

Co-innovation: Developing new products and services in cooperation with customers in social media platforms - customer motives

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Abstract

The internet era has brought a lot of new possibilities to companies. The easy exchange with their customers enables the involvement of customer opinions in order to improve their products or even develop new ones. Participating customers are a valuable source of input as they know best what they desire and also offer a cheap alternative compared to specialist sourcing. The implementation of co-innovation actions obviously saves as a very efficient solution for firms. What drives customers to take part in such ventures is however less clear. Also deterrents that may distract consumers to participate in such activities might possibly exist and are of high interest for managements. This paper therefore tries to clarify the motives that drive customers as well as the deterrents that may prevent them from participating in co-creation activities. Therefore, recent literature is reviewed and an empirical study in form of a survey is conducted. The literature review as well as the analyzed dataset show that the main motivators are the often-used Uses and Gratifications theory antecedents hedonic and cognitive aspects as well as social and personal integrative, while the last two turn out to be of less importance due to the outcome of the survey.

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Keywords

Crowdsourcing, co-creation, co-innovation, new product development, virtual customer integration, customer motives

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1. INTRODUCTION

The internet era has redefined new product development processes for the business world. With the help of the World Wide Web, companies are now able to make use of a huge database regarding customer needs and wishes. Furthermore, Social Media pages offer new models for crowdsourcing. Through several social media platforms, companies get a much higher insight in customer desires. Additionally they can use customers' inputs for the creation of new products and even let them innovate actively on their own. Although customers participating in crowdsourcing are usually no marketing specialists, they often know better what is desired, since they represent part of the target group.

1.1 Definitions

In order to avoid any confusion, some essential terms of the paper are defined in the following.

Crowd-sourcing was first defined by Howe (2006) as "the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call". Crowdsourcing operates as follows. A company selects a certain task that has hitherto been carried out in-house. The completion of this task is then transferred to an outside crowd. This crowd may be limited to a certain group of workers that might have to command a certain level of expertise or open to anyone who is willing to participate. The offer can be published either on a firm's own website or on online platforms (Whitla, 2009). Regarding crowdsourcing on Social Media websites, the task is most often targeted at an unlimited number of participants with no requirements of skills in order to get as much input as possible.

Co-creation is a subtopic of crowdsourcing and can simply be defined as the "creation of value by consumers" (Zwass, 2010). The author additionally differentiates between two kinds of co-creation. *Sponsored co-creation* includes activities where co-creations are made by communities or individuals at the behest of a company. *Autonomous co-creation* on the other hand is about co-creation activities where communities or individuals participate on a voluntary basis independently of any outside organization.

Co-innovation is in this paper used as co-creation in the Social Media context.

Open innovation is the umbrella term of the previous discussed terms and is defined by Chesbrough (2003) as "a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology".

Virtual customer integration (VCI), in addition, defines consumers as a valuable source of input for the creation of new products or services, providing the chance of improving the overall success of the venture (Chesbrough, 2003).

Moreover, innovations can be of two different natures. On the one hand, there are *radical* innovations that describe revolutionary ventures that are new to the market. On the other hand, *incremental* innovations are any improvements of previously launched products.

1.2 Development of Crowdsourcing

In the 1960's, businesses have changed their way of producing from mass production, mass consumption and mass markets, which was known as the Fordism era, to more complex supply-demand relationships. This development also brought along a more intense interaction between the producers and consumers. Companies recognized the benefits of product specialization

regarding costs and effort. Innovation processes became more diffused and organizations started to focus on knowledge sharing not only within but also between different businesses and finally also with customers. The willingness to share tasks with outside players began to rise generally and the product development strategy evolved from in-house sourcing to outsourcing to open innovations (Marjanovic, Fry & Chataway, 2012). This development however was not only desired by the companies themselves, but users were glad to be part of the new product development process instead of being passive consumers (Showers, 2010). The issue of crowdsourcing is rising due to several influences. First and foremost, new technological launches, especially the introduction and rapid dispersion of the World Wide Web have paved the way for open participation in a physical way. Furthermore, due to this publication opportunity, consumers are more and more demanding transparency and openness from companies. Interest in business processes is on the rise and with an increase in information availability, interest is also lured in self-participation (Marjanovic, Fry & Chataway, 2012). Another influence is caused by changes in regulations. Business policies tend to promote entrepreneurship and open innovations in several ways (Herstad, Bloch, Ebersberger & van de Velde, 2010). Issues regarding this promotion include for instance tax credits, intellectual property systems and labor policies (De Jong, Vanhaverbeke, Kalvet & Chesbrough, 2008). These developments drive companies more and more to open innovation processes and additional pressure is caused by the increasing competition with other crowdsourcing firms.

Furthermore, Lee, Olson and Trimi (2012) discuss several new forces that have changed the nature of innovation sourcing. At first, the internet has disempowered previous competencies such as location, human resources and scientific knowledge. The life span of competitive advantage is therefore becoming shorter and new products are demanded faster. Second, due to constant developments in technology and the high competition in the technological sector, the product life cycle becomes shorter as well. A new technical device can lose its value and be replaced by even better products within a few months. Another point is the price war. While countries such as China can easily adapt new ventures and produce them much cheaper than the original product, innovators are forced to come up with new ideas instantly. Additionally, customers nowadays demand quality, speed, customization and design. It's not only about the value of the product itself but about the associated experience and emotions. Last but not least, the so-called groundswell effect plays an important role in new product developments. Rather than purchasing known products that satisfy needs, customers are now looking for products and services online and are exchanging opinions on internet platforms in form of blogs, social networking sites or special review pages. All these developments changed the business world to a more complex issue and puts pressure on firms regarding new products and calls for incremental as well as radical innovations.

1.3 Position of Co-creation in the Evolution of New Product Developments

The co-creation process can take place at different stages in the product development process. Possible areas are ideation, product development, commercialization and post-launch (Hoyer, Chandy, Dorotic, Krafft & Singh, 2010). Ideation includes Research and Development activities that help identify customers' needs and desires. Product development includes activities that lead more directly to new products or services, including more detailed information like form, size or design. The commercialization process is aimed at increasing revenues, which can be gained by three different kinds of efforts, namely

awareness, trial and repeat purchase. Awareness stands for the customers' attention on a certain product. Trial is the process of testing the product for the first time and repeat purchase is the end form of buying behavior where a customer is satisfied with the product and therefore keeps purchasing it. Post-launch includes any activities that happen after the purchase but are still connected to its process such as criticism or positive feedback on the product as well as word-of-mouth recommendations to friends and other potential customers. All these steps can be supported by co-creation. Involving customers in the ideation and product development processes is very common and can save companies time and expenses and additionally minimizes the risk of new product inefficacy. Co-creation in the commercialization and post-launch phases however is rather risky and often involves high costs (Crawford & Benedetto, 2003).

1.4 Crowdsourcing in Practice

The number of crowdsourcing activities within the last years is rising tremendously. WSIS-community (2012) published a graph representing the amount of crowd sourced work over the last few years, which shows that crowdsourcing activities have almost quintupled from 2009 to 2010 and grown further enormously until 2011 (see Figure 1).

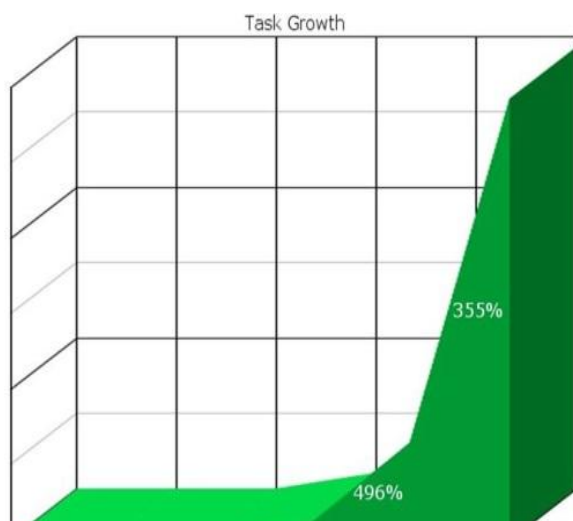


Figure 1. Crowdsourcing activities over the last years

Furthermore, the interest in crowdsourcing has risen a lot regarding the amount of searches made for "Crowdsourcing" on Google, as can be seen by Google Trends (2013), which shows that five times as many searches have been made for the term in 2012/ 2013 compared to the numbers in 2008/ 2009.

The number of companies using crowdsourcing is high. Big businesses such as Dell, Lego, Procter & Gamble, The Sims, Google, IBM, L'Oreal, Netflix, Pepsi and Unilever represent only a small sample of companies that make use of crowds' inputs (Wikipedia, 2013). Some cases of crowdsourcing projects are explicitly described in the following.

InnoCentive (which is an abbreviation for innovation and incentive) is an example of a third-part crowdsourcing website. Organizations can put technological problems and tasks to the website and offer a certain financial reward for the solving. InnoCentive then looks for experts who can carry out the work (Peng & Ruoyu, 2011).

A crowdsourcing example which represents a perfect co-innovation project is the case of "MyStarbucksIdea.com", where customers are able to create their own composition of beverage and the creations with the most votes are finally released to the company's assortment for a certain period of time (Peng & Ruoyu, 2011). This example belongs to the product development stage, defined by Hoyer et al. (2010). Unlike the previous example, the firm is not operating with a third party but manages the innovation processes on their own website.

Another case describes a non-profit crowdsourcing venture. Istockphoto is a website where photographers can share their pictures and buy works of others for a minimal price of 25cents which is shared between the website for the maintaining and the artist. The page is mostly used by amateurs and serves at first instance for the exchange and inspiration, not as a revenue source (Peng & Ruoyu, 2011).

Also Social Media platforms themselves can make use of crowdsourcing projects to improve their ease of use. Facebook for example uses open translation crowdsourcing to improve the website's language. The popular Social Media platform was founded in 2004, but was only available in English for the first years. Its translation application has been started in January 2008 and enables Facebook users to discuss terms, improve suggestions, vote for the best solutions and decide for the most proper glossary. This way, the company improves its accessibility for users around the world by an advanced language reach of more than 70 different languages until now and can thus increase its revenues. (Mesipuu, 2010)

Next to those co-innovation projects, crowdsourcing is not only about new creations set up by the customers themselves. In fact, every action by companies asking for consumer opinions can be regarded as crowdsourcing. For example when the food company Nestle makes a Facebook post that states: "Spending time with grandparents is always special! What is the cherished dish in your family tradition?" (Facebook, 2013), replies may be used for Research and Development purposes and therefore may indirectly create or influence new product developments and can therefore also be seen as a form of co-creation. These simple crowdsourcing activities belong to the ideation stage in the new product development evolution (Hoyer et al., 2010).

1.5 Aim of the Paper

In order to analyze the crowdsourcing topic in more detail, this paper is interested in detecting the motivators for the involved stakeholders to apply in crowdsourcing activities. While the motives for the businesses are described a lot by recent literature, only little attention is focused on the customer side of participating in new product development. This paper therefore looks at both sides of crowdsourcing applications, the firm as well as the customer perspective and is focusing on the motivations of the user for participating in co-innovations. This is important for companies in order to create an adequate basis for co-creation, to attract potential co-creators and to avoid measures that might lead to discouraging their customers from participating in new product development.

Furthermore, instead of studying the whole field of co-creation projects, this paper focuses on co-innovations, thus on co-creation happening on Social Media websites. The most important pages that are investigated are Facebook, Twitter, LinkedIn, Blogger, Wordpress, Instagram and Video platforms such as Youtube and Vimeo. Fields of interest are not only proper projects but any crowdsourcing activity that may have an influence on new product developments.

2. MOTIVES OF CROWDSOURCING

Recent literature about the advantages for companies to enable crowdsourcing activities more or less agree on several aspects involved in the application.

On one hand, firms can make profit by working with a large community with different skills that knows the customer needs best and by saving marketing costs for in-house developments (Howe, 2006). On the other hand, co-innovations can be used as marketing tool that attracts public attention to the brand and creates a stronger customer relationship by making consumers feel as a part of the innovation. Since consumers represent the target group and can therefore function as a valuable source of inspiration for new business developments, many businesses use crowdsourcing in order to better meet customer demands and stay competitive (Rosen, 2011). Hoyer et al. (2010) describe a conceptual framework that discovers next to the cost benefit an increased effectiveness of new products or services when using co-creation. Furthermore, Fueller, Faullant and Matzlar (2010) find that managers seek co-innovation by reason of subjective norms and attitude. That means that clearly defined expectations by the top management support the engagement of VCI in innovative projects. All in all, reasons for companies to include customers in their new product developments are mainly of financial nature but also include a reduction of time spending on the product, a reduced risk of outcome as well as promotional causes.

Next to the numerous advantages that crowdsourcing brings to companies, there are also several risks involved in the co-creation process. Hoyer et al. (2010) describe the loss of secrecy as the first and most important one, since secrecy is crucial to many innovative firms as it saves their knowledge and the therefore added value to the products. Another issue regards the necessary sharing of intellectual property. While many consumers may be willing to transfer their knowledge for the co-creation with no demand for ownership shares, other customers may not be disposed of the idea. Firms engaging in co-creation processes may not be able to retain the intellectual property rights for themselves. The authors also call attention to the fact that too many inputs can result in an information overload, which may be hard to manage and requires additional time to be sorted. Another drawback is that many suggestions and ideas gathered from crowdsourcing may not be feasible in the production stage and are therefore useless for the company. Further drawbacks of co-creation regard the direct firm level output as decrease of control for the firm and increasing complexity of managing targets.

Unlike the motives that drive companies to the application of crowdsourcing activities, the motivators for the customer side are not studied a lot so far. However, they may play an important role for companies to know how to set up an open innovation in order to get a high degree of participation. My research question is therefore as follows:

What are the motivators that drive customers to participation in crowdsourcing activities?

Besides those motivators that drive customer participation, there may also be some deterrents that prevent consumers from doing so. In order to see the customer side in a full picture, this study therefore also looks for the possible deterrents.

In the following, the methods to find answers to the question are described.

3. METHODOLOGY

In order to study the research questions, this paper applies two different research styles. At first, existing literature is analyzed to find answers to the problem. Afterwards, an empirical

research in form of a survey is set up and will be analyzed to confirm or refute the literature findings. This way, results are double-tested which leads to a higher validation.

3.1 The Literature Review

The literature review will consist of the analysis of scientific articles found on platforms like Schopus and Scholar. One of the most discussed articles in this field from the year 1974 will describe the basic motivators for co-creation, namely the U&G antecedents by Katz, Blumler and Gurevitch. The paper will then be compared to more recent literature.

3.2 The Empirical Research

To get a better picture of the researched topic, a survey was set up. This survey was in form of a questionnaire asking for people's opinions and attitudes towards co-innovation. The survey is based on a conceptual framework which will be described later in the paper. It was spread on Facebook among people from several countries, age and occupations in two different ways. At first the link was published as a regular post that can be seen by all Facebook friends. Additionally, the link was sent in a private message to several Facebook friends in order to get a higher attention and participation. The survey was spread by five female students from the University of Twente, four Germans and one Dutch, all between 21 and 23 years old. With cooperation of the University of Twente, the survey was also published on their Newsfeed.

The first part of the survey covers questions about the respondents themselves, including questions about the age, which can be answered by three sub-categories, namely "<20", "20-25" and ">25", the gender ("female" or "male"), the nationality as an open question and the occupation, where one can choose between "apprenticeship", "secondary school", "college", "bachelor", "master" or "job".

The second consists of questions regarding the internet usage, such as time spent online, which can be answered by five different options, from "10-30 minutes" to ">6 hours" daily, by which devices and in which places the internet is accessed, where respondents were asked to divide a total of 100% over different devices like desktop computer, laptop, tablet, phone and the places home and work/ university. Another question is about the Social media pages that are used by the participants including the previously named websites (Facebook, Twitter, LinkedIn, Blogger, Wordpress, Instagram and Video platforms such as Youtube and Vimeo and social bookmarking sites like Delicious and Digg) that should have been rated by "having an account and using it regularly", "having an account and using it seldom", "not having an account but knowing it" or "not knowing it at all". It was also asked how many contacts/ friends/ followers one has on those pages, where one out of five answers should be chosen, from "<10" to ">500". Another question was asking participants for their personal purposes of using social media websites. It could be chosen from the following aspects: "entertainment", "to get informed about news", "to stay in touch with friends and acquaintances", "to make better decisions about products or services I buy", "to ask for help", "to be able to express my experience or complaints about products and/ or brands I buy", "to help companies make better products", "I need it for my work", "to update my online status" and "to write a blog/ article/ tweet".

Following, participants should answer whether or not they have "actively participated in online co-creation activities of new products or services in the past three years" in order to select the co-innovators. For people who responded to the question with "No", the questionnaire then stopped with a final question asking for the reasons of not participating where one could

choose from 12 different statements, including several personal aspects such as no time, never thought about it or did not know it is possible as well as options connected to one's online behavior and purchasing activities like "I don't think that customers must have a say on products and services that businesses are developing and selling" and "I have no problem with products that do not satisfy me since there are many alternatives to choose from".

People who answered with "Yes" reached the third and final part of the survey, including the questions about the research model, which will be discussed later in the article.

4. MOTIVATORS IN THE LITERATURE

Although the interest in crowdsourcing may seem to be higher for companies, customer involvement is not only desired by businesses but also by customers themselves. They spend time and energy to be part of the innovation (Hoyer et al., 2010).

The motives driving consumers to participate in co-innovation projects are of differing nature. The paper "Uses and Gratification Research" by Katz et al. from the year 1974 defines four different states of art that represent important advantages of media use for customers. These include cognitive benefits, social integrative benefits, personal integrative benefits and hedonic benefits. The cognitive aspect is about product-related learning and therefore reflects an increase of knowledge and skills regarding the product or service and its technologies. The social integrative aspect includes the deriving relationships that may be beneficial for the user, simply because it creates a feeling of belonging. The personal aspect reflects reputation and pride that lead to a better self-esteem. Finally, the hedonic aspect includes the entertainment and joy that people experience directly by participating in the innovation process.

Hoyer et al. (2010) defined similar motivators, namely social factors, technological factors and psychological factors, which can be equalized with the cognitive, social and personal antecedents of the U&G framework by Katz et al. Additionally, Hoyer et al. also include financial factors, which can be direct

rewards such as prizes or profit sharing as well as indirect rewards like receiving intellectual property by the firm.

Fueller et al.'s study (2010) however found that financial or other compensation is a relatively weak trigger for participation in co-creation, while the main motivators for customers are desire for product improvements, interest in innovation and knowledge and the wish to help companies, similar to Katz et al.'s (1974) cognitive and hedonic aspects.

Zwartjes (2011) defined the following motivators for customer regarding co-creation. Consumers want to test their own competence and self-marketing, use core competences to gain advantage in a challenge and to have the possibility to watch concepts of community members. All these aspects can be seen as similar to the cognitive antecedents of Katz et al. Also in this study, the monetary reward turns out to be of less importance than individual fulfillment and personal learning aspects.

Overall one can say that the main motivators for crowdsourcing participation have already been detected by Katz et al. and are mainly the four antecedents learning, social integrative, personal integrative and hedonic aspects.

Although the literature shows several benefits for customers of participating in crowdsourcing activities, there is in fact only a limited number of people that actually participates as can be seen by the percentage of survey respondents that answered the question whether they have "actively participated in online co-creation activities of new products or services in the past three years" with "yes" which is only 28%. The survey therefore also tries to detect the deterrents that prevent customers from participating.

5. RESEARCH MODEL

In order to have a clear structure for the survey, a research model was developed beforehand (see Figure 2). The framework is based on the paper "Uses and Gratification Research" by Katz et al. (1974) and its four states of art, which include cognitive benefits, social integrative benefits, personal integrative benefits and hedonic benefits that have been analyzed in the previous section. Since these four factors turn

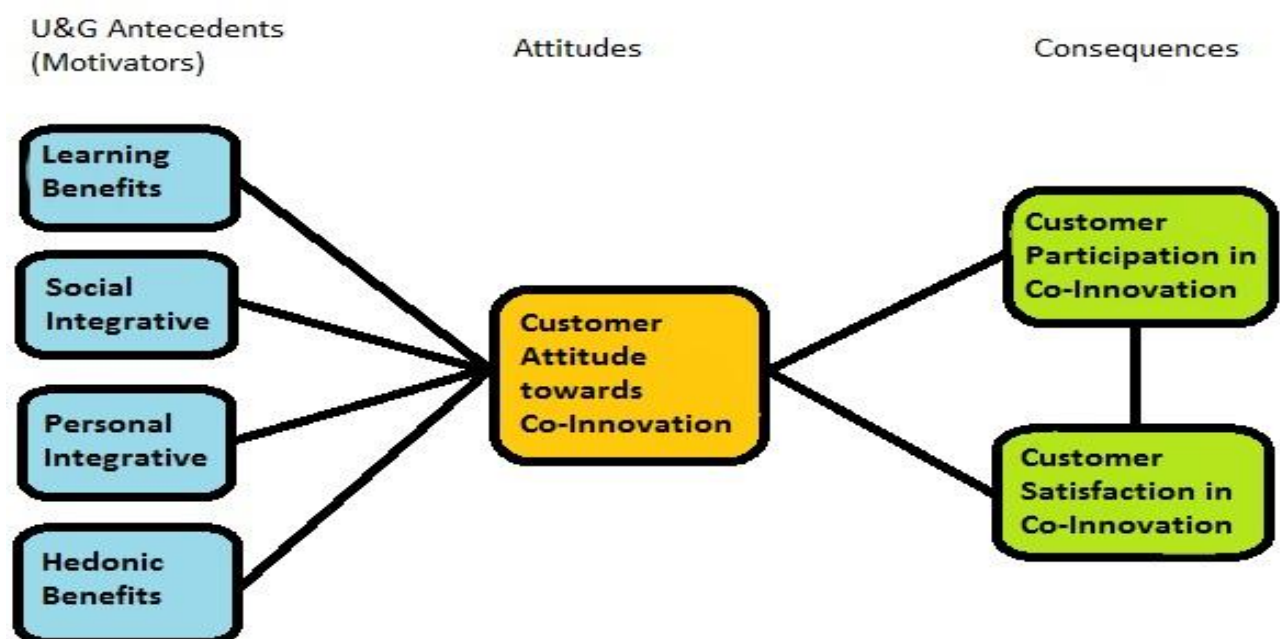


Figure 2. Research Model

out to be the basic motivators by being confirmed by several other researchers (Hoyer et al., 2010 & Zwartjes, 2011), the model concentrates on those only. Financial aspects as an additional motivator, as suggested by Hoyer et al. (2010), has been rejected to be important due to the studies of Fueller et al. (2010) and Zwartjes (2011). The motivators represent the first stage of the model. In the next stage, the four benefits of learning, social integrative, personal integrative and hedonic aspects lead to a certain attitude towards co-creation on side of the customer, which is the second stage of the model. These attitudes in turn lead further to consequences regarding customer behavior in co-creations, which will be the third and final stage of the model. They are reflected by two aspects. On the one hand, there is the actual participation in co-creation and on the other hand, the degree of customer satisfaction in the co-creation process is presented.

5.1 U & G Antecedents

In order to understand for which reasons respondents participate in co-innovation activities, several statements were set up to each one of the four U&G antecedents. Each one of them should have been rated on a scale from 1 (very unimportant) to 5 (very important). The basic phrasing of each statement is “I participate in online co-creation activities when they ...” which has 14 different versions, distributed among the four aspects.

5.1.1 Cognitive Aspects

The cognitive benefit is about the benefit of learning something. This learning aspect can be related to knowledge about the product itself and its usage, about product trends, related products and technology and can help with future purchasing decisions. The part of the survey covering this part therefore involves the three statements:

- “I participate in online co-creation activities when they enhance my knowledge about the product and its usage.”
- “I participate in online co-creation activities when they enhance my knowledge on product trends, related products and technology.”
- “I participate in online co-creation activities when they help me make better product decisions as consumer.”

5.1.2 Social Integrative

The social integrative is about implications regarding relationships to other people or communities and the own status. Three statements of this area were set, namely

- “I participate in online co-creation activities when they expand my personal network.”
- “I participate in online co-creation activities when they raise my status/ reputation as product expert in my personal network.”
- “I participate in online co-creation activities when they enhance my strength of my affiliation with the customer community”.

5.1.3 Personal Integrative

The personal integrative covers aspects such as professional development and satisfaction. Statements of this part are the following four:

- “I participate in online co-creation activities when they are likely to positively affect my professional career.”
- “I participate in online co-creation activities when they offer me satisfaction from influencing product design and development.”
- “I participate in online co-creation activities when they offer me satisfaction from influencing product usage by other customers.”

- “I participate in online co-creation activities when they offer me satisfaction from helping design better products.”

5.1.4 Hedonic Aspects

Hedonic aspects describe implications such as entertainment and direct enjoyment. The statements of these aspects are therefore as follows:

- “I participate in online co-creation activities when they contribute in spending some enjoyable and relaxing time”,
- “I participate in online co-creation activities when they contribute in fun and pleasure”,
- “I participate in online co-creation activities when they entertain and stimulate my mind” and
- “I participate in online co-creation activities when they offer me enjoyment deriving from problem solving, idea generation, etc”.

5.2 Attitudes

Regarding the attitudes, the survey investigates several statements to which respondents were asked to agree or disagree on a scale from 1 (strongly disagree) to 5 (strongly agree). These statements include on the one hand the attitudes towards the desired relationships between companies and its users concerning new product developments, including the type of reward, the outcomes and the dangers of customer involvement. The following statements were set up:

- “Companies should make it possible for users to be involved in the development of new products/ services.”
- “Users should participate in the development of new products/ services without any personal gain or reward.”
- “Users should participate in the development of new products/ services if some kind of personal gain or reward is involved.”
- “User should provide ideas as basis for development of new products/ services.”
- “Users should be able to test product concepts before these are launched.”; “Intensive involvement of final customers in the new product development process results in better products/ services.”
- “Engaging customers in the process of new product development increases the danger of leaks of company secrets.”
- “Users should not be involved in the online innovation process.”

Furthermore, several statements were set up to discover how respondents actually behave concerning the communication about co-creation and the sharing of information about it. The following activities should have been rated:

- “I usually inform my online contacts about co-creation projects I participate.”
- “I encourage friends or people I know to co-create.”
- “I recommend to my online and offline contacts to buy the products or prefer the brands I have been involved with in co-creation.”
- “I usually post messages about products I have been involved with in co-creation.”
- “I usually post messages about brands I have been involved with in co-creation.”
- “I visit forums about brands I have been involved with in co-creation.”
- “I react to negative comments about products or brands I have been involved with in co-creation.”

5.3 Consequences

The final consequences of the attitudes, resulting from the antecedents, are split into two parts. One part covers the actual

customer participation in co-innovation and another part is about the satisfaction in co-creation.

5.3.1 Customer participation in co-creation

The part about customer participation in co-creation describes the circumstances under which respondents in fact carried out co-creation activities. These activities are limited to the last three years. In the survey, participants should choose from four actions the one(s) that matches to them. The following statements were available:

- "I participated in co-creation activities online when no financial or other type of reward was offered."
- "I participated in co-creation activities only if a financial or other type of reward was offered."
- "I rated a product or service after purchase out of my own initiative."
- "I rated a product or service after purchase because I was invited to do so by the seller."

5.3.2 Customer satisfaction in co-creation

The satisfaction level is measured by rating five statements on the level of agreement. Respondents were asked to rate between 1 (strongly disagree) and 5 (strongly agree). The following statements were included:

- "I think that co-creation with companies results in better products."
- "I think that co-creation with companies results in lower development costs."
- "I think that co-creation with companies results in shorter product development time."
- "I think that products developed in co-creation with companies have better chances to be successful."
- "I think that I will be more satisfied with products developed in co-creation processes."

These investigated consequences finally show whether or not and under which circumstances participation is achieved and whether the satisfaction in the co-creation process is positive or negative. These investigations may help us in the question of the motivators and deterrents regarding customer co-creation.

6. RESULTS FROM THE EMPIRICAL RESEARCH

244 people filled in the questionnaire from which 239 gave valid answers and will therefore be seen as the actual participants. 57% of respondents are female and 43% are male. Around 90% of the respondents are from Europe. The highest participation rate regarding nationality is German with 55%, followed by the Dutch with 22%. The 10% of respondents from nationalities covering the rest of the world include USA, Canada, Mexico, Australia, New Zealand, three South-American and some Asian countries. Most of the participants are between 20 and 25 years old. This group makes 76% of the total number. 8% are younger than 20 and 16% are older than 25. The most chosen occupation is student. Around 83% of all respondents are attending a higher education school, most of them doing a bachelor degree (62%) or a master degree (13%). 2% of participants are still in high school. 1% is doing an apprenticeship and 13% have a regular job.

Most respondents use the internet between one and three hours on an average day (47%). The most used social media website is Facebook with a usage of 97% of respondents, followed by video pages (62%), Twitter (38%) and LinkedIn (35%). Only 1,7% use social bookmarking sites. The main purpose for the usage of social media websites is to stay in touch with friends and acquaintances, which was answered by 90% of respondents. Other important reasons are entertainment (71%)

and to get informed about news (63%). Only few participants however use social media for purchasing uses. 23% responded to use social media in order to make better decisions about product or services he/ she buys. Only 7% use it for expressing their experience or complaints about products or brands and just about 1,2% use social media to help companies make better products.

6.1 Testing the Research Model

At first, an exploratory factor analysis (EFA) was applied in order to investigate the existence of affinity of the factors between other studies and our dataset. A principal component analysis (PCA) was run for this purpose. The EFA process created rotated factor scores that were used as variables for a latent cluster analysis (LCA), which is applied to specify segmentation and profiling of co-creators based on the motives of participation in co-innovation activities by the analyzed sample (Díaz de Rada, 1998; Frias-Navarro & Pascual-Soler, 2012). With the help of the given database, individuals are assigned to different segments. Thus, different grouping patterns are achieved. For the implementation of the latent segmentation, the statistical software named Latent Gold 4.5 was used. With the help of the thereby obtained clusters, the relationship between the co-creation activities and the correspondence cluster through across-tables and chi-square statistic is evaluated. Thus, significant differences of each co-creation activity and its position in each cluster can finally be analyzed.

Since the Kaiser-Meyer-Olin (KMO) is higher than 0.8 and Bartlett's test shows a high significance (0,0000), it can be concluded that the correlation matrix is not an identity matrix (Guttman, 1954). Furthermore, Cronbach's Alpha with a value higher than 0,7 implies the reliability of external factors (Cronbach, 1951). So the analyzed values allow performing a factor analysis. After the extraction of factors, an orthogonal varimax rotation was carried out on factors with eigenvalues of 1.0 or higher, which allows the number minimization of variables with high values on a particular factor.

The analysis resulted in four factors factor 1: satisfaction and enrichment (personal integrative), factor 2: enjoyment (hedonic aspect), factor 3: network and community (social integrative) and factor 4: implications with the product (cognitive aspect). These factors account for 72,25% of the symptomatic variance. There is a consistent factor structure due to the fact that all variables have a factor loading of 0,5 or higher for the factor they allowed (Hair et al., 1999).

6.2 Deterrents for Non-co-creators

As said before, the percentage of respondents participating in co-innovation activities is only 28%, containing 68 people out of 239. The main reason for not participating was "I never thought about it" with a percentage of 57% of all non-participants. Other significant reasons were simply the non-existence of social media participation, like "I never discuss about products in social networks/ read blog posts about new products/ react on blog posts" (between 20% and 35%). Reasons including the co-creation process itself were rather rare. Only 3% of non-participants "don't think that customers must have a say on products and services that businesses are developing and selling". 6% "believe that businesses don't take customer ideas seriously" and only 7% "don't think that [they are] very good in thinking about new products ideas". These points are interesting for companies because they show the problems behind a low participation rate.

In order to further analyze the co-creators however, we will proceed with the 28% of participants only. So any further

percentages refer to the 68 respondents who answered to have participated in any co-creation activities within the last three years.

6.3 Motives for Co-creators

In order to observe the motives for co-creators to participate, we analyze the survey for the U&G antecedents through its associated statements.

The hedonic aspects represented the highest positive percentage with around 70% of respondents who said that this area is important or very important to them compared to the respondents who answered that this area is unimportant or even very unimportant. The highest importance was put on the factors entertainment and mind stimulation (62%) as well as fun and pleasure (54%).

The cognitive aspects are the second most important aspect for the participants of the survey. 68% of respondents found that the statements belonging to this section are important or very important, compared to the respondents who answered that these are unimportant or very unimportant. In this case, all three statements were rated more or less similar.

Regarding the personal integrative, the importance was relatively balanced with a slight tendency towards non-importance with a percentage of 53 compared to 47% who regard it as important. The highest value of importance in general was put on the aspect satisfaction from influencing product designs and development with 44%. However, it is striking that those 44% all belong to just important and not a single participant thought it is very important.

Social integrative was the only factor where a significant non-importance could be seen. Only 29% thought the aspects regarding this field are important or very important. The lowest percentage of interest is put on status/ reputation rise (12%) and enhancement of strength of affiliation with the customer community (14%). 24% of respondents even thought that those two aspects are very unimportant.

6.4 Profiles of Co-creators

Next to the previous defined factors, segmentation is desired in order to work with the data more easily. Therefore, different descriptive variables are analyzed that could have an influence on the given motives. These variables are gender (female/male), age (<20, 20-25 or >25), nationality (German, Dutch, Rest of Europe, America or Rest of world) and use of social networking sites (having an account and use it regularly/ seldom or not having an account and do/ don't know it). With the help of those variables, some groupings were obtained. The first step of the latent segmentation process is the selection of the optimum number of segments. In this case, estimated from 1 (no heterogeneity) to 8 (eight segments) were used. The Bayesian Information Criterion (BIC) allows identifying the best number of segments by detecting the lowest value of log-likelihood (Vermunt & Magidson, 2002). This value was lowest for a two-cluster segment (with a BIC of 715,8593). Therefore the usage of two clusters represents the best option for this model. These clusters are the two co-creator groups motivated co-creators and non-motivated co-creators. Both segments have the same percentage of participants (50%). Independence tests showed that there are significant differences between the two segments regarding the four descriptive variables gender, age, nationality and use of social media (>90%).

6.4.1 Motivated Co-creators

For the motivated co-creators, the mean values were higher in all four factors (satisfaction and enrichment, enjoyment, network with community and implication with the product). So

from each scale of 1 (very unimportant) to 5 (very important), all values were higher than 2,5. This means that all motivated co-creators consider those values as important or very important. The highest importance is put on the implication with the product (3,8) and the enjoyment (3,63), followed by satisfaction (2,79) and last the network with the community (2,66). This segment is with 80% dominated by males who and over 25 year olds (32%). Most used social media pages of this segment in regular use are Facebook (92%) and LinkedIn (24%). They are followed by Twitter (56%), video websites and social bookmarking sites (each 40%) on a regular to seldom usage basis.

6.4.2 Non-motivated Co-creators

The non-motivated co-creators represent the group with lower means in each of the four factors. In contrast to the motivated co-innovators, this segment is dominated by 80% females. Most of them are between 20 and 25 years old (76%). Unlike the other segment, this population uses more visual entertainment websites regularly, such as Facebook (96%), video pages (48%) and Instagram (32%). Social bookmarking sites are in contrast to the 40% of motivated co-creators only used by 24% in this segment. Blogger is however used by 48%, whereas only 36% of the other group uses this medium.

7. CONCLUSION AND DISCUSSION

In conclusion one can say that the main motivators found in the literature are the four antecedents developed by Katz et al. (1974) which have been confirmed by other authors like Hoyer et al. (2010) Fueller et al. (2010) and Zwartjes (2011), namely cognitive aspects, social integrative, personal integrative and hedonic aspects. Financial benefits as trigger for co-creation as suggested by Hoyer et al. (2010) are however rejected by Fueller et al. (2010) and Zwartjes (2011).

The analysis of our empirical study confirmed the hedonic as well as the cognitive aspects of the framework as important motivators for co-creation participation. The factor personal integrative, including issues like enrichment and rewards of any nature, is however not seen as important by our respondent and the factor social integrative, which is about a network with a community is not seen as important at all by the survey participants. Therefore, after this study, it can be concluded, that hedonic and cognitive aspects are the main motivators for participating in online co-creation activities. These include issues such as enjoyment, fun, entertainment and stimulation as well as enhancing one's knowledge, learning new things about products, trends and technologies and helping other people make better purchasing decisions.

Firms that are interested in a high rate of co-creation participation should therefore offer features that entertain people, bring them pleasure and teach interesting new things at the same time. Companies should not concentrate on rewards, whether financial or of other nature and should also not put too much attention on the community network, since only a few people are interested in relationships with other co-creators.

Furthermore, the main deterrent for people for not participating in co-innovation activities is the fact that most people simply never thought about doing so or are not really active on those platforms where online co-creation is offered or advertised. Only few people in contrast believe that the companies would not take their ideas seriously, customers should not be part of new product developments or that they would not be able to bring in valuable suggestions.

It can therefore be said that companies should raise more attention on their co-innovation projects in order to get a high participation rate. The actual deterrents or disadvantages for

consumers to take part in co-innovations are very limited, so firms should not worry too much about what could distract people from participation but get them informed about it in a way that attracts customers to start thinking about participation.

Next to the direct observations regarding motivators and deterrents, customer profiles were set up in order to further investigate the co-creation participants. A distinction between motivated co-creators with high importance values in motivators and non-motivated co-creators with low importance values in motivators was done. Thereby, it was found that the motivated co-creators are rather older with the main age group from 25 and higher while the non-motivated co-creators are mostly between 20 and 25 years old. The motivated co-creators were additionally highly dominated by males and the non-motivated co-creators by females. Furthermore, it could be seen that motivated co-creators rather use social bookmarking sites whereas the non-motivated co-creators mainly use visual entertainment pages such as Facebook, Instagram and video websites.

8. LIMITATIONS

A significant drawback of our survey is the sampling method. Since the respondents of the questionnaire are mostly friends and therefore belong to a more or less homogenous population and were not selected randomly, it can be said that a convenience sampling technique was used in this case. Most of the participants are students between 20 and 25 years old. We have relatively few data for people who are employed in a regular job and from people with a rather low degree of education. Also the nationalities are not heterogeneous enough to refer the outcomes to an international context since 90% of participants are German or Dutch. Thus the research is not able to represent the population as a whole which is a clear lack of external validity. This problem is caused by the fact that the time span to create and distribute the survey was rather short. Future research in this field should therefore spend more time and effort in order to get data by a more heterogeneous population so that the outcome can be generalized.

Also the number of participants who actually answered to have taken part in co-creation recently is rather small. Only 68 co-innovators out of 239 total respondents could be analyzed, which also results from the short time span that was available and causes a lack of validity.

Furthermore it should be mentioned that many respondents may simply not be aware of the fact that they actually have participated in some kind of co-creation within the last years, either because they do not exactly know what is meant by that from the beginning or because they simply forgot about any of those actions. It is therefore advisable for further surveys about the topic to let people choose from a list of activities they took part in at the beginning of the questionnaire instead of asking directly whether they have participated in co-creation or not.

Another drawback due to the given time span is that the survey itself was rather simplified while the issue is a rather complex one. Three to four questions for each factor may not be sufficient in order to analyze the motivators for co-creation fully.

Suggestions for future research therefore include an extension and modification of the questionnaire itself as well as an implementation among a more heterogeneous population.

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10. REFERENCES

- Chesbrough, H. (2003). Open innovation: How companies actually do it. *Harvard Business Review*, 81, 12–4.
- Crawford, C.M. & Di Benedetto, C.A. (2003). *New Products Management. 1st ed.* New York, NY: McGraw-Hill/Irwin
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297–334.
- De Jong, J. P. J., Vanhaverbeke, W., Kalvet T. & Chesbrough, H. (2008). Policies for open innovation: Theory, framework and cases. *Research project funded by VISION Era-Net. Helsinki.*
- Díaz de Rada, V. (1998). Design of typologies of consumers through the use of cluster analysis and other multivariate techniques, *Economía Agraria*, 182, 75–104.
- Facebook. (2013). Nestle. Retrieved June 03, 2013, from <https://www.facebook.com/Nestle?ref=ts&fref=ts>
- Frías-Navarro, D. & Pascual-Soler, M. (2012). Practiques of exploratory factorial analysis (EFA) in the research on consumer behavior and marketing. *Suma Psicológica*, 19, Retrieved June 10, 2013, from http://www.sci.unal.edu.co/scielo.php?script=sci_arttext&pid=S0121-43812012000100004&lng=es&nrm=iso
- Fueller, J., Faullant, R., & Matzler, K. (2010). Triggers for virtual customer integration in the development of medical equipment - From a manufacturer and a user's perspective. *Industrial Marketing Management* 39 (8), 1376–1383.
- Google Trends. (2013). Web Search interest: crowdsourcing. Worldwide, 2004 - present. Retrieved June 03, 2013, from <http://www.google.com/trends/explore#q=crowdsourcing&cmp=t=q>
- Guttman, L. (1954). Some necessary and sufficient conditions for common factor analysis. *Psychometrika*, 19, 149–161.
- Hair, J., Anderson, R., Tatham, R., & Black, W. (1999). *Análisis multivariante*, Prentice-Hall, Madrid.
- Herstad, S. J., Bloch, C., Ebersberger, B. & van de Velde, E. (2010). National innovation policy and global open innovation: exploring balances, tradeoffs and complementarities. *Science and Public Policy*, 37, 113–24.
- Howe, J. (2006). Crowdsourcing: a definition. *Wired Blog Network: Crowdsourcing*. Retrieved June 15, 2007, from http://crowdsourcing.typepad.com/cs/2006/06/crowdsourcing_a.html#Guttman
- Hoyer, W.D., Chandy, R., Dorotic, M., Krafft, M., & Singh, S.S. (2010). Consumer cocreation in new product development. *Journal of Service Research* 13 (3), 283–296.
- Katz, E., Blumler, J.G., & Gurevitch, M. (1974). Utilization of Mass Communication by the Individual. In: *The Uses of Mass Communications: Current Perspectives on Gratifications Research*. Beverly Hills, CA: Sage, 19–32.
- Lee, S.M., Olson, D.O., & Trimi, S. (2012). Co-innovation: convergenomics, collaboration, and cocreation for organizational values. *Management Decision*, 50(5), 817 - 831.

Mesipuu, M. (2010). Translation Crowdsourcing – an Insight into Hows and Whys (at the Example of Facebook and Skype). *Master's Thesis, Tallin University*.

Rosen, P.A. (2011). Decision making in a Web 2.0 environment: Crowdsourcing lessons for organizations. *Journal of Decision Systems*, 20 (3), 309-324.

Showers, B. (2010). Capturing the power of the crowd and the challenge of community collections. Retrieved April 12, 2010, from <http://www.jisc.ac.uk/media/documents/publications/programme/2010/communitycollectionscrowd.pdf> accessed 20 September 2011.

Vermunt, J. K & Magidson, J. (2005). Latent GOLD 4.0 User's Guide. *Statistical Innovation, Inc, Belmont, Massachusetts*.

Whitla P. (2009). Crowdsourcing and its applications in marketing activities. *Contemporary Management Research* 5 (1), 15-28

Wikipedia. (2013). List of crowdsourcing projects. Retrieved June 03, 2013, from http://en.wikipedia.org/wiki/List_of_crowdsourcing_projects

WSIS-community (2010). 2011 The Year of Social media? Retrieved June 03, 2013, from <http://www.wsis-community.org/pg/blog/read/468251/2011-the-year-of-social-media>

Zwartjes. (2011). Co-creation from a consumer perspective: Consumer motivations to partake in and success factors of a co-creation initiative. *Master's Thesis, Wageningen University*

Zwass, V. (2010). Co-creation: Toward a taxonomy and an integrated research perspective. *International Journal of Electronic Commerce*, 15 (1), 11-48.

