Crowdsourcing: what drives who?

Differences in motivation of customers joining in on a service-oriented crowdsourcing initiative versus a physical good-oriented crowdsourcing initiative

'Chasing the expert is a mistake, and a costly one at that. We should stop hunting and ask the crowd (which, of course, includes the geniuses as well as everyone else) instead.'

James Surowiecki, 2004

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Abstract

This thesis focuses on the differences in motivations of clients joining a crowdsourcing initiative that originates from a company that provides a service versus a company that provides a physical good. The 20 motivations that were found in the literature were grouped into intrinsic and extrinsic motivations. After selecting two companies (one physical good, one service), it was tested whether these differences could be proven empirically. This was done by the means of an online survey, after which an analysis was performed to find out whether there were statistically significant differences. After running the analysis, it is recommended to investigate customer's differences in motivations on a larger scale.

Keywords: *crowdsourcing, physical good, service, customer, intrinsic motivation, extrinsic motivation*

Preface

As a part of the Master Organization Studies, students were asked to write a thesis on a subject of their interest. Personally, I have always found it interesting to find out what people drives to contribute their time and energy. For this thesis, I chose to explore why people participate in a crowdsourcing initiative. What I like about crowdsourcing is that it gives customers the chance to provide a company with their ideas and input. On top of this, it can bring people together who otherwise never would have met.

This thesis would have never been written without of the help of a lot of people, which I would like to thank for their help:

I would like to thank Victor Gilsing for his input and feedback during our circle meetings. Doing so helped me to put focus and structure into my thesis.

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Contents

1 Introduction

Galaxy Zoo is an online astronomy project that was launched in July 2007. The purpose of Galaxy Zoo was to classify the shape of over ten million images of galaxies, which were automatically taken by the Sloan Digital Sky Survey with the use of a digital camera that was mounted on a telescope in New Mexico, USA. Every image had to be analyzed to see whether a galaxy was elliptical or spiral, and, if spiral, whether they were rotating clockwise or anti-clockwise. The problem in doing so is that computers have great difficulty in analyzing these types of images. So, in order to complete this task, which would have taken researchers a large amount of time and effort, members of the public were asked for help. On the second of August 2007, this resulted into the classification of over ten million images which were classified by more than 80.000 volunteers. Doing so helped providing information about how different kinds of galaxies are distributed and gave rise to more than 30 peer-reviewed science papers.

Adams, T. (2012)

1.1 Research problem

Galaxy Zoo is an example of what can happen when a large group of people is asked to help in performing a task. According to James Surowiecki (2004): ‘’ most of us, whether as voters or investors or consumers or managers, believe that valuable knowledge is concentrated in a very few hands (or, rather, in a very few heads).’’ In his book, ‘The Wisdom of Crowds’, Surowiecki (2004) states that this is a mistake. Under the right circumstances, groups can be of big use in trying to solve a problem. They can be useful because a group of people can often outsmart the contributions of the smartest individuals within the group.

Using the wisdom of a group can be interesting for companies because it can help companies to get diversified and better fitting products, an increase in created user value and stimulated adoption and network effects. In order to accomplish this, open models of innovations suggest the usage of external parties and communities, which include online communities (Boudreau, 2006; Chesbrough, 2003; Shapiro and Varian, 1999).

The focus of this thesis is on a relatively new way of using this concept: crowdsourcing. Crowdsourcing can be defined as gathering opinions and ideas from a large group of people. This can be used by organizations to get an overview of potential ideas for their company.

Also, crowdsourcing will provide companies with information about which problems customers have and which product characteristics are seen as important (Prahalad and Ramaswamy, 2000).

So far, research has been performed to find out what motivates customers to join in on a crowdsourcing initiative (Lakhani et al., 2007; Kleemann et al, 2008; Brabham, 2008).

However, more than 70% of the Dutch economy focuses on performing services (Maegherman, 2007). Up to now, in relevant literature, no attention has been paid to the difference in motivations of customers related to the origin of the crowdsourcing initiative. By origin is meant: whether a customer undergoes a service or a physical good. The question in this case will be: to what extent can these differences in the motivation of customers be observed empirically?

It is useful to research this distinction, since companies have a different kind of relationship with their customers when they provide a physical good as opposed to when they provide a service (Vermeulen, 2002). Services only exist at the moment of mutual exchange: the client undergoes the service and the company provides the service (Vermeulen, 2002).

The question which will be studied in this thesis can be qualified as explorative, which makes the goal of this thesis to find out whether the expected differences as formulated in the research question can be answered empirically.

1.2 Research question

The following research question has been formulated in order to study the concept:

What are the differences between the motivations to join in on a crowdsourcing initiative of a customer that consumes a service versus the motivation of a customer who buys a physical good?

In order to specify the research question the following questions have been formulated:

- *What motivations for participating in a crowdsourcing initiative have so far been distinguished in the literature?*
- *To what extent and on which ground can these motives be divided into motivations that are related to joining in on a product initiative or a service initiative*
- *On which grounds can the division between the motivations be made?*

1.3 Relevance

What gives this thesis relevance is that it explores the potential distinction in motivations of customers based on a characteristic of a product.
This could serve as a starting point in the literature-field of crowdsourcing. So far, research has been conducted on the motivations of customers (Lakhani et al, 2007; Wasko and Faraj, 2000; Brabham, 2008) and on the influence of the characteristics of the crowdsourcing initiative on the motivation of the customer (Acar and van den Ende, 2011; Borst, 2010).

In this thesis, the differences in motivations of customers of a service and customers of a physical good are researched, which has not been studied yet. This is a characteristic of the product itself (either physical good or service) instead of a characteristic of the individual customer or the crowdsourcing initiative.

This thesis is academically relevant, because it explores the role of the customer within the process of creating a product. In the New Public Development-field, customers usually play a rather passive role as recipients or a company's innovation process (Von Hippel and Urban, 1988). The relevance of this thesis lies in the investigation as to whether crowdsourcing can help in actively involving the customer into the innovation process.

On a societal level, it is important to acknowledge that in the Netherlands, a large amount of companies focus on the provision of a service (Maegherman, 2007), which makes it interesting to see to what extent a difference in the way crowdsourcing is handled can be made.

1.4 Structure and goal of the thesis

In this thesis, a common process for the developments of developing products is firstly outlined, whereupon the possible role of a crowd in this process is sketched. The concept of crowdsourcing is explained as well as the different types of motivations that are to be acknowledged within the literature. After a thorough literature scan, an overview of the motivations that have so far been found is presented and classified. In order to answer the research question, hypotheses will be derived from the theory and tested by using data originated of two companies: one that provides a service and one that provides a physical good. The data are tested for statistical differences in motivations of the customers. After the analysis, conclusions can be drawn regarding the hypotheses and research questions.

2 Theory

This section will provide an overview of the theoretical background of this thesis. This will be done by explaining the main concepts of the thesis. After this, the mechanisms that are expected will be outlined and a table consisting the expected differences in motivation is presented.

2.1 New Product Development

New Product Development (NPD) refers to bringing a new product to the market (Bernstein and Macias, 2002). The NPD-process, which focuses on product innovation usually consists of five stages: ideation, concept development, product development, product testing, and product introduction (Ulrich and Eppinger, 2000; Hauser et al, 1993).

Many companies usually rely solely on internal expertise and knowledge in order to generate an idea for a new product. This strategy in NPD is usually referred to as 'local search behavior' and is most commonly found within companies (Stuart and Podolny, 1996).

The creative task of generating a new product idea is usually delegated to the marketers, engineers or designers of a company. These professionals try to identify and solve customer's problems by inventing a creative solution (Poetz and Schreier, 2012).

The assumption behind this approach is that the professionals within this firm have the required needs to come up with a relevant idea for the company. It is believed that professionals have the experience and expertise to be able to think of a product that can be widely distributed within the market which would lead to successful new products (Ulrich and Eppinger, 2000).

In the local search behavior-approach, information flows from the customer to the firm, where it is up to the company to innovate and initiate value creation (Prahalad and Ramaswamy, 2000).

This information is gathered by marketing research and some sort of theoretical approach which varies among companies (Goldenberg, Lehmann, and Mazursky, 2001). Marketing research can be performed by conducting customer surveys or conjunct analysis which help create test and refine new product concepts (Sawney, M., Verona, G. and Prandelli, E., 2002).

When a product is to be developed, there are two things to be taken into account regarding the design. Firstly, there is information about the latest technologies regarding the product, which helps a company decide what can actually be realized when creating a new product, which is

referred to as ‘generic solution information’. Secondly, there is information about what kind of new product customers would like to have and in which context the product is needed, which is referred to as ‘information of need and context’ (Ogawa, 1998).

Information of need and context is to be found in the field of the users, who know what it is that they wish to have and who are going to buy the product. The generic solution information is often developed by the company or product developer himself. This kind of information is often specialistic and focuses on the way a product is structured or could be technically improved. Companies mainly have the information about the generic solution of a product, because this is information that can be gathered within the company itself. Product developers can find out what it is that is possible to develop, and will therefore focus on this part of the development-process when they innovate (Ogawa, 1998).

Information about the need for a product and the context of a product is tacit and hard to come by for a company, since they have to match the product that they will develop to the wish of the customer (Von Hippel, 2005).

In order to make this match, the manufacturer can choose to involve the users in the process of innovation.

The advantage of involving users in the innovation-process is that they have a high amount of information about what they think about the product. Their thoughts can concern ideas for what new products they would like to buy, but can also take the shape of frustrations or problems with the current product. This input can be used by the company to decide what they will develop next.

If a company can get this information, this will be beneficial to both parties because the user will feel that he has more influence on what it is that he is going to buy and the manufacturer will get more information on the way he can structure his product in order to increase sales. Also, this can help a customer get his frustrations about the current product out of the way.

Poetz and Schreier (2012) performed a study regarding the contributions of users. This was studied by presenting a comparison of ideas that were provided by both users and professionals. The executives of the company subsequently evaluated the ideas that were presented without knowing which ideas were provided by which group. Indicators for the quality were novelty, customer benefit and feasibility. As it turned out, users scored significantly higher on novelty as well as on customer benefit. Other researchers also found

the quality of user-contributions surprisingly high (Katilla and Ahuja, 2002; Franke et al, 2006).

Since research found the quality of user-contributions to be surprisingly high, it is beneficial for companies to find out how they can structure the contact with their users in order to make sure that the possibilities regarding user contributions are fully covered.

2.2 Role of the user

With regards to taking the contribution of a user seriously, Von Hippel (2005) states that innovation processes can be democratized by a change of position between the manufacturers of a product and the users of a product. In the traditional manufacturer-user model, the role of the user is to have needs, which manufacturers identify. This model is still present in the mind of companies, even though a transition is upcoming where the user is put in the centre of the innovation process. This transition is partly made possible because of the rapid development of users' instruments to communicate.

Users, as opposed to manufactures, have the tendency to freely share their ideas and innovations to the public instead of trying to protect their ideas by creating patents et cetera (Hippel and Finkenstein, 1979; Raymond, 1999; Franke and Shah, 2003). Sharing their innovation is of practical use, since another user can also come up with the same innovation (a competitive reason to share their innovation). On top of this, other users often have new ideas to improve the revealed innovation, which will be beneficial to both users since they can use this synergy to get a better product (Raymond, 1999).

The ideas amongst users are often widely distributed rather than concentrated among a few users. According to Surowiecki (2004), groups of users can be surprisingly intelligent and often outsmart the contributions of individuals within these groups. He claims groups do not have to be dominated by very intelligent people in order to come up with a good idea. There are that many different people within one group, which will have expertise in numerous fields. When all this knowledge is united, this will help in finding an ideal solution or a new idea for a product.

The challenge in realizing user-innovation is to reach users and make sure that they can also have a place to meet each other in order to continually improve their ideas.

A good example of a platform for this is open source innovation, which is often used in software.

One of this open source innovation platforms is Linux. At this open source platform, users get the chance to make their own adjustments and improvements to the program. Since there is a large group of users contributing, it is found that problems concerning the program are detected and solved rapidly (Surowiecki, 2004).

When an open source initiative is put to life, the initiators of the project develop a first version of the product, which is mainly focused on the functionality (Von Hippel and Von Krogh, 2003). Users can then look into the codes of the software and collectively collaborate to improve the product. Also, they can freely distribute the product within their group (Brabham, 2008).

An advantage for a company to do so is the huge amount of effort that is taken out of the hands of manufacturers. What could be considered as a disadvantage is the transition of ownership of the product, since users become owners of the product in order to improve it. However, open source-software projects are a good example of what can happen when a large group of people is asked for their input using the internet.

2.3 Crowdsourcing

'In a crowdsourcing application, the crowd is the collective of users who participate in the problem-solving process.' (Brabham, 2008)

The first to use the term crowdsourcing was James Howe (2006), who discussed the topic in Wired Magazine. After introducing the term, a complete definition of the term was given in his blog:

'Simply defined, crowdsourcing represents 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. This can take the form of peer-production (when the job is performed collaboratively), but is also often undertaken by sole individuals. The crucial prerequisite is the use of the open call format and the large network of potential laborers.' (Howe, 2006, p.5)

The sequence of using crowdsourcing as a company is as follows: a company posts a problem online, after which an x number of individuals suggest solutions to the problem. When the entries are in, the company can pick their winning idea(s) and reward them with a form of a bounty. This bounty can be awarded in the shape of money, or influence on the kind of product that the company is about to produce. After awarding the bounty, the company produces their idea and gains profit of this (Brabham, 2008).

Brabham (2008) suggests that crowdsourcing can be seen as a problem-solving model. The strength of the concept is that crowdsourcing can be used in a lot of industries for a wide range of tasks. This is best explained by taking two examples: one company that uses crowdsourcing is Innocentive, a crowd of over 140.000 scientists who can all react to problems posted by companies who can post cases they are unable to solve for themselves. Companies pay for a winning solution, and in exchange receive the intellectual property (Howe, 2009). Another company that uses crowdsourcing is Swarovski, who challenged their crowd to design a new kind of body art: a tattoo made out of Swarovski-crystals (Füller, 2006).

These two examples illustrate the variety of possibilities for using crowdsourcing, ranging from complex intellectual tasks to creative tasks. Using crowdsourcing as a company can provide benefits. For Swarovski, the actual designing-process of the product could be outsourced to the public (Fuller, 2006). Ogawa and Piller (2006) state that crowdsourcing can be used to integrate the customer in the innovation-process. Doing so will help companies to match their products to the wishes of their customers, which can provide financial benefits for the company (Ogawa and Piller, 2006).

Since this thesis focuses specifically on crowdsourcing and not on open source initiative, it is of importance to explain the main differences between the two. Firstly, crowdsourcing is more hierarchical in their governance structure. Open source communities often have a flatter form of organization (Pisano and Verganti, 2008). Secondly, in a crowdsourcing initiative, only the creation process is performed outside of the company. In an open source community, users contribute to both the creation as the commercialization of the product (West and Bogers, 2010). So, in a crowdsourcing initiative, the company usually takes over the process after the product is created, while in an open source-initiative, the customer also has a role in the commercialization of the process. In crowdsourcing, the company remains the owner of the idea.

2.4 Motivation for user involvement

Franke and Von Hippel (2003) found that the needs of users are highly heterogeneous. Also, users are willing to pay a high price in order to get the product or service that completely suits their needs. This tells something about the motivation of a customer to share their ideas on innovation. In this section, more attention will be paid to this motivation.

In order to be able to speak about what drives customers to contribute their ideas to a community, it is useful to first find out to what extent a distinction can be made within the concept of motivation itself. Ryan and Deci (2000) define to be motivated as *'to be moved to do something'* (Ryan and Deci, 2000. p.54). Motivation can be oriented towards different things, but in general, a two-fold distinction is made in the literature:

- ***Intrinsic motivation***: When somebody is intrinsically motivated to do something, he does it because it is inherently interesting or enjoyable to him (Ryan and Deci, 2000). Also, the fun or challenge of the activity itself is of more interest to the intrinsically motivated individual then external pressures or rewards (White, 1959). This behavior can be qualified as spontaneous and free of instrumental triggers (Ryan and Deci, 2000).

Intrinsic motivation can be grouped into two components: *enjoyment-based intrinsic motivation* and *obligation/community-based intrinsic motivation* (Lindenberg, 2001).
Enjoyment-based intrinsic motivation refers to activities that are driven for the sake of fun or enjoyment occurring while the customer is actually performing the activity (Deci and Ryan, 1985). Central to enjoyment-based intrinsic motivation is a certain state of 'flow' (Csikszentmihalyi, 1975). When a customer is in a 'flow', there is a match between the skills of the customer and the challenge of the task. Csikszentmihalyi (1975: 181) states that enjoyable activities provide feelings of '*creative discovery, a challenge overcome and a difficulty resolved'.*

When a customer's intrinsic motivation is *obligation/community-based*, he acts on the basis of principle (Lindenberg, 2001). In this case, a customer feels that he is obliged to act appropriate and realizes this by using the norms of the group as a guideline for his own actions. When this occurs at a group level, participants face a strong collective identity (Lakhani and Wolf, 2003).

- ***Extrinsic motivation***: When somebody is extrinsically motivated, he does something because he feels that he will gain something from it (Ryan and Deci, 1985). The gain of the action in this case lies outside the activity itself. In other words, the motive does not lie in the process (the activity itself), but in the result of the action (the outcome of the activity).

Consumers are extrinsically motivated, if they focus on contingent outcomes that are separable form the activity per se (Deci and Ryan, 2000). Extrinsic motivations can take the shape of status or a job promotion or a financial incentive. In this case, the motivation to act lies completely outside of the activity itself. (Deci and Ryan, 2000; Deci and Ryan, 1985).

It is useful to make this distinction since the origin of the motivation can lead to different kind of results or contributions of an individual. For example, Borst (2010) found out that customers with a higher intrinsic motivation provided contributions of higher novelty and quantity. When it is known what originates the motivation of a person, more insight is given about what kind of trigger can help gain a certain type of customer.

The distinction between intrinsic and extrinsic motivation will be used in order to group the motivations that were found regarding the participation in a crowdsourcing initiative.

In general, when measuring the two-fold distinction of motivation (intrinsic vs. extrinsic) in an online community, it became evident that the average level of intrinsic motivation is substantially higher compared to the extrinsic motivation (Wasko and Faraj, 2005; Nov, 2007). Füller (2006) even found that intrinsic motivation was twice as high as extrinsic motivation.

However, Yang et al. (2008) highlight the importance of a financial incentive (which is a trigger for an extrinsically oriented customer). According to Yang et al. (2008), the idea of potentially winning money can be seen as encouraging for customers to participate in a community. In this case, winning the money is not the main goal for joining in, but an extra trigger to decide to participate. Also, a financial component will encourage a customer to improve the quality of his contribution (Yang et al, 2008).

The following paragraph provides an oversight of the motivations that are expected to be of influence on participation in a crowdsourcing initiative.

2.5 Motives for crowdsourcing

In the following paragraph, attention is paid to the motives of customers to join in on a crowdsourcing initiative.

In order to make sure that all possible motivations for joining in are taken into account, a thorough literature scan was performed. This led to 20 motivations, which could be grouped into different subsections.

Table 1 presents an overview of the motivations that could be distinguished. Table 1 can be seen as an oversight of the expected motivations for participants of a crowdsourcing initiative. Firstly, the motivations could be grouped into intrinsic and extrinsic motivations. Also, the motivations that were found in the literature could be grouped into different types of motives: fun, social, change, finance and career. The 20 different sub motives that could be grouped into the five types of motives are presented in table 1. Also, the article in which each motivation was found is included in the table.

In the following sections, an explanation is given about the motivations that were found in the literature. Also, attention will be paid as to why a motive is listed as either intrinsic or extrinsic. On top of this, an explanation about the grouping of the different types of motives is given.

Table 1: Motivations that are distinguished in the literature

Extrinsic/intrinsic	Type of motive	Sub-motive	Found in article
Intrinsic	Fun	Enjoyment	Wasko & Faraj (2000)
		Pleasure of doing hobbies	Lakhani et al. (2007)
		Sense of 'addiction'	Brabham (2010)
		Creative outlet	Brabham (2008)
		Having free time	Wasko & Faraj (2000)/ Lakhani et al. (2007)
		Challenge of solving a problem	Lakhani et al. (2007)
	Social	Interaction with other members	Wasko & Faraj (2000) Lakhani et al. (2007)
		Interest in a community/love for a community	Brabham (2010)
		Reciprocity expectations towards the group	Kollock (1999)
		Commitment/attachment to a group	Kollock (1999)
	Change	Unhappy with current solutions	Reichwald & Piller (2009)

		Expecting to be able to help making a product better	Reichwald & Piller (2009)
		Feelings of efficacy	Kollock (1999)
Extrinsic	Financial	Winning the money	Lakhani et al. (2007)
		Seeing the prize as an incentive to begin with	Yang et al. (2008)
		Get tangible returns for participation	Wasko & Faraj (2000)
	Career	Potential freelance work	Brabham (2010)
		Potential positive effect on ones reputation	Kollock (1999)
		Build up a network of people that are in your field	Brabham (2008)
		Improve skills	Brabham (2008)

2.5.1 Intrinsic motivations

As was stated in paragraph 2.4, intrinsic motivation refers to doing something because it is inherently interesting or enjoyable. As can be seen in table 1, the fun, social and change motivations are grouped as intrinsic motivations. In the following section, the background for this qualification is provided.

Fun aspect

One of the aspects that was found to be of importance in joining in on a crowdsourcing initiative is the so-called 'fun' aspect. Respondents were found to participate because they got pleasure out of being challenged or just had fun doing the activity itself. In one of the articles (Lakhani et al, 2007) this fun aspect was explained by comparing crowdsourcing with a puzzle: people like to find out what the solution to a certain problem could be, and to what extent they were able to solve this by themselves.

The fun aspect can be qualified as an intrinsic motive, since intrinsic motivation can be noted as '*an interest, involvement, curiosity, satisfaction, or positive challenge'* (Amabile, 1996). In this case, a customer enjoys to participate in a crowdsourcing initiative and possibly gets drawn into the activity itself instead of into the possible result of his action (Csikszentmihalyi, 1975). This is a characteristic of an intrinsic motive, since the customer participates in the crowdsourcing for the sake of the activity itself instead of in order to get to something else (such as a financial benefit). Within the literature, several sub motives of fun were found.

Wasko and Faraj (2000) found that people participate in online communities because they enjoy sharing their knowledge with other people. Doing so will make them feel like an expert, since *'somebody values your knowledge that has become everyday for you'* (Wasko and Faraj, 2000: p.166).

Lakhani and Wolf (2003) found that people who engage in open source software initiative participate because they found pleasure in doing so and indicated it as a hobby. Brabham (2010) found that participating in the crowdsourcing initiative and in the crowd itself was by several respondents marked as an addiction. The word addiction was in this sense used as a mild form of addiction, respondents sometimes forgot time while they were working on the crowdsourcing initiative, but none of the respondents neglected their own social live by spending too much time on the forum.

Brabham (2008) found that a motivation to participate in a crowdsourcing initiative was the possibility to use the initiative as a creative outlet. Cognitively engaging yourself in a creative task is considered as being intrinsically interesting (Amabile, 1996).

Also, Brabham (2008), who studied the crowd of Istockphoto, found that 79.1% of the respondents participated because they found that doing so functioned as a creative outlet.

Several researchers (Lakhani et al; 2007, Wasko and Faraj; 2000, and Yang et al; 2008) indicated having free time as a motive for respondents to join in on a crowdsourcing initiative.

Lakhani et al (2007) found that respondents participated because they liked the challenge of solving a problem. The challenge of solving a problem was in this case compared to the fun of solving a puzzle. In this case, the individual enjoys the process of figuring out how the problem can be solved.

Social aspect

The social aspect has been found as one of the key motivations to participate in a crowdsourcing-initiative. Respondents indicate that they have fun in being together and thinking along about the way they wish to solve the crowdsourcing challenge.

When a customer is socially motivated to join in on a crowdsourcing initiative, he joins in on a crowdsourcing initiative because he feels that he can benefit from this on a social level.

As was highlighted earlier, obligation/community-based intrinsic motivation refers to actions on the basis of obligation towards a group (Lakhani and Wolf. 2003). The social aspect of motivations to join in on a crowdsourcing initiative can be qualified as an obligation/community-based intrinsic motive, because the social aspect of crowdsourcing

highlights the importance of love for a community and reciprocity expectation towards a community. This indicates a feeling of obligation and commitment towards a group.

Several sub motives of the social aspect of crowdsourcing were found as a motivation to participate.

Wasko and Faraj (2000) performed a study to find out what drove people to participate and help others in electronic communities and found that people participate because they like to interact with other members. 41.9% of the respondents in the survey indicated that the interaction with fellow members as one of their main motivations to join the electronic community. They found that people greatly appreciated the rich interaction that is offered within a community. This appreciation is mainly focused on the intellectual interaction.

Brabham (2010) investigated what moved the crowd to join in on the website. A social motive that was found in this study was a member's love for the community. Love of community in this case also refers to the social ties that are gathered by joining in on the crowdsourcing initiative. 15 out of the 17 members that were interviewed indicated the love for the community as a motive to join. Brabham states that the way the community functions is directly related to the success that the initiative will have. Therefore, it is considered as an important sub motive.

Kollock (1999) researched the possible motivations of individuals to contribute to an electronic community. One of the possible motivations that he offered was the expectancy of the individual that is in charge of his contribution to the group, he would receive valuable help or information in return. Due to the size of the group, there is the possibility to remain up to date about the latest tips and tricks, without always having to instantly pay back in the form of handing back information. This motivation is formulated as having reciprocity expectations towards the group.

Another motivation that Kollock (1999) offered, was the commitment or attachment towards a group. When a person is motivated by attachment to the group, he cares for the good of the group.

This thesis will serve as an exploration to see whether this group expectations and commitment also apply in a crowdsourcing setting as opposed to a 'regular' online group.

Change aspect

The possibility to change a product turned out to be a motive for respondents to join in on a crowdsourcing initiative. Crowdsourcing gave them the chance to tell the company what it was that they wished to see differently about the product.

The goal of the customer is in this case to tell the company what is wrong with the product and to change the product. Therefore, this motive has intrinsic as well as extrinsic features. The intrinsic component is the wish to tell the company what is wrong with the product, since the goal of the action lies within the action itself. However, it can also be qualified as an extrinsic motive, since the goal of the action is to actually change the product. This goal lies outside of the action itself, since telling the company what you would like to change does not immediately result into an actual result. However, it is believed that the focus of the action is on the actual ventilation of the individual customer. As soon as the customer has told the company what it is that they do or do not like about the product, it is out of their hands. Therefore, this motivation is qualified as intrinsic.

Kollock (1999) researched the conditions under which groups successfully cooperate. One of the motivations to actually participate and cooperate as a group-member is a 'sense of efficacy'. Sense of efficacy refers to the sense that a customer feels that he will have an effect on his environment. Contributing to a crowdsourcing initiative will make the customer feel that he has impact on the group (i.e.: the crowd) and that changes to the community of the product can be attributed to his actions. Once a person feels like his contribution to the group will be of influence, the likelihood of actually participating increases.

Reichwald and Piller (2009) found that customers participate in a crowdsourcing initiative because they are unhappy with current solutions that are offered to their problem. Attributing their solution to the current situation could change and hereby change the product (in the opinion of the customer).

Another motivation that could be grouped under the motivation to change the product is the expectancy of a customer that he is capable of helping to make the product better by telling the company how they think the product should be changed (Reichwald and Piller, 2009). In this case, better means creating a product that is better attuned to the needs of the customers in general.

2.5.2 Extrinsic motivations

As was stated in paragraph 2.4, extrinsic motivation refers to doing something because it will provide personal gain. As can be seen in table 1, finance and career are qualified as extrinsic motivations. The following sections will provide an explanation as to why these motivations were qualified as such.

Financial aspect

Another aspect that turned out to be a motive for joining in on a crowdsourcing initiative is the financial aspect. People may participate because doing so will give them the chance to win money or the guarantee of a small financial reward for the contribution itself. The effect of providing a financial incentive on the amount of people that will contribute to the crowdsourcing initiative are however ambiguous. Acar and van den Ende (2011) state that providing a bounty in the shape of money will have a negative effect on contributions. Intrinsically motivated people would even be less likely to contribute when money is involved.

Logically, when a customer is financially motivated to join in on a crowdsourcing initiative, he focuses on the outcome of his participation instead of on the process of participation itself. Therefore, the financial aspect of motivation can be qualified as extrinsic (Deci and Ryan, 2002).

Several sub motives can be acknowledged related to finance. Lakhani et al. (2007) found that winning the award money was proven to be a motive for participants of a crowdsourcing initiative. Respondents were asked to what extent they agreed to a group of motivation on a 7-point scale (ranging from completely disagree to completely agree). The question whether winning the award money was a motive to join respondents scored a mean of 5.4. Therefore, this motive is taken into account in this thesis.

Yang et al (2008) found that regarding the financial offer, the money that was offered as a prize could be seen as an incentive to start participating in the crowdsourcing initiative, but is of less importance once the respondent was already actively participating. In other words: offering a financial bounty could draw people's attention and could for this reason be seen as a motive.

Wasko and Faraj (2000) found that people who participate in an online community did expect to get back something tangible in return for their participation. This tangible return could be a bonus, raise or promotion. Analysis of the comments provided by the respondents

in this study showed that 21.5% of the comments were directed towards the tangible returns of participation.

Career aspect

One of the key motives that was found back in the literature was the expectancy of respondents that participating in a crowdsourcing initiative would somehow help their career. This can be in the shape of skills, contacts or otherwise valuable resources related to the career of a customer.

The career motive that was found to be a main motive in the literature (Brabham, 2010; Kollock, 1998) can be qualified as an extrinsic motivator, since the goal of participation lies outside of the activity itself (Deci and Ryan, 2002).

Researchers found several motives of respondents that are related to the career of the respondent. Brabham (2010) found that respondents participated in a crowdsourcing initiative because doing so could give a respondent the chance to freelance work. Participation in the crowd could serve as a spotlight for the respondent. Since crowdsourcing occurs online and is often open to the public, the work of the respondent could catch the eye of a potential employer.

Kollock (1998) found that operating in an online community could provide a respondent a potential positive effect on his reputation. For example: when a customer provides a clever technical detail, a piece of information that is of high quality or a high willingness to help others, this could increase the customer's prestige. This reputational effect could help the customer in his career.

Brabham (2008) found that participating in a crowdsourcing initiative (Istockphoto) gave respondents the chance to build up a network of people that are operating in the same professional field. 36.7 percent of the respondents in the survey indicated that the possibility to build up a professional network was one of their motives.

Also, in the same study, Brabham (2008) found that respondents participated because they wished to improve their professional skills in their field of interest. 79.1 percent of the respondents in the survey indicated that improving their professional skills was one of their main motivations.

2.6 What does the company provide? Services versus physical goods

This thesis focuses on the differences in customer-motivations for joining in on crowdsourcing initiatives of a company that provides a service and a company that provide a physical good. Therefore, a clear distinction is needed. The next section will provide an oversight of this.

Service versus physical good: a clear distinction

The differences between physical goods and services have been subject of academic debate for quite a while (Ennew, Wong and Wright, 1992; Johnston and Bryan, 1993; Vermeulen, 2002).

The goal of this thesis is not to present complete and fully covering definitions of a physical good and a service, since this would be a study in itself. However, several characteristics of services and products were present in multiple articles. Table 2 will provide an oversight of these distinctions.

The definition of a physical good and a service to be used in this thesis will be derived from this table.

Table 2: the distinction between services and physical goods

Physical goods	Services
- Tangible	- Intangible
- Transfer of ownership	- No transfer of ownership
- An object	- An activity of process
- Production and distribution separated from consumption	- Production and distribution and consumption simultaneous processes
- Customers do not (normally) participate in the production process	- Customers participate in production process
- Core value produced in factory	- Core value produced in buyer-seller interactions
- Homogeneous	- Heterogeneous
- Can be kept in stock	- Cannot be kept in stock

Source: Grönroos, 1990

As can be seen in table 2, a difference between a service and a physical good is that a service is intangible, whereas a physical good is tangible (De Brentani, 1991; Kotler, 1994). A service is labelled as intangible because there is no transfer of ownership. When a customer buys a product, the company and the customer exchange the ownership in the shape of a physical good. When the exchange of ownership occurs, the customer who buys a physical good

receives an object. When a customer undergoes a service, he 'receives' an activity or a process.

When a physical good is being produced and distributed, this is realized separate from the consumption. When a service is produced, the production and distribution of the service occur during the consumption by the customer. This difference is related to the core value of the product: for physical goods, the core value is produced in a factory and for a service, the core value is produced in interaction between the buyer and the seller. As an example, think of a customer who wishes to make a phone call. As soon as he dials the number and the phone at the other end of the line starts ringing, the consuming of the service starts. And when a customer buys a physical good, he buys a ready-made product that was already produced in a factory. Furthermore, when a physical good is produced, customers usually aren't involved in the production process, since the product they buy is already finished by that point. When a customer undergoes a service, he is involved in the production process, because the customer is one of the conditions needed in order to make sure that the service can actually be produced.

Another difference between a service and a physical good is that according to several researchers (De Brentani, 1991; Kotler, 1994) can services differ due to personal perceptions of customers. Not every customer has the same expectations towards a service. Also, when a service is offered, the execution of the service can differ due to the higher amount of uncertainty factors. An example of these external factors can be a long cue or a rude waitress when a customer is about to consume a service, which influences the customers perception of the quality of the service. Therefore, a service is labelled as heterogeneous. When a customer is buying a physical good, the number of uncertainty factors is lower, therefore, physical goods are labelled as homogeneous.

The final difference between a service and a physical good is that a physical good can be kept in stock, while a service that is available for a customer but will not be used cannot be kept in stock (De Brentani, 1989).

Definitions

The following definitions are derived from table 2 and will serve as a guideline to keep the distinction between a service and a physical good as clear as possible. Again, it is not the goal of this thesis to find the perfect definitions of a service and a physical good.

- ***Physical good****: a tangible object that can be produced as well as kept in stock without the customer. There is a clear transfer of ownership and production and distribution are separated from the consumption.*
- ***Service****: an intangible activity of process that cannot be kept in stock or be produced/distributed without the customer. Customers participate in the production and the distribution of the service only exists in interaction with the customer.*

2.7 Theoretical mechanisms between motivation to participate in crowdsourcing and the differences between services and physical goods

As was stated in paragraph 2.4, a two-fold distinction can be made regarding motivation: there is intrinsic motivation and there is extrinsic motivation. For these two types of motivations, it is expected that differences can be found between the motivations of a customer who participates in a physical good crowdsourcing initiative and the customer who participates in a service crowdsourcing initiative. In the next paragraphs, it is explained what differences are expected to be found and why.

Intrinsic motivation

When a customer is intrinsically motivated to participate, he does this because he finds it enjoyable or inherently interesting (Ryan and Deci, 2000). The interest is on the participation itself instead of on the possible outcomes or rewards of the participation (White, 1959). As was explained in paragraph 2.5, the motivations that were found in the literature that could be grouped under intrinsic motivation were fun motivations, social motivations and motivations related to changing a product.

One of the explanations as to why customers are intrinsically motivated to participate in a crowdsourcing initiative was provided by Lakhani et al (2007), who compared participation with the fun of solving a puzzle. In his example, customers enjoy the process of figuring out how the problem can be solved.

In a crowdsourcing initiative, customers can try to solve the puzzle by themselves (for example at Innocentive which was mentioned earlier in this thesis) or work together on producing a solution (for example at Galaxy Zoo, which was mentioned in the introduction). Solving the puzzle is in this case something fun to do, as well as possibly a social activity. On top of this, in trying to solve the puzzle, customers will collectively change the product.

When applying this to the differences between services and physical goods, it was found in the literature that one of the differences between a service and a physical good is the production of the core value of the product. In order to produce the core value of a service, the participation of the customer is needed (Grönroos, 1990). Whereas the core value of the physical good is produced in the factory and therefore the customer is not needed in the production.

The interaction with the customer in execution of a service differs from a physical good by the maintaining of a relationship with the company. It was found that in services, as opposed to physical goods, customers are more likely to form relationships with individual employees and with the companies they represent (Berry, 1995). According to Berry, customers who have build up a relationship with a company will show greater commitment towards the company and will tell other people about their positive experiences with the company.

When a customer participates in a service crowdsourcing initiative, there is interaction between the company and the customer. The customer immediately gets something in return, because of this interaction. Related to this is a difference that was presented by Bitner (1995), who states that the employee as well as the customer plays a major role in shaping the service experience. This results in a customer forming a relationship with the company. When a physical good is offered, the customer receives the ready-made product the company has produced.

When a crowdsourcing initiative is put to life, it gives both company and customer the chance to strengthen this relation. The customer gets to provide input on the way the product could be improved or changed, and the company gets to find out what it is that he can do to make his customer happier.

Concluding: when a customer buys a physical good, he buys a ready-made object that was already produced in a factory. Furthermore, when a physical good is produced, customers usually aren't involved in the production process, since the product they buy is already finished by that point. When a customer undergoes a service, he is involved in the production process, because the customer is one of the conditions to make sure that the service can actually be produced. Also, when a service is offered, a customer builds up a relationship with the company. In a crowdsourcing initiative, a service-customer will get more interaction with a company which can be qualified as intrinsic motivation, since the goal of the action lies in the action itself (the interaction with the company). This interaction is less present in a physical good crowdsourcing initiative, where every participant can upload their own idea.

Fun motivations, social motivations and motivations to tell the company what could be changed about the product are three types of motives that are expected to be of more importance for a service initiative than for a physical good initiative, due to the different type of relationship between the customer and the company.

When a customer is intrinsically motivated, the participation itself is more fun than the result itself, since the focus is on the fun and the social motivations. Since customers of a service will have more interaction with the company than customers of a physical good, it is expected that:

Hypothesis 1: *Customers of a service crowdsourcing initiative will have a higher intrinsic motivation than customers of a physical good crowdsourcing initiative*

Extrinsic motivation

When a customer is extrinsically motivated, he participates because he thinks that he can gain something of it (Ryan and Deci, 1985). His participation is not because of the participation itself, but for a reason that lies outside of the participation at the moment itself. As was stated in paragraph 2.5, several 'money-motivations' can be grouped under the extrinsic motivations, as well as several 'career-motivations'. Money can be paid to a customer after his contribution, just as career chances only come after the actual contribution.

When a company provides a physical good, this is a tangible thing (De Brentani, 1991; Kotler, 1994). When returning to the Swarovski-example as presented in paragraph 2.3, the participants in this crowdsourcing initiative could upload their design for a crystal tattoo, after which a winner was chosen and rewarded with a bounty (Füller, 2006). In this example, it is clear that the result a customer can get from his contribution is straightforward: when he wins, he gets the money and his design is actually executed.

As was stated in the definition of this thesis: a physical good is tangible, whereas a service is intangible. Also, there is a clear transfer of ownership when a customer buys a physical good, whereas when undergoing a service, there is no clear transfer. When a customer buys a physical good, he buys an actual thing, where when consuming a service, a customer undergoes a process or activity. When a customer buys a physical good, the output

of purchasing this product is a concrete result. The goal of the action is the result and not the process and the action itself.

When this is applied to a crowdsourcing-setting, a customer who participates in a physical good crowdsourcing initiative will get to know what the result of his contribution is: a winner is chosen, a bounty is paid and a physical good is produced. This also holds for career chances: it is clear who provided the idea and who should get the career benefits. A customer who participates in a service crowdsourcing initiative will be able to provide his input, but it is less clear what the result of his action will be: the output of a service can differ amongst customers, which makes it hard to measure the outcome f the contribution of the customer.

Also, it is harder to claim a service idea than a product idea, because a service is made in the process of interaction with the customer. A customer has influence on the complete production of the service, whereas a customer of the physical good has influence on either the idea itself or on the change of the product rather than on the production itself.

Concluding: customers of a physical good crowdsourcing initiative are expected to have a higher extrinsic motivation than customers of a service crowdsourcing initiative. This is expected because the outcome of participation is easier to measure because a physical good is tangible. When a product is tangible, it is easier to decide who to attribute the money or career benefits to.

Therefore, it is expected that:

Hypothesis 2: *Customers of a physical good crowdsourcing initiative will have a higher extrinsic motivation than customers of a service crowdsourcing initiative*

2.8 Table of expectancies

Table 3 provides an oversight of the expected differences between the intrinsic and extrinsic motivation of a service crowdsourcing initiative and a physical good crowdsourcing initiative as was outlined in the hypotheses.

Table 3: summary of the expectations

Type of crowdsourcing initiative	+ or -	Type of motivation
Service	+	Intrinsic motivation
Physical good	-	Intrinsic motivation
Service	-	Extrinsic motivation
Physical good	+	Extrinsic motivation

3 Methods

In this section, attention will be paid to the way the methodology of the thesis is conducted.

3.1 Research design

In order to answer the research question, the research-design of this thesis can be described as quantitative cross-sectional research. The unit of observation is the customer who is participating in a particular crowdsourcing initiative. This research design is suitable for this thesis because the goal of the thesis is to find out whether there are significant differences in the motivations of service customers and physical good customers. The motivations that were measured in this thesis are the motivations that are known regarding participation in an online community. Performing a quantitative cross-sectional research will help answering this question since it provides the test to statistically test whether the values that were scored by the service customers differ from the values of the physical good customers. Due to the explorative nature of this thesis, quantitative research can help find out whether the expected differences can be proven empirically.

3.2 Data collection and sample strategy

Before gathering the data for this thesis, a thorough literature check was performed to find out what was already known about the motivations to join in on a crowdsourcing initiative. This resulted in a number of motivations which were described in paragraph 2.5.

The questionnaire that was used in this study was a self-constructed survey containing information on the motivations and background-information of customers. The complete survey as it was presented to the respondents can be found in the appendix II.

Within the sample, the respondent's age, education level and marital status were measured, in order to make sure that the differences in motivations are to be ascribed to the difference in orientation of the company, instead of to the difference in the populations of the two companies.

The motivations as were found in the literature scan were transferred into statements that represent the motivation as it was found in the literature as accurate as possible. There were few existing scales on hand, due to the relatively new field of literature and the amount of qualitative research on the topic. Each motivation-item was measured using a 5-point Likert scale, which was constructed as follows: (1) agree, (2) slightly agree, (3) neither agree nor

disagree, (4) slightly disagree, (5) disagree. The way the motivations were transformed into statement can be found in the overview of the complete survey as measured, which is attached in table 8, which is attached in appendix II.

Also, several control variables were constructed in order to make sure that there were no major differences in the two data-sets that may influenced the results.

Firstly, the age of the respondents were asked by asking for their year of birth. Once the data were merged into SPSS, the age-variable was constructed by transferring the year of birth into the age of the respondent.

The gender of the respondent was asked, with category (1) male and (2) female.

Education of the respondents was measured by providing the following categories: (1) Less than high school, (2) High school, (3) Some college, (4) Two year college degree (associates), (5) Four year college degree (BA, BS), (6) Master's degree, (7) Doctoral degree, (8) Professional degree.

The marital status of the respondent was measured using the following categories: (1) Single, never married, (2) Living together, (3) Married, (4) Separated, (5) Divorced, (6) Widowed.

A variable was constructed measuring the length of a respondent's attachment to the initiative by asking for the respondent's year of registration.

Respondents were asked as to whether one of their ideas/suggestions/improvements had ever been executed, using a yes or no category.

Also, it was checked whether customers had the feeling that participation at the crowdsourcing initiative enhanced their influence on the product they bought. This was measured using a five-point Likert scale, ranging from (1) agree, to (5) disagree.

Finally, respondents were asked whether participation in the organization enhanced the feeling of being heard by the organization. This was also measured using a five-point Likert scale.

The online survey was presented at two companies using a crowdsourcing-initiative: a company that provides services (giffgaff) and a company that provides physical goods (Threadless). A description of the two companies is shown below.

The sample of the two companies was established by presenting the survey to the respondents on the forums of the companies. Since both companies make use of crowdsourcing by means of a forum, where users can meet and discuss their ideas regarding the crowdsourcing initiative, this was believed to be a proper way of getting in contact with

the respondents. Also, several active members were asked to help out in getting respondents for the survey, which can be qualified as a snowball-technique (Erickson, 1979). The message on the forums was presented using an introduction from the researcher. The message as it was presented to the respondents is included in the appendix I.

After having the surveys online for approximately two weeks, this eventually led to a sample of 94 respondents at giffgaff (service initiative) and a sample of 74 respondents at Threadless (physical good initiative). The completed surveys were loaded into SPSS and merged, by creating an extra variable which labeled the origin of the respondent (service or physical good).

Service oriented initiative

Following the definition of a service as stated in paragraph 2.6, the initiative that was selected was supposed to be:

> *An intangible activity of process that cannot be kept in stock or be produced/distributed without the customer. Customers participate in the production and the distribution of the service only exists in interaction with the customer.*

giffgaff has been selected as a service-oriented company. giffgaff is a mobile network which was launched in 2009. It leans on its customers in the sense that the customer-service of the company is put up in the style of a forum, where customers can help one another with problems they face. In reward for help, customers get points which can be translated into actual money, discounts on their phone bill or donating money to charity.

What makes giffgaff a crowdsourcing orientated company is the fact that it uses the input of customers on innovation and issues that need to be put under the attention of the company. Also, members get to choose the marketing style of giffgaff.

Under the header: *Submit: great giffgaff ideas,* 64379 posts were made on the 28th of February, which shows that this is an active topic on the website. Customers get the chance to put their stamp on the service, in the sense that they can post their ideas on the forum and discuss these among other members.

giffgaff is located in several countries, the United Kingdom being one of them. Their office is located in a small village near London, and holds approximately 50 employees in their headquarters and 80 employees in customer support.

giffgaff qualifies as a company that produces services because the product they provide is an intangible process which cannot be kept in stock. The service starts as soon as the customer

makes a call or sends a text-message. The distribution of the service only exists in interaction with the customer, again because the service exists only when the customer decides to make a call or send a text.

Physical good oriented initiative

Going back to the definition of a physical good as stated in paragraph 2.6, the initiative that was selected was supposed to be:

> *A tangible thing that can be produced as well as kept in stock without the customer. There is a clear transfer of ownership and production and distribution are separated from the consumption.*

The company that has been selected for their physical good-oriented initiative is Threadless. In short: *'Threadless is an online clothing company that holds an ongoing t-shirt design competition on its website'* (Brabham, p. 1123. 2010).

Threadless (which is part of Skinnycorp) was founded in 2000 by Jake Nickell and Jacob DeHart, who met trough an online design forum, where they both entered a t-shirt designing competition. Threadless is based in Chicago and has 24 people running the customer service and approximately 50 employees (Chafkin, 2008).

Why Threadless is qualified as a crowdsourcing initiative is explained by Brabham (2010: p. 1126), who states that: '*As a crowdsourcing company, Threadless problem is that it needs t-shirt ideas designed to be printed onto shirts and sold for a profit. Its solutions come from the crowd in the form of design submissions.'*

The complete design process of the t-shirts is crowdsourced to the public. Everybody can submit their designs in Adobe Illustrator and Photoshop on a t-shirt design template which can be downloaded from the Threadless website. Once these designs are uploaded to the site, the crowd gets to vote on the designs they wish to be produced. Designs that get the top votes are offered 2000 dollars in cash and 500 dollars worth of Threadless gift certificates. The winning designs are then printed by Threadless, who sells their shirts to the crowd. The price of a shirt ranges between fifteen to twenty US dollar. Threadless ships their shirts all over the world.

Anybody who wishes to join Threadless can become a member for free by providing a valid email address and the choice of a username. After this, the member can submit designs, vote, chat, shop, et cetera.

Threadless qualifies as a company that provides physical goods because it produces tangible things (shirts) that can be kept in stock. Also, as soon as the shirt is shipped, the transfer of ownership starts. Production and distribution are separated from the consumption for as much as this is possible in a crowdsourcing initiative. Customers do get to influence the production of the physical good, since they have input on what will be produced. The distribution is however clearly separated from the consumption.

3.3 Data analysis

Firstly, the gathered data will be analyzed by performing a factor analysis. Factor analysis can be used in order to check whether the theoretical distinction that has been made between intrinsic and extrinsic motivations can be proven empirically. If this distinction turns out to be valid, an independent samples T-test will be performed, which can be used to compare the means of two independent samples. After running the T-test, information can be derived about whether there is a significant difference in the means of the groups (Basisboek SPSS voor Windows 16). This analysis will be performed using the statistical program SPSS. In the results section, a paragraph is included which describes the operationalization of the data to ensure the validity and reliability of the data. Also, an oversight of the way the variables were measured can be found in the appendix II.

3.4 Research quality indicators

Agresti and Finlay (2009) state that there are four main concepts that give an indication of the quality of a study. Therefore, the following indicators are discussed: internal validity, external validity, construct validity and reliability.

Important to state regarding the validity of the study in general is that the goal of the thesis is to explore whether a difference can be found in the motivations that are to be distinguished for a service versus a physical good. This will be investigated using two companies, preferably in one sector, which will make it hard to generalize the study. However, seeing that the main goal of the thesis is not to generalize but to explore, this is not considered a problem. If a difference in motivation can be acknowledged, this study can be used as a starting-point for further research.

Internal validity is enlarged by controlling for several characteristics of the customers. Also, it is made sure that the response rate of the survey (N) is high enough in order to guarantee that the found correlations are actually caused by what was presumed.

External validity refers to the extent to which the findings of a study can be generalized to other populations. In this thesis, it will become clear which differences can be found in the motivations of different types of innovations by looking at two companies (one service and one physical good). It will be hard to claim that the results that are found in this thesis can be seen as a complete overview of the differences between the motivations of service and physical good initiatives. However, the goal of this thesis is to explore to what extend there can be spoken about differences in motivations between services and physical goods. If it is found that there are statistical differences amongst the two companies, this thesis can serve as a starting point to start testing the differences in service and product motivations on a larger scale.

Construct validity is guaranteed by using the motivations which were already found in former research, which enlarges the construct validity. However, in order to test the motivations in a consistent way, the motivations were turned into scales by the researcher. The reason for this is that the motivations were measured differently in the articles, ranging from yes/no-questions to qualitative research. Therefore, it was decided to test the motivations in a consistent way by transforming all of them into statements which could be answered by means of a five-point Likert scale.

Reliability is ensured by keeping the syntax of the analysis available to make sure that those who wish to see how the analysis was conducted can contact the researcher. Also, there will be communication between the researcher and the members of the thesis circle and the supervisor of the process. The researcher will provide information about the way the research is performed and which concerns might be present.

4 Results

The following section will show the results of the analysis of the data. Firstly, a description of the variables and their values are shown, after which a factor analysis is performed to check whether the two-fold distinction between intrinsic an extrinsic motivations can be confirmed empirically. After this, an analysis is run to test whether there are significant differences in the means of the physical good crowdsourcing initiatives and the service crowdsourcing initiative regarding these two types of motivation. Finally, it is discussed whether the hypothesis as provided in the theory are confirmed or rejected.

4.1 Description of the variables

The following table provides an oversight of all the variables that were measured in this thesis. In table 4, a distinction is made for the values of the physical good initiative and the values of the service initiative. For every variable, the minimum and maximum values are displayed. Also, the mean of the variable, the standard deviation and the N are displayed.

Firstly, the 20 motivations as were presented earlier are shown. Each motivation-item was measured using a 5-point Likert scale, which was constructed as follows: (1) agree, (2) slightly agree, (3) neither agree nor disagree, (4) slightly disagree, (5) disagree.

When checking the differences in the means of the respondents' answers to the control-items, it was found that there were no major differences, as can be seen in table 4.

Table 4: description of the variables

			Service					Product				
Type of variable	Category	Variable	Min	Max	S.D.	Mean	N.	Min	Max	S.D.	Mean	N
Intrinsic motivation	Fun	Enjoyment	1	5	1.120	1.90	92	1	5	1.051	1.92	73
		Pleasure hobbies	1	5	1.204	2.29	91	1	5	1.023	1.70	73
		Sense of addiction	1	5	1.388	2.83	92	1	5	1.119	2.47	73
		Creative outlet	1	5	1.419	2.74	90	1	5	0.753	1.36	73
		Free time	1	5	1.277	2.20	92	1	5	1.234	2.36	74
		Challenge problem	1	5	1.130	1.88	90	1	5	1.137	2.09	74
	Social	Interaction members	1	5	1.109	2.00	92	1	5	0.932	1.85	74
		Love community	1	5	0.814	1.41	92	1	5	0.646	1.43	72
		Reciprocity	1	5	1.033	1.90	91	1	5	0.838	1.73	73
		Commitment group	1	5	1.341	2.62	92	1	5	1.159	2.36	73
Extrinsic motivation	Change	Unhappy current	1	5	1.552	3.52	90	1	5	1.227	3.96	72
		Improve product	1	5	0.943	1.97	92	1	5	1.218	2.69	72
		Efficacy	1	5	1.226	2.45	92	1	5	1.226	2.80	71
	Finance	Win money	1	5	1.474	2.78	92	1	5	1.316	2.47	74
		Prize incentive	1	5	1.625	3.27	92	1	5	1.422	2.59	73
		Tangible returns	1	5	1.033	1.90	91	1	5	0.838	1.73	73
	Career	Freelance work	1	5	1.355	3.82	91	1	5	1.242	2.01	73
		Reputation effect	1	5	1.484	3.41	92	1	5	1.307	2.29	73
		Professional network	1	5	1.320	3.92	92	1	5	1.258	2.30	74
		Improve skills	1	5	1.357	2.46	89	1	5	1.019	1.59	74
Control		Age	13	71	15.70	32.85	91	18	63	8.33	28.96	73
		Gender	1	2	0.427	1.24	93	1	2	0.362	1.15	72
		Education	1	8	1.742	3.65	93	1	5	1.257	4.19	74
		Marital status	1	6	1.092	1.87	92	1	5	0.868	1.72	74
		Registered	1	4	0.855	1.83	93	1	9	2.020	4.20	74
		Execute idea	1	2	0.392	1.81	91	1	2	0.491	1.61	72
		Influence control	1	5	1.269	2.34	92	1	5	1.394	2.95	74
		Heard organization	1	5	1.067	1.78	92	1	5	1.284	2.45	74

4.2 Factor analysis motivations

In order to find out whether the distinction between extrinsic motivations and intrinsic motivations as presented in the theory-section is actually accurate, a factor analysis was performed. Factor analysis makes use of several statistical tests, which can measure whether several items can be labelled as clusters. A factor is defined when there is a higher correlation amongst a set of items then with the rest of items.

In this case, it is expected that two factors can be indicated: a factor which is an accurate measure of the intrinsic motivations, and a factor which is a measure of all the extrinsic motivations.

The 20 motivations which were tested in the survey were subjected to a Principal Components Analysis (PCA), which is a type of factor analysis. First, it was verified whether the data-set was suitable for factor analysis using the Kaiser-Meyer-Lokin Measure of Sampling Adequacy (KMO), which resulted in a value of .779. In order for a dataset to be suitable, the KMO should be .6 or higher (Kaiser, 1974). Also, the Barlett's Test of Sphericity (Bartlett, 1954) was performed, which was proven to be significant (p= .000).

In order to find out whether the two-fold distinction regarding the motivations as was expected in the theory can be proven empirically, the factor analysis was firstly performed without limiting the number of factors that should be found. This resulted into the finding of six items with an eigenvalue higher than 1, explaining 28.61%, 10.95%, 7.487%, 6.7%, 5.81%, and 5.26% of the variance. When inspecting the screeplot, a clear break was seen after the second component. Therefore, it was decided to retain two components for further investigation. The two-component analysis explained 42.09% of the variance, where component 1 explained 31.64% of the variance and component 2 explained 10.45%. In the table displayed below, the factor loadings of the two components are shown. For every item, the highest loading is displayed bold. As can be seen, every item can be put into the intrinsic and extrinsic components as was proposed in the theory section. The only item that does not group according to this classification is the creative outlet item. The loading of this item is highest on the extrinsic motivation scale.

Table 5: factor loadings motivations

		Intrinsic	Extrinsic
Fun	Enjoyment	**,591**	-,120
	Pleasure of doing hobbies	**,354**	-,349
	Sense of 'addiction'	**,438**	-,294
	Creative outlet	-,159	**,677**
	Having free time	**,399**	-,058
	Challenge of solving a problem	**,491**	-,112
Social	Interaction with other members	**,704**	-,050
	Interest in a community/love for a community	**,593**	-,101
	Reciprocity expectations towards the group	**,516**	,024
	Commitment/attachment to a group	**,645**	-,058
Change	Unhappy with current solutions	**,374**	,029
	Expecting to be able to help making a product better	**,578**	,313
	Feelings of efficacy	**,583**	,141
Finance	Winning the money	,152	**,598**
	Seeing the prize as an incentive to begin with	,158	**,615**
	Get tangible returns for participation	-,084	**,346**
Career	Potential freelance work	,022	**,865**
	Potential positive effect on reputation	-,130	**,721**
	Build up a network of people that are in your field	-,115	**,776**
	Improve skills	-,377	**,542**

4.3 Independent samples T-test

Two independent-samples t-test were conducted to compare the motivation scores for customers of the physical good initiative and customer of the service initiative. An independent samples t-test can be used in order to find out whether two samples differ significantly on the mean of a variable (Vocht, 2008).

The first test was to find out whether there was a significant difference in the mean of the intrinsic motivation of the customers. The second test was conducted to find out whether there was a significant difference in the mean of the extrinsic motivation of the customers. In table 6, the results of the tests are shown.

Table 6: independent samples T-test intrinsic and extrinsic motivations

Motive	Mean Physical good	Mean Service	T-value	df	P-value
Intrinsic motivation	2.4516	2.2513	-2.304	146	.012
Extrinsic motivation	2.1224	3.0979	7.191	157	.000

Intrinsic motivations

Firstly, the variables that were labelled as intrinsic motivations (under the subcategories fun, social and change) were put together in order to create one variable. This was performed by adding up the scores of all thirteen motivations and dividing them by 13. After running the independent-samples t-test, it was made visible that there was a difference in the intrinsic motivations of service-customers (M= 2.251, SD= .568) and physical good-customers (M=2.451, SD= .486) with a significance level of P=.012 (one-sided). Since the scale as it was constructed in the dataset ranged from (1) agree to (5) disagree, this means that the higher the number, the lower the motivation on this item. As can be seen, the mean of the physical good-customers is significantly higher on the intrinsic motivation scale, which translates into having a lower intrinsic motivation.

The hypothesis that was formulated regarding intrinsic motivation was: *Customers of a service crowdsourcing initiative will have a higher intrinsic motivation than customers of a physical good crowdsourcing initiative*

Since it was stated earlier that when a service is provided, there is more interaction between the customer and the company, this hypothesis translates into the expectation that the intrinsic motivation will be higher for service-customers than for physical good customers.

As was measured with the independent samples t-test, physical good-customer scores 0.2 higher on intrinsic motivation than service customers. This means that for every extrinsic motivation-item, physical good-customers score 0.2 point higher on the five-point stale compared to service-customers. Therefore, hypothesis 1 is accepted.

Extrinsic motivation

Firstly, the variables that were labelled as extrinsic motivations (under the subcategories money and career) were put together in order to create one variable. This was performed by adding up the scores of all seven motivations and dividing them by seven. After running the independent-samples t-test, it was made visible that there was a difference in the extrinsic motivations of service-customers (M= 3.098, SD= .877) and physical good-customers

(M=2.1224, SD= .826) with a significance level of P=.000 (one-sided). Since the scale as it was constructed in the data-set ranged from (1) agree to (5) disagree, this means that the higher the number, the lower the motivation on this item.

As can be seen, the mean of the physical good-customers is significantly lower on the intrinsic motivation-scale, which translates into having a higher extrinsic motivation.

The hypothesis that was formulated regarding extrinsic motivation was: *Customers of a physical good crowdsourcing initiative will have a higher extrinsic motivation than customers of a service crowdsourcing initiative*

Since it was stated in paragraph 2.6 that a physical good is more tangible than a service, this hypothesis translates into the expectation that extrinsic motivation will be higher for physical good customers than for service customers.

As was measured with the independent samples t-test, physical good-customer scores 0.976 higher on intrinsic motivation than service customers. This means that for every extrinsic motivation item, physical good customers score almost one point higher on the five-point stale compared to service customers. Therefore, hypothesis 2 is accepted.

Extra test

On top of the independent-samples t-test which was performed in order to test hypothesis one and two, an extra independent-samples t-test was performed which tested the differences in the means of every single motivation item. This was executed because the research performed in this thesis is explorative, and providing information about the differences in motivation for every motivation on its own can provide extra information for future research. A complete overview of the means of the physical good customers and service customers on the motivation items can be found in the appendix III. For now, it is sufficient to say that the following motivations turned out to have a significant different mean were: hobby, creative outlet, unhappy with the current product, wanting to improve the product, feelings of efficacy, seeing money as an incentive, potential freelance work, positive effect on reputation, build up a professional network, and improve skills. The motivations which did not differ significantly were: enjoyment, having free time, enjoy a challenge, love of interaction, love of community, reciprocity expectations, attachment to a group, win the money and get tangible returns.

5 Conclusion and discussion

In this section, attention will be paid to the conclusions that can be drawn and the discussion points that can be made regarding this thesis.

5.1 Conclusion

In this thesis, it was explored whether differences could be acknowledged between the motivations to join in on a crowdsourcing initiative of a customer that consumes a service versus the motivation of a customer who buys a physical good.

Firstly, a literature scan was performed in order to find out motivations for participating in a crowdsourcing initiative were so far distinguished. This resulted in the finding of 20 motivations, which could be grouped into intrinsic and extrinsic motivations. On top of this, the motivations could be grouped in to the following subcategories: fun, social, change, finances and career. Fun, social and change were indicated as intrinsic motivations, finances and career were indicated as extrinsic motivations.

After running an analysis, in turned out that the expected division between intrinsic and extrinsic motivations could be proven empirically.

Therefore, it was considered possible to test the hypotheses that were formulated regarding this division in the two types of motivation. The following table provides an overview of the results of the hypotheses.

Table 7: Hypotheses oversight

Hypothesis	Confirmed/rejected
H1. *Customers of a service crowdsourcing initiative will have a higher intrinsic motivation than customers of a physical good crowdsourcing initiative*	Confirmed. Service customers turned out to have a significant higher score on intrinsic motivation. (.245 on a five point scale)
H2. *Customers of a physical good crowdsourcing initiative will have a higher extrinsic motivation than customers of a service crowdsourcing initiative*	Confirmed. Physical good customers turned out to have a significant higher score on intrinsic motivation. (.976 on a five point scale)

The research question that was investigated in this thesis was: *What are the differences between the motivations to join in on a crowdsourcing initiative of a customer that consumes a service versus the motivation of a customer who buys a physical good?*

As it turned out, one of the differences in motivations was that service customers scored significantly higher on intrinsic motivations (fun social and change) than physical good customers. The second difference in motivation was that physical good customers score significantly higher on extrinsic motivations than service customers.

These differences can be attributed to the differences between a physical good and a service. When a customer undergoes a service, he interacts with the company and possibly builds up a relationship. When a customer buys a physical good, the product is already finished ones it arrives at the customer and can be produced without the customer being present. For this reason, the intrinsic motivation of a service customer was expected to be higher, which was confirmed empirically. Also, when a physical good-customer participates in a crowdsourcing initiative, the outcome of his participation can be measured easily: his idea is either executed or not. When a service is produced, this is more diffuse, due to the heterogeneous character of services. Therefore, it was expected that physical good customers scored higher on extrinsic motivation than service customers. After running an analysis, this was confirmed.

What should be stated is that the field of crowdsourcing is relatively young, with the first mentioning of the concept in 2006 (Howe, 2006). Therefore, companies' experience in using crowdsourcing as a tool is still in an explorative phase.

5.2 Discussion

What could be considered a weakness in this thesis is that only one company was selected for every initiative. Comparing the data for these two companies could result into differences that are attributed to other characteristics than the service and physical good distinction. The two companies both hold between 80 to 90 employees, which make them comparable on that ground. However, the two largest differences are that Threadless (physical good initiative) is based in Chicago and was founded in 2000, whereas giffgaff (service) is based in the United Kingdom and was founded in 2009.

Regarding this issue, it is important to highlight that the goal of this thesis was to explore whether differences in motivations could be found. As it turned out that significant differences were proven empirically in this thesis, it is considered to further investigate this

issue by upscaling this study. Future research could focus on several service initiatives and several physical good companies and again test whether the differences can be found.

Possibly, there is a selection effect within the data-set. This thesis studied the motivations of participating in a crowdsourcing initiative. It could be that people who completed the survey have different motivations compared to the rest of the customers of the company who did not complete the survey. Therefore, it should be taken into account that this could have influenced the results of this study. Also, the N of this study is a total of 163 respondents. The size of the survey could have had an effect on the results.

As can be seen in table 4, 85% of the respondents are male, the mean education level is a two years college degree, and the mean age of the respondents is 29. This could be considered to influence the results, since this could be considered not suitable to represent the customers of the companies. However, Haythornthwaite and Wellman (2002) found that the mean internet user is a young well educated white male. Since crowdsourcing calls for an online platform, the means of respondents within this dataset could be considered a proper representation of the mean customer that participates in a crowdsourcing initiative.

Concerning the results, it should be highlighted that the differences in intrinsic motivations of physical good customers and service customers were .245 on a five point scale. This was a significant difference, but not very large. However, it should be taken into account that the intrinsic motivations consists of 13 items that were grouped into one. Therefore, a difference of .245 is still considerable.

Regarding the survey that was used in this thesis, it is important to state that the scales as they were presented were fabricated by the researcher. This was done because the motivations as they were found in earlier research were measured using different types of measurements, ranging from a yes or no question to qualitative research. Therefore, the choice to translate the found motivations into a consistent list of statements to which the respondents could reply in a five point Likert scale are considered to be the best way to conduct this thesis. However, in order to find out whether the scales are a proper representation of the motivations, the scales should be used in future research.

Regarding the distinction between services and physical good, it is important to highlight that this distinction cannot always be seen that clearly when a product is analyzed (Johnston and Bryan, 1993). Products can have characteristics of a service as well as of a physical good. However, Morris and Johnston (1987) highlight that there is regarding customer processing operations, there is a difference between services and physical goods, due to a higher amount

of variability and uncertainty when a service is provided. This higher amount of uncertainty is attributed to a physical, mental and emotional existence of the customer within the operation. On top of this, Carlzon (1987) already predicted that: *'we are at an historic crossroad where the age of customer orientation has arrived, even for businesses that never before viewed themselves as service businesses'*. This quote demonstrates the possible benefit companies can have of crowdsourcing, since it can be seen as a chance to involve the customer in the production process. This can be of use for both companies that provide services as companies that create physical goods.

Also, this thesis has not taken into account that extrinsic motivation of an individual can have an effect on their intrinsic motivation (Kruglanski et al: 1975; Rummel and Feinberg, 1988; Deci et al., 1999). For example, Kruglanski et al (1975) investigated whether offering an extrinsic trigger (in the shape of money) could enhance people's intrinsic motivation. Results regarding these effect are diverse, and since the result of this thesis was to explore the differences in intrinsic an extrinsic motivation, the effects of extrinsic motivation on intrinsic motivation was not taken into account.

Also, in future research could be investigated how crowdsourcing could be used as an instrument within the total innovation process of a company. As was stated earlier, users' contributions were found to be of surprisingly high quality (Poetz and Schreier, 2012). However, matching the contributions of users to the actual innovation process of a company is a different challenge which is yet to be studied.

Critical note to the motives of companies to use crowdsourcing

In their article, Kleeman and Vob (2008) highlight that crowdsourcing can be seen as exploitation of consumers, since consumers put a lot of effort into a product, but do not get paid for this. They claim that firms use crowdsourcing as a cheap way of mobilizing creative work and generate value and profits of this whereas the consumers do not see any money from this.

When looking at crowdsourcing from this perspective, it is hard to think of why consumers feel motivated to join in on crowdsourcing and how crowdsourcing could be considered as something that is morally acceptable.

Howe (2008) reacts on this statement by highlighting that in order for a crowdsourcing initiative to be successful, a deep commitment from the company towards the crowd is a prerequisite. According to Howe, the crowd can take care of itself and will feel when it is

being exploited. The crowd wants to feel that they still are owner of their own creations. In other words: the crowd can function as a watchdog for the intentions of the company.

On top of this, the only output for the consumer Kleeman and Vob look at is the financial output. Brabham (2008) claims that even though a company does earn a lot of money of crowdsourcing over the backs of customers, customers get paid back for their effort in another way. The customer gets a product that is customized to their liking. In other words:

'' On a micro-level, crowdsourcing is ruining careers. On the macro-level, though, crowdsourcing is reconnecting workers with their work and taming the giants of big business by reviving the importance of the consumer in the design process.'' (Brabham, 2008:.84)

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Appendix

Appendix I: introduction texts

As was stated in paragraph 3.2, the link to the surveys was presented on the forums of the companies. These introduction texts were adjusted to the linguistics of the companies. The introductions as they were presented are shown below:

Introduction text Threadless (physical good):

Hi everyone!

My name is Anne and I am a sociology student from the Netherlands.
I am currently working on my thesis, which focuses on you guys! I would like to know what it is that drives members of Threadless: why do you upload your designs/rate designs/participate on the forum et cetera. In doing so, I could really use your help!

I have checked with Threadless, and they gave me the green light on posting a message where I could give you guys the link to my survey.

Please go to the following site to fill out my survey: www.thesistools.com/web/?id=277187

Doing so will take about 5 to 10 minutes of your time.

Thanks!

Anne

ps: If you've got any questions, feel free to send me an email at annevreeman@gmail.com

Introduction text giffgaff (service):

Hello giffgaffers!
My name is Anne, 24, from Utrecht, the Netherlands. I'm a Sociology student and currently studying the giffgaff community. In doing so, I could really use your help!

What interests me about giffgaff and your community is the way you guys interact with giffgaff. I would love to know why you joined the giffgaff forum and what it is that motivates you in making a

contribution to giffgaff. Specifically, I'd like to focus on your contributions regarding helping giffgaff in producing ideas, suggestions and comments on giffgaffs' offer.

So, if you have ever posted an idea, suggestion, improvement, or anything that is related to this topic, I would like to ask you to please click here and complete my survey.

Doing so will take approximately five minutes of your time. This would make me (and giffgaff) very happy!

Thank you!

Appendix II: Operationalization

In the following section, an overview of the way the survey that is to be used in this study is constructed will be provided.

To begin with, some background information about the respondent will be asked, which serve as control variables in the analysis. After this, some questions about the type of submission and the amount of submissions the respondent has already updated on the site will be asked. Also, information on the motivations of the respondent to join in on a crowdsourcing-initiative is gathered.

Background information

1. What is your year of birth?

   ….

2. What is your gender?

   Male O Female O

3. What is the highest level of education that you have completed?

   O Less than high school

   O High school

   O Some college

   O Two year college degree (Associates)

   O Four year college degree (BA, BS)

O Master's degree

O Doctoral degree

O Professional degree

4. What is your marital status?

   O Single, never married

   O Living together

   O Married

   O Separated

   O Divorced

   O Widowed

Submission

1. When have you registered on the site?

   D/M/Y

2. How often have you submitted an idea on the site?

   ….

3. Have you ever won a challenge/ Has one of your ideas ever been executed?

   O Yes O No

4. To what extent do you feel that participating in this initiative will enhance your influence on the product you are buying?

	O	O	O	O	O	
Completely disagree	1	2	3	4	5	Completely agree

5. To what extent do you feel that participating in this initiative enhances the feeling of being heard by the organization?

	O	O	O	O	O	
Completely disagree	1	2	3	4	5	Completely agree

Motivation

In order to provide a clear oversight of which statement belongs to which motive, a table has been constructed which provides the type of motivation, the subtype of motivation and the way this subtype is measured in the form of a statement. The respondent is to state to what extent he or she agrees to the statement on a scale ranging from completely disagree (1) to completely agree (7). This so-called 5-point Likert-scale is constructed as follows:

	O	O	O	O	O	
Completely disagree	1	2	3	4	5	Completely agree

Table 8: operationalization motivations

Motive	Sub motive	Operationalization
Fun	Pleasure of doing hobbies	I am participating in this initiative because it is like a hobby to me
	Sense of 'addiction'	To me, taking part in this initiative could be seen as an addiction
	Creative outlet	I participated in this initiative because it is a creative outlet for me
	Having free time	I participated in this initiative because I had free time
	Challenge of solving a problem	I participated because I enjoy solving challenges
Social	Interaction with other members	I participate in this initiative because I like to communicate with other members
	Interest in a community/ love for a community	I am proud to be a part of this crowdsourcing initiative's community
	Reciprocity expectations towards the group	I feel that people who participate in this initiative should help each other out
	Commitment/attachment to a group	I participate in this initiative because I feel committed to the rest of the members
Change	Unhappy with current solutions	I participate in this initiative because I am unhappy with the current product
	Expecting to be able to help	I participate in this initiative because I

	making a product better	think I can help improve the product
	Feelings of efficacy → Influence	I take part in this initiative because I feel that I can in this way influence what I am buying
Finances	Winning the money	I am taking part in this initiative to make money
	Seeing the prize as an incentive to begin with	To me, knowing that money could be won by joining in was the reason to join
	Get tangible returns for participating	One way or another, I will get back something tangible for my participation
Career	Potential (freelance) work	Taking part in this initiative could bring me potential career advances/chances
	Potential positive effect on ones reputation	Taking part in this initiative will have a positive effect on my reputation
	Build up a network of people that are in your field	I am taking part in this initiative because it will enlarge my professional network
	Improve skills	I participated because I wanted to improve my skills

Appendix III: extra test on respondents means on the individual motivations

When an independent samples t-test was performed to test whether there were significant differences on every individual motivation, it became clear that eleven out of the twenty motivations differed significantly on the mean. The values on these motivations can be seen in table 9. Since the scale ranged from (1) agree, to (5) disagree, a lower number on an item translates into a higher score on the motivation. Service customers turned out to score significantly higher on the hobby motive, the addiction motive, the creative outlet motive, the potential freelance work motive, the money motive, the professional reputation motive, the professional network motive and the improve skills motive. Physical good customers turned out to score significantly higher on the unhappy current product motive, the improve product motive and the efficacy motive.

Table 9. : Independent samples t-test on every motivation item

Motive	Mean Physical good	Mean Service	T-value	df	P-value
Enjoyment	1.90	1.92	-.092	163	.927
Hobby	2.29	1.70	3.374	162	.001***
Addiction	2.83	2.47	1.846	163	.067*
Creative outlet	2.74	1.36	8.000	161	.000***
Free time	2.20	2.36	-.865	164	.389
Challenge	1.88	2.09	-1.219	162	.225
Interaction	2.00	1.85	.938	164	.350
Love of community	1.41	1.43	-.154	162	.878
Reciprocity expectation	1.29	1.37	-.808	162	.421
Attachment to the group	2.62	2.36	1.152	163	.878
Unhappy current product	3.52	3.96	-1.197	160	.047**
Improve product	1.97	2.69	-1.480	162	.000***
Feelings of efficacy	2.45	2.80	-1.844	161	.067*
Win the money	2.78	2.47	1.428	164	.155
Money as incentive	3.27	2.59	2.875	163	.005**
Tangible returns	1.90	1.73	1.198	162	.233
Potential freelance work	3.82	2.01	8.910	162	.000***
Positive effect reputation	3.41	2.29	5.173	163	.000***
Build up prof. network	3.92	2.30	8.103	164	.000***
Improve skills	2.46	1.59	4.647	161	.000***