result of 'suppliers being more focused on

the end-consumer, than functional inputs'. Literature on co-creation within B2B markets is limited, however Kärkkäinen et al., (2011) state that differences can be seen in phases of the innovation process, information and knowledge management perspectives.

2.5 Uses & Gratification Theory

It is clear what co-creation is, how it is used and why companies decide to shift their business models towards open innovation. However, one of the most important aspect of co-creation is consumer involvement and their online behaviors. The authors of this paper identified the 'uses & gratification theory (Herzog, 1944; McGuire, 1974)' as underlying model to understand consumer motivations to co-create online.

The underlying assumption of the uses and gratifications (U&G) theory is that users are actively looking for ways to satisfy their needs through social media channels (Blumler & Katz, 1974).The U&G theory has derived from the functionalist perspective on mass media communication assuming that consumers are very interactive on media platforms (Luo, 2002). As co-creation requires consumers to actively participate on the Web, this theory can easily be applied to get insight into consumer's motives (e.g. Eighmey and McCord 1998; Luo, 2002). The U&G model this paper identified (fig. 1) consists of 3 variables, namely 'antecedents', 'attitudes', and 'consequences'. The first variable 'antecedents' explains the motivations a user could have to voluntary co-create.

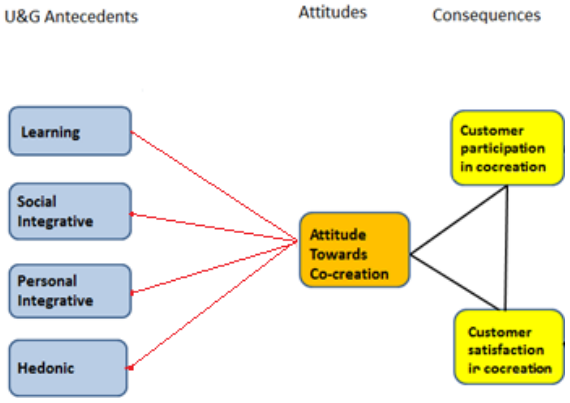

Figure 1. Uses & Gratification model

Whereas most literature regarding the U&G theory continues with antecedents as 'entertainment', 'informativeness', and 'irritation' (Luo, 2002) this paper uses the work of Katz et al. (1974) & Nambisan and Baron (2007), who identified 4 motivators/ perceived benefits, namely 'learning;', the extent to which one learns something from participating in co-creation (in line with Chen & Wells, 1999); 'social integrative', which refers to the users social benefits e.g. status, reputation, network; 'personal integrative', which aims at personal satisfaction factors e.g. professional career options; and 'hedonic integrative', referring to the amount of pleasure and fun (Eighmey & McCord 1998) on experiences by co-innovating.

As one can observe from this model, these variables and their attributes are interdependent. The relationships between these variables are crucial for a proper understanding of consumer's behavior. The first part of the model, namely antecedents influences the attitudes the user has towards participating in co-creation; and the subsequent actions. Thus, hypotheses are tested to find any causal relationships. As it is expected that the four perceived benefits will motivate people to co-create, the following hypotheses are construed:

H1: Learning is positively associated with the attitude towards co-creation;

H2: Social integrative is positively associated with the attitude towards co-creation;

H3: Personal integrative is positively associated with the attitude towards co-creation;

H4: Hedonic integrative is positively associated with the attitude towards co-creation.

Secondly, by the variable 'attitudes' is meant what attitudes the customer has towards co-creation, taking into account the before mentioned benefits. The final variable 'consequences' construes how the attitudes are translated into actions. Nambisan & Baron (2007) included 'Customer participation in co-creation', whether users have participated in any kind of customer involvement; and 'Customer satisfaction in co-creation' which explains the benefits expected by the users in order to satisfy them sufficiently to co-create. According to Chen & Wells (2009) & Luo (2002), attitudes are the main determents of consequences. Hence, when a user has a positive/ negative attitude towards co-creation, this will immediately be reflected in the extent to which users participate/ have participated and to whether they are satisfied or not. Literature has proven relationships between attitudes & consequences (e.g. MacKenzie et al., 1986). It is expected that a *positive* attitude towards the web will lead to *higher* participation and *more satisfaction* on the web; leading to the following hypotheses:

H5: Attitude towards the web is positively associated with customer participation in co-creation;

H6: Attitude towards the web is positively associated with customer satisfaction in co-creation.

Finally, both participation and satisfaction are expected to lead to certain results. However, future studies have to indicate to which extends.

3. METHODOLOGY

This research was conducted in order to determine the motivations of consumers to co-create online. Participants were asked to share their experiences by answering questions and statements categorized in the variables and attributes derived from the U&G theory.

3.1 Participants

A sample group was selected to participate in an online survey (Appendix A) aiming at understanding their online behavior. Luo, (2002) indicates that that web users are 'generally college educated and young with median or high-income levels'; this group was considered to be most active on social media platforms and thus expected to have the most affiliation with the topic of this study. Therefore, 251 students/ young working adults were randomly recruited via social media channels as Facebook and Twitter. This (due to a limited timeframe) convenience sample consists of mainly students/ young adults, who are related to UT students. Participation was voluntary; participants did not receive any financial/ non-financial

remuneration. The sample consisted of 56% male and 41% female participants; the average age was between 20 -25 years old. The participants were mainly of Western (particularly Dutch/ German) nationality.

3.2 Materials/ Procedures

The authors published the questionnaire on several social media channels. Participants were asked to answer an online survey questionnaire within unlimited time. The survey began with profile questions in order to determine the demographics of participants, and ended with the actual survey. As reported in the Appendix, questions regarding antecedents were derived from previous studies. The perceived benefit 'learning' was derived from the work of Franke & Shah (2003); Hertel et al., (2003) and Wasko & Faraj (2000). The 'hedonic integrative' was based upon literature of Kollock (1999) and Wasko & Faraj, 2000. The 'personal integrative' was based on studies by Kollock (1999) and Hertel et al., (2003). The 'social integrative' was derived from Franke & Shah (2003). The consequences were tested using the work of Nambisan & Baron (2007), who used for Participation(8) The number of consumer postings in the VCE (source Nielsen database). Questions were formatted as multiple choice, Likert response scale with 5-point format, anchoring at "1"--strongly disagree and "5"--strongly agree, and "1"—very unimportant and "5"— very important and the semantic differential scale. The number of choices or statements differs per question. At one point, participants were asked whether they had co-created before; the survey ended for those answering 'negative' whilst those answering 'positive' continued with more questions. Data obtained from this research instrument were subsequently computed for interpretation.

3.3 Data Analysis

(Carlota Lorenzo, 2013): The first empirical goal was aimed at observing the existence of similarity of factors between previous studies and our data. Thus, the first step was applying an exploratory factor analysis (EFA). Therefore, principal components analysis (PCA) was run. Rotated factor scores created during the EFA process were used as variables to develop a latent cluster analysis (Díaz de Rada, 1998; Frías-Navarro and Pascual-Soler, 2012). Particularly, a latent segmentation methodology was used to define segmentation and profiling of co-creators based on different motives of participation in online co-creation activities by sample analyzed. This type of procedure allows the assignation of individuals to the segments based on their probability of belonging to the clusters, breaking with the restrictions of deterministic assignment inherent to the non-hierarchic cluster analysis (Dillon and Kumar, 1994). Thus, individuals are assigned to different segments under the assumption that the data stems from a mixture of distribution probabilities or, in other words, from various groups or homogenous segments that are mixed in unknown proportions (McLachlan and Basford, 1988). The advantage of latent class models is that it allows the incorporation of variables with different measurement scales (continual, ordinal or nominal) (Vermunt and Magidson, 2005). Based on the positioning of the different individuals regarding to the variables, different grouping patterns can be obtained that fulfill the principles of maximum internal coherence and maximum external differentiation. To carry out the latent segmentation, Latent Gold 4.5 statistical software was used. Finally, based on the clusters obtained, the relationship between each activity of co-creation and the correspondence cluster through across-tables and chi-square statistic was analyzed in order to analyze the significant differences of each co-creation activity and its position in each obtained cluster (please see appendix for detailed data analysis).

4. RESULTS

A few results can be noticed from the empirical study. (See appendix B/ C for detailed description and corresponding data.)

Firstly, this study tried to expose the motivations for an average co-creator, testing the first four hypotheses associated with the relationship between antecedents and attitudes.

Results revealed that motives of participation can be clustered within four factors (Appendix table 1);

Factor 1, Satisfaction and Enrichment, includes items on the satisfaction received from influencing product design and development, satisfaction received from influencing product usage by other customers, and from helping design better products, the possibility of earning money directly thanks to the co-creation, contribute in creating cheaper products, enhance the financial position indirectly for people (by buying products offering higher value), and deliver non-financial rewards (such as receiving product for free, beta products, and so on).

This supports **H1**: Learning is positively associated with the attitude towards co-creation; - hypothesis 1 is *not rejected.*

Factor 2, Enjoyment, incorporates items related to the contribution of co-creation in spending some enjoyable and relaxing time, contribution in fun and pleasure, entertainment and stimulate the mind of people, and offering enjoyment deriving from problem solving, ideas generation, etc.

This supports **H2**: Social integrative is positively associated with the attitude towards co-creation – hypothesis 2 is *not rejected*

Factor 3, Network with Community, includes variables related to expand the personal network by people, releasing the status/reputation as product expert in the personal network, enhancing the strength of the people affiliation with the customer community, and positive affect their professional career.

This supports **H3**: Personal integrative is positively associated with the attitude towards co-creation – hypothesis is *not rejected*

Factor 4, Implications with the Product, is composed by items on enhancing the knowledge about the products and their usage, improving the knowledge on product trends, related products and technology, and helping people make better product decisions as consumers.

This supports **H4**: Hedonic integrative is positively associated with the attitude towards co-creation – hypothesis is *not rejected*.

Using latent segmentation, different descriptive variables that could have an influence on the motives to participate in co-creations activities were analyzed; namely: gender, age, nationality, and use of social networking sites. Additionally, according to the Bayesian Information Criterion (BIC), two segments could be identified; namely motivated and non-motivated co-creators. It appeared that motivated co-creators consider factor 2 & 4 more important when they participate in co-creation. Factors 1 & 3 were although important, considered less valuable.

In conclusion, two profiles of co-creators were distinguished (tables 2 & 4) , in order to be able to test the consequences: The "motivated co-creators" cluster presents above average interests in the four analyzed factors. This segment is mainly made up by male (80%) and people over 25 years old (32%). It is composed mainly by Dutch co-creators (40%). Regarding use of social media tools by this group, these co-creators have an account in LinkedIn and use it regularly (24%); they do not have an account in Blogger and do not know it (52%); the most of people of this group do not have an account in Word press but know it (40%); high percentage has an account in YouTube or Vimeo, Social Bookmarking Sites, and Twitter, and uses them seldom (36%, 32%, and 36%, respectively); they do not have an account in Instagram but know it (48%).

The "non-motivated co-creators" segment presents lower interest in four factors analyzed compared to the previous cluster. This segment is composed mainly by female (80%), between 20 and 25 years old (76%). In this segment, the percentage of German, rest of Europe/ world are higher than the other cluster. German people are the highest percentage (48%). The 32% of this group do not have an account in LinkedIn but know it. This group has an account in Blogger, and uses it seldom (32%). They do not have an account in Word press and do not know it (36%), but in YouTube or Vimeo they have an account and use it regularly (48%). Many do not have an account in Social Bookmarking sites (48%). Comparing to the other group, this cluster has higher percentage of people with an account in Facebook and use it regularly (96% versus 92%). 48% of this group does not have an account in Twitter but know it (48%). Compared to the other group, this segment has an account in Instagram, and uses it regularly (32% versus 12%).

Based on the two profiles, the final two hypotheses associated with the causal relationship between attitudes and consequences were tested. For this, it was analyzed what percentage of motivated co-creators participated per activity. Every activity having more than 50% was considered to be positive. Activities 1 – 17 were all related to motivated co-creating activities ranging from the minimum 75% (C.6 Online co-creation activity 6: I participated in a company forum discussing ideas about new products/services) to a maximum of 100% (C.5 Online co-creation activity 5: I participated in a public forum discussing ideas about new products/services). (See appendix C for all results). Consequently, these results support **H5**: Attitude towards the web is positively associated with customer participation in co-creation- leaving *it not rejected*. Unfortunately, **H6**: Attitude towards the web is positively associated with customer satisfaction in co-creation- could not be tested. The statements associated with this consequence were not scientifically valid, leaving this relationship open for future research.

5. DISCUSSION & CONCLUSION

This paper shows the reader a detailed literature review about co-creation; it gives an impression of the emergence of co-creation as well as the current uses illustrated by recent examples. This study construed a comprehensive model, based on the uses & gratification theory, in order to determine the motivations customers to co-create online. This is followed by an explanation of the designed model, derived from the uses & gratification theory, after which empirical research was carried out using an online survey.

The literature review has given an overview of previous studies that have written about co-creation. A few keynotes can be drawn. Four sub questions have been named as the pillars of this study. Namely; 'What are the business drivers facilitating the emergence of co-creation?'; 'How did market roles change through the years, and what's the effect on consumer influence?'; 'What's the role of social media within these (new product) developments?' and 'How can the uses & gratification theory be applied to explain consumer motivations to co-create?'. Co-creation is a progressive method where customers collaborate with firms, in order to generate value. Traditionally, customers used value and suppliers exchanged value, however there is a shift visible within these roles (Lusch & Vargo (2004). All points of interaction between the company and the consumer are opportunities for both value creation and usage (Prahalad & Ramaswamy, 2004); increasing customer power and influence within several stages of production. There are a few environmental factors supporting the shift; globalization, deregulation, outsourcing, and the convergence of industries and technologies are making it harder for companies to stand out (Ramaswamy (2005); thus they use the knowledge of the public. Advantages are increased creativity, lower R&D costs and satisfied and loyal customers (Kristensson et al. 2004); Kleemann, Voß & Rieder, 2008) yet disadvantages are lack of control, co-destruction and the time consuming process (Mollick, 2005; Plé & Cacarés, 2010).. Although co-creation can be seen in product customization, product improvement, advertising and packaging (Wind & Mahajan, 1997; Sanders & Stappers, 2008), NPD seems to be the biggest source of value. The new 'open innovation model' (Chesbrough, 2006) relies on resources outside the firm, namely the customer, decreasing the chance on market failure. Social media is considered to play a big role, as this inexpensive platforms enables interactivity between users; the Web is an easy accessible tool to communicate with the customer. Examples of co-creation are numerous; trial base and permanent examples are shown in several industries and sectors. Many companies start off with a trial, which mostly exceeds the expected success leading to repeated actions or permanent usage. The U&G theory (Herzog 1944; McGuire 1974) allows the researcher to gain insight into the decisions customers make for specific mass media channels; and for this study its applicability to the Internet. It relies upon 3 variables, namely 'antecedents' (learning, social integrative, personal integrative & hedonic); 'attitudes'; and 'consequences' (customer participation & satisfaction). The causal relationships that can be drawn are the bases of the empirical study.

From the empirical study, a few conclusions can be drawn. This study among a sample of 251 participants tested 6 hypotheses. The first four hypotheses have proven to be significant, stating that all 4 antecedents have a positive relationship to attitudes. Secondly, these four antecedents have created two clusters: 1/ motivated & 2/ non motivated. With this in mind, the final two hypotheses were tested. The relationship between attitude and consequences has proven to be significant. The relationship between attitude & customer satisfaction could not be tested. The impacts of especially the 'Social integrative' and the 'Hedonic integrative' were found very significant, although the impacts of 'Learning' and 'Personal Integrative' were also significant. Furthermore, attitudes do have a very strong positive relationship towards consequences, as the percentage of motivated co-creators participating per activity was high. The practical implications of these findings are that companies have

to be aware that the motivated co-creator is what makes the co-creating activity a success. Without the motivated co-creator, the participation rate is fairly low, thus, it is key to put an effort in the motivation of the customer to increase this group (only 25% of the sample participated in co-creating activities). Motivating can be done through supporting and promoting the four perceived benefits: where especially benefits relating to the social integrative e.g. increasing enjoyment, stimulating the mind, end entertainment; as well benefits relating to the 'hedonic integrative' e.g. enhancing the knowledge about the product, technology or band were found significant. Furthermore, enabling increase of status/reputation, and increasing satisfaction are also considered as supporting aspects which are likely to have a positive influence to attitudes. This results in higher participation. It is key thus to relate significant perceived benefits to co-creating activities.

These results are in line with a comparable study by Luo (2002); which revealed that 'informativeness' and 'entertainment' (comparable to 'learning' and 'social integrative') have a positive relationship towards attitudes, and that 'web users who have a positive attitude toward the web are more likely to surf the Net and feel more satisfied'. This study differed from the work of Luo (2002) as it did not incorporate any disadvantageous antecedents or deterrents; whereas Luo (2002) incorporated 'irritativeness' as to be of negative influence on attitudes.

This paper contributed to existing knowledge in multiple ways. Although many is written about co-creation, this paper was the first to summarize the emergence and uses, illustrated with case examples and extended with empirical research based on customers' motivations. For organizations thus, the study is useful as it provides them with an overview of co-creation, and additionally deeper insights into their customers as literature has proven that one of the key elements of co-creation is the participation of the customer; high participation rates require proper understanding of customers' behavior.

The results of the survey are useful as they show organizations the causal relationships and thus main motivators of customers. When companies are aware of the main motivators, they can respond to these properly and exploit the perceived benefits to attract a large audience. Also, it shows in which activities the co-creators are more/ less involved. Then, they can decide which areas are relatively successful and which areas need to be developed to increase the participation rate.

Both the literature review and the empirical study reveal a couple of limitations. Although the paper found answers on several questions, it appeared that there are still gaps in the literature. First of all, the topic co-creation is merely studied within B2C sectors. Although there exists evidence that co-creation is useful within B2B sectors, literature and case studies are limited making it hard to come up with grounded statements. Furthermore, examples of co-creation are found in many sectors, yet supporting evidence to generalize the use of co-creation in certain industries and sectors is missing. Therefore, the examples cannot be classified into sectors and might as well be coincidental. Studies need to prove if there is a pattern visible why for instance the fashion or airline industry seem to have more examples than for example the car industry. Furthermore, the use of co-creation within stages other than NPD were hard to find. Future research within other stages e.g. packaging or advertisement need to show companies the worthwhileness and use of co-creation.

Secondly, the empirical study also exposed limitations. Primary, the limited timeframe resulted in a scientifically weak underpinned survey. The initial model was extended with a 5th antecedent, namely 'financial' and another set of variables 'moderators'. Unfortunately, the survey had a lack of scientific references; undermining the validity of many questions. Therefore, many questions in the survey were unusable for deeper analysis and causal relationships had to be limited to antecedents – attitudes & attitudes – consequences. Therefore the model was afterwards modified and simplified removing the unjustified features, which decreases the usefulness of the study and the ability to draw conclusions. During the process, the 6th hypothesis was found unanalyzable due to a lack of validity. Furthermore, due to time restrictions and limited statistical knowledge of the researcher, it was hard to interpret results properly. Additionally, the sample size is not optimal. While the 251 participants provided useful information, they are not representative to draw conclusions for an entire population. Also, the sample could be biased as the participants were in some way related to University students, which could imply that the sample had above average intelligence. Although Luo (2002) indicated that this is the group most familiar with web activities, results could differ from a random sample.

Due to the small sample size, future research will need to repeat a similar study on a larger scale in order to be able to draw generalized conclusions. Furthermore, the proposed model exposed a couple weaknesses which need to be resolved in future research, mainly due to limited scientific references. The model is not incorporating all possible influencing factors; perceived benefits could be extended with a 'financial integrative', and psychological characteristics of the individual could be taken into account. Also, the effects of moderators as 'brand/ retailer involvement', 'community involvement', and 'web collaboration tools involvement'; and the consequence 'customer satisfaction' need to be studied in order to validate their effects. Moreover, the model could be extended with a results section; possible attributes could be studied in order to complete the model. Also, the model only incorporates benefits, whereas for future research it could be interesting to find out factors that deter customers to co-create online. Finally, future research could be more specified by focusing on certain demographics in order to get more detailed insights into specific populations. As co-innovating is actively developing, this study could also support more detailed research to get insights in the behavior in relation to specific industries, brands or stages.

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APPENDIX

A. ONLINE SURVEY

Demographics (age, gender, nationality, education)
with the Internet and social Media

1. How long do you use the Internet

Less than 1 year
Between 1 year and less than 2 years
Between 2 years and less than 3 years
Between 3 years and less than 5 years
Between 5 years and less than 8 years
8 years or more

2 How much time do you usually spend on line in an average day?

Between 10-30 minutes
Between 30- 60 minutes
Between 1-3 hours
Between 3-6 hours
More than 6 hours

3. How do you commonly access the Internet? (1 most common, 7 less common)

From home with a desktop computer
From home with a laptop
From home with a tablet
From work / university with a desktop computer
From work / university with a laptop
From work / university with a tablet
With my mobile phone

3. Indicate in what of the following Social Networking Sites you have an account and your familiarity / usage of these sites.
SOCIAL MEDIA APPLICATION

Facebook
Twitter
LinkedIn
Quora
Blogger
Wordpress
YouTube, VIMEO or other video sharing site
Instagram
Wikipedia
Social bookmarking sites (like Delicious, Digg etc)

Other……..

Answers per application

I have account and I use it daily
I have an account and I use it seldom or not at all
I don't have account, but I know it
I don't have an account and I don't know it

4. What are important reasons for you to participate in Social Media activities *(More than one options are possible)*
    1. Entertainment

2. Professional interest: To stay informed of events taking place in my professional circles
3. To get informed about news and issues interesting to me
4. To stay in touch with friends and acquaintances
5. To expand my social contacts / make new friends
6. To expand my professional contacts
7. To ask for advice in case of personal problems
8. To ask for advice in case of professional problems
9. To make better decisions about products or services I buy
10. To ask for help in case of problems or questions about products or services I use
11. To stay informed about new products and services
12. To be able to express my experiences or complaints about products and/or brands I buy
14. To help companies make better products
15. To express my creativity and ideas about new products
16. To help others make better buying decision by writing product reviews
17. Other reasons. Mention: _____

5. How many contacts / friends / followers you have in the Social Networking Site you mostly use?

Less than 10
Between 11 and 50
Between 51 and 100
Between 101 and 500
More than 500

FAMILIARITY WITH ONLINE CO-CREATION

1. In the past 3 years I have participated in online activities involving creation of new products or services (examples: participating in quizzes or challenges, participating in forums discussing product or services ideas, posting such ideas in my social networks or blog, responding to online discussions etc.)

Yes** (Go to Antecedents) No * (go to the following question)

*** The reason(s) I never participate in new product development online is that: (more than one answers are possible)**

1. I did not know that this is possible
2. I never thought about this
3. I do not think that customers must have a say on products and services businesses are developing and selling
4. I have no problem with products that do not satisfy me since there are many alternatives to choose from
5. I have no time
6. I believe that businesses do not take customer ideas seriously
7. I do not know how I can participate in new product development online
8. I never discuss about products in my social networks
9. I never participate in customer forums discussing new products
10. I never read blog posts about new products
11. I read post blogs about new products but I do not react on them
12. I do not think that I am very good in thinking about new product ideas

**Antecedents U&G Theory

BENEFITS / MOTIVATIONS

Learning

1. I participate in online co-creation activities when such activities:

Enhance my knowledge about the product ant its usage
Franke and Shah, 2003; Hertel et al., 2003; Wasko and Faraj, [2000])
Enhance my knowledge on product trends, related products and technology

Franke and Shah, 2003; Hertel et al., 2003; Wasko and Faraj, [2000])

Help me make better product decisions as consumer

Social Integrative

2. I participate in online co-creation activities when such activities:

Expand my personal network (Kollock, 1999, Wasko and Faraj, 2000)
Raise my status / reputation as product expert in my personal network (Kollock 1999, Hartel et al 2003)
Enhance the strength of my affiliation with the customer community (Kollock, 1999, Wasko and Faraj, 2000)

Personal Integrative

I participate in online co-creation activities when such activities:

Are likely to positively affect my professional career
Offer me satisfaction from influencing product design and development (Kollock 1999, Hartel et al 2003)
Offer me satisfaction from influencing product usage by other customers (Kollock 1999, Hartel et al 2003)
Offer me satisfaction from helping design better products

Hedonic Integrative

I participate in online co-creation activities when such activities:
(Franke and Shah, 2003, Hertel et al., 2007)
Contribute in spending some enjoyable and relaxing time
Contribute in fun and pleasure
Entertain and stimulate my mind
Offer me enjoyment deriving from problem solving, idea generation, etc

Financial / Material Integrative

I participate in online co-creation activities when such activities:

Enhance my financial position directly
Contribute in creating cheaper products
Enhance my financial position indirectly (for example by buying products offering higher value)
Deliver non-financial rewards (free samples, beta products etc.)

Moderator effects

COMMUNITY IDENTIFICATION (ADAPTED FROM MCCROSKEY ET AL, 1975, CHOI 2000, BIOCCA ET AL, 2002)

I believe that customers who participate in co-creation customer communities

Think like me	Don't think like me
Are different from me	Are not different from me
Are like me	Are not like me
Don't behave like me	Behave like me
Could be my friends	Could not be my friends

Brand (and product) Involvement

The chance that I participate in online co-creation is higher if:

I am familiar with the product involved	Yes	No	No difference
I am familiar with the brand involved	Yes	No	No difference
I am user of such a product	Yes	No	No difference
I am a customer of the brand	Yes	No	No difference
I am satisfied with existing products	Yes	No	No difference
I am enthusiastic about the brand	Yes	No	No difference

Retailer Involvement (if I understand well what you mean)

The chance that I participate in online co-creation is higher if:

Involves products I buy from retail shops	Yes	No	No difference
Involves industrial products	Yes	No	No difference
Involves services like insurance, traveling or banking	Yes	No	No difference
Involves fast moving products (like potato chips, beer, desserts)	Yes	No	No difference
Involves shopping products (like cars, furniture, cloth)	Yes	No	No difference
Involves unknown products / product concepts	Yes	No	No difference
Involves known products / concepts	Yes	No	No difference

Web collaboration tools involvement

Please indicate whether you have participated in one or more of the activities described below during the last 2 years (more than one choices are possible) YES NO

1. I wrote a complaint letter or email to a company about problems I had with a product or service of the company
2. I called the customer service line of a company about problems I had with a new product or service
3. I posted a message in my Facebook of Twitter about problems I had with a new product or service
4. I took part in a discussion online (for example in a forum or a blog) about problems I had with a new product or service
5. I participated in a public forum discussing ideas about new products or new services
6. I participated in a company forum discussing ideas about new products or new services
7. I wrote a reaction to an independent blog post discussing ideas about new products or new services
8. I wrote a reaction to a company blog post discussing ideas about new products or new services
9. I joined a developers team working on developing a new product or service
10. I took part in online Beta testing of a new product or new service
11. I took part in another form of online user testing of a new product or new service
12. I participated in requests of companies to vote for new product ideas in their web sites
13. I participated in request of companies to contribute a new product idea in their web sites
14. I discussed about new products or new services with my friends in Facebook
15. I discussed about new products or new services with my friends in other social networks
16. I wrote a post about new products or new services and services in my blog
17. I posted messages on my twitter account about new products and services

Attitudes

ATTITUDES TOWARDS CO-CREATION

Likert 5 factor scale: Strongly agree – Strongly disagree

1. Companies must make it possible for users of products or services to be involved in the development of new products
2. Users of products and services must participate in the development of new products without any personal gain or reward
3. Users of products and services must participate in the development of new products if some kind of personal gain or reward is involved
4. Users of products and services must provide ideas as basis for development of new products and services
5. Users of products and services must be able to test product concepts before these are launched
6. I usually inform my online contacts about co-creation projects I participate
7. I encourage friends or people I know to co-create
8. I recommend to my online and offline contacts to buy the products or prefer the brands I have been involved with in co-creation
9. I usually post messages about products I have been involved with in co-creation
10. I usually post messages about brands I have been involved with in co-creation
11. I visit forums about brands I have been involved with in co-creation
12. I react to negative comments about products or brands I have been involved with in co-creation
6. Intensive involvement of final customers in the new product development process results in better products or services
7. Engaging customers in the process of new product development increases the danger of leaks of company secrets
8. Users must not be involved in the online innovation process.

Consequences

Customer participation to co-create

During the last 3 years:

1. I participated in company challenges for developing really new products or services without any financial or other rewards
2. I participated in online company challenges to identify problem solutions or develop new products or services when a financial or other reward was offered
3. I participated in online company challenges to identify problem solutions or develop new products or services when no financial or other reward was offered
4. I contributed a product or service rating after purchasing a product or service on my own initiative
5. I contributed a product or service rating after purchasing a product or service on the invitation of the provider of the product or service
6. I did not participate in any co-creation activities online

Satisfaction with co-creation

1. I participate in co-creation with companies when no financial or other types of rewards are offered

2. I participate in co-creation with companies only if a financial or other type of rewards are offered
3. I believe that co-creating with companies results in better products
4. I believe that co-creation with companies results in lower development costs
5. I believe that co-creation with companies results in shorter product development time
6. I believe that products developed in co-creation with companies have better chances to become successful in the market
7. I believe that customers are more satisfied with products developed in co-creation processes

APPENDIX B. PROFILING THE CO-CREATORS: AN ANALYSIS OF LATENT SEGMENTATION

B1. Factorial analysis: Motives of participation in online co-creation activities

Carlota Lorenzo (2013): As a first result in the Exploratory Factorial Analysis (EFA), we noticed that the Kaiser-Meyer-Olkin (KMO) is meritorious, i.e. higher than 0.8 (Guttman, 1954), and Bartlett's test was highly significant (0.0000), indicating thus that the null hypothesis (i.e. correlation matrix is an identity matrix) is rejected. It shows the **validity** of factorial analysis model (Barlett, 1950; Kaiser, 1970). On the other hand, Cronbach's alpha (Cronbach, 1973) values higher than 0.7 indicate the **reliability** of the extracted factors. In sum, it is a good model acceptability that allows proceeding running a factor analysis. After factor extraction, an orthogonal varimax rotation was performed on factors with eigenvalues ≥1.0, thus allowing minimizing the number of variables having high loadings on a particular factor.

Four factors resulted from the analysis, accounting for 72.25% of the symptomatic variance whose names are showed in Table 1. The **factor structure** is **consistent** because all the variables have a factor loading >0.5 for the factor that they allowed (Hair et al., 1999).

Table 1. Factor loadings of EFA

Items (I) about motives of participation in co-creation	Factor 1. Satisfaction and enrichment	Factor 2. Enjoyment	Factor 3. Network with community	Factor 4. Implication with the product
I1-Enhance my knowledge about the product and their usage				.724
I2-Enhance my knowledge on product trends, related products and technology				.725
I3-Help me make better product decisions as consumer				.578
I4-Expand my personal network			.686	
I5-Release my status/reputation as product expert in my personal network			.864	
I6-Enhance the strength of my affiliation with the customer community			.619	
I7-Are likely to positively affect my professional career			.704	
I8-Offer me satisfaction from influencing product design and development	.651			
I9-Offer me satisfaction from influencing product usage by other customers	.530			
I10-Offer me satisfaction from helping design better products	.711			
I11-Contribute in spending some enjoyable and relaxing time		.766		

I12- Contribute in fun and pleasure		.815		
I13-Entertain and stimulate my mind		.832		
I14-Offer me enjoyment deriving from problem solving, ideas generation, etc.		.753		
I15-Earn me money directly	.662			
I16-Contribute in creating cheaper products	.699			
I17-Enhance my financial position indirectly (e.g. by buying products offering higher value)	.600			
I18-Deliver non-financial rewards (receiving product for free, beta products, etc.)	.717			
% Variance explained	46.99%	11.16%	8.29%	5.79%
Cumulative variance	46.99%	58.15%	66.45%	72.25%
Cronbach's alpha	.878	.914	.812	.843

The following factors are obtained:

- Factor 1, **Satisfaction and Enrichment**, includes items on the satisfaction received from influencing *product design and development, satisfaction received from influencing product usage by other customers, and from helping design better products, the possibility of earning money directly thanks to the co-creation, contribute in creating cheaper products, enhance the financial position indirectly for people (by buying products offering higher value), and deliver non-financial rewards* (such as receiving product for free, beta products, and so on).
- Factor 2, **Enjoyment**, incorporates items related to the contribution of co-creation in spending some *enjoyable and relaxing time, contribution in fun and pleasure, entertainment and stimulate the mind of people, and offering enjoyment deriving from problem solving, ideas generation, etc.*
- Factor 3, **Network with Community**, includes variables related to expand *the personal network by people, releasing the status/reputation as product expert in the personal network, enhancing the strength of the people affiliation with the customer community, and positive affect their professional career.*
- Factor 4, **Implications with the Product**, is composed by items on enhancing the knowledge *about the products and their usage, improving the knowledge on product trends, related products and technology, and helping people make better product decisions as consumers.*

B.2 Latent segmentation: A typology of co-creators based on motives of participation in online co-creation activities

Based on pondered average of each factor (calculated through the division between weighting of each item with its standardized load and the sums of the full loadings per factorial construct), we have obtained the indicators variables to analyze them in Latent Gold.

In order to refine the resulting segments, we have analyzed different descriptive variables or covariates that could have an influence on the motives of analyzed sample to participating in co-creations activities: gender, age, nationality, and use of social networking sites (Table 2).

Table 2. Indicators and covariates

VAR.	ITEMS MEASURED	CATEGORIES
INDICATORS	**Motives of participation in co-creations:** F1- Satisfaction and enrichment F2- Enjoyment F3- Network with community F4- Implication with the product	Very unimportant Unimportant Neither unimportant nor important Important Very important
COVARIATES	Gender	Female Male
	Age	Less than 20 years old Between 20 and 25 years old More than 25 years old
	Nationality	Dutch German Rest of Europe America Rest of world
	Use of Social Media tools: LinkedIn Blogger Wordpress YouTube, VIMEO or other Social bookmarking sites (Delicious, Digg, etc.) Facebook Twitter Instagram	Have an account and use it regularly Have an account and use it seldom Don't have an account but know it Don't have an account and don't know

Based on the positioning of the different individuals, with regard to these variables, we have tried to obtain some groupings that fulfill the principles of maximum internal coherence and maximum external differentiation.

In applying the latent segmentation approach, the first step consists of selecting the optimum number of segments. The model used estimated from one (no heterogeneity existed) up to eight (i.e. eight segments or heterogeneity existed). Table 3 shows the estimation process summary and the fit indexes for each of the eight models.

Table 3. Estimates and fix indexes

Number of conglomerates	LL	BIC(LL)	Npar	Class.Err.	E_s	R^2
1-Cluster	-216.2317	733.6892	77	.0000	1.0000	1.0000
2-Cluster	**-117.3402**	**715.8593**	**123**	.0000	1.0000	1.0000
3-Cluster	-98.8832	858.8984	169	.0000	1.0000	1.0000
4-Cluster	-66.8999	974.8847	215	.0001	.9996	.9998
5-Cluster	-37.1556	1095.349	261	.0000	.9998	.9999
6-Cluster	-31.5015	1263.994	307	.0000	1.0000	1.0000
7-Cluster	-10.9516	1402.847	353	.0001	.9994	.9997
8-Cluster	-5.8578	1572.612	399	.0000	.9998	.9999

LL=log-likelihood; BIC=Bayesian information criterion; Npar=number of parameters; Class.Err.=classification error; E_s= entropy statistic (*entropy R-squared*); R^2=Standard R-squared

The model fit was evaluated according to the Bayesian Information Criterion (BIC) that allows the identification of the model with the least number of classes that best fits to the data. The lowest BIC value was considered as the best model indicator (Vermunt and Magidson, 2002, 2005). In this case, **two different** co-creators groups represented the best alternative, as the BIC is minimized in this case. The statistic values included in Table 3 indicate that the model has a good fit (E_s and R^2 near 1).

It is relevant to point out that both segments have the same size (50%). Moreover, all factors load in one cluster, which we have named as "motivated co-creators" because the mean values are higher in all factors (i.e. satisfaction and enrichment, enjoyment, network with community, and implication with the product). All values are higher than 2.5 (remember that the values go from 1, very unimportant, to 5, very important). It means that all motivated co-creators consider important and very important the participation in online co-creation activities. Specially, they consider more important the enjoyment (3.63) and the implication with the product (3.80) when they participate in co-creation. Satisfaction and network with community as motives to co-create are considered with less value although also important (i.e. 2.66 and 2.79, respectively).

To complement the composition of the two segments, the profile of the resulting groups according to the information from other descriptive variables was analyzed. Table 4 shows the groups' composition based on a number of descriptive criteria included in the analysis. Independence tests associated with statistic Wald conclude that significant differences exist between the segments (≥90% confidence level) regarding the gender, age, nationality, and use of different social media tools.

Table 4. Profile of co-creators (covariates): Descriptive criteria

DESCRIPTIVE CRITERIA (Covariates)	CATEGORIES	MOTIVATED CO-CREATORS	NON-MOTIVATED COCREATORS	Wald	p-value
Gender	Female	48%	**80%**	06201	.043
	Male	**52%**	20%		

Age	Less than 20 years old	4%	4%	.0490	.094
	Between 20 and 25 years old	64%	**76%**		
	More than 25 years old	**32%**	20%		
Nationality	Dutch	**40%**	8%	3.0355	.055
	German	32%	**48%**		
	Rest of Europe	20%	**24%**		
	America	8%	8%		
	Rest of world	0%	**12%**		
LinkedIn	Have an account and use it regularly	**24%**	16%	2.6112	.062
	Have an account and use it seldom	24%	24%		
	Don't have an account but know it	28%	**32%**		
	Don't have an account and don't know it	16%	16%		
Blogger	Have an account and use it regularly	8%	**16%**	2.8046	.042
	Have an account and use it seldom	28%	**32%**		
	Don't have an account but know it	0%	0%		
	Don't have an account and don't know it	**52%**	32%		
wordpress	Have an account and use it regularly	**8%**	4%	1.5174	.082
	Have an account and use it seldom	**16%**	8%		
	Don't have an account but know it	**40%**	32%		
	Don't have an account and don't know it	24%	**36%**		
YouTube / Vimeo	Have an account and use it regularly	4%	**48%**	.3331	.095

	Have an account and use it seldom	**36%**	28%		
	Don't have an account but know it	**24%**	16%		
	Don't have an account and don't know it	0%	0%		
Social Bookmarking Sites	Have an account and use it regularly	**8%**	0%	3.0865	.038
	Have an account and use it seldom	**32%**	24%		
	Don't have an account but know it	0%	0%		
	Don't have an account and don't know it	44%	**48%**		
Facebook	Have an account and use it regularly	92%	**96%**	.2223	.089
	Have an account and use it seldom	4%	0%		
	Don't have an account but know it	4%	4%		
	Don't have an account and don't know it	0%	0%		
Twitter	Have an account and use it regularly	20%	**36%**	208632	.041
	Have an account and use it seldom	**36%**	0%		
	Don't have an account but know it	40%	**48%**		
	Don't have an account and don't know it	0%	0%		
Instagram	Have an account and use it regularly	12%	**32%**	2.5610	.063
	Have an account and use it seldom	**24%**	4%		
	Don't have an account but know it	**48%**	32%		
	Don't have an account and	4%	4%		

	don’t know it				
In **bold** is marked the higher percentage obtained by each category per cluster					

C. CROSS-TABLES BASED ON SEGMENTS: TYPES OF ONLINE CO-CREATION ACTIVITIES ACCORDING TO TWO OBTAINED SEGMENTS

Following, the next tables are showed in order to analyze the existence of significant differences between each type of 18 online co-creation activities and its inclusion in each cluster.

C.1 Online co-creation activity 1: I wrote a complaint letter or e-mail

			Clusters		Total
			1 Motivated	2 Non-motivated	1
Cocreation activity 1	No	Count	11	8	19
		% Cocreation activity 1	57,9%	42,1%	100,0%
		% obtained segments	28,9%	66,7%	38,0%
		% of total	22,0%	16,0%	38,0%
	Yes	Count	27	4	31
		% Cocreation activity 1	**87,1%**	**12,9%**	100,0%
		% obtained segments	71,1%	33,3%	62,0%
		% of total	54,0%	8,0%	62,0%
Total		Count	38	12	50
		% Cocreation activity 1	76,0%	24,0%	100,0%
		% obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 5 – contingency table 3.1

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	5,507(b)	1	**,019**		
Continuity correction(a)	4,023	1	,045		
Likelihood ratio	5,402	1	,020		
Fisher's exact				,038	,023
Linear-by-linear association	5,397	1	,020		
N valid cases	50				

a Calculated only by table 2x2.
b 1 box (25,0%) have a frequency expected lower than 5. The minimum expected frequency is 4,56.

Table 6 – Chi-square test 3.1

C.2 Online co-creation activity 2: I called the customer service line about problems with a new product/service

			Segments		Total
			1 Motivated	2 Non-motivated	1
Cocreation activity 2	No	Count	11	7	18
		% Cocreation activity 2	61,1%	38,9%	100,0%
		% obtained segments	28,9%	58,3%	36,0%
		% of total	22,0%	14,0%	36,0%
	Yes	Count	27	5	32
		% Cocreation activity 2	**84,4%**	**15,6%**	100,0%
		% obtained segments	71,1%	41,7%	64,0%
		% of total	54,0%	10,0%	64,0%
Total		Count	38	12	50
		% Cocreation activity 2	76,0%	24,0%	100,0%
		% obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 7 - Contingency table 3.2

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	3,418(b)	1	**,064**		
Continuity correction(a)	2,262	1	,133		
Likelihood ratio	3,314	1	,069		
Fisher's exact				,089	,068
Linear-by-linear association	3,350	1	,067		
N valid cases	50				

a Calculated only by table 2x2.
b 1 boxes (25,0%) have a frequency expected lower than 5. The minimum expected frequency is 4,32.

Table 8 – Chi-square test 3.2

C.3 Online co-creation activity 3: I posted a message on Facebook or Twitter about problems with a new product/service

			Obtained segments		
			1	21	Total
Cocreation activity 3					
	No	Count	21	9	30
		% Cocreation activity 3	70,0%	30,0%	100,0%
		% Obtained segments	55,3%	75,0%	60,0%
		% of total	42,0%	18,0%	60,0%
	Yes	Count	17	3	20
		% Cocreation activity 3	85,0%	15,0%	100,0%
		% Obtained segments	44,7%	25,0%	40,0%
		% of total	34,0%	6,0%	40,0%
Total		Count	38	12	50
		% Cocreation activity 3	76,0%	24,0%	100,0%
		% Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 9 - Contingency table 3.3

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	1,480(b)	1	,224		
Continuity correction(a)	,772	1	,380		
Likelihood ratio	1,548	1	,213		
Fisher's exact				,317	,191
Linear-by-linear association	1,451	1	,228		
N valid cases	50				

a Calculated only by table 2x2.
b 1 boxes (25,0%) have a frequency expected lower than 5. The minimum expected frequency is 4,80.
Table 10 – Chi-square test 3.3

C.4. Online co-creation activity 4: I took part in an online discussion (e.g. blog, forum)about problems with a new product/service

			Obtained segments		
			1	21	Total
Cocreation activity 4					
	No	Count	23	11	34
		% Cocreation activity 4	67,6%	32,4%	100,0%
		% Obtained segments	60,5%	91,7%	68,0%
		% of total	46,0%	22,0%	68,0%
	Yes	Count	15	1	16
		% Cocreation activity 4	93,8%	6,3%	100,0%
		% de Obtained segments	39,5%	8,3%	32,0%
		% of total	30,0%	2,0%	32,0%
Total		Count	38	12	50
		% Cocreation activity 4	76,0%	24,0%	100,0%
		% Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 11 - Contingency table 3.4

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	4,064(b)	1	,044		
Continuity correction(a)	2,759	1	,097		
Likelihood ratio	4,821	1	,028		
Fisher's exact				,074	,042
Linear-by-linear association	3,983	1	,046		
N valid cases	50				

a Calculated only by table 2x2.
b 1 boxes (25,0%) have a frequency expected lower than 5. The minimum expected frequency is 3,84.
Table 12 – Chi-square test 3.4

C.5 Online co-creation activity 5: I participated in a public forum discussing ideas about new products/services

			Obtained segments		
			1	21	Total
Cocreation activity 5					
	No	Count	30	12	42
		% Cocreation activity 5	71,4%	28,6%	100,0%
		% Obtained segments	78,9%	100,0%	84,0%
		% of total	60,0%	24,0%	84,0%
	Yes	Count	8	0	8
		% Cocreation activity 5	100,0%	,0%	100,0%
		% Obtained segments	21,1%	,0%	16,0%
		% of total	16,0%	,0%	16,0%
Total		Count	38	12	50
		% Cocreation activity 5	76,0%	24,0%	100,0%
		% Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 13 - Contingency table 3.5

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	3,008(b)	1	,083		
Continuity correction(a)	1,645	1	,200		
Likelihood ratio	4,853	1	,028		
Fisher's exact				,173	,091
Linear-by-linear association	2,947	1	,086		
N valid cases	50				

a Calculated only by table 2x2.
b 1 boxes (25,0%) have a frequency expected lower than 5. The minimum expected frequency is 1,92.
Table 14 – Chi-square test 3.5

C.6 Online co-creation activity 6: I participated in a company forum discussing ideas about new products/services

			Obtained segments		
			1	21	Total
Cocreation activity 6					
	No	Count	35	11	46
		% Cocreation activity 6	76,1%	23,9%	100,0%
		% de Obtained segments	92,1%	91,7%	92,0%
		% of total	70,0%	22,0%	92,0%
	Yes	Count	3	1	4
		% Cocreation activity 6	75,0%	25,0%	100,0%
		% de Obtained segments	7,9%	8,3%	8,0%
		% of total	6,0%	2,0%	8,0%
Total		Count	38	12	50
		% de Cocreation activity 6	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 15 - Contingency table 3.6

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	,002(b)	1	,961		
Continuity correction(a)	,000	1	1,000		
Likelihood ratio	,002	1	,961		
Fisher's exact				1,000	,679
Linear-by-linear association	,002	1	,961		
N valid cases	50				

a Calculated only by table 2x2.

b 2 boxes (50,0%) have a frequency expected lower than 5. The minimum expected frequency is ,96.

Table 16– Chi-square test 3.6

C.7 Online co-creation activity 7: I wrote a reaction to an independent blog post discussing ideas about new products/services

			Obtained segments		
			1	21	Total
Cocreation activity 7					
	No	Count	28	11	39
		% de Cocreation activity 7	71,8%	28,2%	100,0%
		% de Obtained segments	73,7%	91,7%	78,0%
		% of total	56,0%	22,0%	78,0%
	Yes	Count	10	1	11
		% de Cocreation activity 7	90,9%	9,1%	100,0%
		% de Obtained segments	26,3%	8,3%	22,0%
		% of total	20,0%	2,0%	22,0%
Total		Count	38	12	50
		% de Cocreation activity 7	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 17- Contingency table 3.7

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	1,719(b)	1	,190		
Continuity correction(a)	,830	1	,362		
Likelihood ratio	2,005	1	,157		
Fisher's exact				,257	,184
Linear-by-linear association	1,684	1	,194		
N valid cases	50				

a Calculated only by table 2x2.
b 1 boxes (25,0%) have a frequency expected lower than 5. The minimum expected frequency is 2,64.

Table 18– Chi-square test 3.7

C.8 Online co-creation activity 8: I wrote a reaction in to a company post discussing ideas about new products/services

			Obtained segments		
			1	21	Total
Cocreation activity 8					
	No	Count	30	11	41
		% de Cocreation activity 8	73,2%	26,8%	100,0%
		% de Obtained segments	78,9%	91,7%	82,0%
		% of total	60,0%	22,0%	82,0%
	Yes	Count	8	1	9
		% de Cocreation activity 8	88,9%	11,1%	100,0%
		% de Obtained segments	21,1%	8,3%	18,0%
		% of total	16,0%	2,0%	18,0%
Total		Count	38	12	50
		% de Cocreation activity 8	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 19 - Contingency table 3.8

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	1,000(b)	1	,317		
Continuity correction(a)	,324	1	,569		
Likelihood ratio	1,142	1	,285		
Fisher's exact				,425	,299
Linear-by-linear association	,980	1	,322		
N valid cases	50				

a Calculated only by table 2x2.

b 1 boxes (25,0%) have a frequency expected lower than 5. The minimum expected frequency is 2,16.

Table 20 – Chi-square test 3.8

C.9 Online co-creation activity 9: I joined a developers team working on new product or service development

			Obtained segments		
			1	21	Total
Cocreation activity 9					
	No	Count	35	12	47
		% de Cocreation activity 9	74,5%	25,5%	100,0%
		% de Obtained segments	92,1%	100,0%	94,0%
		% of total	70,0%	24,0%	94,0%
	Yes	Count	3	0	3
		% de Cocreation activity 9	100,0%	,0%	100,0%
		% de Obtained segments	7,9%	,0%	6,0%
		% of total	6,0%	,0%	6,0%
Total		Count	38	12	50
		% de Cocreation activity 9	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 21 - Contingency table 3.9

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	1,008(b)	1	,315		
Continuity correction(a)	,094	1	,759		
Likelihood ratio	1,706	1	,191		
Fisher's exact				1,000	,430
Linear-by-linear association	,988	1	,320		
N valid cases	50				

a Calculated only by table 2x2.
b 2 boxes (50,0%) have a frequency expected lower than 5. The minimum expected frequency is ,72.
Table 22 – Chi-square test 3.9

C.10. Online co-creation activity 10: I took part in an online Beta testing of a new product/service

			Obtained segments		
			1	21	Total
Cocreation activity 10	No	Count	27	11	38
		% de Cocreation activity 10	71,1%	28,9%	100,0%
		% de Obtained segments	71,1%	91,7%	76,0%
		% of total	54,0%	22,0%	76,0%
	Yes	Count	11	1	12
		% de Cocreation activity 10	91,7%	8,3%	100,0%
		% de Obtained segments	28,9%	8,3%	24,0%
		% of total	22,0%	2,0%	24,0%
Total		Count	38	12	50
		% de Cocreation activity 10	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 23- Contingency table 3.10

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	2,125(b)	1	,145		
Continuity correction(a)	1,145	1	,285		
Likelihood ratio	2,496	1	,114		
Fisher's exact				,248	,141
Linear-by-linear association	2,082	1	,149		
N valid cases	50				

a Calculated only by table 2x2.

b 1 boxes (25,0%) have a frequency expected lower than 5. The minimum expected frequency is 2,88.

Table 24 – Chi-square test 3.10

C.11 Online co-creation activity 11: I took part in another form of online user testing of a new product/service

			Obtained segments		
			1	21	Total
Cocreation activity 11	No	Count	32	11	43
		% de Cocreation activity 11	74,4%	25,6%	100,0%
		% de Obtained segments	84,2%	91,7%	86,0%
		% of total	64,0%	22,0%	86,0%
	Yes	Count	6	1	7
		% de Cocreation activity 11	85,7%	14,3%	100,0%
		% de Obtained segments	15,8%	8,3%	14,0%
		% of total	12,0%	2,0%	14,0%
Total		Count	38	12	50
		% de Cocreation activity 11	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 25 - Contingency table 3.11

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	,421(b)	1	,516		
Continuity correction(a)	,030	1	,864		
Likelihood ratio	,464	1	,496		
Fisher's exact				1,000	,458
Linear-by-linear association	,413	1	,521		
N valid cases	50				

a Calculated only by table 2x2.

b 1 boxes (25,0%) have a frequency expected lower than 5. The minimum expected frequency is 1,68.

Table 26– Chi-square test 3.11

C.12 Online co-creation activity 12: I voted for a new product idea on a (social media) website

			Obtained segments		
			1	21	Total
Cocreation activity 12	No	Count	20	9	29
		% de Cocreation activity 12	69,0%	31,0%	100,0%
		% de Obtained segments	52,6%	75,0%	58,0%
		% of total	40,0%	18,0%	58,0%
	Yes	Count	18	3	21
		% de Cocreation activity 12	85,7%	14,3%	100,0%
		% de Obtained segments	47,4%	25,0%	42,0%
		% of total	36,0%	6,0%	42,0%
Total		Count	38	12	50
		% de Cocreation activity 12	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 27 - Contingency table 3.12

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	1,873(b)	1	,171		
Continuity correction(a)	1,068	1	,302		
Likelihood ratio	1,959	1	,162		
Fisher's exact				,201	,151
Linear-by-linear association	1,836	1	,175		
N valid cases	50				

a Calculated only by table 2x2.

b 0 boxes (,0%) have a frequency expected lower than 5. The minimum expected frequency is 5,04.

Table 28 – Chi-square test 3.12

C.13 Online co-creation activity 13: I contributed a new product idea on a (social media) website

			Obtained segments		
			1	21	Total
Cocreation activity 13	No	Count	30	11	41
		% de Cocreation activity 13	73,2%	26,8%	100,0%
		% de Obtained segments	78,9%	91,7%	82,0%
		% of total	60,0%	22,0%	82,0%
	Yes	Count	8	1	9
		% de Cocreation activity 13	88,9%	11,1%	100,0%
		% de Obtained segments	21,1%	8,3%	18,0%
		% of total	16,0%	2,0%	18,0%
Total		Count	38	12	50
		% de Cocreation activity 13	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 29- Contingency table 3.13

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	1,000(b)	1	,317		
Continuity correction(a)	,324	1	,569		
Likelihood ratio	1,142	1	,285		
Fisher's exact				,425	,299
Linear-by-linear association	,980	1	,322		
N valid cases	50				

a Calculated only by table 2x2.

b 1 boxes (25,0%) have a frequency expected lower than 5. The minimum expected frequency is 2,16.

Table 30 – Chi-square test 3.13

C.14 Online co-creation activity 14: I discussed new products/services with my friends on Facebook

			Obtained segments		
			1	21	Total
Cocreation activity 14	No	Count	20	7	27
		% de Cocreation activity 14	74,1%	25,9%	100,0%
		% de Obtained segments	52,6%	58,3%	54,0%
		% of total	40,0%	14,0%	54,0%
	Yes	Count	18	5	23
		% de Cocreation activity 14	78,3%	21,7%	100,0%
		% de Obtained segments	47,4%	41,7%	46,0%
		% of total	36,0%	10,0%	46,0%
Total		Count	38	12	50
		% de Cocreation activity 14	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 31- Contingency table 3.14

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	,119(b)	1	,730		
Continuity correction(a)	,000	1	,989		
Likelihood ratio	,120	1	,729		
Fisher's exact				1,000	,497
Linear-by-linear association	,117	1	,732		
N valid cases	50				

a Calculated only by table 2x2.

b 0 boxes (,0%) have a frequency expected lower than 5. The minimum expected frequency is 5,52.

Table 32 – Chi-square test 3.14

C.15 Online co-creation activity 15: I discussed new product/services with my friends in other social networks

			Obtained segments		
			1	21	Total
Cocreation activity 15	No	Count	30	11	41
		% de Cocreation activity 15	73,2%	26,8%	100,0%
		% de Obtained segments	78,9%	91,7%	82,0%
		% of total	60,0%	22,0%	82,0%
	Yes	Count	8	1	9
		% de Cocreation activity 15	88,9%	11,1%	100,0%
		% de Obtained segments	21,1%	8,3%	18,0%
		% of total	16,0%	2,0%	18,0%
Total		Count	38	12	50
		% de Cocreation activity 15	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 33- Contingency table 3.15

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	1,000(b)	1	,317		
Continuity correction(a)	,324	1	,569		
Likelihood ratio	1,142	1	,285		
Fisher's exact				,425	,299
Linear-by-linear association	,980	1	,322		
N valid cases	50				

a Calculated only by table 2x2.

b 1 boxes (25,0%) have a frequency expected lower than 5. The minimum expected frequency is ,16.

Table 34 – Chi-square test 3.15

C.16 Online co-creation activity 16: I wrote a post about new products/services in my blog

			Obtained segments		
			1	21	Total
Cocreation activity 16	No	Count	34	11	45
		% de Cocreation activity 16	75,6%	24,4%	100,0%
		% de Obtained segments	89,5%	91,7%	90,0%
		% of total	68,0%	22,0%	90,0%
	Yes	Count	4	1	5
		% de Cocreation activity 16	80,0%	20,0%	100,0%
		% de Obtained segments	10,5%	8,3%	10,0%
		% of total	8,0%	2,0%	10,0%
Total		Count	38	12	50
		% de Cocreation activity 16	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 35- Contingency table 3.16

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	,049(b)	1	,825		
Continuity correction(a)	,000	1	1,000		
Likelihood ratio	,051	1	,822		
Fisher's exact				1,000	,655
Linear-by-linear association	,048	1	,827		
N valid cases	50				

a Calculated only by table 2x2.

b 2 boxes (50,0%) have a frequency expected lower than 5. The minimum expected frequency is 1,20.

Table 36 – Chi-square test 3.16

C.17 Online co-creation activity 17: I posted messages about new products/services on social media websites (e.g. Twitter, Facebook)

			Obtained segments		
			1	21	Total
Cocreation activity 17	No	Count	23	10	33
		% de Cocreation activity 17	69,7%	30,3%	100,0%
		% de Obtained segments	60,5%	83,3%	66,0%
		% of total	46,0%	20,0%	66,0%
	Yes	Count	15	2	17
		% de Cocreation activity 17	88,2%	11,8%	100,0%
		% de Obtained segments	39,5%	16,7%	34,0%
		% of total	30,0%	4,0%	34,0%
Total		Count	38	12	50
		% de Cocreation activity 17	76,0%	24,0%	100,0%
		% de Obtained segments	100,0%	100,0%	100,0%
		% of total	76,0%	24,0%	100,0%

Table 37- Contingency table 3.17

	Value	gl	Sig. asymptotic (bilateral)	Sig. exact (bilateral)	Sig. exact (unilateral)
Chi-Square Pearson	2,114(b)	1	,146		
Continuity correction(a)	1,220	1	,269		
Likelihood ratio	2,308	1	,129		
Fisher's exact				,181	,134
Linear-by-linear association	2,072	1	,150		
N valid cases	50				

a Calculated only by table 2x2.

b 1 boxes (25,0%) have a frequency expected lower than 5. The minimum expected frequency is 4,08.

Table 38– Chi-square test 3.17