

Co-Creation: Customer Integration in Social Media Based Product and Service Development

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ABSTRACT

Due to the rising level of global competition as well as a fast-growing number of innovations organizations are nowadays forced to find new ways to attract, gain and sustain loyal customers in order to stay competitive. Co-creation, the active involvement of customers in the process of new product and service development, has been identified as a reliable source of competitive advantage; however for most companies it still represents a challenge to find customers that are willing to openly cooperate and share their ideas and knowledge. This paper examines four different types of benefits derived from the Uses and Gratification approach motivating customers to participate in online co-creation activities. A pilot questionnaire and its practical applicability are being tested, confirming that customers' participation is in fact stimulated by the four identified types of benefits and indicating that co-creators differ in their motivational levels. Finally, some recommendations on how to adapt the questionnaire for future research are given.

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Keywords

Co-Creation, Customer Integration, Social Media Platforms, Uses and Gratification Framework.

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1. INTRODUCTION

“Value co-creation demands a change in the dominant logic for marketing from ‘selling, making and servicing’ to ‘listening, customizing and co-creating.’”

(Payne, Storbacka, & Frow, 2007, p.89)

The introduction of Web 2.0 and different social media platforms has contributed to the development of a new era of customer empowerment enabling customers to interconnect worldwide and easily share and exchange personal, social and scientific knowledge with like-minded individuals. (Lee, Olson, & Trimi, 2012) Consequently, customers are well-informed, more conscious about their needs and have a clear conception of which products or services they are searching for. (Helms, Booij, & Spruit, 2012; Lee et al., 2012; O’Hern & Rindfleisch, 2001) By having more information and alternatives where to buy a product or service today’s customers take a more active, influential role in the process of value creation forcing firms to step away from their traditional firm-centric view to a more customer-centric view in order to be competitive. (Pralhad & Ramaswamy, 2004; Sashi, 2012)

The firm-centric view regards value creation happening inside the firm, ascribing both firm and customer distinct roles as producer and consumer and focusing on “targeting and managing the ‘right’ customer” (Pralhad & Ramaswamy, 2004, p.6); the customer-centric view suggests firms to collaborate and exchange knowledge with their customers by actively involving them in new product development (NPD) processes in order to create value. (Sawhney, Verona, & Prandelli, 2005) Accordingly, customers can actively contribute to successful NPD by being the source of innovative ideas, providing input for new product designs and enhancements, or participating in product testing and support allowing companies to satisfy existing needs that are not met by the market yet. (Hoyer, Chandy, Dorotic, Krafft, & Singh, 2010; Nambisan, 2002; Ogawa & Piller, 2006) Nowadays, more and more companies are trying to follow the trend to adopt a customer-centric view in order to create and attain value by actively integrating customers in their new product and service development processes.

According to O’Hern & Rindfleisch (2009), co-creation can be defined as “a collaborative new product development (NPD) activity in which consumers actively contribute and select various elements of a new product offering”. The customer plays a central role in the process of new value creation for the company itself and all its relevant stakeholders. (Hoyer et al., 2010) The Internet, as valuable communication medium, especially facilitates co-creation due to its function as interactive platform enabling internals and externals from all over the world to interconnect and collaboratively contribute to an organization’s value creation processes. (Lee, Olson, & Trimi, 2012)

An ideal example of integrating customers into their new product and service development activities delivers the American Global Coffee Company Starbucks, which established the online platform MyStarbucksIdea.com on which customer can share their product or experience ideas, participate in open discussions about provided ideas and vote for them. With the vision of “building it [the Starbucks experience] with them and they are already there” instead of “build it and they will come” the Starbucks Company found a way to keep its customers more loyal while reducing risks in new product or service launch. (Ramaswamy, 2009) Recently, a reward system for grocery purchase has been introduced labeled as

code pasted on it remunerating them with free drinks or food in Starbucks Coffeehouses. This idea has been suggested by a customer via MyStarbucksIdea.com and aims to successfully contribute to the Starbucks’ Customer Loyalty Program.

A key constraint companies face in actively integrating customers in their NPD activities is that co-creation only works when qualified customers are willing to cooperate and openly share their ideas and knowledge with the company as well as honestly evaluating existing products and new ideas. (Füller, Faullant, & Matzler, 2010; Füller, 2006) Co-creation happens solely on a voluntary basis and customers are asked to spend time, knowledge and effort in enhancing the quality of existing products as well as providing valuable ideas for new products and services. Respectively, the benefits a company receives from co-creation are clear without ambiguity. From the customers’ perspective the profits they gain as customers are less definitive as they hardly benefit instantly from using the product or service developed. (Füller, 2006) Whereas recent research has especially focused on the different stages of the product development process at which companies can involve customers as well as the different kinds of benefits customers perceive when participating in co-creation activities, less is known about the different motives customers actually have towards the possibility to participate in online co-creation activities. Companies specially rely on customers that are willing to contribute their ideas, thoughts and knowledge to co-creation processes so that new knowledge and value creation can occur as otherwise the concept of co-creation would fail. (Füller, Bartl, Ernst, & Mühlbacher, 2006; Nambisan, 2002) Therefore, it is necessary for companies to understand how to ensure that their customers are willing and motivated to contribute to co-creation activities online in order to effectively support companies in their value creation processes. This research gap is leading to the following research question:

“What are the motivators for customers to participate in online co-creation?”

The objective of this paper is therefore (1) to gain a general insight into customer integration in new product and service development processes and to identify customers’ different motives enhancing their willingness to participate in online co-creation activities based on a profound literature review, (2) to develop a pilot questionnaire, which investigates these different motivators positively impacting customers’ attitudes towards co-creation, and (3) to test the questionnaire’s practicability and provide some suggestions on how the questionnaire can be improved for future studies.

2. THEORETICAL BACKGROUND

Within the last years, the conventional view of value creation has increasingly been challenged. Whereas prior literature considered value creation to occur exclusively inside organizations and outside markets, recent literature emphasizes the importance of customer integration in value creation processes as efficient way to develop better products while at the same time lowering costs and risks of product/service failure. (Fuchs & Schreier, 2011; Prahalad & Ramaswamy, 2004) As especially users’ needs, wishes, and preferences impact the concept and design of a product or service it is suggested to already involve customers within the prelaunch phase of a developed product/service, which consists of the following 4 stages: (1) Idea Generation, (2) Concept Development, (3) Product Design and (4) Prototyping/Testing

collaboratively as organizations gain insight about customers' preferences and ideas based on interaction and continuous feedback given by the costumers contributes to the development and realization of products or services properly reflecting customers' needs. (Mascarenhas, Kesavan, & Bernacchi, 2004; Mulder & Stappers, 1997; Romero & Molina, 2011)

Segmentation theory adduces that markets are made up of different customer segments each reflecting certain characteristics and needs (Cossío Silva, Revilla Camacho, & Vega Vázquez, 2013). Respectively, customers might reflect different motives to participate in co-creation activities. Concerning customers' likeliness to engage in organization's co-creation activities, empirical research especially focuses on the different kinds of benefits customers derive from their involvement in co-creation activities functioning as motivators to actively participate. There are two types of benefits to be distinguished promoting customers to participate in co-creation activities, namely extrinsic and intrinsic benefits. (Füller, 2006) Whereas extrinsic benefits are focused on the outcomes the customer gains from being innovative e.g. additional bonuses or status enhancement triggering the customer to participate in co-creation activities, intrinsic benefits concentrate on the rewards the customer gets from the activity of being innovative itself stimulating him/her to participate, i.e. satisfaction perceived when generating ideas for new products or the pleasure of learning and sharing with others. Respectively, there are different kinds of motives customers might have when engaging in co-creation processes, for example curiosity about participating, dissatisfaction with existing products, intrinsic interest in co-creation, learning and knowledge-gaining, sharing own ideas or receiving monetary rewards. (Füller, 2006)

With respect to the online environment the uses and gratifications (U&G) approach seems to be most helpful and relevant to explain the different motives customers present to participate in co-creation activities online. Originally, the U&G approach arose from the functionalist perspective on mass media communication in the 1940's assuming that individuals make use of traditional media channels such as the radio or television in order to fulfill certain wants and needs. (Luo, 2010; Urista, Day, & Dong, 2008) It aims to identify the different kinds of benefits customers derive from certain media usage and how these obtained benefits affect their media-usage behavior. (Nambisan & Baron, 2009) According to the U&G approach the benefits customers derive from their media usage occur on two basic dimensions, which are the cognitive and the affective dimension. Benefits on the cognitive dimension are related to the benefits customers expect to receive in exchange for their participation; benefits from the affective dimension are related to the positive and negative feelings customers generate during the online interaction with the company, which impact the customers' attitudes and feelings towards the firm. (Nambisan & Baron, 2007; Urista et al., 2008) Out of these two dimensions the following four types of benefits have been developed (1) learning benefits, which are related to the acquisition of knowledge and gaining an understanding of the environment, (2) social integrative benefits, which are to intensify consumer ties with relevant others, (3) personal integrative benefits, which are to strengthen the customers' own status and self-confidence, and (4) hedonic benefits that enhance aesthetic or pleasurable experiences. (Nambisan & Baron, 2009)(Nambisan & Baron, 2009)

Applying the U&G approach to the Internet as modern medium of communication the different kinds of benefits customers may acquire from their interactions in the online environment can be identified positively impacting customers' participation. (Luo, 2010; Nambisan & Baron, 2007; Urista et al., 2008)

components and enhance their product-knowledge by learning more about the product, its underlying technologies and the usage of the product. This delivers cognitive benefits of information acquisition and product learning to the customer. (Hoyer et al., 2010; Nambisan & Baron, 2007)

Social Integrative Benefits. Another form of benefit customers might perceive when participating in online co-creation activities stems from the relational and social bonds customers develop while collaboratively developing (new) products and services with other customers and/ or company staff on social media platforms. Due to the close interaction with other individuals customers may develop a sense of belongingness to the online community being involved in the process of co-creation and win some social identity, both being perceived as benefit. (Hoyer et al., 2010; Nambisan & Baron, 2007, 2009)

Personal Integrative Benefits. Additional, self-efficacy and the pursuit of a certain kind of community status might represent a further type of benefit customers value. When participating in online co-creation processes customers might generate a higher sense of self-efficacy while contributing to a company's innovative processes resulting out of the customer's expansion of product-related knowledge and his/her broadening problem-solving ability. With the delivery of new ideas of high potential the customer might win reputation as well as gaining an expertise-related status of high influence involving enhancement in status, credibility and self-efficacy. (Nambisan & Baron, 2007, 2009)

Hedonic Benefits. Further, customers might perceive the activity of online co-creation as a mentally stimulating experience being interesting, exciting and entertaining, which is thus perceived as a valuable benefit by the customer. Exchanging and discussing new product or service ideas with others and finding solutions for existing problems might be especially delightful for customers and thus stimulating them to participate. (Hoyer et al., 2010; Nambisan & Baron, 2007)

3. RESEARCH MODEL AND HYPOTHESES

3.1 Research Model

Based on the different antecedents derived from the U&G approach a model has been developed, which considers the different motivators that stimulate customers' willingness to participate in the co-creation process of an organization (Figure 1).

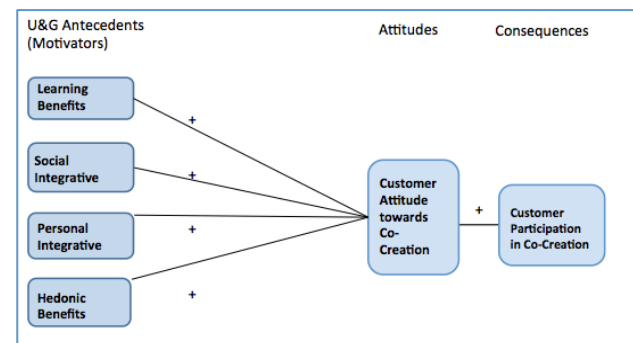


Figure 1: Model of customers' motivators contributing to a positive attitude towards co-creation.

This model represents the starting point for our questionnaire developed as it explains the different types of benefits customers are proposed to perceive when participating in co-creating activities.

3.2 Hypotheses

In the following, the proposed relationships will be further investigated:

It is assumed that customers are motivated to participate in co-creation processes when perceiving that this offers them the possibility to broaden their personal knowledge on the products and its functions as well as learning more about its components and application, (Hoyer et al., 2010; Nambisan & Baron, 2007) leading to the first hypothesis:

H1: *Learning benefits have a significant and positive effect on the customer's attitude to participate in co-creation.*

The involvement in an organization's co-creation process enables the customer to interact collaboratively with other customers and company staff, who share a common interest in the organization and its products. Thus, customers might identify with the community and feel an interconnection with the other members, regarding this as motivating benefit to participate in co-creation activities. (Hoyer et al., 2010; Nambisan & Baron, 2007, 2009) The second hypothesis can therefore be formulated as follows:

H2: *Social integrative benefits have a significant and positive effect on the customer's attitude to participate in co-creation.*

With the successful contribution to an organization's (new) product or service development, the customer gets the possibility to raise his reputation towards other customers and the organization itself as well as enlarging his own expertise regarding the (new) product or service offered. (Hoyer et al., 2010; Nambisan & Baron, 2007) This might trigger the customer's motivation to participate in co-creation resulting in the third hypothesis:

H3: *The personal integrative benefits have a significant and positive effect on the customer's attitude to participate in co-creation.*

Co-creation is a creative process, in which customers are enabled to share their ideas for new products or services as well as making suggestions for improvements. Being involved in a delightful and joyful activity might thus motivate the customer to participate in co-creation. (Hoyer et al., 2010; Nambisan & Baron, 2007) Accordingly, this leads to the final hypothesis:

H4: *The hedonic benefits have a significant and positive effect on the customer's attitude to participate in co-creation.*

Grounded on the four generated hypotheses stated above a concept questionnaire has been developed.

4. METHODOLOGY

4.1 Sample and Data Collection

To test the applicability of the established concept questionnaire (see Appendix 1) and to identify its strengths and weaknesses a pilot study has been conducted to check which valid data can be

participants are interpreting the questions as intended. (Bowden, Fox-Rushby, Nyandieka, & Wanjau, 2002) Data was collected within a period of two weeks in May 2013. The given concept questionnaire has been distributed via different (social) media platforms including Facebook, Twitter and Email to contacts of the researchers. The respondents provided a representative profile of students and young professionals from all over the world all being computer literate and comfortable with social media platforms. The sample can be described as a convenience sample.

The concept questionnaire has been divided up into the following parts:

Part (1) including demographics questions to identify general sample characteristics,

Part (2) including questions considering the reasons for making use of the internet and various social media platforms in general,

Part (3) including questions concerning co-creation activities online in order to identify the reasons of non-co-creators for not participating in innovation processes online and the motivators of co-creators for participating.

Different types of questions have been integrated into the questionnaire, namely dichotomous questions (e.g. gender), multiple-choice questions (e.g. reasons for internet usage) and constant sum questions (e.g. common medium to access internet) in part 1 and rating scale questions (e.g. motives for participation) in part 2 and 3.

It is expected that the four types of U&G antecedents namely learning benefits (H1), social integrative benefits (H2), personal integrative benefits (H3) and hedonic benefits (H4) have a positive effect on customers' attitude to participate in co-creation.

4.2 Measurements and Methods

To operationalize all four suggested types of U&G antecedents semantic differential scale with a 5-point format have been applied ranging from "very important" to "very unimportant". Each construct has been measured by either three or four items adapted from existing scales derived from previous studies. The sequence of all items per construct was randomized to minimize the impact of order bias.

Learning benefits were measured based on a subscale involving three items (product-knowledge enhancement; product-technology enhancement; making better product decisions) suggested by Franke & Shah (2003), Hertel, Niedner & Herrmann (2003) and McLure Wasko & Faraj (2000).

Social integrative benefits were measured on a subscale involving four different items (expand social network; status enhancement; strengthening community affiliation; enhancing personal career) derived from Kollock (1999), Hertel et al. (2003), and McLure Wasko & Faraj (2000).

Personal integrative benefits were measured on a subscale considering three different items (satisfaction derived from influencing product and design; satisfaction derived from influencing product usage; satisfaction derived from making product improvements) suggested by Kollock (1999) and Hertel et al. (2003).

Finally, based on a subscale considering four different items (enjoyable and relaxing time; fun and pleasure; entertainment and stimulation; enjoyment due to problem-solving and idea generation) the *hedonic benefits* were measured (Hertel et al., 2003; McLure Wasko & Faraj, 2000).

Evidence for the internal validity of the four constructs has been found based on Cronbach's alpha measuring the strengths of correlation between the constructs. The internal validity is sufficient when Cronbach's Alpha is above 0.7 (Cronbach,

personal integrative benefits and 0.914 for hedonic benefits (see Appendix 1).

4.3 Analysis

A two-stage analytical procedure has been applied (Gerbing & Anderson, 1988) first conducting an exploratory factor analysis (EFA) followed by a latent segmentation analysis. Both analyses have been tested on a part of the sample only respecting co-creators (n=63) and eliminating non-innovators (n=77).

The exploratory factor analysis (EFA) has been performed in order to identify the number of latent factors, thus the estimates factors, which influence responses on observed variables, with the aim to summarize underlying correlational structures for a data set. (Gorsuch, 1997) Accordingly, the number of factors of the data set, e.g. the motives of participation in online co-creation activities, has been identified as well as each factor's underlying set of variables. The validity of the model derived from the exploratory factor analysis has been estimated based on Kaiser-Meyer Olkin (KMO) statistics and Barlett statistics; the model's reliability has been indicated testing Cronbach's alpha. The consistency of the factor structure has been examined by analyzing the factor loading of EFA (factor loading > 0.5).

In a second step, with respect to the segmentation theory, a latent segmentation analysis has been conducted to identify subgroups (or segments) based on the multivariate categorical data creating patterns of associations in the motives for online co-creation participation. (Cossio Silva et al., 2013; Vermunt & Magidson, 2002) For this, Latent Gold 4.5 statistical software has been used.

First, the optimum number of segments was selected based on a model using estimates from one (no heterogeneity existing) up to eight (heterogeneity existing in eight segments). Based on the Bayesian Information Criterion (BIC) the model with the best fit out of the different competing models provided by the latent segmentation analysis has been selected.

In order to estimate the statistical significance within each group of estimated parameters, Wald Statistic has been used in order to assess the influence of the estimated parameters on each of the two identified groups.

Further, the p-value for each indicator has been obtained to confirm that each indicator between the two identified groups discriminates in a significant way.

Additionally, some descriptive data has been collected by establishing frequency tables in order to describe the main characteristics of the sample (see Appendix 2).

4.4 Results

The purpose of this study was to identify which valid data can be derived from the pilot questionnaire to test its practical applicability. Four independent variables have been examined to explain customers' positive attitudes towards participation in co-creation activities online, namely learning benefits, social integrative benefits, personal integrative benefits and hedonic benefits.

A total of 239 respondents participated, from which 43% males and 57% females, most of the being in the age of 20-25 years (> 20 years = 8.3%; 25 years < = 19.2%). The sample studied enclosed 226 Europeans and 13 Non-Europeans, the main part of them representing students (86.62%), the rest of them being

<i>Gender</i>		
Male	42.7%	102
Female	57.3%	167
<i>Age</i>		
< 20 years	8.4%	20
20-25 years	72.4%	173
> 25 years	19.2%	46
<i>Nationality</i>		
European	94.5%	226
Non-European	5.5%	13
<i>Education</i>		
Student	87.6%	207
Professional	13.4%	32
<i>Social Media Account Daily Used</i>		
Facebook	96.2%	230
YouTube, Vimeo	29.7%	71
Twitter	17.6%	42
Instagram	11.7%	28
<i>Reasons for Social Media Participation</i>		
Interconnectivity with family and friends	93.7%	224
Entertainment	74.1%	177
Get informed about news	65.3%	156
Work	33.1%	79
Seeking help	25.9%	62
Making better buying decisions	24.3%	58
Update online status	14.6%	35
Writing a blog/ tweet/ article	13.4%	32
Share product experiences/ complaints	7.5%	18
<i>Participation in Co-Creation Activities</i>		
Yes	28.5%	68
n=239		

Table 1: Sample Demographics

young professionals (13.38%). Out of all participants about one quarter (28.45%) has already actively been contributing to co-creation activities in the online environment (Table 1).

4.4.1 Exploratory Factorial Analysis

The first aim of our research was to study the existence of similarities of motives between what is suggested by literature and how it is in reality. From the results of the EFA it could be observed that KMO is meritorious, i.e. higher than 0.8 (Mitrea, Nedeveschi, Lupsor, Socaciu, & Badea, 2009) and Bartlett's test was highly significant (0.000). This shows the validity of the factorial analysis model. (Bartlett, 1954; Kaiser, 1970) Four factors resulted from the exploratory factorial analysis conducted, which have been validated through Cronbach's Alpha all being higher than 0.7 (see Appendix 1):

Factor 1: Personal Integrative Benefits

(Satisfaction derived from influencing product and design; satisfaction derived from influencing product usage; satisfaction derived from making product improvements)

Factor 2: Hedonic Benefits

(Enjoyable and relaxing time; fun and pleasure; entertainment and stimulation; enjoyment due to problem-solving and idea generation)

Factor 3: Social Integrative Benefits

(Expand social network; status enhancement; strengthening community affiliation; enhancing personal career)

Factor 4: Learning Benefits

(Product-knowledge enhancement; product-technology enhancement; making better product decisions)

Further, the consistency of all factor structures is validated as the variables have a factor loading of >0.5 to the corresponding factor they are related to. (Hair, Anderson, Tatham, & Black, 1999) Based on the results of the Exploratory Factorial Analysis indicating that all four factors positively impact customers' participation in co-creation activities the four hypotheses stated in section 3.2 could all be accepted.

4.4.2 Latent Segmentation Analysis

By conducting a latent segmentation analysis a segmentation of co-creators could be conducted resulting from cases with same latent variables being homogeneous on certain criteria. To refine the resulting segments, different descriptive variables (gender, age, nationality, use of social networking sites) have been incorporated in the analysis as well (see Appendix 3). Based on the factors resulted from the EPA and the descriptive variables, eight models of grouping have been obtained, which fulfill maximum internal coherence and maximum internal differentiation (see Appendix 4). The proposed models estimated from one (= no heterogeneity existing) to eight (=heterogeneity existing in eight segments). Comparing the different models, the BIC has considered the second model (or cluster) to be the most likely to be true (LL=-117.3402; BIC=715.8593). In this case thus two different groups of co-creators (highly-motivated and less-motivated co-creators) were identified. The statistical values in Appendix (E_s=1; R²=1) confirm the good fit of the model chosen.

The Wald statistic was used to evaluate the statistical significance within a group of estimated parameters (see Table 2). For all factors a significant p-value associated with the Wald statistics was obtained, confirming that each factor discriminates between the clusters in a significant way. (Vermunt and Magidson, 2005).

The following two profiles of co-creators have been derived from the latent segmentation analysis (Table 2):

	Highly motivated co-creators	Less motivated co-creators	Wald	p-value	R ²
Cluster Size	50.00%	50.00%			
Indicators					
F1-Personal Integrative Benefits	2.6676	2.4884	14.5703	.00014	.0192
F2- Hedonic Benefits	3.6382	3.0410	9.3799	.0022	.1011
F3- Social Integrative Benefits	2.7959	2.2538	4.1007	.043	.0758
F4- Learning Benefits	3.8029	2.5626	19.3978	1.1e-5	.2795
In bold is marked the higher weight obtained by each factor per cluster					

Table 2: Profile of co-creators

Profile 1: Highly-motivated co-creators

The "highly-motivated co-creators" segment shows high means in Factor 2- *Hedonic Benefits* (3.6382) and Factor 4- *Learning Benefits* (3.8030) and relevant means in Factor 1- *Personal Integrative Benefits* (2.6676) and Factor 3- *Social Integration Benefits* (2.7959). A huge part of people in this segment are 25 years or older and especially Dutch participants (40%) are predominant in this segment. With respect to the social media channels used by motivated co-creators, Facebook is primarily used (92%) on a daily basis, followed by LinkedIn (24%). Accounts on Twitter (36%), YouTube or Vimeo (36%), Social Bookmarking Sites (32%) and Instagram (12%) are present, but seldom used.

Profile 2: Less-motivated co-creators

In comparison to the motivated co-creators, less-motivated co-creators indicate a lower mean in all the four factors analyzed impacting their motivation to participate in co-creation activities, which distinguished them from the motivated innovators (Table 2). The segment is prevailed by individuals most of them being 20-25 years old (76%) and mainly represented by female co-creators (80%). Representatives are from all over the world, but Germans representing the biggest part (48%).

Nearly all less-motivated co-creators have a Facebook account (96%), which they make use of on a daily basis. Twitter is generally known (48%), although no accounts are made up. 32% of the group have an Instagram account and 48% of the group have a YouTube or Vimeo account, which they use regularly. LinkedIn and Social Bookmarking Sites are known, but not actively used.

5. CONCLUSION, DISCUSSION AND DIRECTIONS FOR FUTURE RESEARCH

5.1 Conclusion

This paper aims to highlight the importance of co-creation for organizations to support them in their value-creation processes well as to test a pilot questionnaire investigating different motivators positively affecting customers to participate in online co-creation activities. It contributes to the existing literature on customer involvement in organization's value-

creation processes in two ways: (1) by identifying the different benefits customers derive from their participation in new product and service development processes in order to co-create value and (2) by making valuable suggestions on how a questionnaire studying customers' different motives to participate in co-creation activities online should be constructed in order to support future studies.

The Internet as advanced information and communication medium has led to an increased level of customer empowerment making today's customers more knowing, better-informed and aware of their wishes and needs. This development forces organizations to shift their process of value creation from a firm-centric to a customer-centric view closely integrating customers into the value creation processes to co-produce value. Building collaborative network environments with their customers thus enables organizations to improve their competences to perfectly meet their customers' needs and to stay competitive. Customer involvement is possible at every stage of the NPD process, offering customers the possibility to contribute to value-creation in several ways from generating a new product/service idea to prototype development and testing. Nevertheless, customers first need to be motivated to participate in co-creation activities. Literature findings suggest that customers' motivation to participate in co-creation is mainly derived from four types of benefits. The results of the tested pilot questionnaire confirmed that these four types of benefits in fact motivate customers to participate in online co-creation activities. Moreover, our research indicated slight differences in motivational levels, yielding to two different profiles of co-creators, namely highly motivated co-creators and less-motivated co-creators. This leads to the presumption that there might be additional motivators not being covered by our questionnaire impacting motivation as well.

Our findings are consistent with previous work of Nambisan and Baron (2009) studying voluntary participation of customers' in virtual customer environments. Their study results support that the four types of benefits derived from the U&G framework have a significant influence on customers' participation in product support in virtual customer environments.

The positive impact of social and hedonic benefits on customers' likeliness to participate in co-creation activities is also in accordance with the findings of Wang and Fesenmaier (2004) studying customers' activities in interactive online traveling communities.

Further, a study conducted by Jeppesen and Frederiksen (2006) identifies the recognition from the network community as relevant motivator for individuals to contribute to co-creation processes, which reflects an item counted among social integrative benefits.

5.2 Discussion and Future Research Directions

The distributed questionnaire has been a pilot questionnaire, which is preliminary in nature permitting several improvements.

First, regarding its internal consistency, several types of questions have been used, which complicated the operationalization of the questionnaire. Although the questions with respect to four benefits were operationalized and measured on a consistent scale (5-point semantic differential scale), it was hard to correlate them to the questions regarding customers'

attitudes and consequences. Making use of one consistent question type with same levels of measurement facilitates the operationalization of the different concepts considered in the questionnaire.

Second, the motivators included in the questionnaire are solely based on the findings of a literature review evaluating customers' motivations to participate in co-creation activities respective to the benefits they gain out of their participation. Nevertheless, other constructs, which could have an impact on customers' intention to participate are not regarded, e.g. the influence of an individual's social identity within a community evoking a sense of duty to participate (Ahearne, Bhattacharya, & Gruen, 2005; Sicilia & Palazón, 2008) or strong brand identification (Stokburger-Sauer, 2010).

With respect to its external consistency, a third limitation lies in the considerable low sample size, which prohibits a generalization of the results, as the total potential population of co-innovators is significantly higher. Several limitations also arose from the sample, which had a very low age, represented mostly students and only a quarter of it has actively been contributing to co-creation.

As the questionnaire focused on identifying the different motivators customers have to participate in online co-creation activities, the used sampling technique should be adapted for future research. A sample comprising co-creators only and excluding non-co-innovators is more applicable than the applied sample embracing both as this allows studying the target group. A non-probability sampling technique, e.g. purposive sampling allows to derive a representative sample constituting co-creators only and leaving out non-co-creators. Besides, different age groups and educational levels should be considered, as co-creators can be found in the general population.

The hypotheses derived from the suggested conceptual model in part 3.1 were confirmed based on the results provided by the factorial and segmentation analysis. For future research it is recommended to test the model and its underlying hypotheses using the structural equation model, as this technique allows estimating the model fit by testing its underlying causal relationships. (De Jonge & Schaufeli, 1998; Hooper, Coughlan, & Mullen, 2008)

Moreover, the current questionnaire was limited on identifying the different motives co-creators have to participate in co-creation activities while failing to discover motives, which could tempt non-creators to start involving in co-creation activities.

Furthermore, our questionnaire did not consider which social media platform(s) is/are most suitable for productive co-creation activities online and at which stage of the NPD process customers' prefer to be involved.

Therefore, future research should (1) explain the underlying theory by performing structural equation modeling, (2) examine the deterrents customers have to participate in co-creation activities and if these can and should be overcome, (3) identify social media platforms which are most suitable for collaborative value-creation activities, and (4) find out to which stages of the NPD process customers' are most likely to contribute. The latter aspects (2, 3, 4) are especially of importance for organizations in order to gain an understanding on how they can improve their co-creation activities online to win more motivated customers to collaborate as well as choosing the right platform to successfully reach valuable participants and offering space for valuable results.

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7. APPENDIX

7.1 Appendix 1: Concept questionnaire

PART 1: GENERAL INTRODUCTION

1. Age
 - a. < 20
 - b. 20 - 25
 - c. > 25
2. Gender
 - a. Female
 - b. Male
3. Nationality
4. Occupation
 - a. Apprenticeship
 - b. Bachelor
 - c. Master
 - d. Job
5. How much time do you usually spend online in an average day?
 - a. 10 - 30 minutes
 - b. 30 - 60 minutes
 - c. 1 - 3 hours
 - d. 3 - 6 hours
 - e. > 6 hours
6. How do you commonly access the Internet? (more than one answer possible)
 - a. From home with a desktop computer
 - b. From home with a laptop
 - c. From home with a tablet
 - d. From work / university with a desktop computer
 - e. From work / university with a laptop
 - f. From work / university with a tablet
 - g. With my mobile phone

PART 2: REASONS FOR MAKING USE OF SOCIAL MEDIA

7. Indicate in what of the following Social Networking Sites you do have an account and your familiarity / usage of these sites.
 - a. LinkedIn
 - b. Blogger
 - c. Wordpress
 - d. YouTube, VIMEO or other
 - e. Social Bookmarking Sites (Like Delicious, Digg)
 - f. Facebook
 - g. Twitter

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*
8. What are important reasons for you to participate in Social Media activities? (more than one answer possible)
- a. Entertainment
 - b. To get informed about news
 - c. To stay in touch with friends and acquaintances
 - d. To make better decisions about products or services I buy
 - e. To ask for help
 - f. To be able to express my experiences or complaints about products and/or brands I buy
 - g. To help companies make better products

PART 3: (NON-)PARTICIPATION IN CO-CREATION ACTIVITIES ONLINE

9. 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.)
- a. Yes (Go to Question 11)
 - b. No (Go to Question 10)
10. Reasons I never participate in new product development online: (more than one answer possible)
- a. I didn't know it is possible.
 - b. I never thought about it.
 - c. I don't think that customers must have a say on products and services that businesses are developing and selling.
 - d. I have no problem with products that do not satisfy me since there are many alternatives to choose from.
 - e. I have no time.
 - f. I believe that businesses don't take customer ideas seriously.
 - g. I don't know how I can participate in new product development online.
 - h. I never discuss about products in social networks.
 - i. I never participate in customer forums discussing new products.
 - j. I never read blog posts about new products.
 - k. I read blog posts about new products but I don't react on them.
 - l. I don't think that I am very good in thinking about new product ideas.
11. I participate in online co-creation activities when such activities:

Learning

- a. Enhance my knowledge about the product and its usage.
- b. Enhance my knowledge on product trends, related products and technology.
- c. Help me make better product decisions as consumers.

Social Integrative

- d. Expand my personal network.
- e. Raise my status/reputation as product expert in my personal network.
- f. Enhance the strength of my affiliation with the customer community.

Personal Integrative

- g. Are likely to positively affect my professional career.
- h. Offer me satisfaction from influencing product design and development.
- i. Offer me satisfaction from influencing product usage by other customers.
- j. Offer me satisfaction from helping design better products.

Hedonic Integrative

- k. Contribute in spending some enjoyable and relaxing time.
- l. Contribute in fun and pleasure.
- m. Entertain and stimulate my mind.
- n. Offer me enjoyment deriving from problem solving, idea generation, etc.

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*

CONSEQUENCES

Customer Participation

12. Within the last 3 years...:
- a. I participated in co-creation activities online when no financial or other type of reward was offered.
 - b. I participated in co-creation activities only if a financial or other type of reward was offered.
 - c. I rated a product or service after purchase out of my own initiative.
 - d. I rated a product or service after purchase because I was invited to do so by the seller.

Satisfaction with Co-Creation

13. Rate the following statements: (strongly disagree – strongly agree)
- a. I think that co-creation with companies results in better products.
 - b. I think that co-creation with companies results in lower development costs.
 - c. I think that co-creation with companies results in shorter product development time.
 - d. I think that products developed in co-creation with companies have better chances to be successful.
 - e. I think that I will be more satisfied with products developed in co-creation processes

7.2. Appendix 2: Factor loadings EFA

Items (I) about motives of participation in co-creation	Factor 1: Personal Integrative Benefits	Factor 2: Hedonic Benefits	Factor 3: Social Integrative Benefits	Factor 4: Learning Benefits
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

7.3 Appendix 3: Frequency tables

Age

	Frequencies	Percentages	Cumulative Percentages
<20	20	8.4	8.4
20-25	173	72.4	80.8
>25	46	19.2	100.0
Total	239	100.0	

Gender

	Frequencies	Percentages	Cumulative Percentages
Female	137	57.3	57.3
Male	102	42.7	100.0
Total	239	100.0	

Nationality

	Frequencies	Percentages	Cumulative Percentages
European	226	94.5	94.5
Non-European	13	4.5	4.5
Total	239	100.0	

Occupation:

	Frequencies	Percentages	Cumulative Percentages
Apprenticeship	3	1.3	1.3
Secondary School	5	2.1	3.3
College (HBO)	20	8.4	11.7
Bachelor	148	61.9	73.6
Master	31	13.0	86.6
Job	32	13.4	100.0
Total	239	100.0	

Account on Linked

	Frequencies	Percentages	Cumulative Percentages
0	26	10.9	10.9
have account & use it daily	39	16.3	27.2
have account & use it seldom/not at all	45	18.8	46.0
no account & but known	83	34.7	80.8
no account & not known	46	19.2	100.0
Total	239	100.0	

Account on YouTube, Vimeo etc.

	Frequencies	Percentages	Cumulative Percentages
0	14	5.9	5.9
have account & use daily	71	29.7	35.6
have account & use seldom/not at all	77	32.2	67.8
no account & but known	73	30.5	98.3
no account & not known	4	1.7	100.0
Total	239	100.0	

Account on Facebook

	Frequencies	Percentages	Cumulative Percentages
0	1	.4	.4
have account & use daily	230	96.2	96.7
have account & use seldom/not at all	3	1.3	97.9
no account & but known	5	2.1	100.0
Total	239	100.0	

Account on Instagram

	Frequencies	Percentages	Cumulative Percentages
0	25	10.5	10.5
have account & use daily	42	17.6	28.0
have account & use seldom/not at all	49	20.5	48.5
no account & but known	118	49.4	97.9
no account & not known	5	2.1	100.0
Total	239	100.0	

	Frequencies	Percentages	Cumulative Percentages
0	34	14.2	14.2
have account & use daily	28	11.7	25.9
have account & use seldom/not at all	30	12.6	38.5
no account & but known	132	55.2	93.7
no account & not known	15	6.3	100.0
Total	239	100.0	

Reasons for Social Media Usage: Interconnectivity

	Frequencies	Percentages	Cumulative Percentages
no	15	6.3	6.3
yes	224	93.7	100.0
Total	239	100.0	

Reasons for Social Media Usage: Making better buying decisions

	Frequencies	Percentages	Cumulative Percentages
no	181	75.7	75.7
yes	58	24.3	100.0
Total	239	100.0	

Reasons for Social Media Usage: Getting support

	Frequencies	Percentages	Cumulative Percentages
no	177	74.1	74.1
yes	62	25.9	100.0
Total	239	100.0	

Reasons for Social Media Usage: Entertainment

	Frequencies	Percentages	Cumulative Percentages
no	62	25.9	25.9
yes	177	74.1	100.0
Total	239	100.0	

Reasons for Social Media Usage: Get informed about news

	Frequencies	Percentages	Cumulative Percentages
no	83	34.7	34.7
yes	156	65.3	100.0
Total	239	100.0	

Reasons for Social Media Usage: Share product experiences/ complaints

	Frequencies	Percentages	Cumulative Percentages
no	221	92.5	92.5
yes	18	7.5	100.0
Total	239	100.0	

Reasons for Social Media Usage: Update online status

	Frequencies	Percentages	Cumulative Percentages
no	204	85.4	85.4
yes	35	14.6	100.0
Total	239	100.0	

Reasons for Social Media Usage: Work

	Frequencies	Percentages	Cumulative Percentages
no	160	66.9	66.9
yes	79	33.1	100.0
Total	239	100.0	

Reasons for Social Media Usage: Writing blog/tweet/post

	Frequencies	Percentages	Cumulative Percentages
no	207	86.6	86.6
yes	32	13.4	100.0
Total	239	100.0	

Participated in co-creation activities within last 3 years?

	Frequencies	Percentages	Cumulative Percentages
yes	68	28.5	30.1
no	167	69.9	100.0
Total	239	100.0	

7.4. Appendix 4: Indicators and co-variances

VAR.	ITEMS MEASURED	CATEGORIES
I N D I C A T O R S	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
C O V A R	Gender	Female Male
	Age	Less than 20 years old Between 20 and 25 years old More than 25 years old

I A T E S	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

7.5 Appendix 5: Estimates and fixes indexes

Number of conglomerates/ segments	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*); R²=Standard R-squared