THE IMPACT OF CUSTOMER PARTICIPATION ON CUSTOMER AND FIRM OUTCOMES

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September 2019

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2019

Thesis Summary

The objective of this thesis is to develop a better understanding of the impact of customer participation on customer and firm outcome variables. Customer participation relates to the customer being active in the production, delivery, maintenance or recovery stage of the core offering of the firm. The findings in literature are inconclusive, with some research finding a positive impact of customer participation on outcomes and other research finding negative results. Therefore, a meta-analysis was conducted for this thesis with the purpose of studying the effect customer participation exerts on customer and firm outcomes. Furthermore, moderators are tested regarding their impact on the customer participation – outcome link. Key findings are that overall, customer participation is a beneficial strategy for customer and firm and generally should be used. The moderators tested only further strengthen or weaken the positive impact of the marketing strategy on outcomes. It is a good strategy for firms to force customers into participating and for firm performance variables it is beneficial for firms to make use of technology in customer participation situations. However, attention needs to be paid to employees, as customer participation seems to increase an employee's job stress. Additionally, firms need to ensure that customers do not feel exploited when being involved in customer participation and clearly communicate the benefits so that the customer's perceived justice / fairness is enhanced.

Key words: *Participating Customers, marketing strategies, trade off situations*

Acknowledgments

First and foremost, I would like to express my deepest gratitude to my supervisor Prof. Heiner Evanschitzky, who supported me on this long journey. Thank you Heiner for your support, invaluable feedback and patience throughout the process. Your guidance and belief in me has helped me in bringing this project to an end. There were some particularly „dark moments" throughout this journey and you always helped me getting back on track with your timely responses (you even replied on Sunday evenings!!) and encouraging feedback. You even had the patience to explain things several times when needed – I truly thank you for that. Your help and support has been invaluable and without you I would have never been able to complete this project. I want you to know that I am very grateful for everything you have done.

I also would like to express a special thank you to Dr Matthew Alexander and Prof Martin Eisend for their very valuable input and help. Thank you also to my supervisors Dr David Gilliland and Dr Neil Shepherd for their guidance. Furthermore, a very special thank you to Prof Christof Backhaus, Prof Markus Blut, Prof Hugh Wilson and Wendy Tabrizi.

A big thank you also goes to my parents who have always supported me throughout this journey and have helped me in realizing my dreams. I know it is not easy me living far away, which is why I value your unconditional support even more.

I would also like to express my very special thanks to Andrew, who has helped me particularly in the last few months leading up to submission. You have helped me not losing focus and you have supported me with your ideas and with you simply being there for me and listen whenever needed.

Finally, I would like to thank my friends Joanna and Franziska, who supported me throughout this long journey and helped me in getting the project closer to the finish line. Thank you for putting up with me and still being my friends.

Contents

Table of Tables

1. Introduction

The role of the customer in contemporary society has evolved fundamentally from passive recipients of goods and services to proactive contributors in the activities of an organization (Kelleher et al. 2019; Fournier & Avery 2011; Gebauer, Füller, & Pezzei 2013; Le Meunier-FitzHugh et al. 2011; Schau, Muñiz Jr, & Arnould 2009). A key building block of this evolution has been the growth of customer participation, the direct contribution of customers in the production, delivery, maintenance or recovery of a firm's core offering.

Customer participation is almost ubiquitous across a range of settings, in particular, the service and retail sectors where customers undertake duties normally associated with employees. For instance, by 2020 McDonalds will have installed self-service kiosks at all of its US restaurants after successful integration of these systems in Europe and elsewhere (Rensi 2018). In the airline industry, 9 out of 10 airports were utilizing self-service kiosks for check in (Air Transport IT Review). Furthermore, coffee giant Starbucks incorporating their customers in coffee mug design and airlines British Airways and Etihad developing new services together with their customers[1] – all these are examples of customer participation, which show how varied the tasks the marketing strategy entails can be. Additionally, the examples demonstrate that customer participation is used in different sectors and surrounds customers even in everyday tasks and procedures.

In line with the previously outlined examples and in particular technology-based customer participation, Ostrom, Parasuraman, Bowen, Patricio, Voss, and Lemon (2015) underline that in contemporary marketing contexts "customers have more to do and thus

[1] https://cspace.com/work/ : Last accessed 01.09.2019

play a greater role in service development and delivery and that, even when technology assists them in such roles, more is expected of them" (p. 139). Further, participation is set to increase in future decades as employee roles are increasingly substituted or supported by artificial intelligence and Service Robots (Huang & Rust 2018; Wirtz et al. 2018).

However, it is not yet clear whether participation is beneficial for all actors involved, i.e. customer and firm (Haumann et al. 2015), as research findings are contradictory. For instance, research shows beneficial effects of participation for customers such as improved role clarity, motivation, goal attainment, or satisfaction (e.g. Dellande, Gilly, & Graham 2004; Dong, Evans, & Zou 2008). In addition, economic benefits of customer participation for firms have been found in the form of positive customer attitudes and behaviors towards the firm, such as (positive) word of mouth and (re)purchase intentions (Robertson et al. 2016; Karpen et al. 2015; Wang, Harris, & Patterson 2013) as well as improvements in the firm's innovation processes (e.g. Kristensson, Gustafsson, & Archer 2004; Matthing, Sanden, & Edvardsson 2004).

Other studies, however, point to more negative outcomes of participation. For customers, increased participation might be perceived as exploitative, negatively affecting perceived control and attitude toward the firm (Haumann et al. 2015; Gelbrich & Sattler 2014; Reinders, Dabholkar, & Frambach 2008). For firms, research highlights negative implications of participation particularly regarding employees with issues relating to increased job stress and emotional exhaustion (Auh et al. 2007; Chan, Yim, & Lam 2010; Hsieh, Yen, & Chin 2004).

Given the inconclusive nature of individual empirical findings on the link between customer participation and customer- as well as firm outcomes, an empirical generalization

seems necessary regarding who benefits from the marketing strategy, who does not, and in which situations. This is particularly the case due to the increasing number of (prominent) firms making use of customer participation nowadays and the marketing strategy being prevalent in everyday life procedures of customers. Given this reasoning, a meta-analysis is conducted with the intent to answer three key research questions:

1. What are the consequences of customer participation for customers and firms?
2. What are moderators that impact on the relationship between customer participation and customer- as well as firm outcomes?
3. Who gains more from customer participation in different situations / under different circumstances?

The meta-analysis is split into two different studies. The first study serves the purpose of providing a descriptive overview of the different firm and customer outcome variables and therefore focuses on the first research question (RQ 1). The second study then looks at identifying moderators which impact on the customer participation – outcome link, thereby addressing the second research question (RQ 2). Following the identification of moderators, the different outcome scenarios will be established to find critical situations regarding customer participation. The possible outcomes are as follows:

- Both the customer and the firm benefit (more) from customer participation
- Customer participation is more beneficial for the customer than it is for the firm
- Customer participation is more beneficial for the firm than it is for the customer

- Neither party benefits from customer participation / customer participation leads to less beneficial outcomes for both customer and firm

Outcomes 2 and 3 are of particular importance for this meta-analysis due to the inconclusive nature of what to do when a critical situation occurs. For situation 1, where both parties benefit (even more), it is clear that customer participation should be used due to its beneficial nature for both participating parties. For situation 4, 2 outcomes can occur. Either both parties are negatively affected, in which case it is recommended not to use customer participation. It can also be the case that both parties benefit less from customer participation in certain situations. If that happens it is recommendable to still use customer participation due to the parties still benefiting, however, ways should be explored on how outcomes for customer and firm can be increased or the focus could be shifted on to more beneficial customer participation situations. Situations 2 and 3, the so-called critical situations, need particular attention due to one party benefiting more than the other. Therefore, these situations are examined in more detail and it is tried to identify how both partners can equally benefit in such a situation. Therefore, answering the three research questions enable managers to make better decisions on when and how to foster customer participation while at the same time, improving the theoretical understanding of participation and its boundary conditions.

To answer the research questions, this PhD thesis is structured as follows: First, the customer participation literature is reviewed with a particular focus on the terminological issues surrounding customer participation as the key variable for this study. Following this, the conceptual model consisting of customer participation, moderators and both firm and

customer outcomes and the research gap which this thesis seeks to address is outlined in detail. The next part serves the purpose of theoretically introducing the meta-analysis as the chosen methodological approach, followed by the practical adoption used for the two research studies. Findings, which are based on 144 manuscripts, consisting of 228 studies that provided 626 effect size estimates for a combined total sample size of 80.043 observations, are then presented for both study 1 and 2. Afterwards, the findings are discussed from a theoretical and managerial point of view. Particular attention is paid to showing ways of how to make participation equally beneficial for customers and firms alike.The final chapter concludes the PhD thesis by outlining research limitations and ideas for future research.

Key findings are that customer participation is generally beneficial for firms to use as a marketing strategy due to its positive impact on both customer and firm outcomes. Furthermore, forcing customers into participation is good as the customer shows higher service quality perceptions in situations without a choice. This is also the case when incorporating the customer in the marketing strategy in the pre-purchase stage, thus leading to higher gains for the customer. From the firm's perspective, using technology for customer participation is beneficial due to technology strengthening the marketing strategy – firm outcome link. Also, goods settings reveal a stronger influence of participation on firm outcomes as opposed to services.

The literature offers one meta-analysis on customer participation already (Chang & Taylor 2016), which is however, much narrower in scope. The authors limit their meta-analysis to customer participation in a new product development context and therefore the authors are only able to generalize their findings to that context. The authors look at when it

is (most) beneficial for firms to make use of participation in new product development by looking at the different stages the customer can be involved in, such as ideation and launch. Furthermore, the authors look at contextual factors such as the type of industry, and ultimately examine the impact on new product performance, therefore, limiting their outcome variable to one key outcome only. In comparison, the meta-analysis of this research takes a broader view and looks at customer participation in different contexts. New product development is a part of this study, however, it also looks at different contexts, such as self-customization of services, and customer participation in service recovery. As a result, more settings are covered, and additionally, a wider range of outcome variables is looked at. This approach enables the researcher to generalize the findings more broadly, which distinguishes this research from the meta-analysis conducted by Chang and Taylor (2016). This is the first meta-analysis on customer participation, which further highlights the fact that customer participation is a "hot topic" in literature and justifies a second meta-analysis in the field which takes a different approach to the topic and extends the first meta-analysis on the marketing strategy. Now that the research idea has been outlined, the structure of the research has been introduced, key findings have been given and the research has been distinguished from another meta-analysis conducted on customer participation, the next chapter looks at reviewing the literature on and defining the construct of customer participation.

2. Literature Review

In this chapter the key construct of this thesis, customer participation, is defined. To achieve this, different terms for integrating the customer in the core offering creation and delivery process and their use in academic research are reviewed. This review entails a comparison of the different terms used and furthermore, differences are pointed out in order to derive a definition of customer participation to serve as the core reference point for this PhD thesis. The concepts of customer participation, customer co-production, customer co-creation, in connection with similar terms (customization, use of self-service technology/technology-based self-services, self-design) as used in academic literature are reviewed to derive an overall definition of the main construct, customer participation. Following this chapter, the research gap this thesis seeks to address is identified.

2.1 General Classification of "Customer Participation"

Generally, even though a good amount of literature has already been published on the subject[2], it can be said that no consistent definition of customer participation has been identified so far. Instead, various terms[3] for the same phenomenon, which are similar but still distinctly different, are used. Nevertheless, the common assertions are that the customer provides his/her own input into the production and/or delivery of the firm's offering (e.g. Dabholkar 1990; Vargo & Lusch 2004). This customer input can take on

[2] Only for this PhD thesis 247 articles were incorporated, and these do not include qualitative and conceptual articles.

[3] 1. Co-Creation 2. Participation 3. Co-Production 4. Involvement 5. Co-Design 6. Co-Innovation 7. Self-Service 8. (Self) Customization 9. Cooperation 10. Compliance 11. Co-Development 12. Shared Responsibility. Depending on the context of self-service technology other construct names have been used as well.

different forms such as providing information and being active in the actual development/delivery process of the firm's offering.

There are two streams of literature, which look at customer participation from a different angle, however, there is no clear distinction made between the terms as sometimes the terms (for example customer participation and co-creation. For a full list please see below) are used interchangeably by using the same or similar scale(s). Therefore, it is of utmost importance to distinguish the terms regarding their meanings, which will be done in the remainder of this chapter.

The first stream of literature is coming from the Service Dominant Logic perspective (Vargo & Lusch 2004) which views the customer as always being a co-creator of value. This type of customer participation (usually referred to as co-creation) can be highly interactive in nature and is usually mandatory for the customer and non-replaceable for the firm.

The second stream of literature is coming from a more participatory point of view, which regards the customer as highly active. This point of view is adopted by researchers such as Bendapudi and Leone (2003) and Dabholkar (1990) for example. This type of customer participation can be mandatory (required) but this is not necessarily the case and many times it is actually non-mandatory or replaceable (e.g. Dong and Sivakumar 2015).

The second type of customer participation is the only focus of this PhD thesis as it allows the examination of the research questions. Being more precise, it enables the identification of the key outcome variables in relation to customer participation as used for this thesis. The focus is on the customer's activity level, and therefore, it is identified in

which situations the customer's activity level leads to a) both parties benefiting equally (more) from customer participation, b) the customer benefiting more than the firm c) the firm benefiting more than the customer and d) both customer and firm benefiting less from the marketing strategy. Due to the activity level, as exerted by the customer, certain benefits and challenges come into play, which can lead to positive but also negative or "in between" outcomes, meaning that one party benefits but the other does not. These potential benefits and risk are looked at in chapter 2.3 from both the customer's as well as the firm's perspective. This may be particularly challenging when the customer's participation is required, and the customer does not have a choice. If the customer has a choice, he/she can always choose whether he/she wants to participate, however, if participation is mandatory this may be particularly challenging for both parties as there are no other options available.

Therefore, it is important to identify the situations where the participating parties always or never benefit from customer participation and then determine whether and where there is a trade-off. Sometimes, the firm may benefit from letting customers carry out certain tasks (activity) whereas the customer may not like it and feels exploited. Alternatively, it could also be the case that the customer may like being active, however, the firm may not benefit as having the customer actively participate in the core offering's production, delivery, maintenance and/or recovery may be very costly and time consuming. It is these situations that pose a certain challenge as it is unclear whether customer participation should be used or avoided. In the following subchapters, subchapters 2.2 and 2.3, the two types, customer participation as used for this thesis and co-creation as viewed by the Service Dominant Logic, are reviewed and further distinguished from each other to be able to define the term customer participation as used for this thesis.

2.2 Service Dominant Logic / Co-Creation

The Service Dominant Logic (SDL) was introduced to academic literature by Vargo and Lusch (2004). The SDL views each transaction as "services", in which products only serve to provide a service to the customer. Therefore, the customer plays an important part when it comes to the "service exchange" and without the customer's input the exchange of service would not be possible. As a result, this type of customer participation, which is referred to by Vargo and Lusch (2004) as co-creation, can be seen as mandatory and non-replaceable in nature. The customer's input is required for the service to be carried out, whether that is the customer using a product to receive a certain "service" or whether this is the customer telling the hairdresser how he/she wants his/her hair to be cut. It is only with the customer's input that the hairdresser can tell how the customer wants his/her hair to be cut.

Without the customers input, the value of the "service" could not be created. It is not possible for the firm to create value without the customer. Therefore, this type of customer participation is non-replaceable, as the customer's input cannot be replaced by employees (Dong & Sivakumar 2015). In addition, the customer's input is also mandatory, which means that customers do not have a choice if they want to receive the "service" (Bitner et al. 1997).

As a result, the SDL sees customer "participation" from two perspectives. The first is called co-creation and looks at "value in use", which emerges when the customer uses a "service" and thus determines the value through its use. The concept of co-creation was first used in the business management literature by Prahalad and Ramaswamy (2004) and according to Vargo and Lusch's (2004) approach, this concept focuses on customers always

being co-creators of value and therefore always being involved in the value creation process. This view is adopted by other research such as Lusch and Vargo (2006) and Vargo, Maglio and Akaka (2008).

The second dimension of Vargo and Lusch's (2004) SDL approach looks at the customer actively participating in service production and/or delivery. This dimension is called customer co-production (Vargo & Lusch 2004). As the hairdresser example in the previous paragraph indicates, (service) encounters can be highly interactive in nature, which does not necessarily mean that the customer is actively participating. For customer co-production to happen the customer must be active, which is not necessarily the case with co-creation. This distinction is in accordance with Büttgen (2007) who identifies that interaction is not the same as activity. The customer can be highly interactive but not active as such. Alternatively, it can also be that the customer is highly active with minimal interaction. For example, the customer could go to the hairdresser and ask for a haircut. He/she talks the hairdresser through what he/she wants the haircut to be like. This is a case of high interaction/low activity as the customer is interacting with the hairdresser but not active as such as the customer does not go on to cut his own hair. Another example is do-it-yourself behavior when self-assembling an item bought from IKEA. Here the customer is highly active after having purchased the item, however, interaction is not existent.

It is co-production as a type of customer participation, and therefore cases in which the customer is active, which is the focus of this PhD thesis and will be looked at in further detail in the next subchapter. Some researchers (Payne, Storbacka, & Frow 2008) do not distinguish between the terms co-production and co-creation, sometimes co-creation even captures the same meaning as customer participation/co-production (Heidenreich et al.

2015). However, co-creation as viewed according to the SDL, and therefore SDL as such, is not the focus of this thesis due to the aforementioned reasons. As there is no consensus in regards to the terms used, different terms are reviewed and distinguished from each other in order to derive a definition for customer participation for use in this thesis.

2.3 Setting the Scene for Defining the Main Construct

As highlighted in the previous chapter, chapter 2.2, the view of co-creation as adopted by Vargo and Lusch's SDL is that of a mandatory type, which does not require the customer to be active when co-creating the offer. However, the focus of this PhD thesis' main construct is on customer participation, which requires the customer to be active in some way. Many researchers describe this type as non-mandatory or replaceable customer participation with the most recent publication being from 2018 (e.g. Zhao, Yan & Keh 2018; Chang & Taylor 2016; Dong & Sivakumar 2015; Dong, Evans & Zou 2008; Bendapudi & Leone 2003). Dong and Sivakumar (2015) identify that replaceable customer participation can be seen as "customer resources that are essential for service provision and can also be provided/performed by the service provider" (ibid., p. 728). One example for replaceable customer participation is the use of self-service technologies which can be replaced with an employee checkout as a viable option.

An important aspect in this context is raised by Dong and Sivakumar (2015) who state that firms need to consider how "to effectively leverage external resources (customers) to replace internal resources (employees)" (p. 728). This statement already implies that customer participation is not always beneficial for both parties involved, as the emphasis

here is on how to replace internal resources effectively, which indicates, that it is also possible to use customer participation ineffectively. In fact, many researchers' attention has been drawn towards replaceable customer participation due to the fact that this strategy has important implications in regards to productivity gains, which can be achieved when using the marketing strategy effectively. This point of view has been adopted by Lovelock and Young and goes back and goes back as far as 1979, where the article was published and the view is still agreed on by more recent publications throughout the years (Bendapudi & Leone 2003; Heidenreich et al. 2015).[4] Therefore, one key focus of customer participation as used in this thesis is on replaceable and non-mandatory customer participation and exploring the effect on both participating parties. This is of particular interest when there is an element of choice available for both partners involved.

However, as highlighted in the previous subchapter 2.2, one key element of the adopted type of customer participation is that of the customer's activity level. While the customer needs to carry some level of activity, which can vary greatly as is explored in the next few subchapters to come, namely subchapters 2.3.1 and 2.3.2, the focus of this thesis is not limited to non-mandatory and replaceable customer participation, despite the majority of relevant literature for this PhD focusing on these types of customer participation. It is also possible for the customer to be active in customer participation situations which can be mandatory. This can happen for example if the customer is forced to use self-service technology (Reinders, Dabholkar & Frambach 2008) and also when undergoing extensive medical treatment where action from the customer is required for the treatment to be carried

[4] The articles have been widely recognized which can be seen in their citations. Heidenreich et al. (2015): 159 citations (so far). Bendapudi and Leone (2003) 1703 citations. Lovelock and Young (1979) 1078 citations. (Last viewed on google scholar: 11.09.2019).

out (Gallan et al. 2013). Therefore, the key focus of this thesis is that of the customer's activity level, which can vary to certain degrees. The customer can be more active or less active, but not being active at all is not an option. This is captured with both forms mentioned above, namely non-mandatory and replaceable. However, both options do not capture all sorts of active customer participation, which is why further types need to be looked at. It is required that the customer is active, which is many times the case with non-mandatory and replaceable customer participation. In the next few subchapters, 2.3.1 and 2.3.2, the concept of customer participation, which is used from now on for simplicity and consistency reasons, is defined. For this, different constructs are reviewed in order to form the definition of customer participation used as a reference point for the remainder of this thesis.

2.3.1 Customer Participation Definitions as used in Literature

Customer participation has been used in various contexts, such as different forms of services (e.g. interpersonal, interactive, online and offline) (Dong & Sivakumar 2015; Dong, Evans, & Zou 2008; Curran, Meuter, & Surprenant 2003) and new product development (Chang & Taylor 2016; Coviello & Joseph 2012; Fang, Palmatier, & Evans 2008). Not surprisingly, due to the amount of literature and application to different contexts, more than one definition of customer participation exists. Some researchers even use different terms for the same construct, such as customer co-production (Bendapudi & Leone 2003), customer involvement (Magnusson, Matthing & Kristensson 2003) and customer co-creation (Heidenreich et al. 2015), which all capture the meaning of customer participation as adopted for this PhD thesis. As already highlighted in the previous

subchapter, the view of co-creation as adopted by the SDL is not the focus of customer participation as used for the thesis, however, studies like Heidenreich, Wittkowski, Handrich and Falk (2015) adopt the term co-creation but effectively measure customer participation as used in this PhD thesis's context. The customer here designs a service in the form of a rail journey and therefore the focus is on the customer's activity level. This measurement fits the view of co-production according to the SDL, however, not necessarily co-creation as such as discussed in the SDL subchapter. The interchangeable use of different terms for the idea of customer participation as adopted in the thesis's context stresses that there is no fixed definition for the term as different names/variables can be used for capturing the same idea. The purpose of this subchapter is to use existing definitions of the different constructs to derive a definition for customer participation as used for this PhD thesis.

As Lovelock and Young (1979) initially highlighted in their research on customer participation, the customer performs a task that was previously performed by an employee and thus the customer is considered as a partial employee. In line with this statement, one definition of customer participation has been widely recognized overall and has been adopted, and slightly adapted, by researchers like Xu, Tronvoll, and Edvardsson (2014), Dong, Evans & Zou (2008) and Bendapudi & Leone (2003). This definition, as developed by Dabholkar (1996), defines customer participation as "the degree to which the customer is involved in producing and delivering the service" (p. 484). The widely adopted view of this definition is reflected in the amount of citations so far as the paper has been cited 1905

times[5] already. The view is adopted by highly influential/cited research with Dong, Evans and Zou's (2008) research already being cited 678 times and Bendapudi and Leone's (2003) having 1703 citations so far.[6]

The definition provided by Dabholkar (1990) has been adapted slightly by Dong, Evans, and Zou (2008) who apply customer participation to a service recovery context and define the term as "the degree to which the customer is involved in taking actions to respond to a service failure" (p. 126). Also, very similar to Dabholkar's (1990) definition of customer participation, is the definition as used by Yen, Gwinner, and Su (2004) who state that customer participation is "a behavioral concept that refers to the actions and resources supplied by customers for service production and/or delivery" (p. 9). The authors' definition is in line with Dabholkar (1990) by stating that customer participation can occur in either service production and/or delivery. By looking at the previously mentioned definitions of customer participation it can be concluded that customer participation can occur at different stages of the life cycle of the offer, such as service recovery or delivery of the core service/offering.

Additionally, by using Dabholkar's (1990) definition, customer participation could occur anywhere in a (service) setting without specifying what precisely it is the customer is doing. However, even without this information, the definition already highlights that the customer can participate in the service/core offering delivery process to varying degrees, which implies that customer participation is not simply a matter of present or absent as it can be done to certain/varying levels. This also holds for the adapted definition used by

[5] Last viewed on google scholar on: 11.09.2019. For direct comparisons, the research from Xu, Tronvoll, and Edvardsson (2014) has 28 citations so far.
[6] Last viewed on google scholar: 11.09.2019.

Dong, Evans, and Zou (2008), which allows for various degrees of customer participation in a service recovery setting to happen. The key here is that the activity level can range from high to low, the only aspect that needs to be captured consistently is that of the customer taking on some degree of activity.

Being more specific than Dabholkar (1990), Magnusson, Matthing, and Kristensson (2003) characterize customer participation, which is being referred to as user involvement in their research, as "having the purpose of *generating ideas* for new end user telecom services" (p. 114). Furthermore, the authors identify one role the customer can take on by participating in the process of customer participation, namely the role of generating ideas. Compared to Dabholkar's (1990) approach this is more precise as Dabholkar's definition did not further specify the potential tasks a customer can perform. However, by being more precise, Magnusson, Matthing, and Kristensson (2003) limit their form of customer participation to idea generation only. Another key element to point out here is that of the use of the term customer involvement instead of customer participation. The research of Wirtz (2003) defines customer involvement as a customer's overall evaluation. If the customer's evaluation of a product or service is considered as unimportant the customer is said to have low involvement with the product, and high involvement when the evaluation is high (ibid.). In this case customer involvement does not capture the meaning of active customer participation but rather the customer's perceived evaluation of a certain product and/or service, which is in line with research conducted by Delgado-Ballester and Munuera-Aleman (2000). This shows that the term customer involvement is fuzzy as it can capture the meaning of customer participation, however, this is not necessarily the case. In order for customer/user involvement to be considered part of the customer participation

definition, the customer needs to carry out some degree of activity as adopted by the view of Magnusson, Matthing, and Kristensson (2003) and Martin and Horne (1995).

Yim, Chan, and Lam (2012) define customer participation in their research as "the extent to which customers expend time and effort to share information, provide suggestions, and get involved in decision making during the service production and delivery process" (p. 122). The authors thus do not limit their definition to that of idea generation as done by Magnusson, Matthing, and Kristensson (2003) but extend the definition to include tasks a customer can perform. In regards to Yim, Chan, and Lam's (2012) definition, the customer's role also includes actually *sharing* the information, providing suggestions and also getting involved in decision making. As a result, the customer is involved in multiple stages of the customer participation process and can perform more than one task only.

The fact that two parties (customer and firm) have to be involved for customer participation to happen, has been identified by Meuter and Bitner (1998), who state that three types of (service) production exist overall based on customer participation. The three types are called firm production (no customer participation), joint production (which requires both the customer and the firm to be actively involved/actively participate in the core offering's production and/or delivery), and customer production (no direct firm participation) (Bendapudi & Leone 2003). When referring to customer participation in this PhD thesis the focus is solely on joint "production" and the so-called customer "production", which also incorporates the use of self-service technologies (SSTs) (Djelassi,

Diallo, & Zielke 2018; Collier & Kimes 2013; Meuter et al. 2000[7]) and online self-design and/or customization (Heidenreich et al. 2015; Hildebrand, Häubl, & Herrmann 2014). The reason for incorporating the use of self-service technologies and online self-design/customization is that of the customer's activity level. By carrying out these tasks the customer is actively involved in the delivery of the core offering of the firm, which fits the definition of customer participation as adopted for this PhD thesis.

As identified in this subchapter, for customer participation to happen, both parties, the customer and the firm, have to be involved in the process. Even though the use of SSTs mainly requires the customer to actively participate in the core offering of the firm (by checking out groceries and thus replacing the employee for example) the firm is still involved by making the SST available. Research has found that specific characteristics of the SST, such as the ease of use, make the customer either like or dislike customer participation in the context of technology-based self-services (Wang 2017; Zhu et al. 2007) and by providing the customer with the SSTs it is the firm who is partially responsible for the outcome and thus still involved in the customer participation process as such. The same holds for self-design and customization contexts, where the same characteristics can apply to an online website for example, which is provided by the firm. Therefore, even though classified as sole customer production, the firm's input is still relevant for the outcome, and therefore, the use of self-service technology or technology-based self-services and self-design/customization tasks are also relevant for this research.

[7] The wide impact/high relevance of the self-service literature and the Meuter et al. (2000) article in particular can be seen by the amount of citations. So far, this article has been cited 3104 times. (Last access google scholar: 29.10.2018).

2.3.1.1 Co-Production Definitions as Part of Customer Participation

Customer co-production has been addressed in many academic studies (Troye & Supphellen 2012; Chen, Tsou, & Ching 2011; Auh et al. 2007; Bendapudi & Leone 2003; Prahalad & Ramaswamy 2000). There does not always seem to be a clear distinction made between customer co-production and customer participation, as Bendapudi and Leone (2003) even use the terms interchangeably. However, a second stream of research treats customer co-production as a specific form of customer participation. As Lusch and Vargo (2006) point out that co-production is the customer's "participation in the creation of the core offering itself" (p. 284). This definition highlights that by co-producing the customer is still involved in customer participation. Co-production simply focuses on the creation of the core offering. A very similar view of co-production as a specific form of customer participation is also adopted by Fellesson and Salomonson (2016) who state that co-production is a component of value co-creation and "captures customer participation in the development of the core offering itself" (p. 205).

In line with the previous definitions but being more specific, Chen, Tsou, and Ching (2011) stress that customer participation leads to co-production but only when it is constructive "with meaningful, cooperative contributions to the service process" (p. 1332). The definition, as provided by Chen, Tsou, and Ching (2011), is based on Auh et al. (2007) who define co-production as a form of constructive participation from the consumer with useful and cooperative contributions to the process of service delivery. As a result, these authors treat customer participation as a contributor to co-production. However, customer participation does not always have to lead to co-production. The idea that customer participation does not always lead to co-production was adopted by Büttgen, Schumann,

and Ates (2012) who further point out that prerequisites, such as a customer's sufficient knowledge, ability, and motivation possession, need to be present for co-production to happen. On the contrary, the prerequisites mentioned by the authors do not have to be prevalent for customer participation to occur as a customer can also participate without having sufficient knowledge. However, in both cases, the participation requires some degree of activity which is needed for customer participation to happen.

As a result of the discussion above, co-participation is particularly beneficial for customers who actually prefer "do-it-yourself" options "even when an interpersonal option is available and time-saving and monetary incentives are controlled for" (Alexander 2012, p. 18). The connection between co-production and do-it-yourself options, such as the use of SSTs, made by Alexander (2012), is in line with Meuter, Bitner, Ostrom, and Brown (2005), which is another highly cited paper from the self-service technology literature[8]. They highlight that the use of do-it-yourself options is actually a co-production of services. As a result, do-it-yourself options within the service encounter, which are referred to as sole customer production in literature, are considered as part of customer participation for this PhD thesis.

Based on the discussion in this subchapter, customer co-production is seen as a specific form of customer participation and thus is treated as one element of customer participation in this thesis. Therefore, when referring to customer participation, co-production is part of that construct as long as a certain activity level is measured as part of the scale. Customer participation, and not solely co-production, is the main construct of this PhD thesis as the purpose is to identify when customer participation shall be used and how

[8] Google scholar: 1306 citations. Last accessed: 29.10.2018.

critical situations where one partner benefits (more) from customer participation, as is discussed in chapter 3, can be turned into equally beneficial situations for both parties, namely customer and firm, involved in the process. As a result, focusing on customer co-production would limit the approach of this PhD thesis to a specific kind of customer participation and hence the findings could not be generalizable.

2.3.2 Customer Participation Definition as used for PhD Thesis

In the previous subchapters (2.2-2.3.1.1) the definitions of customer participation and similar terms, namely co-production and co-creation, were reviewed and discussed. Based on the previous discussion it can be highlighted that customer participation is not always treated as a separate construct and some researchers even use customer co-production, co-creation and participation interchangeably. There is no clear-cut division between these terms however, as has been developed in the preceding subchapters, the terms are treated as separate and for the purpose of this PhD thesis the main construct of interest is called customer participation. As identified by Büttgen (2007), interactivity and activity level are separate constructs, and the key for customer participation to happen is that the customer carries some activity degree, which can range from high to low. This makes it possible to answer the research questions and to detect, where customer participation is a) positive for both parties involved, b) beneficial for one partner only and c) negative/not beneficial for both parties and thus should be avoided.

Customer co-creation as viewed by Vargo and Lusch (2004) can entail customer participation, however, this is not always the case. Therefore, this construct was not chosen

as the key construct for this thesis as the customer may be interactive rather than active, which is not what is being measured by customer participation. Co-creation can happen when the customer is interacting with service personnel for example, however, here it is not mandatory for the customer to be active to some degree. The second construct discussed in subchapter 2.3.1.1 is customer co-production and, as stressed in the previous subchapters, there is not always a clear distinction made between this term and customer participation. However, based on the discussion in the subchapter on customer co-production (2.3.1.1) this term is treated as a specific form of customer participation, namely constructive customer participation. Due to the fact that the main construct shall not be limited to constructive customer participation, as the key idea is to identify situations where the marketing strategy is positive and negative/less beneficial for the parties involved, co-production is treated as only one element of customer participation. The use of self-service technology or technology-based self-services, self-design and/or customization is also part of customer participation as the customer is active by taking over tasks which used to be carried out by employees in the past (for example checking out groceries or self-designing your own holiday package online). The key reason for incorporating different forms of customer participation is that of generalizability. The idea of the meta-analysis is to be able to generalize the findings across a wide range of types of active customer participation.

Customer participation is addressed in detail in subchapter 2.3.1 and based on this discussion it emerged that the construct needs to be defined based on certain characteristics. It was identified that customer participation is not simply a matter of absent or present as customer participation can happen to varying degrees along a scale of low to high (Büttgen 2007). Additionally, based on some definitions as used by researchers and the contexts to

which customer participation was applied to it can be said that customer participation can occur at different stages of the life cycle of the offer, such as service recovery or delivery of the core service/offering and thus is not restricted to one stage only. In order for customer participation to occur two parties have to involved in the process, which are the customer and the firm.

To sum up the previous subchapters the main element, (active) customer participation, is defined as:

Customer Participation is the extent to which customers undertake activities which directly contribute to the production, delivery, maintenance, and/or service recovery of the firm's core offering(s).

In table 1 existing customer participation definitions from exemplary research are summarized according to key aspects and it is highlighted why these definitions, and thus papers, fit the customer participation definitions used for this thesis. To be part of the customer participation definition used for this research, the existing definitions require the customer to take on activities in the participation process, which can be done to certain levels (i.e. low, medium, or high). Furthermore, the customer needs to contribute to the core offering of the firm, which can happen in the production, delivery, maintenance and/or service recovery stage. So for example, if the customer carries out some sort of activity which is not contributing to the core offering of the firm, for example simply filling out a feedback form online, then the definition, and thus paper, is not part of this study. A second example is when the customer interacts with the employee in regards to the core offering of the firm, for example when interacting with the hairdresser when getting a haircut. This

requires the customer to interact with the employee, however, the actual activity level is missing, which therefore excludes this example and thus paper from this research.

In table 1 key papers and their definitions of customer participation are looked at and it is indicated why these definitions are part of the research by ticking the criteria that apply. It can be noticed that the definition always requires a) some sort of activity, either low, medium, or high, b) the participation needs to directly contribute to the core offering of the firm, which can be either a product, service, or both, and c) participation happens at at least one stage of the product/service life cycle, which can be production, delivery, maintenance and/or service recovery. The research papers are grouped according to different categories, for example new product development and service recovery, and within the groups the papers are listed chronologically. Papers were primarily chosen based on the elements the customer participation definitions cover. If the definitions within the groups do not add something new to a definition that was already covered, definitions and thus papers with new elements were chosen instead.

From the table it becomes clear that over time there have been various definitions and activities used to look at customer participation. Some authors (e.g. Bendapudi & Leone 2003; Hsieh, Yen, & Chin 2004) refer to the term as customer participation, however, other terms have been used as well, for example customer co-production (Troye & Supphellen 2012), co-creation (Zhang & Chen 2008) and intention to use a technology-based service (Reinders, Dabholkar, & Frambach 2008; Dabholkar 1996). A list of different terms including the research who used the terms can be found in table 1. The definition of these terms are all relevant for customer participation as understood in this PhD thesis, as they fulfill the requirements outlined in the previous paragraph. To clarify this further, the

definitions all contain a) some level of activity, b) happen in regards to the core offering of the firm, and c) occur at one (or more) stages of the product/service life cycle. However, it must be noticed that the definitions all look at some aspects of customer participation, but none looks at every single criterion. For example, Bendapudi and Leone (2003) look at different activity levels, medium and high. However, they do not research low activity levels and the authors also do not cover service recovery scenarios. This is the case for all other research, the studies do cover some of the aspects but not a single paper covers all of them. This is why a meta-analysis is required in order to be able to derive generalizable results on whether customer participation should be used by firms or not.

For the purpose of this research, a customer participation definition was created, which can tick every single aspect for customer participation to happen. It is looked at all types of activity levels, both service and product contexts are looked at and each stage of the life cycle of the core offering is incorporated in the customer participation definition as used for this research. Therefore, this definition is broader in nature compared to previous definitions. This shows that it is not looked at certain aspects of customer participation in isolation, but the aim is to be able to generalize the findings to the wider customer participation context and point out in which situation customer participation is a) equally beneficial for both firm and customer, b) more beneficial for the firm only c) more beneficial for the customer only or d) not profitable / less beneficial for both parties involved. This is only possible to achieve by looking at a wider context and not at individual criteria in isolation. The fact that there has been a lot of research published on customer participation looking at different elements and terms in various contexts[9] is the

[9] A total of 247 quantitative research articles were deemed suitable for this PhD thesis.

key justification for the requirement of conducting a meta-analysis, which is being done in this PhD thesis.

Overall, by looking at table 1 it can be seen that research articles from as early as 1988 were incorporated in the meta-analysis on customer participation. It needs to be pointed out that the paper incorporated in table 1 are only exemplary and therefore representative for definitions used in other research. There are many more research studies with similar/the same definitions and similar contexts, however, new definitions/papers were only used if the definition applied differed extensively from the definition already in the table. This approach enables the researcher to outline the development of customer participation definitions over time. For comparison, 2-3 definitions were used per category, such as for new product development and self-service technology, unless the definitions applied differed extensively, in which case more research studies per group were incorporated in the table.

A total of six categories were identified when looking at the body of customer participation definitions currently existing in research. The categories are new product/service development, service failure, self-service technology, self-creation/production, self-design/customization, and systems development. In the following, three categories will be looked at, which provides the reader with an understanding of how to approach and read the table.

By looking at the table it can be seen that the categories consist of research not always using the same terms for customer participation. Some categories predominantly use one term only, whereas for others, for example new product/service development, that is not the case. The area of technology-based self-services works with one key customer

participation measure, which is intention to (re) use the self-service. It is also noticeable, that the activity level in the self-service technology category varies between low and medium and customer participation always happens in the service delivery stage. Therefore, it can be said that from 1996, in which the first paper was published by Dabholkar (1996), to 2016 when the data collection process ended, the development of the customer participation term in the self-service context remained stable. The only aspects that changed over time were the different technologies to be researched as well as the context and country looked at by the authors. For example, over time, new technologies emerged on the market and research moved from studying self-services like computer-based options for ordering food in a store (Dabholkar 1996) to mobile technologies for use on the street or at home (Chau & Ngai 2010). As a result, it can be noted that the definition of customer participation, which is intention to (re)use self-service technologies, did not change to a large degree when it comes to the activity levels, the only aspects that have changed are the contexts and backgrounds used.

Compared to the self-service technology category, it can be noted that the new product/service development category contains higher activity levels to be carried out by the customer. The activity levels mostly vary between medium and high, however, low activity levels are also included with the authors' intention to compare different types of levels (Fang, Palmatier, & Evans 2008). Another difference to be highlighted is that customer participation can happen both at service and/or product level. However, most importantly, it needs to be pointed out that the new product/service development category contains research which uses different labels for customer participation. Some researchers define customer participation as co-development (Athaide, Stump, & Joshi 2003), others

use the term co-production (Skaggs & Youndt 2004) and Fang, Palmatier, and Evans (2008) name the key construct customer participation. The activities in a new product/service development context remain very similar throughout the research body, with key ideas being customers testing products and/or services, customers providing input into the development of the new offering, or customers being involved in the early stages of product design. Overall, the customer activity levels range from medium (Sethi 2000) to high (Skaggs 2004), and Fang, Palmatier, and Evans (2008) looked at the effects of customer participation on outcome variables by comparing different activity levels. From the early stages of customer participation in new product/service development in 2000, it can be summarized that the definition changed over the first few years up until 2008, from which time onwards researchers have focused on examining different contexts, markets, and variables to be studied in relation to the key construct, which can be antecedent, moderator, mediator, or outcome variables.

The third and final category to be looked at in detail is service creation/production. As the name indicates, the category is looking at services rather than goods, however, participation can happen at both the production as well as delivery stage of the core offering of the firm. However, most research contexts are looking at participation in a service delivery context (e.g. Hsieh & Yen 2005; Chan, Yim, & Lam 2010). The customer is predominantly active to a medium or high degree, however, some research has also looked at low activity levels by comparing all three degrees, meaning low, medium and high (Hsieh, Yen, & Chin 2004). Even though the definitions as such within the category remained stable over time, different activities as well as levels were looked at by researchers. Another key aspect of this category is that researchers started focusing on

negative aspects of customer participation with Chan, Yim, and Lam (2010) examining whether customer participation can be a "double-edged sword" as well as Greer, Russell-Bennett, Tombs, and Drennan (2014) looking at outcomes of negative activities like customer refusing to participate.

Overall, the table provides a summary of the definitions of customer participation used in different categories. The key point is that customer participation can be looked at from different activity levels, and it can occur at different stages in the life cycle of the offering. In addition, customer participation can happen both with services as well as products or a combination of both. However, as already highlighted in the previous paragraphs, in order for customer participation to be relevant for this PhD thesis, the definitions used have to contain at least one element across three aspects, a) the customer needs to carry some activity level, b) the customer needs to participate directly in the core offering of the firm, and c) participation must happen at at least one stage of the life cycle of the offering. Table 2 extends the first table by providing key customer participation activities as used in literature. Examples of said activities are given and indicative manuscripts are provided. The purpose of the second table is to give the reader an idea of what customer participation, as viewed for this research, entails and how it is measured. Furthermore, the table provides an initial overview of similarities and differences between the measures. The measures, depending on which type of construct is looked at, are different in nature, at times the focus of customer participation is simply on the use of self-service technology (e.g. Chong, Binshan, & Tan 2010; Ho & Ko 2008), whereas other measures place their focus on the different tasks the customers carry out (e.g. Nysveen & Pedersen 2014; Gallan et al. 2013). One common activity, as can be seen from the different

items provided in table 2, is the customer providing and sharing ideas to improve the offering and/or future encounters between customer and firm. A second activity which is looked at across different manuscripts measuring customer participation is that of the customer preparing for meetings in advance and doing things to make the employee's work easier (e.g. Mende & van Doorn 2015; Zainuddin, Russell-Bennet, & Previte 2013). Another activity looked at a variety of research manuscripts is that of the customer's DIY-behavior (e.g. Wolf & McQuitty 2013; Norton, Mochon, & Ariely 2012). As can be noticed, some of the items used require the customer to interact, however, it is the customer's activity level that is required for customer participation to happen. This can be seen by looking at the different items used, as all item lists require some sort, sometimes more, sometimes less, of activity.

Table 1: Customer participation definitions

Author(s)	Year of Publication	Context	Customer Participation Label	Production Core Offering	Delivery Core Offering	Pre-Purchase	Delivery of Core Service	Maintenance (Post Purchase)	Service Recovery (Post Purchase)	Low Activity	Medium Activity	High Activity
Dabholkar	1996	Self-Service Technology	Intention to Use SST		x		x				x	
Reinders, Dabholkar, & Frambach	2008	Self-Service Technology Examination of forced use.	Use of SST		x		x				x	
Chau & Ngai	2010	Self-Service Technology Youth studied as the target audience	Internet Banking Adoption		x		x			x		
Proenca & Rodgridues	2011	Self-Service Technology Comparison users vs non users	Use of SSTs		x		x			x		
Flores & Vasquez-Parraga	2015	Self-Service Technology *Difference voluntary and forced participation*	Use of SSTs		x		x				x	

Sethi	2000	New Product Development First paper explicitly looking at new product development context	Customer Influence	x		X					x	
Athaide, Stump, & Joshi	2003	New Product Development Similar to Sethi (2000). Use of new label for customer participation	Co-Development	x		X					x	
Skaggs & Youndt	2004	New Service Development Service context and use of new term	Co-Production	x		X						x
Fang, Palmatier, & Evans	2008	New Product Development Looked at different activities and the impact on outcome variables		x		X				x	x	x
Hsieh, Yen, & Chin	2004	Self-Creation / Production Service production and/or delivery context. Looked at different activity levels.	Participation	x	x	X	x			x	x	x

Hsieh & Yen	2005	Self-Creation / Production Hospitality, restaurant context. First time it is looked at impact of participation on employee's perceived stress	Participation		x		x				x	x
Chan, Yim, & Lam	2010	Self-Creation / Production First paper explicitly addressing whether participation can have negative effects as well	Participation		x		x	x				x
Greer et al.	2014	Self-Creation / Production Effects of 'destructive' behavior are examined	Refuse to Participate		x		x	x			x	
Bendapudi & Leone	2003	Self-Design / Customization Different types of activities	Participation	x	x	X	x	x			x	x
Moreau, Bonney, & Herd	2011	Self-Design / Customization Effect of customizing for oneself vs others.	Customization	x		X					x	x

Troye & Supphellen	2012	Self-Design / Customization Self-production of product or service (e.g. meal)	Co-Production	x				x				x
Yen, Gwinner, & Su	2004	Service Recovery First paper looking at service failure/recovery context	Participation		x		x		x	x		x
Roggeveen, Tsiros, & Grewal	2012	Service Recovery Looked at when participation is useful, therefore acknowledging that it is not always beneficial. Different contexts are being explored.	Co-Creation		x				x		x	
Tait & Vessey	1988	Systems Development	User Involvement	x				x		x		
Hawk & Dos Santos	1991	Systems Development	User Participation	x		X				x		
Wu & Marakas	2006	Systems Development Different levels of activity, high vs low	Customer Participation	x				x		x		x

This PhD thesis	**2019**	**All**	**Customer Participation**	x	x	X	x	x	x	x	x	x

Table 2 Items used for customer participation

Items Used	Indicative Manuscripts
• Use of / Adoption of Technology-Based Service / User	• Chong, Binshan, and Tan (2010) • Proenca and Rodrigues (2011) • Ho and Ko (2008)
• I often express needs to X • I provide suggestions to improve service • I participate in decisions of how X offer services • We find solutions to problems together • I am actively involved when X develops new services for customer • X encourage customers to create solutions together	• Nysveen and Pedersen (2014) • Solem (2016)
• I spend a lot of time sharing information about needs and opinions with staff during service process • I put a lot of effort into expressing personal needs to staff during service process • I always provide suggestions to staff on how to improve service outcome • I have a high level of participation in service process	• Chan, Yim, and Lam (2010) • Yim, Chan, and Lam (2012)

• I am very much involved in deciding how services should be provided	
• During visit to the doctor I actively shared information I had with X • I participated in a discussion about my condition with X • While I was there I told X everything I knew about my condition • I made considerable effort to discuss my condition with X • I worked hard to participate in my care at X • I put a lot of effort into being a good patient	• Gallan, Burke, Brown, and Bitner (2013)
• I prepare myself (and documents etc.) before meetings • I try to work cooperatively with X • I do things to make X's job easier • I openly discuss my situation with X to help him/her find the best solution for me • I perform tasks to help X to serve me better • I fully cooperate with X	• Mende and van Doorn (2015) • Zainuddin, Russell-Bennet, and Previte (2013)
• DIY Behaviors (fixing/repairing a broken item; building furniture)	• Wolf and McQuitty (2013) • Norton, Mochon, and Ariely (2012)
• Self-Design (own trip; journey, unlimited choice set)	• Pacheco, Lunardo, and dos Santos (2013)
• Self-Customization (own product, limited choice set)	• Blasco-Arcas, Hernandez-Ortega, and Jimenez-Martinez (2014)
• X invite me to provide ideas or suggestions • X encourage me to shape the service I receive • X provide me with control over my experiences • X let me interact with them in my preferred way	• Karpen, Bove, Lukas, and Zyphur (2015)
• The customer's involvement in NPD processes	• Keszey and Biemans (2016)

• The customer's involvement in identifying directions of innovation • The customer playing an important role in generating new product ideas • The customer's involvement in testing and evaluating in new product ideas	

2.4 The Importance of Customer Participation

The understanding of the role of consumers has evolved from them being passive recipients of goods and services to proactive participants in the activities of an organization in recent years (Fournier & Avery 2011; Gebauer, Füller, & Pezzei 2013; Schau, Muñiz Jr, & Arnould 2009) and involving customers in the "production" process has been a business reality for decades, if not centuries, in the field of "service provision" in particular. The relevance and importance of customer participation as previously defined has been looked at from both the customer's as well as the firm's perspective in literature. Different contexts have been examined regarding customer participation and its relationship with antecedent and outcome variables. Different authors have highlighted the importance of customer participation and its impact on key customer outcome variables like satisfaction (Heidenreich et al. 2015; Dong, Evans, & Zou 2008; Bendapudi & Leone 2003) and loyalty (Nysveen & Pedersen 2014; Auh et al. 2007) as well as key firm outcome variables like general financial performance (Chen, Li, & Arnold 2013) and speed of newly developed products to the market (Fang 2008). In the following subchapters, 2.4.1 and 2.4.2, the relationship of customer participation with antecedent and outcome variables is outlined from both the customer's and the firm's perspective.

2.4.1 Customer Participation from the Customer's Point of View

Generally, it is hoped that customer participation brings value for the customer, as the customer expects a better, more individualized service/core offering through participating in the production and/or delivery process (Chan, Yim, & Lam 2010). The motivation for

the customer to participate in customer participation can be two-fold. The first being of economic nature and the second for psychological reasons.

The economic reasons for the customer to volunteer participating in customer participation can vary. As Chan, Yim, and Lam (2010) and Ennew and Binks (1999) highlight, the first reason for the customer to be actively involved in the core offering production/delivery process is that the customer hopes to receive a better, more individualized offering based on his/her participation. This is possible because by participating in the service production/delivery process the customer provides the firm with information and insight regarding his/her wants and needs, information the firm can then use and incorporate in the offering (Auh et al. 2007). The authors further stress that by providing the company with information the firm can work with this information to improve the offering and provide a service that is closer to what the customer wants. Therefore, the first reason for the customer to participate in the production/delivery process of the core offering is to improve the quality of the offering and receive a more suitable product and/or service. Büttgen (2009) refers to this as a quality-based motive for participation.

Next to the quality-based motive for participation, which stems of an economic nature, there is the cost-based motive for the customer to participate in the production, delivery, maintenance and/or recovery of the core offering of the firm. Büttgen (2009) highlights that the cost-based motives for customer participation are when the customer hopes to pay less for the offering due to him/her participating by providing input. This could happen in a situation where the customer takes over a part that was previously carried out by an employee, for example when the customer self-designs a holiday online.

Finally, Meik (2015) works out that the final economic motive is that of a time-based nature, which is addressed by Bitner, Faranda, Hubbert, and Zeithaml (1997). The authors mention that customer participation can create value for the customer when he/she can save time in the process compared to no participation. One example for a time-based motive can be that of the use of self-service checkouts in a supermarket or retail outlet setting. This may be a quicker way of checking out groceries or clothes for the customer as opposed to queuing for the employee to check-out the goods.

As highlighted at the beginning of this subchapter, there are not only economic reasons for a customer to participate, as there are also psychological reasons which may be the driving force for the customer to participate in the marketing strategy. Meik (2015) emphasizes in this context that psychological reasons are particularly concerned with the customer-firm relationship as well as the impact of customer participation on the interaction between customer and employee. Furthermore, Yim, Chan, and Lam (2012) address psychological reasons in their research and state that voluntary participation can make the customer feel happy. In this context Meik (2015) stresses that it is this happiness that can positively impact on the customer-employee interaction and thus resulting in value as perceived by the customer. Adding to this, Chan, Yim, and Lam (2010) point out that the happiness and satisfaction of the customer can improve the interaction and communication between the customer and firm employee, which may ultimately strengthen the customer-firm relationship and result in (increased) customer loyalty (Yang, Chen, Chien 2014; Zainuddin, Russell-Bennet, & Previte 2014). However, creating feelings of happiness and satisfaction for the customer throughout the participation process is a challenging task for

the firm, as the state of the customer strongly depends on the provider's capability to manage these encounters successfully (Yim, Chan, & Lam 2012).

However, whether the customer enjoys customer participation does not only depend on the firm as the customer is also partially responsible for the "outcome" as Auh, Bell, McLeod, and Shih (2007) highlight. The customer's feelings towards the participation process are also shaped by the customer's own (perceived) ability/expertise (Auh et al. 2007) and attitudes (Reinders, Dabholkar, & Frambach 2008). This is underlined by Yim, Chan, and Lam (2012) who find that the stronger the customer perceives his/her own ability the happier he/she feels which then impacts positively on the customer satisfaction with the customer participation process.

Generally, the reasons for the customer to participate in the marketing strategy can be two-fold as they can be of economic or psychological nature as outlined in this subchapter. It is important to note that customer participation can impact on the customer positively and increase key outcome variables like customer satisfaction as found by Robertson, McDonald, Leckie, and McQuilken (2016), Wang, Harris and Patterson (2013) and Wang (2012), for example. This again has been found to be positively related to other key customer outcome variables like customer loyalty (Eisingerich & Bell 2006), (positive) word of mouth, and (re)purchase intention (Yim, Chan, & Lam 2012; Proenca & Rodrigues 2011), variables, which are also important for the firm as they can positively impact on the firm`s performance. However, increased customer outcome variables are not automatically secured due to some of the challenges highlighted in this chapter. Therefore, if not managed carefully, the customer participation can also negatively impact on the customer in the form of decreased customer loyalty as found by Stock and Zacharias (2013) and decreased

customer satisfaction as highlighted by Zhao, Mattila, and Tao (2008). Ultimately, it can be said that customer participation can be beneficial for the customer, however, this is not always the case.

In this subchapter, customer participation was looked at from the customer`s point of view and the different types of motivation for the customer to be involved in customer participation were introduced. Certain benefits were reviewed, which may hold for both voluntary as well as mandatory customer participation. However, it may be that the customer may not perceive these benefits as positive if participation is mandatory due to limited choice compared to voluntary (Reinders, Dabholkar, & Frambach 2008), which may pose a challenge for the firm. Therefore, in the following subchapter, subchapter 2.4.2, the reasons for customer participation are looked at from the firm's perspective. The whole chapter then finishes off with the identification of the research gap and the conceptual framework.

2.4.2 Customer Participation from the Firm's Point of View

Previously in subchapter 2.4.1, customer participation was discussed from the customer's point of view. However, the relevance of customer participation regarding outcome variables can also be discussed from the firm's perspective, which is done in this subchapter. One stream of research has emphasized potential risks and challenges regarding customer participation and its impact on performance quality (Büttgen 2007). However, there are also advantages in particular in regards to customer participation and its impact on performance quality due to the customer providing the firm with information on what he/she wants from the offering for example. One large stream of literature focuses on

customer participation and innovation/new product development (Watson et al. 2018; Chen, Tsou, & Ching 2011; Fang 2008; Magnusson, Matthing, & Kristensson 2003) whereas another focuses on (increased) quality/improvement of the offering in relation to the firm's general performance (Tsou & Hsu 2014; Skaggs & Youndt 2004). Overall, both streams of literature look into customer participation with the goal of achieving a competitive advantage (Slater & Narver 1995). Stock and Zacharias (2013) highlight that it is the increased quality of the offering and the development of new products in particular that are connected with more value for the customer. In the following subchapter, subchapter 2.4.2.1, customer participation is looked at from the provider's point of view by looking at opportunities and advantages. Following this, potential challenges of customer participation are examined from the firm's perspective in subchapter 2.4.2.2.

2.4.2.1 Customer Participation - Advantages and Opportunities

Customer participation can be seen as a key driver when it comes to new products/services development and innovation. Fang, Palmatier, and Evans (2008) point out that this is due to the firm acquiring information and knowledge by having the customers participate in the process of developing/innovating new products. Slater and Narver (1995) add to this by highlighting that this type of information may not be acquired by focusing on more traditional market research methods only. In the past, many product innovations have failed and are no longer on the market because they did not meet the customer's expectations (Henard & Szymanski 2001). The authors identify the firm not having sufficient access to the customer's needs to be one of the key reasons for failed product innovations. Therefore, incorporating the customer into the new product development process is seen as a key

factor for success (Fang, Palmatier, & Evans 2008; Terwiesch & Loch 1999), which aligns with the observations made by Slater and Narver (1995).

To this context Stock and Zacharias (2013) add that incorporating the customer into the new product development process can also provide higher security for the firm in regards to the offering due to the customer providing insight on what he/she wants and needs. In addition, it can be expected that products which are more aligned with the needs and wants of the customer impact on how customers perceive the quality of the offering (Hsieh, Tsai, & Wang 2008). This is supported by Sethi (2000) who finds that customer participation in new product development increases the product quality for the customer.

The positive attributes of involving the customer in product innovation can also be positively related to firm financial outcomes, both from a general business performance perspective (Pee 2016; Dabholkar & Bagozzi 2002) as well as directly linked to new product performance (Keszey & Biemans 2016; Gustaffson, Kristensson, & Witell 2012). These outcomes can be explained by findings made by Grissemann and Stokburger-Sauer (2012) as the authors detect that customer participation can lead to an increased customer expenditure. This subchapter was primarily about the benefits for incorporating the customer in the customer participation process, the next subchapter, 2.4.2.2, looks at the challenges and risks from the firm's point of view.

2.4.2.2 Customer Participation – Challenges

As highlighted in the subchapter 2.4.2.1, there are many reasons for a firm to incorporate the customer in their production, delivery, maintenance and/or recovery activities of their

core offering(s). However, customer participation does not necessarily lead to positive outcomes for the firm, as there are challenges the firm faces and needs to successfully manage on an ongoing basis. It is these challenges which are looked at in this subchapter.

One of the key challenges a firm faces when it comes to customer participation is that of the processes productivity as Meik (2015) highlights. One of the key factors that have an impact on the productivity is that of the customer's qualification as pointed out by Büttgen (2010). For customer participation to be efficient it is important that the customer has the ability, the willingness as well as knowledge on how to participate. This is supported by Dabholkar (1996) who finds that previous experience impacts positively on customer participation from the customer's point of view. Also, people with previous experience may be more willing to participate again (ibid.). Therefore, the efficiency of customer participation may be directly linked to the customers who participate, as more experienced customers may increase the overall efficiency of the customer participation process more than less experienced people. However, it is not necessary to only have customer participate who have previous experience. In this case, Gouthier (2003) stresses that it is important for the firm to educate and train their customers in regards to the task at hand. By receiving proper training, the customers' ability can increase and more likely lead to higher efficiency of the customer participation process. Due to these facts, it can be said that customer participation requires a certain effort from the firm. Meik (2015) therefore highlights that customer participation increases in importance from the firms' perspective when a long-term customer-firm relationship can be expected.

Mills, Chase, and Margulies (1983) further add to customer training by stressing that the firm's employees have to devote more time, effort and brainpower in the training

process the more the customer participates and the more complex the tasks carried out by the customers get. Therefore, it can be said that the costs of input factors increase for the firm. However, simultaneously this also enables the firm to gain more and new information throughout the process. Here, Meik (2015) points out that the efficiency of having the customer participate in the different stages of the core offering depends on the design as well as type of the customer participation. There is no clear answer regarding the impact of customer participation on the firm's overall productivity. On the one hand, researchers like Chase (1981) say that customer participation exerts a negative impact on the productivity. In a new development context Olson, Walker, and Ruekert (1995) also stress that by involving the customer in product development, its speed to market may be decreased due to the customer and manufacturer having different perspectives which may need to be resolved first, something which is also addressed by Fang (2008). Therefore, depending on how long it takes to resolve the differences, the product's speed to market can be delayed, which can ultimately impact on the firm's overall productivity negatively due to an increase in costs for example.

However, Lovelock and Young (1979) stress that customer participation can have a positive impact on the firm's overall productivity due to a reduced amount of work from the provider's perspective. Büttgen (2007) summarizes this by highlighting that an increase in the firm's productivity could be achieved through customer participation by having the customer taking over work that was previously carried out directly by the firm. One key example is the use of self-service technologies as customers no longer need employees' help due to being able to check out their items themselves. This is a task that was

previously carried out by the firm's own workforce. This is a concept that is also referred to in literature as customers being partial employees (Hsieh, Yen, & Chin 2004).

Another important factor contributing to an increase in the firm's productivity is mentioned by Büttgen (2007). The author indicates that the way the customer participates has an influence on the result. It is important that the customer provides valuable information and knowledge and is able to communicate his/her ideas clearly. However, the customer does not automatically provide valuable information and knowledge as has been discussed extensively in literature. It has been identified that customers can misbehave, which can be both of intentional as well as unintentional nature (Greer et al. 2014). For this, different terms have been used. Some researchers call the customer's misbehavior opportunistic behavior (Gruen 1995), others call it deviant customer behavior (Moschis & Cox 1989), problem customers (Bitner, Booms, & Mohr 1994) and customers from hell (Zemke & Anderson 1990) to name a few. However, regardless of the term used customer misbehavior has been identified as problematic and thus, in a customer participation context, can ultimately impact on the firm's productivity in a negative way. This can happen when customers refuse to provide accurate information or refuse to participate altogether but still expect a successful outcome to occur (Greer et al. 2014). This is particularly problematic in a forced customer participation context where the customer's input is required. The health care context can be named as an example for forced customer participation as the customer's input regarding information provision and preparation is needed for the health treatment to be successful.

Another challenge for the firm regarding customer participation is that of the customer's relationship with the provider. Bitner, Booms, and Mohr (1994) emphasize that

customer participation leads to an intensive exchange and contact between the customer and the firm´s employee(s). Research has looked at customer-firm employee relationships in a customer participation context and it is of particular interest which relationship gets stronger with having the customer participate in the different stages of the core offering, the customer-firm or the customer-employee relationship (Brady, Voorhees, & Brusco 2012; Palmatier, Scheer, & Steenkamp 2007). It is said that a strengthened relationship between customer and firm affects the company positively, however, the effects of a stronger customer-employee relationship are not as clear as this may pose challenges for the firm (Brady, Voorhees, & Brusco 2012).

As the research by Palmatier, Scheer, and Steenkamp (2007) and Gremler and Gwinner (2000) shows, literature clearly distinguishes between customer loyalty to a) the firm and b) individual employees. Compared to firm loyalty, the customer-employee loyalty can be defined as the customer´s willingness to continue business with the employee/salesperson (Palmatier, Scheer, & Steenkamp 2007). The authors stress that this loyalty is not tied to the firm the salesperson works for in any way, as the customer is primarily loyal to the employee. This is why it is important to highlight that in this case the customer´s primary aim is to uphold the relationship with the employee rather than the firm. This could possibly impact on the firm in a negative way in several situations, one being if the employee left the firm to go and work somewhere else. If the customer was more committed to the employee he/she would possibly switch firms to uphold the relationship with the employee, which would have a negative impact on the firm´s productivity.

With customer participation in particular it is important to stress this challenge as the context may require particularly high and intensive customer-employee interaction, which may lead to the customer bonding with the employee rather than the firm. However, this would require a customer-employee relationship which the customer perceives as good, something which may not always be the case. Chan, Yim, and Lam (2012) highlight, that customer participation can also cause stress for the employee and lead to employee job dissatisfaction, which may result in unfriendly behavior from the employee. In this case the customer may also decide to take his/her business elsewhere and therefore, the firm´s productivity would again be negatively affected. Gremler and Gwinner (2000) and Kim, Ok, and Gwinner (2010) highlight that a good customer-employee relationship has the potential to positively affect key customer-firm outcome variables like customer satisfaction and recommendation intentions. Thus, a harmonious customer-employee relationship serves as the starting point for strengthening customer loyalty towards the actual firm. However, it is this harmony that can be affected by the employee´s moods and attitudes, which is why it is important for the firm to properly manage and monitor these relationships to minimize the risk of having the productivity negatively impacted by customers leaving the firm and going elsewhere.

In summary it can be said that customer participation is a great opportunity for the firm to become more productive and successful in the market as well as to get a competitive advantage. This can be due to cost savings and the customer input for example, which can help the firm in designing products that are more aligned with what the customer actually wants and needs. However, customer participation also poses certain challenges for the firm, which should not be discarded by the firm. Therefore, customer participation does not

automatically lead to positive outcomes for the customer and firm alike and research on the outcomes of customer participation is not conclusive. The opportunities and challenges regarding customer participation from both the firm's as well as the customer's point of view are summarized in table 3. It is the thought of inconclusive results regarding customer participation that serves as the research gap which this thesis addresses. The next chapter, chapter 3, focuses on developing this research gap in depth.

Table 3 Challenges and opportunities customer participation

Reasons for Customer Participation	**Challenges/Threats of Customer Participation**
Customer: • Higher quality, more individualized product • Cost reduction • Time saving • Feelings of happiness and satisfaction • Higher perceived value of firm-customer relationship • Increased loyalty • Positive word of mouth • Increase (re)purchase intention	• Needs careful management • Customer's own (perceived) ability • Customer's own expertise • Customer attitudes • Decreased customer loyalty • Lower customer satisfaction
Firm: • Increased quality of offering / competitive advantage • Serving customers' needs better	• Process productivity (customer qualification, ability, and/or willingness to participate may be low)

• New product/service development • Increased financial outcomes (increased customer expenditure) • Reduced workload	• Education and training provision • Firm's employees' feelings/perceptions • Increased costs • Misbehaving customers • Firm vs. employee customer loyalty

3. Research Gap

The understanding of the role of consumers has evolved from passive recipients of goods and services to proactive participants in the activities of an organization over time (Fournier & Avery 2011; Gebauer, Füller, & Pezzei 2013; Schau, Muñiz Jr, & Arnould 2009). Customers' participation in the firms' core offering production, delivery, maintenance, or recovery is increasing in importance and the participative role of customers is seen as including tasks such as undertaking duties normally associated with service employees (Mills & Morris 1986; Schneider & Bowen 1995); engaging with self-service technology or through collaboration with service personnel (Dabholkar & Bagozzi 2002; Meuter, Ostrom, Roundtree, & Bitner 2000). Ostrom, Parasuraman, Bowen, Patricio, and Voss (2015) underline that in contemporary marketing contexts "customers have more to do and thus play a greater role in service development and delivery and that, even when technology assists them in such roles, more is expected of them" (p. 139). It seems that, under certain conditions, firms can derive success from customer participation (Jaworski & Kohli 2006; Prahalad & Ramaswamy 2004) but it is less clear if participation is universally beneficial with research highlighting both pitfalls and risks (Haumann et al. 2015; Rust & Thompson

2006) as highlighted in the literature review. This subchapter sheds more light onto the research problem at hand by reviewing key research and outlining the research gap in more depth. The subchapter then concludes with the overall conceptual framework used in this thesis.

The key focus of this research is to identify when customer participation is 1) equally beneficial for both parties involved, 2) (more) beneficial for the customer only, 3) (more) beneficial for the firm only and 4) not beneficial / less beneficial for the firm as well as customer. The recommendations for the first situation is clear with customer participation being clearly recommended due to its mutually beneficial nature. Recommendations for situation 4 depend on whether the parties are negatively affected or whether participation is still beneficial but less so for both participating partners in a given situation. In case parties are negatively affected, customer participation is not recommended as a marketing strategy and should be avoided. However, in case both customer and firm still benefit but less so participation should still be used, but the focus should be on either finding ways for both parties to increase outcomes or focus more on other customer participation situations. Customer participation in critical situations 2 and 3 is generally recommended, however, ways have to be explored of how both parties can benefit equally. This is particularly the case if one partner is not only benefiting less but actually negatively impacted. For example, the customer could be very happy with participating in the core offering development and/or delivery, however, this may be very costly for the firm or the firm's outcomes are unaffected. So in this case, the customer would benefit from customer participation but the firm may not as the costs could outweigh the additional benefits. Therefore, it is these encounters, which are most relevant as perhaps

it may be possible to turn a critical situation (one partner benefits more than the other) into an outcome in which both parties benefit equally. Ideally, customer participation in certain situations should lead to more benefit for both the customer as well as the firm (situation 1).

The idea that customer participation could provide a benefit for both the customer as well as the company is supported by one stream of research. Literature being part of this stream of research highlights that firms can benefit from involving customers in the service delivery in various ways, such as using costs and time more efficiently (e.g. customer self-service) (Dabholkar & Bagozzi 2002), which would be good for both the firm as well as customer. Firms may get to save on wages as fewer employees are needed and the customer may save on time due to a faster checkout process. The customer may even enjoy using the self-service technology as identified by Dabholkar (1996), which then positively impacts on customer outcome variables such as satisfaction (Yim, Chan, & Lam 2012) and future behavior like reuse intentions (Yim, Chan, & Lam 2012; Dabholkar 1996) and positive word of mouth (Mols 1998).

Furthermore, it has been found that by creating ideas regarding the design and manufacturing process together with the customer, the firm is able to fulfill their consumers' needs better (Jaworski & Kohli 2006; Prahalad & Ramaswamy 2004). In addition, researchers found that customers become more involved with the company when participating in the service delivery process, which in turn positively affects the customer's trust towards the firm (Jaworski & Kohli 2006). Higher trust in the firm is desirable for the provider, as trust is said to affect future intentions positively and leads to the customer's increased willingness in doing business with the same provider again (Fueller, et al. 2010). It has also been found by Dong, Sivakumar, Evans, and Zou (2015) that customer

participation leads to the customer´s increased perception of overall service quality, which is very important in delivering superior value to the customer. Therefore, this stream of literature identifies customer participation as a positive marketing strategy for both customers and firms as key variables were found to be affected positively by having customers participate in the production, delivery, maintenance or recovery stage of the core offering of the firm.

Even though one stream of research has found that both customers and firms can benefit from customer participation by ultimately creating joint value, the findings are inconclusive. This is the case because a second stream of research provides evidence that customer participation does not necessarily result in joint value creation as it can also lead to the opposite result, called co-destruction (Smith 2013; Worthington & Durkin 2012; Plé & Cáceres 2010). According to Plé and Cáceres (2010) and in line with Greer (2015) co-destruction happens when at least one partner is not benefiting from customer participation and the term has only been recently introduced to academic literature. The authors also identify that co-destruction can be triggered by all participating parties, both the customer and firm. In line with this, researchers have identified different kinds of behaviors which can result in co-destruction, such as opportunism (John 1984) and dysfunctional behavior (Harris & Reynolds 2003), which were addressed as customer participation challenges from the firm's point of view in subchapter 2.4.2.2. Jaworski & Kohli (2006) extend these findings by stating that whether the customer should be involved in the service delivery process also depends on situational factors such as the customer's/firm's complementary skills/capabilities.

Other research further suggests that participation can be perceived by customers as negative or exploitative. For example forcing customers to participate through self-service technology can negatively affect perceived control and attitude toward the firm (Reinders, Dabholkar, & Frambach, 2008) and negative outcomes are also associated when customers perceive participation to be 'intense' (Haumann et al., 2015), or if firms fail to provide appropriate support for customers (Gelbrich & Sattler, 2014).

In a new product development context there is also evidence that customer participation can benefit firms' innovation outcomes. Studies show benefits of customers participating in a firm's innovation process (Kristensson, Gustafsson, & Archer 2004), at the product design stage (Matthing, Sanden, & Edvardsson 2004), or in the area of new product development (Hsieh & Chen 2005). However, in opposition, research highlights negative implications of participation particularly on employees with issues relating to recruitment and job-design but also increases in role stress, emotional exhaustion, and reduced job satisfaction or even dissatisfaction (Auh et al 2007; Chan, Yim, & Lam 2010; Hsieh, Yen, & Chin 2004). Table 3 provides an overview of papers that have found evidence that customer participation can lead to both positive as well as negative outcomes. However, even if the overall effect indicates a positive impact of customer participation on outcome variables, the strength of the effect size ranges from low to high effects and indicative papers are provided to demonstrate this. The table does not cover all possible outcome variables, the chosen articles and examples are exemplary only to show that findings are inconclusive which highlights the importance of conducting a meta-analysis to identify who profits (more) from customer participation, the customer, the firm, or both or if no participating partner benefits from the marketing strategy.

Due to the inconclusive evidence in research it is not clear when customer participation should be used and when it should be avoided. As highlighted at the beginning of this chapter, the ideal situation is that both parties benefit equally from participation and this is when it is recommended to use customer participation. The opposite happens when both parties are negatively impacted from the marketing strategy, and here it is advised not to use customer participation. In case situations occur, which lead to the parties benefiting less from customer participation, it is recommended to let customers participate but find ways for how to improve outcomes for both customer and firm. Critical situations require a particular focus due to their inconclusive nature. One partner benefits more from customer participation than the other. The second party involved can be either impacted negatively or benefit less. In both cases ways should be explored how the marketing strategy can lead to an equally beneficial outcome to increase the benefits for both customer and firm. Therefore, it is one aim of this PhD thesis to identify the different situations to be able to provide recommendations on what should be done. The four situations regarding outcome variables for both customer and firm are identified by a comprehensive, empirical assessment of the drivers and outcome variables of customer participation as used in research.

As a result of the discussion above, the following research questions are of interest for this PhD thesis and the conceptual framework is presented in figure 1:

1. Study 1: What are the consequences of customer participation (Study 1: descriptive study)
    a. For customers?
    b. For firms?

2. What are moderators affecting the effect of customer participation on firm as well as customer outcome variables? (Study 2)
3. Who gains more from customer participation in which situations / under different circumstances and how can these be turned into equally beneficial situations for both customer and firm? (Study 2)

In order to be able to answer research questions 1-3, a two-step meta-analysis is conducted. The process of conducting a meta-analysis is described in detail in the next chapter, chapter 4, and following this the process is applied to the approach as used for this research in chapter 5.

Figure 1 Conceptual Framework

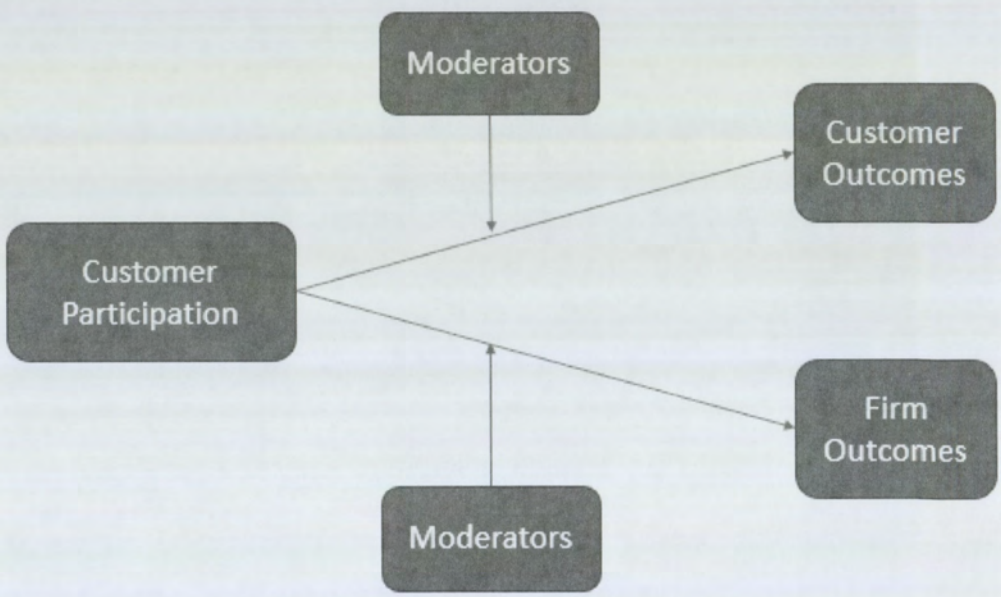


Table 4 Customer participation impact on outcome variables

Article	Outcome Variable	Effect (Correlation Coefficients)	Meaning/Interpretation
1. Wang, Harris, & Patterson (2013) 2. Eisingerich, Auh, & Merlo (2014) 3. Gallen, et al. (2013)	Customer Satisfaction	.72 .48 .36	Customer Participation increases customer satisfaction.
1. Chan, Yim, & Lam (2010) 2. Volvic Chen, Chen, & James Lin (2015)	Employee Satisfaction	-.20 .20	Customer Participation reduces employee (job) satisfaction. Customer Participation increases employee (job) satisfaction

1. Yim, Chan, & Lam (2012) 2. Hsieh & Yen (2000) 3. Volvic Chen, Chen, & James Lin (2015)	Job Stress	.31 .21 -.22	Customer Participation increases employee job stress. Customer Participation reduces employee job stress.
1. Eastlick, et al. (2012) 2. Yim, Chan, & Lam (2012)	(Re)purchase Intention / (Re)usage Intention	.89 .36	Customer Participation increases (re)purchase / (re)usage intention
1. Robertson, et al. (2016) 2. Proenca & Rodrigues (2011)	(Positive) Word of Mouth	.83 .02	Customer Participation increases (positive) word of mouth

1. Chan, Yim, & Lam (2010) 2. Yim, Chan, & Lam (2012) 3. Nijssen, Schepers, & Belanche (2016)	Customer Perceived Value	.53 .37 .11	Customer Participation increases the customer perceived value (e.g. of participation process / relationship with provider)
1. Melton & Hartline (2015) 2. Smets, Langerak, & Rijsdijk (2013)	Product Innovativeness	.20 -.25	Customer Participation increases product innovativeness Customer Participation decreases product innovativeness

4. Methodology: Meta-Analysis

The purpose of this PhD thesis is to ultimately explore in which situations customer participation leads to a beneficial outcome for the two parties involved, which are the customer and the firm. As highlighted in the literature review and research gap chapter the findings regarding customer participation are inconsistent, which shows that the process of involving the customer in the production, delivery, maintenance and/or recovery of the core offering of the firm does not necessarily have to be a good thing for the parties involved. Hence it is not clear in which situations customer participation is supposed to be used by firms as a strategic marketing tool as it can either benefit both parties involved (ideal situation), harm both the firm as well as customer / both parties do not benefit (more), or have one party benefit more than the other (trade off situations). To address this research gap two studies are conducted. The purpose of these two studies is to be able to summarize and generalize the existing findings in the research area of interest regarding customer participation and outcomes depending on the influence of moderating variables. Both studies are based on a meta-analysis, which is introduced in the remainder of this chapter. First, the research paradigm will be introduced and following this, the method is outlined from a theoretical perspective. Afterwards, the process of conducting the meta-analysis for this PhD thesis is described in detail.

4.1 Research Paradigm

In general, research paradigms are "a set of assumptions consisting of agreed-upon knowledge, criteria of judgment, problem fields, and ways to consider them" (Malhotra,

Birks, & Wills 2012, p. 192). Guba (1990) characterizes the research paradigms through three factors, namely ontology, epistemology, and methodology. Ontology looks at what is reality (Gray 2013). Researchers generally make assumptions regarding the functioning of the world. Saunders, Lewis, and Thornhill (2015) identify that ontology consists of two elements, namely objectivism and subjectivism. On the one hand, there is objectivism, which represents the view point that social entities exist in the world but are external to social actors. On the other hand, the subjectivist approach (alternative names are constructionism and/or interpretivism) relates to the stance point that social phenomena are created by actors based on the actors' reality perception (Saunders, Lewis, & Thornhill 2015).

Whereas ontology looks at what things are, epistemology is concerned with where we know things from, thus the sources of our knowledge. Lee and Lings (2008) identify positivism and interpretivism as the two main approaches in epistemology. The two paradigms can be compared by looking at different criteria. Malhotra, Birks, and Wills (2012) stress that no approach is better or stronger than the other and that each paradigm has its own advantages and disadvantages "specific to any research question under investigation" (p. 195).

The first criterion to compare the research paradigms against, is **reality**. Here the positivist believes reality to be "out there" to be captured. As a result, for the positivist it is a matter of "finding the most effective and objective means possible to draw together information about this reality" (ibid). Compared to the positivist approach, the interpretivist is led by the belief that there is no single objective reality but rather multiple ones, which makes reality a subjective matter (Lee & Lings 2008).

The second feature is **researcher-participant**. The positivist approach considers the participant as an 'object' that needs to be measured. The key here is that the measurement needs to be reliable and/or consistent (Malhotra, Birks, & Wills 2012). On the contrary, interpretivists view participants as their 'companions' or 'peers'. Together, they are looking for the right context and means for observations and/or questioning of the research participants.

Values represent the third criterion to compare the research paradigms against. Malhotra, Birks, and Wills (2012) state that the positivist researcher is driven by the want to "set aside his or her own personal values" (p. 196) and to remove any potential bias. Contrary to this, the interpretivist acknowledges that his or her own personal values and beliefs affect the research at hand, namely the observation, questioning of participants as well as interpretation of findings (ibid.).

The fourth feature is the **researcher's language**. Due to the positivist seeking to measure in an unbiased and consistent way, the language used should be as unambiguous and uniformly recognized as possible (Malhotra, Birks, & Wills 2012, p. 196). Therefore, the positivist researcher looks to existing theory, imposing "a language and logic upon target participants in a reliable and consistent manner" (ibid.). Compared to the positivist's approach, the interpretivist allows changes in language used from participants the more he or she learns about the topic and nature of participants at hand.

The final criterion Malhotra, Birks, and Wills (2012) use in distinguishing the positivist from the interpretivist approach is the actual **theory and research design**. The positivist mainly seeks to establish causality between variables (Lee & Lings 2008), which helps the researcher in explaining phenomena and predict repeated occurrences of

something that has been found in different contexts. Usually, experiments are used to test for causal relationships between variables. The positivist's fundamental goal for research design is to be able to generalize the findings to the wider target population (Malhotra, Birks, & Wills 2012, p. 196). For getting consistent and unbiased responses, the positivists use theory to develop measurements (ibid.). On the contrary, the interpretivist uses case studies to uncover several influences of (marketing) phenomena and to develop theory based on this. This approach helps the researcher to describe happenings and get insights that are new and creative (ibid.).

To summarize this, the positivist works through deduction. This means that the research problem is set in the context of pre-existing and well-developed theory and the researcher uses the theory as a vital guide to his or her research (approach). From the established theoretical framework, the issues for enquiry are developed by the researcher. For this, the author identifies specific variables, which he or she wants to measure. This links to the researcher setting hypotheses, which shall be tested through conducting the research. For being able to measure the variables of interest, the researcher then has to develop a research instrument, for example a questionnaire containing closed questions. The author then hands the instrument to participants, who participate in the research by giving answers to set questions, using a consistent language as well as logic (Malhotra, Birks, & Wills 2012, p. 197). Finally, the author analyzes the responses by looking at the theoretical framework, which was established prior to the research. So ultimately, the researcher(s) aim for testing theory and reject or support hypotheses based on said theory. Malhotra, Birks, and Wills (2012) identify that this process means that "positivists reach conclusions based upon agreed and measurable 'facts'" (p. 197). Compared to this, the

interpretivist works through induction, which means that an area for enquiry is identified with a limited or non-existent theoretical framework. Research areas for enquiry are identified through observations or participants directly in specific contexts. Based on this, interpretivists rather aim at developing theory (ibid.). A summary of the paradigm features for both positivism and interpretivism can be found in table 5.

Table 5 Paradigm features (Malhotra, Birks, & Wills 2012, p. 195)

Issue	Positivist	Interpretivist
Reality	Objective and singular	Subjective and multiple
Researcher-participant	Independent of each other	Interacting with each other
Values	Value free = unbiased	Value laden = biased
Researcher language	Formal and impersonal	Informal and personal
Theory and research design	Simple determinist Cause and effect Static research design Context free Laboratory Prediction and control Reliability and validity Representative surveys Experimental design Deductive	Freedom of will Multiple influences Evolving design Context-bound Field/ethnography Understanding and insight Perceptive decision making Theoretical sampling Case studies Inductive

Realism has been introduced by Feigl (1950) as an alternative to positivism. The two paradigms are mainly distinguished by their points of view. Lee and Lings (2008) highlight, that realism views the world as objective while also allowing the researcher to research things which existence cannot be directly confirmed. Realism allows to investigate variables or happenings of things without researchers being able to confirm their actual existence. Even though it is not possible to confirm the existence of something realism embraces the point of view that these things can still exist (ibid). It can be argued that the advantage of accepting realism over positivism is that realism allows for testing variables which cannot be observed as long as it is possible to observe their effects, which shows that the unobservable variable actually does exist (ibid.).

Nonetheless, for this thesis, the positivist research paradigm applies. The thesis' aim is to test when customer participation works for customer and form by finding situations which 1) lead to (more) beneficial outcomes for both parties involved, 2) lead to (more) beneficial outcomes for the firm only, 3) lead to (more) beneficial outcomes for the customer only, or 4) does not lead to (more) beneficial outcomes for both parties. For this, a meta-analysis is conducted, aiming to generalize the findings across the whole customer participation area. Secondary data from quantitative research is collected. In quantitative research, the paradigm features of positivism apply (see table above). The researcher and participant are independent of each other and the reality is seen as objective and there is only one reality "out there", which the researcher aims to find out/test. To test the relationships between customer participation and outcome variables for the meta-analysis, hypotheses are developed, using existing theory. Furthermore, the aim is to additionally

find the boundary conditions for said theories as it is tested when customer participation leads to (more) positive outcomes and when it results in negative effects.

Therefore, the approach adopted for the thesis is the deductive approach. Due to testing the relationships between customer participation and outcome variables based on well-developed theory, the context pre-exists as it was developed in previous research. The theory used, as outlined in the hypothesis section in chapter 7, acts as a vital guide to this research and enables the development of hypotheses, which are tested with the meta-analysis. The identified variables are customer participation and certain outcome variables, which were measured in previous research using existing scales. The meta-analysis data is analyzed by looking at the established theoretical framework, meaning that theory is tested to reject or support the developed hypotheses regarding customer participation and outcome variables as influenced by moderators. Based on this, the aim of conducting the meta-analysis is to reach conclusions based upon agreed and measurable 'facts', as stated by Malhotra, Birks, and Wills (2012). As a result of the aspects mentioned in this paragraph, the positivist paradigm holds for this thesis.

Now that the research paradigm has been identified, the following subchapters, and therefore the remainder of chapter 4, look at the theoretical approach on what a meta-analysis is and how it is conducted.

4.2 Meta-Analysis Method: An Overview

In general, a meta-analysis is referred to in literature as "the analysis of analyses … the statistical analysis of a large collection of analysis results from individual studies for the

purpose of integrating the findings" (Wolf 1986, p. 11). This means that statistical results from individual studies, which can be related but also completely independent, are being integrated and analyzed together. Lipsey and Wilson (2001) add to this by stating that:

> "meta-analysis can be understood as a form of survey in which research reports, rather than people, are surveyed. A coding form (survey protocol) is developed, a sample or population of research reports is gathered, and each research study is "interviewed" by a coder who reads it carefully and codes the appropriate information about its characteristics and quantitative findings. The resulting data are then analyzed using special adaptations of conventional statistical techniques to investigate and describe the pattern of findings in the selected set of studies" (pp. 1-2).

Thus, the meta-analysis is regarded as a quantitative research technique to summarize findings, which is less subjective than qualitative research and thus considered as more reliable (Eisend 2014). Nonetheless, it can be said that a meta-analysis is comparable to other empirical research methods. The difference is that with meta-analyses the research emphasis lies on already conducted research and its findings with the ultimate goal of being able to explain differences in the results from the individual studies (ibid). Therefore, the procedure of conducting this form of analysis is similar to the procedure of conducting other primary research for example surveys or interviews. First, the research problem needs to be identified and the variables of interest have to be specified. Following this data is collected and coded. Once the coding is done the data needs to be analyzed and then presented. Before going through the procedure of conducting a meta-analysis in more depth, a brief history of the method and its development is provided.

Summarizing findings quantitatively has a long history in the field of science.[10] Starting off as a rather simple way of summarizing findings goes back as early as the beginning of the 18th century where a meta-analysis was used by mathematician Roger Cotes to analyze the means measured by different astronomers (Shadish, Cook, & Campbell 2002). The meta-analysis was further developed and refined throughout the years and from the 1950s onwards the first quantitative integrations of findings have emerged in the fields of psychology and education (Eisend 2014). The author further identifies that the first meta-analysis in the sense of how the method is perceived and understood nowadays was born in the 1970s when the term "meta-analysis" was firstly mentioned by Gene V. Glass at the annual conference of the *American Educational Research Association* (ibid). Ever since there has been a noticeable increase in numbers regarding the use of quantitative results summaries as well as systematic studies of meta-analytic methods. Nowadays there are already studies analyzing meta-analytical data itself. These studies are being referred to as "meta-meta analyses" or "mega-analyses" as Eisend (2015) identifies.

After providing a brief insight into the history of meta-analyses the remainder of this chapter now looks at the process of conducting a meta-analysis, which follows a systematic procedure as highlighted previously. This systematic procedure is described in the following subchapter, subchapter 4.3, in detail. Following this it is outlined how the procedure is applied to studies of this PhD thesis.

[10] For a more extensive outlining of the history of meta-analyses please see Hunt (1997).

4.3 The Procedure of Conducting a Meta-Analysis

Overall Eisend (2014) identifies that there are five steps to follow when conducting a meta-analysis, which have been followed by established research such as Blut, Teller, and Floh (2018); Eisend, Evanschitzky, and Gilliland (2016); Blut, Frennea, Mittal, and Mothersbaugh (2015); Evanschitzky, Eisend, Jiang, and Calantone (2012); and Eisend (2009). These five steps can be described as follows:

1. Variable specification (specifying the research problem)
2. Collection of research material relevant to the research problem
3. Coding and evaluation of research material
4. Data analysis
5. Presentation and interpretation of findings

In the remainder of this chapter each step is looked at in more detail to provide an extensive overview of how a meta-analysis is conducted. This is necessary as these five steps are then applied to the meta-analysis for this research. This process is looked at in more depth in chapter 5.

4.3.1 Step 1: Specification of Research Problem and Variables

Comparable to any other research a meta-analysis starts with the formulation of the research problem and specification of the research questions. Once the research problem has been identified by the researchers the variables of interest can be determined. These dependent and independent variables lie at the core of the research problem and need to be

specified for the meta-analysis so that their relationships can be examined for the purpose of addressing the research problem.

Before deciding on using a meta-analysis as the methodological approach for answering the research question(s) the researcher needs to be aware of that the meta-analysis is not suitable for all kinds of research. First, Eisend (2014) mentions that meta-analyses are solely based on quantitative empirical research. This means that purely conceptual and theoretical as well as qualitative research cannot be used for this research method as it would not be possible to analyze the data. The author further stresses that the use of a meta-analysis is only advisable when the researcher(s) do not have access to the original data of the primary research. In case the researcher(s) can access the original data of the primary research Eisend (2014) points out that the use of a secondary analysis would provide the authors with a wider range of possibilities to evaluate the data at hand. Thus, a meta-analysis is only recommended if the researcher(s) have access to research results only. Another factor which needs to be taken into consideration before conducting a meta-analysis is the amount of research that is needed for addressing the research problem. In case the amount of existing quantitative empirical research is sufficient, it can be advised to use a meta-analysis as the methodological approach for the research (Lipsey & Wilson 2001).

With the definition of the research problem the variables to be used for the research also need to be specified. The specification of independent and dependent variables, which relationships are to be examined with the meta-analysis, automatically defines the total number of suitable research that can be included in the analysis (Eisend 2014). This is the case as all research which contains useable statistical information on the relationships

between the defined independent and dependent variables for the research at hand is part of the total amount of research that can be incorporated in the meta-analysis. Eisend and Küster (2011) stress that authors conducting a meta-analysis normally specify one (dependent or independent) variable, which is the focus of the research and thus serves as the key variable which needs to be a part of the relationships to be coded for the research. There is no right or wrong when it comes to variable definition which is why it is possible for researchers to define their key variable(s) loosely or narrowly. Eisend (2014) further highlights that it is not compulsory for the variable(s) to have the same definition as the variable(s) in the primary studies, which means that it is acceptable for the variables' definition to differ. As a result, a primary study does not automatically have to be excluded from the research in case the variables have different definitions. For example, this could be the case if the focus of the research is on a widely defined construct which may be based on several more narrowly defined constructs as used in other primary research. However, it is then necessary for the authors to be very precise when it comes to defining which constructs are part of the key variable of interest for the research and which ones are not. For this the researchers need to come up with very precise rules for how to code the data to avoid ambiguity and vagueness as far as possible (Hunter & Schmidt 2004). An example for this can be taken from a meta-analysis conducted by Chang and Taylor (2016). The authors use a widely defined construct (customer participation), however, they specify that only research based on participation in a new product development context is relevant for the study and as a result exclude all other papers looking at the main construct as well.

There are disadvantages as well as advantages to having a widely defined construct serving as the key variable for the meta-analysis as Cooper and Hedges (2009) point out.

The wider the concept definition the more time consuming the process of conducting a meta-analysis may be as more research studies relevant to the key construct can be found. On the one hand, the authors stress some of the advantages of having a widely defined key variable, which for example are that this allows for a broader application and generalizability of the results coming from the meta-analysis. However, on the other hand part of the disadvantages of having a widely specified construct is that this allows for less precision as well as a higher heterogeneity of results (ibid).

Overall it can be concluded that the specification of variables determines the total number of research that is relevant for the meta-analysis. However, the specification of variables is not the only relevant criterion when defining which research is looked at when searching for publications that can be included in the meta-analysis. The authors Lipsey and Wilson (2001) and Littell, Corcoran, and Pillai (2008) identify additional search criteria for relevant research, which are introduced in subchapter 4.3.2.

4.3.2 Step 2: Collection of Research Material Relevant to Research Problem

As highlighted in the preceding subchapter, subchapter 4.3.1, the definition of variables is not necessarily the only determinant which specifies the total number of quantitative empirical research that is relevant for the meta-analysis. Additional selection criteria can be determined as Lipsey and Wilson (2001) and Littell, Corcoran, and Pillai (2008) identify additional selection criteria which are discussed throughout this chapter.

- Type of publications and/or manuscripts: Here it is important to specify which type(s) of research will be looked at for the meta-analysis. Are only

peer-reviewed publications looked at or other manuscripts such as conference papers and working papers screened for relevant work as well?

- Culture and language: will the search be limited to research in the English language or are publications in other languages looked at as well? Generally, it can be said that the search is limited to research published in English due to the reason that publications in foreign languages are not easily understood, if at all.
- Time: Is the search limited to a certain time frame and thus excludes research that is not published in that time frame. For example, relevant research might be limited to all publications after the year 2000. Naturally, if the search period is limited to a certain time frame it has to be argued why that is the case.
- Additional content or methodological criteria: This aspect is related to whether the relevant publications are limited to additional content or methodological criteria. For example, research could be looking at a certain sample only such as students or business people from a certain background. A methodological aspect might be that research using a certain method might only be looked at for the meta-analysis, such as publications purely based on experiments.

Whenever relevant research for the meta-analysis is limited based on certain criteria, as listed above, the authors need to be aware that this may impact negatively on the generalizability of the findings of the meta-analysis as the findings and implications may only hold for the research included in the study (Eisend 2014). This means that if only

experimental research was included in the meta-analysis it can only be said that the findings apply to the experimental research studies. However, the results could be different when survey research is also looked at. As a result, in such a case generalizability of findings can be limited.

However, even though additional search criteria may reduce the amount of potential publications for the meta-analysis, it is simply impossible to identify the total existing amount of relevant research to be included in the study (Eisend 2014). Since the total number is unknown authors of meta-analyses are never really able to check, whether all research relevant to the research problem was actually captured. Therefore, authors are advised to follow a thorough procedure when it comes to the literature search (Lipsey & Wilson 2001), which is looked at in the remainder of this chapter.

Overall it can be said that the literature search strategies used for meta-analyses are diverse. However, the electronic availability of research has simplified the search for relevant literature over the past few years (Eisend 2014). The author introduces established literature search strategies which have been used in established research conducting meta-analyses (e.g. Blut, Teller, & Floh 2018; Blut, Wang, & Schoefer 2016; Eisend, Evanschitzky, & Gilliland 2016). The search strategies are as follows:

- Key word search in electronic databases and the internet
- Search for relevant research in reference lists from review-articles and bibliographies
- Systematic search of literature on an issue-by-issue basis
- Contacting relevant authors, experts and colleagues for the research problem at hand

- Asking for research in relevant discussion forums and news groups
- Checking reference lists from literature that has already been identified as relevant to the research problem

Generally, the literature search is not limited to one strategy as usually a combination of a few strategies is deployed to try and identify as many relevant research articles as possible. The aim of the literature search is to be as exhaustive as possible. As identified previously it is not possible to identify a full list of research relevant to the research problem, however, authors should try and be as exhaustive as they can regarding the literature search and for this a combination of literature search strategies should be used (Lipsey & Wilson 2001).

A general starting point for the literature search can be the reference list of an introductory article relevant to the research question (for example an article providing a general overview on the topic). In case such an article does not exist Eisend (2014) highlights that a good way to start the literature search would be the key word search in online databases. On the one hand the key words used for the database search should be chosen so that the area relevant to the research question is widely covered. Hence why it is advisable to use several key words for the search to be exhaustive. However, on the other hand the key words have to be selected in such a way that the number of relevant research is still manageable (ibid.).

In addition, it is recommended to not only look for relevant research in one database. It is advised to use a few databases which could shield results on relevant research for the research question at hand. This is the case because databases can differ regarding their general availability of magazines and scholarly journals as well as publication periods. Eisend (2014) identifies that one way to simplify the key word search

is to use so called *wildcards* (for example "*") which enable the researcher to look for different word variations simultaneously. For example, in the case the researcher is looking for research on "customization" the author could work with *customi** as the key word which will then shield results on different word variations such as *customization* and *customized*. However, Lipsey and Wilson (2001) further stress that just because research comes up as a result in the key word search this does not automatically mean that it is relevant for the research question at hand. The literature has to be further screened to check whether the research really fits the research problem. If the studies contain the relevant variables and relationships between the variables the research can be selected and included in the meta-analysis (Eisend 2014).

One of the limitations of electronic key word search in databases is that a fully exhaustive list of suitable research cannot be guaranteed as some studies may use terms which are not covered by the key words selected for the search (Hunter & Schmidt 2004). Therefore, the electronic key word search is always supplemented by additional literature search strategies until no further additional research that is relevant to the research question can be found. Only when this stage has been reached the search for literature should come to an end.

The literature search can be a very lengthy process for the researcher. Therefore, the timing of the literature search has to be planned well in advance. However, Eisend (2014) points out that it is not necessary to separate the search from the coding process as both can be carried out simultaneously. As soon as the first few relevant studies have been identified the authors can start with coding the data. It is also important to point out that relevant research for the meta-analysis should be stored as either a printed or electronic version or as

both (Lipsey & Wilson 2001). The authors stress that having a copy of the research readily available is important as many times the authors have to re-access studies because of coding errors or when certain variables need to be added which were not part of the original coding scheme.

Another question that needs to be asked is how many studies are needed so that a meta-analysis can and should be conducted. Generally, a meta-analysis is already possible with only two studies, however, the question is whether this makes sense from a statistical point of view (Eisend 2014). The author explains that due to the primary purpose of a meta-analysis, which is explaining differences between research results, it must be considered that a larger number of test results is required for robust tests. Additionally, researchers also have to think of whether the research can be published or not, which may be dependent on whether reviewers and editors of journals consider the use of a meta-analysis for addressing the research problem as sensible, which again may be based on the number of studies incorporated in the analysis (ibid.). For this Eisend and Tarrahi (2013) analyzed a total of 94 published meta-analyses in the field of marketing. The researchers found that on average 50 research studies are incorporated in a meta-analysis with the lower end being 2 studies and the higher end being 402. In addition, it is pointed out that meta-analyses published in higher ranked journals tend to have a larger number of research studies included in their meta-analyses (Eisend & Tarrahi 2013).

4.3.3 Step 3: Coding and Evaluation of Research Material

In order to be able to integrate research quantitatively, effect sizes, which are calculated as numeric values, for each result relevant to the research problem are used. Effect sizes

normally represent covariations between two variables, for example between an independent and dependent variable, and give an indication of how strong the effect between the two variables is. It has been identified that different statistical parameters can be used as effect sizes and the purpose of this subchapter is to provide an overview of the most important statistical values that can be found in research, which are correlations, mean differences, and cross tabulations (Eisend 2014).[11]

Which effect size is suitable for a meta-analysis partly depends on how the results of the individual studies are presented. In order to be able to summarize the findings of different studies coherent effect sizes have to be used. This means that if different effect sizes are given, for example mean differences and correlations, it is required that coherent effect sizes are calculated (Hunter & Schmidt 2004). How to transform different effect sizes into coherent values is also looked at in this chapter right after an overview of the different statistical parameters has been given. Sometimes it may happen that statistical information is missing so that values cannot be directly transformed into coherent effect sizes. Lipsey and Wilson (2001) say that in case information is missing the effect sizes can be transformed based on other statistical information or they can be computed using estimation procedures. Finally, there are many correction methods which can be taken into account when it comes to data coding (Eisend 2014). These correction methods are useful because they help in balancing out contortions based on measurements (ibid.).

In the following parts of this subchapter, 4.3.3.1 - 4.3.3.4, it is shown how to calculate the effect sizes (ES) based on different statistical values. In addition, it is outlined

[11] The main focus regarding formulas used for transforming different statistical values into coherent effect sizes will be on the most important parameters, however, for a more extensive overview on formulas regarding less commonly used value transformations please see Borenstein et al. (2009).

how the variance (V) is calculated. The variance is needed for the weighting regarding the computation of the different effect sizes. This weighting is required because the research results of the different studies differ in regards to the sample sizes used. However, Eisend (2014) points out that the sample size interrelates with the effect sizes' statistical precision as the larger the sample size, which results in a smaller variance, the more precise the prediction of the populations' value based on the empirical effect size. Therefore, when integrating effect sizes, a stronger emphasis is given to effect sizes based on a larger sample size and smaller variance compared to effect sizes based on a smaller sample size but larger variance (ibid.).

4.3.3.1 Effect Sizes Based on Correlations

When research which reports correlations between two continuous variables *X* and *Y*, the correlation coefficient r_{xy} can be used as the effect size (Lipsey & Wilson 2001). Eisend (2014) adds to this by saying that correlations are effect sizes which are easy to understand and interpret. This is due to the fact that correlation coefficients are standardized and take on values between -1 and +1. Additionally, correlation coefficients can be easy to code for the researcher because many studies reporting correlation coefficients do this by using a correlation matrix.

Eisend (2014) points out that in case variables correlating with each other are not continuous other effect sizes can be calculated, such as Odds Ratios, which are then transformed into a correlation coefficient. Generally, the formulas introduced below are used to calculate the variances.

The following formula is used to calculate the variance V_r for the effect size ES_r:

$$V_r = \frac{(1 - r^2)^2}{(n - 1)}$$

4.3.3.2 Effect Sizes Based on Means

Often, values from two different groups are provided, which is common with experimental data. In such a case effect sizes can be calculated based on the difference of results, which are normally means, between the two groups (Eisend 2014). However, there are a few cases which need to be looked at separately.

When calculating effect sizes using means the first thing that needs to be looked at is whether all studies for the meta-analysis use the same scale (ibid.). If this is indeed the case the same formula can be used to calculate the effect size *D*. Additionally, the variance for the effect size *D* needs to be calculated. For calculating the variance information on the standard deviations is needed. This is why the values for the standard deviations should be coded alongside the values for means and taken from the primary studies part of the meta-analysis. The standard deviations need to be the same for the two groups so that the formula shown below can be used.

Overall, Lipsey and Wilson (2001) highlight that if all studies incorporated in the meta-analysis use the same scales to measure their variables, the effect size can be calculated for the unstandardized mean difference *D* as follows:

$$ES_D = \bar{X}_1 - \bar{X}_2$$

In case the standard deviation is the same for the two groups the following formula can be used to calculate the variance *D*:

$$V_D = \frac{n_1 + n_2}{n_1 n_2} \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{(n_1 - 1) + (n_2 - 1)}$$

However, in case the standard deviation differs across the two groups a different formula needs to be used to calculate the variance *D*:

$$V_D = \frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}$$

However, more common is the case where the studies used for the meta-analysis do not always use the same scales for measuring the variables (Eisend 2014). For example, some studies may use 5-Point Likert scales for measuring their (dependent) variable whereas other studies measure their variables with a 7-Point Likert scale. If different scales are used the mean difference *d* needs to be standardized before integration using the formula below:

$$ES_d = \frac{\bar{X}_1 - \bar{X}_2}{s_{within}}$$

Eisend (2014) indicates that the pooled standard deviation over both groups is normally used to calculate s_{within}. To calculate s_{within} the formula below is used:

$$s_{within} = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

The variance V_d for the effect size ES_d also needs to be calculated and for this the following formula is given:

$$V_d = \frac{n_1 + n_2}{n_1 n_2} + \frac{ES_d^2}{2(n_1 + n_2)}$$

As with correlations, as identified in the previous subchapter, there are also certain cases where correction procedures should be considered when it comes to calculating effect sizes based on mean differences (Eisend 2014). For example, effect sizes based on standardized mean differences using small sample sizes can be biased and shield higher results compared to standardized mean differences based on larger samples (Hedges 1981). Therefore, the author suggests deploying correction procedures by using the formula below when the sample size is small. Here *df* refers to degrees of freedom. $\bar{X}$

$$ES_d = \left(1 - \frac{3}{4df - 1}\right) \frac{\bar{X}_1 - \bar{X}_2}{s_{within}}$$

Naturally, the variance for the effect size also has to be corrected and for this the following formula can be deployed:

$$V_d = \left(1 - \frac{3}{4df - 1}\right)^2 \left(\frac{n_1 + n_2}{n_1 n_2} + \frac{ES_d^2}{2(n_1 + n_2)}\right)$$

Adding to this, Eisend (2014) emphasizes that the corrected value is always smaller than 1 resulting in smaller effect sizes and variances compared to the not corrected values. However, in most cases the value is close to 1 which is why the difference in values can be often neglected unless the group sample size is smaller than 10 participants (ibid.).

Lipsey and Wilson (2001) identify another special case when it comes to calculating effect sizes based on mean differences. In this case proportion differences between two groups instead of mean differences are provided. For example, the focus of a meta-analysis may be the behavior of supermarket shoppers by looking at how they differ regarding the use of self-service checkouts with regard to the proportion who have previous experience with the use of technology-based self-services. Lipsey and Wilson (2001) highlight that the

effect size statistic "can be constructed from the simple difference between the proportions associated with the respective groups" (p. 51) by using the following formula:

$$ES_{pd} = p_1 - p_2$$

The variance for the effect size ES_{pd} is then calculated accordingly using the formula below.

$$V_{pd} = p(1-p)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)$$

However, for being able to calculate the variance V_{pd} p is needed, which represents the weighted average of both p_1 and p_2 (Eisend 2014). Hence, p is computed as follows:

$$p = \frac{(n_1 p_1 + n_2 p_2)}{n_1 + n_2}$$

Lipsey and Wilson (2001) agree that proportion difference is simple as well as intuitive. However, there are also disadvantages regarding proportion differences, such as estimation problems, and it is said that they are not suitable for complex analyses. This is why it is recommended to work with Odds Ratios if possible (ibid.), which will be discussed in more detail in the following subchapter.

The formulas introduced in the preceding subchapters can only be used for independent groups. In case there are dependencies between the values for the two groups specific characteristics must be taken into consideration regarding the formulas. Dependencies between the values for different groups can occur when, for example, the same persons' responses are repeatedly measured and the values are then compared to each other. Eisend (2014) points out that the formula for the effect size stays the same however,

s_{within}-now relates to the difference between the means for the two groups and is calculated as follows[12]:

$$s_{within} = \frac{s_{diff}}{\sqrt{2(1-r)}}$$

Accordingly, the variance of the mean difference ES_d can then be determined using the formula below.[13] This value can also be subject to correction procedures for small sample sizes (Eisend 2014).[14]

$$V_d = \left(\frac{1}{n} + \frac{ES_d^2}{2n}\right) 2(1-r)$$

Eisend (2014) then continues by highlighting that effect sizes can be integrated even when they are based on different designs, such as independent samples, repeated measurements and dependent samples. This is due to the fact that the effect size still carries the same meaning. Researchers only need to make sure that group allocations are the same when coding the effect sizes. Only when the group allocation is the same a uniform direction of effect sizes can be guaranteed. Additionally, it also has to be ensured that the dependent variable is measured in the same way. If this is not the case, the algebraic signs must be changed accordingly (ibid.). For example, when using a 5 Point Likert scale some researchers may assign the highest value to 1 whereas other authors may use the 5. If this is the case, the researchers must ensure that the highest value is always represented by the same number so that the effect sizes can be interpreted correctly.

[12] Here r relates to the correlations between the two series of calculations.
[13] n representing the number of measured groups.
[14] The degrees of freedom resulting from $df = n$-1.

4.3.3.3 Effect Sizes Based on Cross Tabulations

It is also possible to calculate effect sizes between two binary variables when represented in a 2x2 contingency table (Eisend 2014). The author points out that in meta-analyses in the field of social sciences odds-ratios are often used as the effect size in such a case. Lipsey and Wilson (2001) define the odds-ratio as "an effect size statistic that compares two groups in terms of the relative odds of a status or event" (p.52), such as "death, illness, successful outcome, receipt of treatment, [...] and so forth" (ibid.). This means that the odds-ratio represents how likely it is that a certain event is going to happen compared to the probability that the event is not going to happen. To provide further clarification regarding odds-ratios it is worth specifying how the odds of an event are defined by using the formula below:[15]

$$\frac{p}{1-p}$$

This can be applied to the following example using gender (male vs. female) and alcohol consumption (yes vs. no). If the probability of a male consuming alcohol is 0.6, then the odds of that outcome are 1.5, that is, 0.6/(1-0.6). Assuming the probability of females drinking alcohol is 0.4, then the odds are 0.66 accordingly, that is, 0.4/(1-0.4). Thus, the odds-ratio in this case is calculated by 1.5/0.66 = 2.72, which means that the probability of men drinking alcohol is 2.72 times higher compared to that of women consuming alcoholic drinks.

[15] p in this case is representing the probability of the event.

The effect size of the odds-ratio can be calculated on the basis of the cell frequencies *n* or proportional values *P* in a 2x2 cross tabulation (a table containing two lines and two columns) using the following formula:

$$ES_{or} = \frac{n_{11}n_{22}}{n_{12}n_{21}} = \frac{P_{11}P_{22}}{P_{12}P_{21}}$$

The odds-ratio is centered around 1 rather than 0 (Lipsey & Wilson 2001). Therefore, 1 indicates no relationship between the variables, values between 0 and 1 indicate a negative relationship between the variables and values greater than 1 indicate a positive relationship (ibid.). In meta-analyses all further analysis steps are performed using the effect size $ES_{ln(or)}$ which represents the natural log of the odds-ratio (ibid.). The authors further highlight that "the distributional form of the logged odds-ratio is approximately normal with a mean of 0 and a standard deviation of 1.83" (ibid., p.53). As a result, a negative value then represents a negative relationship between the variables and a positive value reflects a positive relationship. The variance of the effect size $ES_{ln(or)}$ is then defined as follows:

$$V_{\ln(or)} = \frac{1}{n_{11}} + \frac{1}{n_{12}} + \frac{1}{n_{21}} + \frac{1}{n_{22}}$$

Should the values be re-transformed after the calculation and integration this is done by e, the base of the natural logarithm (Lipsey and Wilson 2001).

Eisend (2014) stresses that the preceding formulas must be used with caution when one of the cell frequencies is equal to zero. In such cases many times the value 0.5 is added to all cell frequencies, which distorts the effect size by creating a downward bias (Fleiss 1994). Here, Eisend (2014) highlights that, comparable to the standardized mean difference, it is important that the coding of group memberships when calculating the effect

size is coherent throughout so that a consistent and thus comparable effect size can be ensured.[16]

Overall, the odds-ratio is not the only effect size that can be used for calculating relationships between binary variables. Other effect sizes are for example share/risk differences, share/risk quotients and phi-coefficients. However, the use of these effect sizes is not very common in the social sciences and thus this part is restricted to simply listing the options.[17] The effect sizes introduced in the preceding subchapters are not the only effect sizes that can be used for a meta-analysis, however, the purpose of this part of the PhD thesis is to provide an overview of the most common ones. For a more extensive overview of other effect sizes, including regression coefficients, please see Lipsey and Wilson (2001).

4.3.3.4 Conversion of Effect Sizes

In case a meta-analysis is conducted using different effect sizes, these must be converted into the same effect size first. In the following, these formulas are introduced (see Eisend 2014).

- **Conversion of mean differences into correlation coefficients:**

$$ES_r = \frac{ES_d}{\sqrt{ES_d^2 + a}}$$

[16] For more in-depth information on how to deal with cell frequencies equal to zero please see Lipsey and Wilson (2001, pp. 54-55).

[17] For a description of and formulas for these effect sizes please see Borenstein et al. (2009) and Fleiss and Berlin (2009) for example.

In the formula above, *a* represents a correction coefficient, which is calculated as follows:

$$a = \frac{(n_1 + n_G)^2}{n_1 n_2}$$

Eisend (2014) highlights, that in case n_1 and n_2 are either equal or unknown $a = 4$ can be used. The variance can then be converted using the following formula:

$$V_r = \frac{a^2 V_d}{(ES_d^2 + a)^3}$$

- **Conversion of correlation coefficients into mean differences:**

$$ES_d = \frac{2ES_r}{\sqrt{1 - ES_r^2}}$$

The variance is then converted as follows:

$$V_d = \frac{4V_r}{(1 - ES_r^2)^3}$$

- **Conversion of mean differences into cross tabulations:**

$$ES_{ln(or)} = ES_d \frac{\pi}{\sqrt{3}}$$

$\boldsymbol{\pi}$ is a mathematical constant at ca. 3.14159

- **Conversion of cross tabulations into mean differences:**

$$ES_d = ES_{ln(or)} \frac{\sqrt{3}}{\pi}$$

For converting the variance, the following formula is used:

$$V_d = V_{\ln(or)} \frac{3}{\pi^2}$$

- **Conversion of correlation coefficients into cross tabulations and the other way around**

The conversion of correlation coefficients into cross tabulations is carried out through combining the formulas used above. First, the correlation coefficient is converted to the mean difference and following this the mean difference coefficient is converted to cross tabulations. In case the coefficients must be converted backwards, the reversed order is used.

- **Conversion of t-tests into correlation coefficients:**

$$ES_r = \frac{t}{\sqrt{t^2 + n_1 + n_2 - 2}}$$

- **Conversion of t-tests into mean differences:**

$$ES_d = t \sqrt{\frac{n_1 + n_2}{n_1 n_2}}$$

- **Conversion of multiple regression values into correlation coefficients (Peterson and Brown 2005):**

$$ES_r = ß + 0.05\lambda$$

In this case, λ takes on the value of 1 if β is not negative. In any other cases, λ takes on the value of 0.

This is an introduction of the most widely used conversion formulas. The purpose of this part of the PhD thesis is to provide an overview of said formulas. For more conversion formulas, such as *F*-values, please see Lipsey and Wilson (2001).

4.3.3.5 Data Coding and Data Evaluation

Once the effect sizes have been converted into the same coefficient, for example correlation coefficients, the next step requires for the data to be coded and evaluated. Here it is important that all information required for calculating the effect size and strength is coded. Following this, data needs to be captured which may be able to explain the difference in effect sizes. For this, a coding scheme needs to be developed (Lipsey & Wilson 2001).

The coding scheme contains certain variables, which always need to be coded for a meta-analysis, for example the sample size. Furthermore, there are additional variables to be coded which are more specific to the actual research problem at hand and thus vary from one meta-analysis to the other. Therefore, pre-existing coding schemes can be used, however, they always need to be adapted to the research problem, which may require a change of variables or new variables to be added. Eisend (2014) highlights, that in case research contains multiple effect sizes, separate coding templates should be created, one for the broader research and one for effect sizes. The first coding template thus contains variables at research level, such as the authors' names, the year of publication and what type of study was conducted, an experiment or a survey. The effect size template therefore looks at variables such as the actual effect size, the type of effect size such as correlation or mean difference, and reliability coefficients. Here it is important to ensure that all

information needed for converting/calculating the effect size/strength is captured (Lipsey and Wilson 2001). Hunter and Schmidt (2004) recommend agreeing on which effect size to capture first (i.e. correlation coefficients) and which to code if said coefficient is not provided. Overall, in comparison the effect size template looks at individual variables rather than overall research paper categories, which are captured in the research article template as mentioned above.

For data evaluation it is beneficial if data are coded using numerical values. Moderating variables can be coded either as continuous variables (such as the year of publication) or as binary ones, thus containing two values (yes or no for example). In case categorical variables with more than two values are used, Eisend (2014) recommends splitting these into binary variables, the so-called dummy variables. Also, at times it may be required to add additional variables throughout the process, which were not captured from the start. Therefore, using an open coding scheme for certain variables where additional values can be added over time, is a good approach at times. Once the whole coding is finished, these can then be transformed into variables with closed categories.

Coding data can be a more objective or rather subjective approach, depending on the variables that need to be coded. To make the coding as objective as possible, several coders may be required. The so-called coder-reliability is looked at from two perspectives (Lipsey and Wilson 2001; Eisend 2014), where the key aim is for the coding to be as reliable as possible:

- Consistency of coding looking at individual coders only across a wide range of variables to be coded
- Consistency of coding comparing different coders

Both aspects should be checked to provide a reliable coding data set. To calculate agreement rates, different approaches can be used such as the coder agreement rate or inter-coder reliability. As the purpose of this part of the PhD thesis, and therefore subchapter 4.3.3.5, is to provide an overview on data coding and evaluation only, the approaches are not described further. However, for more information please see for example Hunter and Schmidt (2004) or Lipsey and Wilson (2001). In subchapter 4.3.4 it is describeed what needs to be taken into consideration when the actual data is analyzed.

4.3.4 Step 4: Data Analysis

Once the data has been coded and evaluated, the next step is to start with the actual data analysis. First, the effect sizes need to be integrated for the researcher to be able to analyze the data. When calculating the overall effect size, sample sizes are also taken into consideration and used as a weighting factor (Eisend 2014). The integrated effect size and weighted variance can then be calculated using the following formulas (Shadish & Haddock 2009):

$$\overline{\mathrm{ES}} = \frac{\sum_{i=1}^{k} w_i ES_i}{\sum_{i=1}^{k} w_i}$$

$$s^2_{\overline{\mathrm{ES}}} = \frac{\sum_{i=1}^{k} w_i}{\left(\sum_{i=1}^{k} w_i\right)^2}$$

It then needs to be tested whether the effect is different from zero (population null effect), which can be found using the normal distribution assumption. The confidence interval is calculated as follows (Eisend 2014):

$$\overline{ES} - z_{\frac{a}{2}} s_{\overline{ES}} \leq \tau \leq \overline{ES} + z_{a/2} s_{\overline{ES}}$$

If the confidence interval encompasses the value zero it can be assumed that effect size's mean value is not significantly different from null.

Another way to test for the population null effect is the z-value of the standard normal distribution as identified by Eisend (2014). For a population effect to be present, the z-value (error probability less than 5%) must be higher than the absolute value of 1.96 or (error probability less than 1%) higher than 2.58 (ibid.).

The next step in data analysis requires the data to be tested for **heterogeneity**, which means that there is an absolute variation in between the individual effect sizes (Malhotra, Birks, & Wills 2012). Only if the effect sizes are homogenous, it can be said that the integrated effect size values represent an acceptable measurement of the true population effect (Eisend 2014). To test for heterogeneity, the variance needs to be calculated first, which arises as a result of the individual studies' sampling error (Hunter & Schmidt 2004). It is said that homogeneity is present in case the sampling variance is responsible for a major part of the total variance (Eisend 2014).

Before analysing the data, it needs to be decided which statistical model should be used for analysis. The options are the **fixed-effects model** or the **random-effects model** (Lipsey & Wilson 2001). Whereas the fixed-effects model assumes that the effect size accurately measures the true population value and only varies due to random sampling

errors, the random-effects model assumes that the effect sizes can vary due to sampling errors as well as differences in between the researches (V_θ). The variance V_i^* is then calculated as follows (Eisend 2014):

$$V_i^* = V_\theta + V_i$$

The research variance V_θ, which is also referred to in research as τ^2 can then be calculated as follows (ibid):

$$\tau^2 = \frac{Q - df}{C}$$

Here, the author highlights that Q, *df* and C are calculated using the following formulas:

Q = Sum(ES*ES*w) – (SUM(w*ES)*Sum(w*ES)) / Sum(w)

df = *k*-1 (*k* being the number of effect sizes)

$$C = \sum w_i - \frac{\sum w_i^2}{\sum w_i}$$

Due to the random-effects model being more realistic in its assumptions regarding the variance of effect sizes as compared to the fixed-effect model, most meta-analyses are nowadays working with the random-effects model (Eisend 2014).

In case **heterogeneity** is present, the variance between the effect sizes needs to be explored in order to be explained (as far as possible). For this, moderating variables, which can be either of methodological or contextual nature, can be used. This can be done with subgroup analyses or regression analytical procedures (Lipsey & Wilson 2001). For subgroup analyses the moderating variables are arranged according to subgroups, which should then reduce the variance of the effect sizes in the subgroups compared to the total

variance of all effect sizes. Furthermore, the authors highlights that this should lead to significantly different integrated effect sizes in between the subgroups. For this, variance analysis, t-tests or z-tests (in case the moderating variable is of a binary nature) can be used. For continuous variables, correlations can be calculated, which examines whether there is a relationship between the moderating variable and the effect size(s) (Eisend 2014).

In case multiple moderators are to be tested, regression analytical procedures are to be applied (Hunter & Schmidt 2004). Here, the effect sizes (ES_i) represent the dependent variable and the moderators the independent variable. The equation is as follows:

$$ES_i = ß_0 + \sum_{k=1}^{m} ß_k M_k + e_i$$

The impact and direction of the moderating variable(s) can be tested with the regression coefficients. The full explanatory power of the model can be tested with the explained scatter of the model. The unexplained variance then serves as a test for homogeneity. In case the value is significant, a variance which goes beyond the variance due to sampling error only can be assumed, which means that heterogeneity is still present (Eisend 2014). If this is the case, Hunter and Schmidt (2004) suggest continuing working with a **mixed-effects model**, which is a meta-analytical regression model that helps in explaining the unexplained variance, which is significantly higher than the variance due to sampling error plus an additional error term alone. This mixed-effects model can then be calculated in various ways, one of them being HLM (Hierarchical Linear Modelling). The purpose of this subchapter is to provide a brief overview on how data is analyzed for a meta-analysis. Subchapter 4.3.5 looks at how the meta-analysis results are presented and findings are interpreted.

4.3.5 Step 5: Presentation and Interpretation of Findings

The final step of a meta-analysis is the presentation and interpretation of findings. Generally, meta-analysis results can be presented using tables. Here, it is important to report the integrated effect size along with their significance as well as the variance of the individual effect sizes. On top of this, information on the homogeneity of the effect sizes should be provided (Eisend 2014).

When interpreting the findings based on correlations, the following rules apply (Cohen 1988). A correlation of 0.0 - < 0.3 is to be interpreted as a small effect. Any effect larger than 0.5 is a large effect. Everything in between represents a medium effect size. Cohen (1988) further highlights the rules for how to interpret findings using Odds Ratios and standardized mean differences which are as follows:

- Standardized mean differences: ≤ 0.2 represents a small effect size. ≥ 0.8 is to be interpreted as a large effect size and everything in between as medium sized effect sizes.
- For Odds Ratios the following applies: ≤ 1.5 is a small effect size. ≥ 4.3 represents a large effect size and everything in between is to be interpreted as a medium effect size.

Chapter 4 provides a theoretical overview of how meta-analyses are conducted. Chapter 5 builds on chapter 4 by highlighting how the meta-analysis for this research is conducted. Therefore, the theory outlined in chapter 4 is applied to this research, which is the focus of the fifth chapter.

5. Meta-Analysis Approach Applied to PhD

Inconsistent findings in literature show that it is not clear in which situations customer participation is supposed to be used by firms as a strategic marketing tool as it can either benefit both parties involved (ideal situation), harm both the firm as well as customer, or have one party benefit while the other partner is put at a disadvantage (trade off situations). Hence why it is the purpose of this PhD thesis to identify situations in which a) both parties benefit (more) b) one partner benefits more than the other, and c) no one benefits / both parties benefit less from participating in customer participation.

To address the research question two studies are conducted. The first study is of a descriptive nature and provides an overview of the quantitative studies that were conducted on customer participation. Study 2 then builds on study 1 and looks at the customer participation-outcome variable model. For this the relationships between customer participation and outcome variables in combination with moderators is analyzed. For both studies the initial steps of conducting a meta-analysis, following the approach proposed by Lipsey and Wilson (2001), are the same. This part of the thesis applies the theory as described in the fourth chapter in-depth to how the meta-analysis for this PhD thesis is conducted. Following this the steps unique to study 1 and study 2 are addressed in the chapters dedicated to the studies. For the first study this is chapter 6 and the seventh chapter is looking at study 2.

5.1 Identification of Research Problem and Data Collection

As identified previously the purpose of this research is to explore in which situations customer participation as a marketing strategy is beneficial for both the customer and the firm. When starting with the PhD thesis in October 2015, a journal article by Heidenreich, Wittkowski, Handrich, and Falk (2015) was recently published and addressed the fact that customer participation is not always a good marketing strategy to be used by firms as there may as well be negative consequences. This sparked the overall idea of conducting a meta-analysis in order to shed some light into the question of whether customer participation is generally a positive thing or whether the marketing strategy may only be good for the parties involved in certain situations. Before starting with the meta-analysis, research was conducted to get an overview of the number of suitable research that could be included in the meta-analysis. For the research problem at hand the variable of interest is customer participation and any other variable that suits the definition of customer participation as stated in chapter 2. As a result, quantitative research that contained effect sizes on the relationships between customer participation[18] and any other variables was determined as suitable for the meta-analysis, and thus studies 1 and 2. After an initial search on the amount of existing research suitable to the research problem it became evident that the minimum number of suitable research was sufficient, as more than 50 articles were found within a few weeks. As the minimum amount of suitable research was 50 articles a meta-analysis was deemed suitable as the research approach for this PhD thesis due to conflicting results regarding customer participation as a marketing strategy as highlighted in chapter 2, the literature review chapter.

[18] And any of the other variables fitting the definition of customer participation for this PhD thesis. However, for simplicity reasons these variables will be referred to under the umbrella term customer participation.

Once a meta-analysis was classified as suitable for the research at hand the key variable had to be defined. Starting with a very broad definition it soon became evident that the construct was too broad and had to be narrowed down further as otherwise the screening process of suitable research would not have been manageable. Once the definition of the core construct was set further selection criteria for suitable research were looked at. As the main idea of this PhD thesis is generalizability of results in regards to the construct customer participation no further selection criteria were set as long as the key construct fits the definition. Hence, all quantitative research containing information on the relationship between the core variable and other, (dependent) variables, from the marketing/business field was identified as relevant for the research.

As highlighted in the preceding chapter there are additional selection criteria that can determine which research is relevant for the meta-analysis. For this meta-analysis no further selection criteria, apart from language, were used to exclude research, however, for a list of potential selection criteria as used for study 1, and ultimately study 2, see table 6.

Table 6 Selection criteria for meta-analysis

Selection Criteria	Used for PhD Thesis
• Type of Publication/Manuscript	• All relevant published studies
• Culture and Language	• English
• Time	• No limitation regarding timeframe
• Additional Content or Methodological Criteria	• B2B as well as B2C, and C2C

	• No limitation regarding methods (experiments or survey) • No further selection criteria regarding content

Once the overall search criteria for relevant publications were specified the actual search phase started in November 2015. The search phase followed the recommendations made by Eisend (2014) as outlined in the previous chapter and incorporated a key word search in relevant electronic databases, an issue-by-issue search for the most relevant journals, checking reference lists from relevant research, and asking for publications in relevant discussion forums. In the following each step is described in more detail to provide an overall idea of the thoroughness of the search process as followed for the studies of this PhD thesis.

The extensive search phase began with a systematic search of peer-reviewed literature on an issue-by-issue basis. For the issue-by-issue search the top journals of the field[19] were screened. The journal search served as the starting point for finding the first set of suitable studies for the meta-analysis and in addition, the search also served as the basis for the key word search in electronic databases which took place once the issue by issue search was completed. This is the case because the suitable articles found through the issue-by-issue search helped in identifying key words for the key variable customer participation,

[19] 1. Journal of Marketing, 2. Journal of Marketing Research, 3. Journal of the Academy of Marketing Science, 4. Journal of Retailing, 5. Journal of Service Research, 6. International Journal of Market Research, 7. Journal of Service Management, 8. Journal of Marketing Theory and Practice, 9. International Journal of Research in Marketing, 10. Industrial Marketing Management, 11. Australasian Marketing Journal, 12. Journal of Services Marketing

as there are many more terms which suit the definition of customer participation as defined for the thesis, which was defined in chapter. 2.3.2. To identify whether an article is relevant for the meta-analysis, first, the titles were looked at, followed by a brief screening of the introduction of the article. In case it was found that the overall topic suits the research problem at hand and thus fits the purpose of the meta-analysis, it was looked at how the key variable of interest was measured. If the key variable's, which was named differently by different authors, construct items applied to the definition of the key term customer participation as used for this thesis, the article was found suitable for the meta-analysis and a digital copy of the article was saved. All in all, the issue-by-issue search covered publications until the end of March 2016. [20] Upon completion of the search the identified journal articles were screened to identify other relevant names for the key variable which could then be incorporated in the key word search which followed the issue-by-issue search.

The key word search in electronic databases started in March 2016 and ended in August 2016.[21] The key word search covered the electronic databases ProQuest (which also covers the database Emerald) and BusinessSourceComplete as these databases cover all research in the management/marketing field. As mentioned in the previous paragraph, the issue-by-issue search served as the basis for identifying relevant key words to be included in the key word search. Overall, more than 15 suitable variable names were identified while screening the papers found in the issue-by-issue search. Among these are variable names such as customer participation, customer co-production, co-creation and user

[20] The starting date was not limited and thus no years before a certain point in time were excluded.
[21] The starting date was not limited and thus no years before a certain point in time were excluded.

involvement.[22] These variables were searched for separately in the electronic databases and as with the issue-by-issue search an electronic copy of all relevant articles was saved. The screening of the journal articles followed the same procedure as deployed in the issue-by-issue search, namely that first the titles of the articles was looked at, followed by a brief screening of the abstract and introduction section. Once it was established that the article fits the overall topic of the PhD thesis, the measurement items of the key variable were examined to determine whether the measurement items fit the definition of customer participation. Overall, the two searches (key word and issue-by-issue), in which 26.387 articles were screened, yielded a result of 247 useable research articles for the meta-analysis.

5.2 The Coding Process and Descriptive Results

After identifying the articles that fit the research questions at hand the coding process started upon completion of the exhaustive study search. First of all, two different SPSS files were created, one containing information on the study level and the other containing information on the effect size level. Variables that were coded on the study level are for example the title of the paper, the journal name and study background variables such as the method used.[23] The effect size template covers variables such as the name of the variables, effect sizes, reliability coefficients as well as scales used for measuring the items.[24]

[22] For a full list please see appendix A.
[23] For a full list of variables used for the paper template please see appendix B.
[24] For a full list of variables used for the effect size template please see appendix C.

Once the SPSS files were set up, the actual coding process began. First, it was looked at which studies of the relevant articles contained the key variable customer participation, or other constructs that fit the definition, as sometimes studies did not measure customer participation. Overall, the 247 articles contained 314 studies for the meta-analysis that examined the relationship between customer participation and another variable.

The preference for effect sizes when coding the relationships results between customer participation and another variable was, in line with Eisend (2014), the following. First it was looked at correlation coefficients. If correlations were reported in the articles, then this was the effect size used for the meta-analysis. However, some articles did not contain correlations. If that was the case it was looked at means (mostly experimental studies) or regression coefficients. Overall the coding process yielded results on relationships between customer participation and 814 other variables. In the first coding process all effect sizes provided were coded, regardless of whether the second variable was an antecedent, outcome, or moderating variable. Regarding the reliability coefficients, the preferred coefficient was Cronbach's alpha, however, if alpha was not given, then composite reliabilities were used. Overall, the first round of coding led to the following results, which are represented in table 7.

Table 7 Summary of first coding round

Criteria	Results
• Articles	• 247
• Studies	• 314
• Antecedent/Outcome variables	• 905

• Effect sizes	• 2.466
• Observations	• 120.804

The first round of coding, which includes all variable relationships in regards to customer participation, serves as the basis for part of study 1. Part of the descriptive statistics apply to all research that contains effect sizes on customer participation and other variables, as long as the customer participation scale fits the definition of the key construct as used for this thesis. Therefore, part of study 1 is conducted based on the data set as described so far.

Upon completion of the first round of coding, the second round of coding began, which serves as the basis for study 2 and parts of study 1. The focus of the second round of coding was to identify how the correlating variables were measured in regards to customer participation. The correlating variables could either be measured as antecedent variables, consequence variables, moderating variables or even mediating variables. In case variables were measured as a moderator or mediator it was looked at whether the variable was moderating/mediating a consequence or antecedent relationship. In case the moderators or mediators were placed in the antecedent relationship the variable was also coded as an antecedent. In case a consequence relationship was the focus of the relationship measurement the moderator/mediator was consequently coded as a consequence variable.

As the focus of this PhD thesis is on customer participation and how the marketing strategy impacts on outcome variables, antecedent variables were filtered out of the analysis as they are not the focus of the thesis und thus further analysis. Now, with correlation coefficients it does not matter whether a variable is measured as an antecedent or consequence variable to customer participation, however, if the variables have been

treated as antecedents to the main construct, logically it would not make sense to treat and argue antecedents as consequence variables for analysis. However, it was not possible to disregard antecedent variables, and thus papers which placed the focus on an antecedent model regarding customer participation, right from the start as many times the same variables can be used differently in different articles. In some papers variables were measured as antecedents to customer participation whereas in other papers the same variable was used as a consequence variable.[25]

In case variables were predominantly measured as antecedent variables the effect sizes were excluded from further analysis. Variables that were used as a mixture of both antecedent and consequence variable (for example need for interaction) were not excluded from analysis at this stage, as they may be suitable for the final model. Therefore, the variables were not omitted, and still part of the list of variables suitable for final analysis. Sometimes, there were also variables where it did not become clear whether these were measured as antecedent or consequence variables as the articles did not provide a conceptual framework and the hypotheses did also not give any indication of the positioning of the variables. If that was the case, the effect sizes were also excluded from further analysis.

Following the first screening procedure regarding the variables it was looked at how many effect sizes there were in total for the individual variables. Due to the amount of

[25] To clarify this an example will be given with self-efficacy. In some papers, self-efficacy was measured as an antecedent variable to research whether self-efficacy has an influence on how people perceive customer participation (for example, higher perceived self-efficacy may lead to higher customer participation as participants feel more comfortable with participating). However, sometimes, the focus of the paper was to identify how customer participation impacts on self-efficacy. In this case self-efficacy was measured as an outcome variable instead of an antecedent variable.

variables still left, the number of effect sizes were looked at in order to get a more manageable and less messy number of variables. As outlined in chapter 4, it is the purpose of a meta-analysis to combine results across a number of different studies to be able to generalize findings in the field of interest. Due to the meta-analysis' nature and to get a more manageable number of variables to work with for the studies of this research, further exclusion criteria regarding effect sizes were specified. First, individual variables containing three or less effect sizes, were excluded from further analysis. Secondly, variables with 6 or less effect sizes were excluded if the effect sizes were all coming from the same manuscript. Therefore, the two additional elimination criteria for variables are:

- > 3 Effect Sizes (regardless of how many different manuscripts)
- > 6 Effect Sizes (if from one manuscript only)

The second round of coding enabled the researcher to narrow down the list of relevant variables for the customer participation-outcome model to a more manageable number. In total the second coding process led to the exclusion of 103 articles 86 studies for further analysis. The overview of the results after the second round of coding are presented in table 8.

Table 8 Summary of second coding round

Criteria	Results
• Articles	• 144
• Studies	• 228
• "Outcome" variables	• 128
• Effect sizes	• 626
• Observations	• 80.043

Following this coding process, the 128 variables that correlate with customer participation were categorized into groups to get a clearer picture on the overall variables available for the second study, and thus further analysis. The grouping of variables led to a total of 16 categories. For a detailed breakdown of these categories including information on the total number of effect sizes per category and integrated effect sizes among others, please see table 11 in the next chapter, which is dedicated to study 1.

For reliability and consistency reasons, the coding for the 16 categories was coded by a second person, who was a master's student and not known to the first coder. First, the coders had an initial conversation, where the first coder explained the task to the second coder. Following this it was agreed that the coders schedule another meeting once the first 50 variable names were assigned to the different categories. The coding was examined by the first coder and compared to the first coder's coding set. Discrepancies were resolved by discussion and the remainder of the coding was carried out independently, and the following approach was adopted:

- 1st step: **Consistency of coding looking at individual coders only across a wide range of variables to be coded.** The coders coded the variables and then re-coded a certain set to see whether the coders were able to repeatedly code the same categories. The reliability was then compared for individual coders and both achieved a consistency of 90% and 95% (total agreement rate).
- 2nd step: **Consistency of coding comparing different coders.** Here the inter-coder reliabilities were calculated comparing the coding sets of the two coders. After the first discrepancies were resolved, the final reliability was 99% (total

agreement rate).

For the moderators, which are introduced in the seventh chapter which is dedicated to study 2, the same approach was applied, however, the agreement rates were as follows: First round of coding: 75%. After solving the discrepancies, the remaining moderating variables were coded, which led to an overall inter-coder reliability of 76%. For the final discrepancies, a meeting was scheduled, and the disagreements were solved by discussion so that the final agreement percentage was 98% (total agreement rate).

The next chapter is dedicated to the first study, which serves the purpose of providing a detailed overview of the research on customer participation, individual study distributions as well as individual variable categories. Following study 1, the next chapter, chapter 7, is then looking at study 2, which is the key study of the thesis as customer participation-outcome variable relationships are examined and conclusions are drawn.

6. Study 1: Descriptive Meta-Analysis

After finishing the whole data collection process as described in the previous chapter, chapter 5, on meta-analyses, a total of 247 quantitative papers with 314 studies looking at customer participation interactions with other variables, both antecedents as well as outcomes, were found. Once these papers had been identified, it was looked at which variables were measured as antecedents and which ones as outcome variables. Moderators for an antecedent interaction were classified as antecedent variables (for example age), and

moderators moderating an outcome interaction were classified as outcome variables. Due to the fact that this PhD thesis is focusing on customer participation and outcome variables, all antecedent variables were excluded from the final analysis conducted for study 2. However, this only means that the variables were excluded, not necessarily the papers as these papers may still have measured customer participation and its impact on outcome variables. Once this step was completed, it was looked at the outcome variables and how many effect sizes were recorded for each. Any outcome variables which did not fulfill the criteria outlined in the fifth chapter were also excluded from further analysis. Therefore, any outcome variable with less than 4 effect sizes was eliminated as well as outcomes with less than 7 effect sizes if these were all from the same manuscript.

After excluding antecedent variables and outcome variables a total of 144 papers remained a part of the final study of the meta-analysis. Overall, these 144 papers contain 228 studies. The purpose of this chapter is to provide a descriptive overview of the papers looking at customer participation interactions. First, an overview of all quantitative papers is given, both antecedent and outcome papers as well as outcome variables which were excluded from further analysis for the second study. These publications are then compared to the publications that were included in study 2, the customer-participation outcome study. Once it has been looked at when the manuscripts were published over time, an overview of study variables is provided. Study variables to be looked at are the type of study (experiment or survey), the context (B2B, B2C, C2C or a mixture), and the way the data was collected (e.g. post or online). This overview is given for all quantitative papers as well as the papers included in study 2. Following this, the focus of the remaining subchapters of study 1 is on the customer participation papers as part of the second study. The distribution

of sample sizes across the outcome studies for each outcome variable meeting the criteria for being included in the final analysis are provided to determine whether there is one study which dominates in regards to sample size. The chapter then proceeds with a descriptive overview of key moderating variables for customer participation-outcome variable relationships as examined in the second study. Finally, the chapter is concluded with a detailed description of individual effect sizes and their attributes (e.g. ranges, effect sizes, number of publications and years). Once the descriptive part is finished, the next chapter, chapter 7, looks at the second study, which is the main study of the meta-analysis and examines the impact of customer participation on outcomes as moderated by key moderating variables.

6.1 Total Amount of Quantitative Publications on the Topic

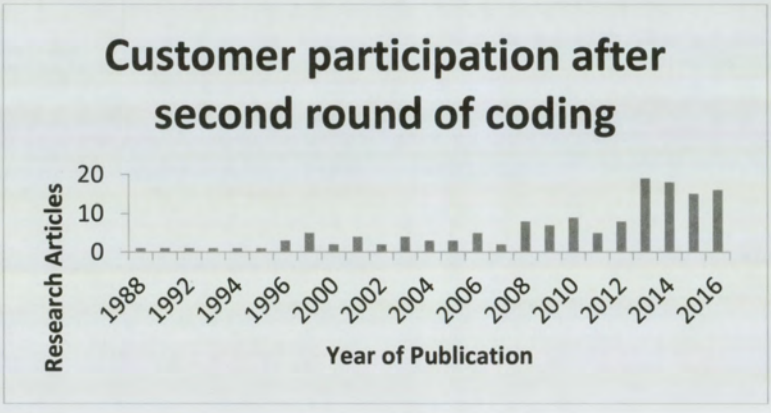
The above histogram shows the total amount of quantitative publications as identified through the search process. Both antecedent as well as consequence manuscripts are included in the histogram. As can be seen in the histogram, the number of publications focusing on customer participation rises over time. Overall it can be noticed that the number of publications increased over time with the highest number of publications in between 2013-2016. Here, it also needs to be taken into consideration that the coding process finished before the end of 2016, so the amount of papers is expected to be higher than can be seen in the visual. A large increase in publications can also be noticed from 2013 onwards, where nearly twice as many papers were published compared to previous years (exceptions being 2010 and 2012). The increase in publications focusing on customer participation can be described as stable from 1999 onwards, however, customer participation seems to have gained popularity since 2013, with consistently more than 25 publications per year being published up until 2016. The positive trend seems to be ongoing.

Even though the SDL approach is not directly applicable to the view of customer participation as used for this thesis, it may be possible to explain the rise in popularity in the co-creation/participation area with the Vargo and Lusch paper, which was published in 2004. It takes a while to react to a certain paper as data still needs to be collected and a research gap needs to be identified, followed by the review process as conducted by journals, which may explain the delay in the increase of publications in the area from 2013 onwards. Even though the SDL approach is not adopted in this PhD thesis, similar terms are used and as identified in the literature review, the terms are not clearly defined,

therefore, the use of similar terms and labels needs to be acknowledged. As highlighted in the literature review section, some academics use co-creation but essentially adopt the customer participation definition as used for this research with the focus on the customer's activity level.

The first published quantitative article in the field of customer participation was written by Tait and Vessey (1988) and has been cited 597 times so far.[26]

6.2 Amount of Publications for Outcome Variables After Second Coding Round



The above chart represents the number of publications that assess the relationship between customer participation and outcome variables (consequences). Only outcome variables which met the selection criteria as outlined previously were included. Therefore, all outcome variables which a) have less than 4 effect sizes and/or b) score less than 7 effect sizes from one manuscript only are not included. For example, only three or less effect sizes were recorded for sensory engagement as one outcome variable, which led to the

[26] Google scholar, accessed on the 11.09.2019.

exclusion of the variable "sensory engagement" in relation to customer participation. However, this does not mean that the paper(s) which measured sensory engagement and customer participation were also excluded as there could be other relationships between customer participation and other outcome variables which are still part of the meta-analysis and therefore, the papers would remain part of the study. In summary, this deletion only holds for outcome variables and not automatically for manuscripts that measured these outcome variables.

Still, the same trend can be noticed compared to the visual shown in the previous subchapter. Only difference, peak now reached in 2013/2014 and then there is a slight decrease in publications. Overall, it can be said that there are quite a few publications focusing on antecedents (especially in the self-service technology area). In the technology-based publications it is of huge interest how certain characteristics (age, gender, attitudes, for example) and technology attributes (e.g. ease of use, risk, enjoyment) influence the use of said technology-based services such as self-checkout systems, which led to the exclusion of said antecedent-focused papers. The highest number of publications is in 2013 with 19 publications in total. When looking at all publications which fit the definition before excluding antecedent variables and outcome variables below seven / four effect sizes, the highest amount of publications was 35 in 2015.

6.3 Overview of Study Variables

In the following table, table 9, an overview of the distribution of study characteristics for a) all quantitative papers (including antecedent relationships and variables with 3 or less than 3 effect sizes/less than 7 effect sizes if from one manusript only) and b) all papers with

outcome variables meeting the selection critera for the second coding round are given.

Table 9 Overview of study level variables

Study characteristics	**All quantitative papers**	**All outcome variables after second coding round**
Experiment / Survey	79 / 235	68 / 160
B2B / B2C / C2C / Both	31 / 249 / 4 / 30	39 / 171 / 0 / 18
Data Collection: Online / Post / Student in class / Personal Interview / Other	127 / 58 / 57 / 25 / 47	91 / 42 / 50 / 17 / 28

From the table it can be seen that for both the outcome variables as well as all quantitative papers focusing on customer participation, the majority is survey-based compared to experimental studies. Furthermore, the majority of studies is based in a B2C context. More than twice the amount of studies have been conducted in a B2C context as opposed to a B2B and C2C context (249 vs 31 vs 4 for all quantitative papers and 171 vs 39 for outcome variables meeting the selection criteria for inclusion in the second study). Some studies (30 and 18 respectively), have focused on a mixture of a B2B and B2C setting.

This may be due to the fact that B2B relationships are different in nature compared to B2C contexts when it comes to customer participation. Usually, the B2B environment requires for some sort of customer participation. Transactions in a B2B environment can be very costly and time consuming, which requires the provider and customer to work closely together from start to finish to minimize risks further down the line. The competition in a

B2B environment is limited and many times, customers and "firms" have established long lasting relationships. B2B relationships can be characterized by a longer time of doing business together as opposed to a B2C environment, where the market is characterized by higher competition and more choice for the consumer to take their business elsewhere (Palmatier et al. 2016). Therefore, the firms may strive more for getting the customer's point of view and optimizing their offerings on a constant basis. Whereas the B2B relationships may be more personalized in nature, B2C environments offer more competition but also more demand from the customers' side. Therefore, the B2C context may have higher relevance when it comes to customer participation due to the challenges and opportunities it offers for both firm and customer alike as outlined in the literature review, which may explain the larger amount of studies focusing on a B2C context.

6.4 Sample Sizes for Outcome Variables After Second Coding Round

The combined sample size of all publications for outcome variables fulfilling the selection criteria for being included in the second study is 67.075 observations. The smallest sample size is 32 participants from the paper Lin and Shao (2000) and the paper by Collier, Sherell, Babakus, and Blakeney Horky (2014) counts the largest sample size with 2235 participants. Therefore, the paper written by Collier, Sherell, Babakus, and Blakeney Horky (2014) has the largest sample size, with the second largest sample size being 1268 (Eisingerich & Bell 2006). Both articles are in service settings, and not product, and B2C based. On the contrary, the paper containing the smallest sample size is set in a B2B product context. This difference may be explained again by the nature of B2B and B2C environments. Whereas B2C contexts offer a large number of customers compared to the B2B environment, where

the participants, both customer and firm, are limited. For recruiting purposes, it is easier accessing a larger sample of customers in a B2C context compared to B2B. Many B2B studies were conducted in a "real" context, meaning that real firms were contacted for participation and therefore, the actual sample size may be smaller compared to B2C studies.

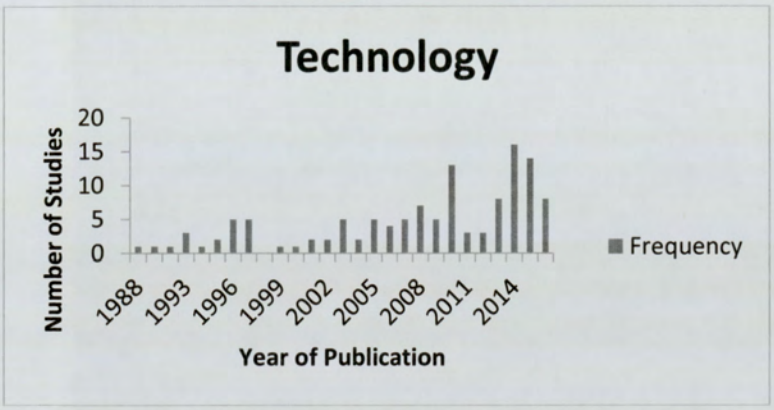
Even though the difference between the smallest and largest sample size is more than 2000 participants, there is no paper "dominating" the overall sample size, as 2235 participants is less than 4% of the combined sample size. Combining the two largest sample sizes equals a total number of 3503 participants, which is still less than 6% of the total number of participants, which is 67.075 (Eisend 2014). The distribution of sample sizes can be seen in table 10. As can be seen, the largest amount of studies is based on a sample size of 101-200 participants, with the number being 79 out of 228 studies in total as used for this meta-analysis, which represents 35%. This excludes all antecedent variable relationships as well as variables with 3 or less effect sizes / less than 7 if from one manuscript only in relation to customer participation. The second largest group contains 56 studies with the sample sizes being in between 201-300 participants. Overall, this alone represents 25% of the total amount of studies and combining these two groups leads to a coverage of 50% of the total number of studies. Studies containing a sample size of more than 501 people are less than 14% as there are only 32 studies in total that are based on 501+ participants.

Table 10 Distribution of sample sizes

Sample Size	Number of Studies
0-100	29
101-200	79
201-300	56

301-400	22
401-500	10
501-600	6
601-700	4
701-800	6
801-900	10
901-1000	2
1001-2500	4

6.5 Technology Background Context



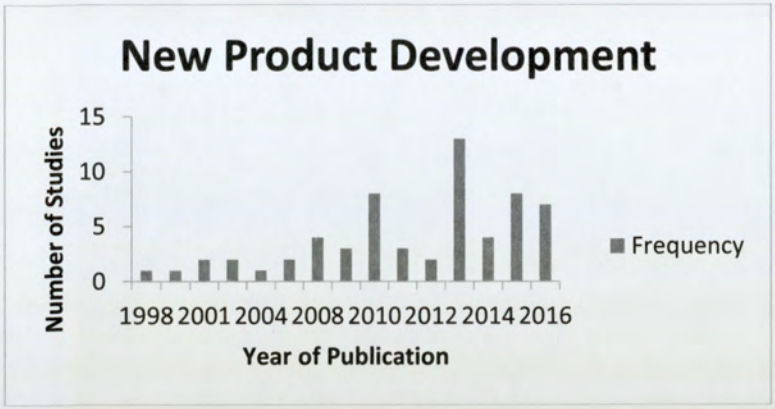
There are 123 studies based in a technology context, when looking at outcome variables and >3 effect sizes or >6 effect sizes if from one manuscript relationships only. A typical example is the use of self-service technology or the use of computers when booking something online. It can be noted that the number of publications with a technology background has strongly increased from 2005 onwards, with the highest number of publications in 2014 with 14 studies in total. The paper with the highest number of citations is that by Dabholkar (1996) counting 1906 citations so far.[27] This paper examines the

[27] Google scholar. Last accessed 11.09.2019

customers‘ use of „new“ self-service technology. More precisely, the author examines the use of self-service technology from two different perspectives, namely the individual technology attributes such as ease of use, and overall customer affect like attitude towards using technologies.

The amount of citations of papers using a technology background ranges from 1906 to 4 citations, with Parahoo, Harvey, and Radi (2014) having only 4 citations so far. Parahoo, Harvey, and Radi's (2014) article looks into the usage of technology based on users' age. In summary it can be highlighted that many technology-based articles examine the use of "new" self-service technology or technology-based services. What has been considered "new" back in 1999 (the use of computers) is no longer regarded as "new" nowadays. With time, the type of technology has changed as new technology appeared on the market. However, looking at time, the majority of research articles examine the acceptance and continuous use of said "new" technology. As more technology-based services appeared on the market, more publications examined the use of said services/technology, which explains the increase in publications examining a technology background.

6.6 New Product Development Context



Overall, there are 61 new product development studies which are included in the meta-analysis for this PhD thesis. The highest number of studies was published in 2013 with a total amount of 13 studies. In 2016, the first meta-analysis focusing on customer participation in a new product development context was published in the Journal of Marketing and conducted by Chang and Taylor (2016), however, the results of the study are not part of this meta-analysis.[28] Thus far, this meta-analysis counts a total of 152 citations.[29] This is the first meta-analysis focusing on customer participation as such, and this reveals that customer participation in a new product development context only is already a so called "hot topic" which required for a meta-analysis to be conducted. Due to the fact that this study focuses on a new product development context only, it must be acknowledged that a meta-analysis on the wider customer participation context, and not only new product development, is justified.

Overall, the number of citations of articles focusing on customer participation in a new product development context start from 6 citations (Zhang & Yang 2016). Even

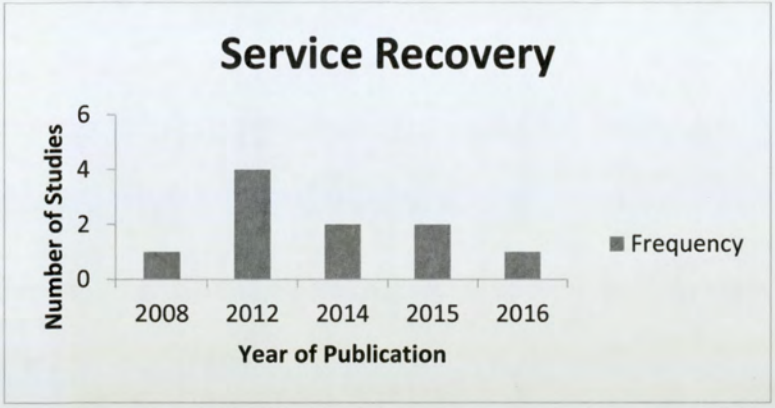
[28] The meta-analysis as such was not included in this study, however, the reference list / list of research included for Chang and Taylor's meta-analysis was checked and the individual studies were incorporated.
[29] Google scholar. Last accessed: 11.09.2019

though most studies look at new product development in a product level context (32 studies, 52%), some studies even examine customer participation in a new product development context, using services as the background of their studies (18 studies, 30%), referring to this as new service development. The remaining 11 studies or 18% look at a mixture of service and product development.

6.7 Forced Customer Participation

Overall, there are 24 papers with 45 studies based on a forced customer participation situation. The highest number of studies was published in 2012 and 2014 with both 10 studies each year. The first published manuscript using a forced customer participation context is from Bendapudi and Leone and was published in 2003. Generally, there seems to have been a slight increase in publications using a forced customer participation situation from 2010 onwards, however, the increase is not linear and less studies were published in 2015 and 2016 compared to 2014.

6.8 Service Recovery



Overall, there are 10 studies published focusing on customer participation in a service recovery context. The first manuscript was published in 2008 and written by Dong, Evans, and Zou (2008). The last paper was published in 2016 and focuses on the customer dominant logic on service recovery (Cheung & To 2016). Whereas there is only an overall small number of publications focusing on customer participation in a service recovery context, the fact that all were published from 2008 onwards shows that the overall economy has shifted from firm dominant to customer dominant backgrounds. The customer is more in charge of where and how they want to shop and with whom.

Service failures are inevitable at some point and firms need to be aware of how they can keep their customers after a negative service encounter as falling below expectations does not necessarily mean that firms lose their customers (Dong, Evans, & Zou 2008). Customer participation may be one strategy to keep customers. Generally, customer-firm relationships have shifted to the customer being more in charge and firms have to try and meet their customers' needs and wants (Pitt et al. 2006). Before this shift firms focused on what they can do best and sales strategies were more important for firms compared to keeping customers long term simply because choices were limited in regards to competitor

offerings (ibid.). However, this has changed and the customer is now able to make more informed decisions and competition has increased (Harrison, Waite, & Hunter 2006). The internet enables customers to search for alternative options online, which makes switching to competitor products easier than ever before. Hence why it is even more important for firms to be aware of how they can keep customers even after a service failure has occurred. The shift in customer-firm relationships and importance of finding strategies to keep customers after a service failure has occurred is underlined by the fact that customer participation situations in a service recovery context have only been published after 2000.

6.9 Integrated Effect Sizes Overview

From table 11 it can be seen that there are 16 outcome variables that have been studied in relation to customer participation with more than 3 effect sizes/6 effect sizes if from one manuscript only for each relationship. These outcome variables can be categorized into firm and customer outcomes. This grouping leads to a total of 11 customer outcome and 5 firm outcome variables (see table). All integrated effect sizes, which were averaged and calculated using the random effects model, range from small (0.1-0.3) to moderate (0.3-0.5) in power, and it is to be noted that no large effect size (>0.5) is present (Cohen 1988). The customer outcome variable with the largest moderate effect size is perceived value/benefit with an effect size of 0.403. The smallest customer outcome variable effect size is that of justice/fairness with a small effect size of 0.044. For firm outcome variables, the largest moderate effect size is 0.334 (new product performance) and the smallest effect size is 0.189 for organizational / general performance.

The most frequently studied customer outcome variable is customer satisfaction, which was used in a total of 51 manuscripts and 68 studies. A total of 180 effect sizes exist for the customer participation-customer satisfaction relationship. There are two streams of customer satisfaction in relation to customer participation. One stream looks at general customer satisfaction, whereas the other stream looks at transaction specific customer satisfaction (customer satisfaction based on the customer participation experience). Most of the manuscripts study transaction specific customer satisfaction (37 articles and 52 studies with a total of 158 effect sizes), however, there are also 15 manuscripts with 17 studies which look at general customer satisfaction, which is not directly linked to the customer participation experience. It can also be noticed that customer satisfaction has been studied widely throughout the years, with the first use already in 1988 and the latest one in 2016, meaning that customer satisfaction has been studied from the earliest customer participation manuscripts onwards.

The most often studied firm outcome variable is project effectiveness with 15 manuscripts and studies looking at this outcome variable in relation to customer participation. A total of 24 effect sizes exist for the project effectiveness-customer participation relationship. Similar to customer satisfaction for customer outcome variables, new product effectiveness / innovation has been widely studied, covering the years from 1993-2016.

The first research question to be answered with this thesis is which firm and customer outcome variables exist/have been studied in relation to customer participation. The purpose of study 1 is to answer this research question and the outcome variables can be

grouped as follows:

Table 11 Customer participation outcome variables summary

Customer Outcome Variables	1. Customer Satisfaction 2. Perceived Value/Benefit 3. Justice/Fairness 4. Willingness to Pay (Higher Price) 5. Service Quality 6. (Intention to) Use 7. Commitment 8. Trust 9. Repurchase Intention 10. Customer Loyalty 11. Word of Mouth
Firm Outcome Variables	1. Job Stress 2. Organizational / General Performance 3. Project Effectiveness / Innovation 4. Project Efficiency / Speed to Market 5. New Product Performance

For a total overview of the outcome variables including their effect size ranges, years covered, and integrated effect sizes please see table 12. These variables serve as the basis

for study 2, which looks at customer participation-outcome variable relationships. The goal of the second study is to identify situations in which: 1) both parties benefit (more) from customer participation, 2) one partner benefits more from customer participation than the other and 3) no party benefits (more) from the marketing strategy given certain situations. Special attention is then given to the critical situations where one party benefits more from participating than the other. It is then examined how these situations can be turned into an equally beneficial situation for both parties involved. For this, a moderator-analysis is conducted to identify the different situations, which are the focus of study 2. Ultimately, the aim of this PhD thesis is to explain when customer participation should be used by firms and when it should be avoided, the research gap chapter. Now that the outcome variables have been identified, the next chapter is dedicated to the second study, which serves the purpose of answering research questions 2 and 3.

Table 12 Customer participation outcome variables key aspect summary

Variable name	Number of Effect Sizes	Number of Manuscripts	Number of Studies	Manuscript Publishing Range (year)	Integrated Effect Size / Significance	Effect Size Range (lowest-highest) & variance
(Customer) Satisfaction	180	51	68	1988 – 2016	0,153 0,001	-0,70 0,85 0,088
Subcategory: Satisfaction general	22	15	17	1992 – 2016	0,312 0,002	-0,01 0,59 0,038
Subcategory: Satisfaction transaction specific	158	37	52	1988 – 2016	0,128 0,001	-0,70 0,85 0,091
(Customer) Perceived value/benefit	50	27	28	1992-2016	0,403 0,000	-0,01 0,62 0,023
(Customer) Justice/fairness	56	8	9	1997-2016	0,044 0,002	-0,74 0,62 0,096
(Customer) Willingness to pay	51	7	21	2009-2014	0,188 0,023	-0,98 0,97 0,248
(Customer) Service Quality	49	9	12	1996-2013	0,212 0,002	-0,09 0,79 0,041
(Customer) (Intention to) use	38	20	24	1995-2016	0,350 0,002	-0,21 0,89 0,109
(Customer) Commitment	27	12	15	1997-2016	0,254 0,002	-0,52 0,67 0,064

(Customer) Repurchase intention	34	8	12	2010-2015	0,106 0,001	-0,58 0,40 0,052
Customer Loyalty	11	11	11	1997 - 2016	0,259 0,003	-0,05 0,72 0,052
(Customer) Trust	13	11	11	1998-2016	0,303 0,010	-,50 0,73 0,121
(Customer) Word of mouth	9	8	10	2008-2016	0,380 0,014	0,02 0,83 0,082
(Firm) Job stress	6	4	4	2005-2015	0,220 0,005	-0,22 0,42 0,049
(Firm) Organizational / General performance	22	15	15	2002-2015	0,189 0,002	-0,12 0,54 0,031
(Firm) Project effectiveness / innovation	24	15	16	1993-2016	0,262 0,001	-0,02 0,54 0,017
(Firm) Project efficiency /Speed to market	17	10	11	2005-2013	0,248 0,010	-0,03 0,59 0,055
(Firm) New Product performance	39	22	22	2001-2016	0,334 0,002	0,10 0,65 0,025

7. Study 2

Now that the research articles, studies and variables were introduced and described in the previous chapter, this chapter deals with the main study, study 2. The purpose of study 1 was to identify outcome variables for both customer and firm as studied in relation to customer participation. These can be found in table 11 in the previous chapter, more precisely subchapter 6.9. The purpose of study 2 is now to identify situations in which customer participation leads to 1) both parties benefiting (more), 2) the customer benefiting more than the firm, 3) the firm benefiting more than the customer, and 4) both parties not benefiting or benefiting less. Once these situations have been identified it is looked at how customer participation should be handled in these situations and how a mutually beneficial outcome for both customer and firm alike can be achieved. To achieve this aim, first the key outcome variables part of the main study are defined. Following the definitions, the actual hypotheses to be tested are developed. Following this, the data is analyzed, which enables to identify the the four different situations as outlined further above in this paragraph. Finally, it is then looked at recommendations for these situations with the ultimate aim of identifying how the (primarily) critical situations can be turned into an equally beneficial outcome for both parties involved. This is done with a moderator analysis.

7.1 Definitions of Customer and Firm Outcome Variables

As identified in the previous chapter (study 1), there are several firm and customer outcome variables that have been studied in relation to customer participation. For firm outcomes, there are 5 variables that have been studied with customer participation and

fulfill the selection criteria as outlined in chapter 5.[30] For customer outcome variables, there are 11 different variables that have been studied with customer participation and have more than 3 effect sizes or more than 7 if used in one manuscript only for each relationship.[31] An overview of firm and customer outcomes can be found below.

Customer Outcome Variables	1. Customer Satisfaction 2. Perceived Value/Benefit 3. Justice/Fairness 4. Willingness to Pay (Higher Price) 5. Service Quality Transaction Specific 6. (Intention to) Use 7. Commitment 8. Trust 9. Repurchase Intention 10. Customer Loyalty 11. Word of Mouth
Firm Outcome Variables	1. Organizational / General Performance 2. Project Effectiveness / Innovation 3. Project Efficiency / Speed to Market

[30] Job stress, organizational performance, project effectiveness, project efficiency, and new product performance.

[31] Customer satisfaction, perceived value/benefit, justice/fairness, willingness to pay, service quality, (intention to) use, commitment, repurchase intention, loyalty, trust, word of mouth, perceived impact, and capabilities.

	4. New Product Performance 5. Job Stress

It can be noticed, that the customer outcome variables can be categorized into six overall groups. The first group is customer satisfaction and is a standalone group. The second group involves all variables that are loyalty related. The third group looks at customers' willingness to pay a higher price, and the fourth group consists of service quality related variables (perceived justice/fairness of the customer participation process, perceived benefit of the customer participation process, and service quality transaction specific). The fifth group contains variables that relate to the customers' commitment towards the firm and the final group looks at the customers' trust towards the provider of the offering. For the firm outcome variables, the final groups remain unchanged and thus there are five overall firm outcomes, namely organizational/general performance, project effectiveness, project efficiency, new product performance and employees' job stress as a standalone group.

It is the purpose of this thesis to examine when customer participation works, which means it is (ideally equally) beneficial for both the customer as well as firm, when it only works / works better for one partner, meaning the other party is negatively affected or benefiting less, and when it is not / less beneficial for both participating parties. Therefore, it is important to examine both positive as well as negative customer and firm outcomes. Even though negatively worded outcomes are not specifically looked at in this thesis due to negatively worded constructs not being part of the final analysis due to the selection procedure as outlined in chapter 5, it is important to stress that all identified variable categories for the customer and firm can still take on negative values. To illustrate this with one example, customer satisfaction is used. The constructs

are measured on either 5 or 7-point scales. Higher scores, or lower scores depending on the anchor points of the scales used, show agreement from the customer's point of view and therefore mean that the customer is satisfied. Depending on the anchor points, on a 5-point scale this would be any values above, or below, the midpoint, namely 4 or 5, or 1 and 2. Concluding, any values below, or above, the midpoint, namely 1 or 2 or 4 and 5, represent a customer's disagreement regarding satisfaction, therefore resulting in dissatisfaction. This logic is further is represented by the labels used for the different values.[32] As a result, from the customers' point of view, customer satisfaction can also result in customer dissatisfaction, loyalty can translate into disloyalty, which means that customers switch to other providers, do not intent to continue their business with the offering's provider, or even voice negative word of mouth. The same logic holds for all customer variables and also the firm outcomes. A visual representation of possible positive and negative outcomes of the same variable can be found in table 13. The chosen variables are exemplary only to highlight the fact that even though negatively worded constructs are not explicitly looked at, they are still taken into consideration, which happens when positively worded constructs are given a low score.

Table 13 Customer and firm positive and negative outcome variables

Customer Outcomes	Firm Outcomes
Positive Outcomes: • Customer Satisfaction	Positive Outcomes: • Overall firm performance (positive / profit)

[32] For consistency reasons this is illustrated with a 5-point scale as well. Using a 5-point Likert scale, the different values are as follows: 1-strongly disagree, 2-disagree, 3-maybe/maybe not, 4-agree, 5-strongly agree. Therefore, values 4 and 5 represent agreement regarding customer satisfaction, whereas the values 1 and 2 represent disagreement, meaning the customer is dissatisfied.

• Customer Loyalty (Positive Word of Mouth, (Re)Purchase Intention, (Intention to) Re-Use	
Negative Outcomes: • Customer Dissatisfaction • Customer Disloyalty (Negative Word of Mouth, No (Re)Purchase Intention/Intention to Buy From Different Provider, No (Intention to) Re-Use	Negative Outcomes: • Overall firm performance (negative / loss)

7.1.1. Service Quality

Service quality is a very important factor when it comes to customer transaction specific determinants. The term quality is closely linked to the customer's expectations as service quality is seen as the difference between what the customer expects and what the customer perceives he actually gets (Zeithaml, Berry, & Parasuraman 1993). Therefore, service quality can be viewed as the firm's ability to meet their customers' expectations.

Service quality consists of different dimensions as stated by Meyer and Mattmüller (1987), an approach which is adopted for this research. In a customer participation context there are two dimensions which are very important when it comes to measuring service quality, namely the process dimension and outcome dimension. The focus of service quality in a customer participation context lies on these two dimensions. The third dimension as identified by Meyer and Mattmüller (1987) is the

capability dimension, however, this is more concerned with how and if firms can become more unique regarding their service offered, which then impacts on the firm's capability. Therefore, this is more an antecedent dimension rather than an outcome dimension, which are the focus of this PhD thesis, as the research purpose is to identify the impact of customer participation on outcome variables.

The other two dimensions, process and outcome dimension, are outcome dimensions as treated in regards to customer participation. The process quality dimension looks at the interactive part of the service provision and examines the quality of the actual exchange process between customer and firm (Meyer & Mattmüller 1987). In a customer participation context this is a highly important outcome variable measured from the customer's point of view as it looks at how the customer evaluates and perceives the customer participation process (process dimension). This process evaluation has been measured by researchers such as Xu, Marshall, Edvardsson, and Tronvoll (2014) and Roggeveen, Tsiros, and Grewal (2012) in the form of the customer's perceived justice and fairness of the process as well as the customer's perceived value and benefit of participating in the process (e.g. Chan, Lim, & Lam 2010; Van Beuningen, et al. 2009). The customer's perceived justice regarding the customer participation process can be measured in different forms. Researchers measured the perceived process justice in the form of direct procedural justice (Greer et al. 2014; Roggeveen, Tsiros, & Grewal 2012), however, this can also be measured as interactional justice as part of the process for example. The key requirement for justice/fairness measures regarding the process is that the measures actually capture the customer's perception of process related evaluations in the form of justice and/or fairness.

Slightly different in nature is the perceived value/benefit measurement from the customer's point of view in regards to the customer participation process. Whereas perceived justice and fairness directly links to the customer's evaluation and perception of the process as such, the perceived value/benefit measures do not necessarily capture the customer's evaluation of the customer participation process as such. It could be for example that the customer perceived the process as fair and just however, the customer may still not agree on the process providing high value and/or benefit. On the other hand, it could be that the process is perceived as unjust but highly valuable as such. This could happen when the customer is treated badly by an employee but still the process may be high in value as the customer may get a more tailored offering after participation for example. Therefore, it needs to be pointed out that value/benefit as a separate construct still relates to the process dimension, yet, it is different from the justice/fairness construct. However, both measures still capture process dimension outcome variables and are therefore treated as a subdimension of service quality.

The second dimension as measured in a customer participation context is called outcome dimension and examines customer evaluations of the overall service quality as an outcome variable. This variable no longer looks at process evaluations as described in the previous paragraphs but is concerned with the customer evaluations of the ultimate output. In a customer participation context this can be in the form of service quality evaluations itself, for example how does the customer perceive the overall service provided. However, the outcome dimension in a customer participation context is not only limited to services but also incorporates evaluations of products, such as technology-based self-services as measured by Lin and Hsieh (2006). Another part of this group is product quality, which in a customer participation context is highly relevant as it provides an indication of whether participation in a new product

development context for example makes the customer feel more positive towards the actual product developed. So even though this variable is called service quality, it is not limited to services only but also includes product and technology quality as perceived by the customer in a customer participation context.

Generally, it needs to be taken into consideration that quality is a subjective evaluation and can differ from customer to customer. Parasuraman, Zeithaml, and Berry (1994) highlight that there are two different types of customer evaluations which determine the customer's perception of service quality. The first one is that of the customer's perception of what a (service) provider *should* offer and the second one looks at the customer's belief of what a (service) provider *could* offer. The authors use the SERVQUAL which consists of two types of customer expectations. The first level of expectation is called desired service level, which captures what a customer thinks a service should and could look like, whereas the second level looks at the minimum the customer is willing to accept to perceive the service as adequate (adequate service level). In between these levels lies the so-called "zone of tolerance". Is the customer's perceived (service) quality in the "zone of tolerance", then it is said that the service fulfils the customer's expectations. Another factor which then needs to be looked at is that of the customer's expected service level, which examines what the customer thinks a (service) provider can and should offer in quality. Therefore, there are three types of service levels which have an impact on the customer's ultimate service quality perception (Parasuraman, Zeithaml, & Berry 1994):

1) Desired Service Level
2) Adequate Service Level
3) Expected Service Level

Overall it can be summarized that service quality is a key predictor of customers' intentions to use a certain service option, given that other factors like price are comparable to other available options (Dabholkar 1996). Therefore, a high service quality can be expected to lead to increased firm performance if all else is equal. This is why it is important to look at service quality outcome variables (both ultimate outcome and process related) to determine how customer participation impacts on these key outcomes. The fact that it is important to not only focus on ultimate outcomes regarding the final product or service when it comes to service quality evaluation has also been stressed by Lemke, Clark, and Wilson (2011). The authors highlight the need to look at quality from an experience point of view rather than measuring quality of the end product only due to customer's approaching their own evaluations more holistically. The service quality used for this thesis therefore consists of service quality transaction specific evaluations, and the two process outcomes service quality justice/fairness and service quality perceived value/benefit. Another key customer outcome variable is that of customer satisfaction, which is defined for the purpose of this meta-analysis in the next subchapter, subchapter 7.1.2.

7.1.2 Customer Satisfaction

Customer satisfaction can be seen as the key customer outcome variable with the highest number of effect sizes and the most widely studied construct in relation to customer participation. Generally, Meik (2015) highlights that customer satisfaction is made of two different forms of satisfaction, namely transactional and cumulative satisfaction, which is being referred to as general satisfaction throughout this thesis. Homburg, Koschate, and Hoyer (2005) identify that transaction specific satisfaction

relates to the customer's evaluation of individual transactions between the customer and the firm. General customer satisfaction in comparison is more comprehensive in nature and encompasses the customers' evaluation of everything the provider does, whether that is other offerings or the general firm as such. In the customer participation context transaction specific customer satisfaction relates to the customer's evaluation of a transaction based on customer participation, for example the customer could be evaluating the customer participation experience or the use of self-service technology. General customer satisfaction in a customer participation context is not tied to the customer participation experience but rather relates to the overall satisfaction ratings regarding the provider of the offering. As a result, general customer satisfaction is a construct that measures the customer's total sum of experiences, transactions and interactions with a firm (Anderson, Fornell, & Lehmann 1994).

Coming from a more general perspective, customer satisfaction occurs when the customer's expectations are met (Oliver 1980). According to Cadotte, Woodruff, and Jenkins (1987) the expectations of a customer are shaped by two characteristics. The first characteristic looks at the customer's ideal performance perception about the service quality provided by the company for example. The second characteristic is then formed of the customer's previous experience with real brands and their performance (ibid.). For this shaping the customer's outcome, the customer compares the expected situation, for example service quality, with the experienced situation. If the customer's expectations are met, customer satisfaction occurs. However, if the experienced situation falls below the customer's expectations, then this results in customer dissatisfaction (Oliver 1980).

Oliver, Rust, and Varki (1997) also point out, that the firm can go beyond satisfying their customers by actually exceeding their expectations, which may result in

customer delight. Therefore, it can be said that the extent to which the customer is satisfied/delighted has an influence on the customer's actual behavior. Delighted customers are said to exert positive behaviors and attitudes such as very strong commitment towards the firm (Holbrook & Hirschmann 1982), higher customer loyalty (Oliver, Rust, & Varki 1997), and positive word of mouth (Anderson & Sullivan 1993; Anderson, Fornell, & Lehmann 1994) to name a few. Therefore, it is important from the firm's perspective to have satisfied customers, a feeling which can, but does not automatically have to, be elicited in a customer participation context as pointed out in the literature review. To summarize, the customer satisfaction outcome as used for this thesis therefore consists of customer satisfaction transaction specific evaluations as well as general/overall customer satisfaction. In the next subchapter, another key customer outcome variable is looked at, namely customer commitment.

7.1.3 Customer Commitment

It has been identified that customer commitment can be impacted on positively by customer satisfaction and/or delight (Holbrook & Hirschmann 1982) and has been defined in research as the exchange partner's belief "that an ongoing relationship with another is so important as to warrant maximum efforts at maintaining it" (Morgan & Hunt 1994, p. 23). This means that for increased commitment towards the firm, the customer needs to view his/her relationship with the exchange partner as positive. However, from the customer's point of view commitment is not always positive, as it may lead to the customer not even comparing different offerings (Garbarino & Johnson 1999), which can lead to the customer missing out on better "deals".

Research discusses three different types of commitment a customer can have towards a firm (Bruhn 2009). The first type is affective commitment, which looks at the customer's emotional attachment towards the company. The second type of commitment examines the customer's willingness to continue business with the firm and is called continuance commitment. Both types of commitment, affective and continuance, are said to be voluntary. However, the third type of commitment, called normative commitment, is not voluntary from the customer's point of view but forced. This may occur when the customer feels like he/she has no other choice or would have a bad conscience when terminating the relationship with the firm. The different types of customer commitment are said to directly impact on customer loyalty and customer behavior (Evanschitzky, Brock, & Blut 2011; Gustafsson, Johnson, & Roos 2005).

There are different factors which can strengthen the customer's commitment towards a firm. These factors could come in the form of potential costs and disadvantages which would occur in case the customer exited the relationship with the firm. Furthermore, the customer's commitment towards the provider can be strengthened by the customer's feeling that the firm follows similar value premises (Morgan & Hunt 1994). The higher the commitment towards the firm the less likely the customer is to exit the relationship with the provider. Additionally, the authors also highlight that the customer is more likely to accept certain requirements and conditions the firm may set.

Now that the construct customer commitment has been defined it is looked at customer trust, which has been identified as one variable which impacts on commitment by Morgan and Hunt (1994). This is the purpose of subchapter 7.1.4.

7.1.4 Customer Trust

Generally, trust can be defined as the customer's confidence in the quality of the firm's offerings, whether that is products or services (Doney & Cannon 1997). The customer is said to have confidence in the quality of the firm's offerings without carrying out further quality checks when having trust in the offering provider. Morgan and Hunt (1994) also point out that trust plays a crucial factor in developing long-term relationships between customer and firm as it is said to "reduce exchange uncertainty, allowing the customer to form reliable expectations of the retailer" (Karpen et al. 2015, p. 96).

Bruhn (2009) highlights that the customer can have trust in the firm as well as individual employees. In the customer participation context both forms of trust apply as it is looked at how customer participation impacts on customer trust in general, which can be directly towards the firm or the company's employees. In order to be able to generalize the findings it is important to look at different types of trust as these types can all ultimately impact on the customer's trust towards the firm, which is the key outcome to be examined. The customer's trust towards individual employees is also important to look at because the employees' performances can vary due to several reasons, employee competence and opportunistic behavior being two of those reasons (Bruhn 2009; Morgan & Hunt 1994). Overall, the firm cannot directly control these aspects, which is why it is important to not focus on trust towards the firm only.

Furthermore, there is a third type of trust, which applies to the customer participation context as used for this thesis. The third type of trust looks at the customer's trust towards technology and examines how customer participation impacts on the customer's confidence in (using) a certain type of technology, which could be in

the form of self-service technologies for example. As highlighted in the previous subchapter, the customer's trust is said to have a direct impact on the customer's commitment towards the firm and thus makes it a key customer outcome variable to look at in a customer participation context. In subchapter 7.2.5. the final customer outcome variable, namely customer loyalty, which consists of word of mouth, (re)purchase intentions, intention to (re)use, and general loyalty measures is defined.

7.1.5 Customer Loyalty

Obtaining customer loyalty is often seen as the key outcome for marketing strategies (Evanschitzky et al. 2006). The term is often used to describe the customer's relationship with the firm. More precise, Dick and Basu (1994) define customer loyalty as "the strength of the relationship between an individual's relative attitude and repeat patronage" (p. 99). There are different types of customer loyalty discussed in literature, which can be grouped into two distinct groups, namely attitudinal and behavioral (Evanschitzky et al. 2006). The authors stress that behavioral loyalty is concerned with measuring customers' repeat purchase behavior while attitudinal loyalty is more concerned with the customer's attitudes and intentions towards buying from the offering provider again. Behavioral loyalty looks at customer actions by taking into consideration past purchases as well as future purchase probabilities given past behavior (Ehrenberg 1988). Compared to this, attitudinal loyalty refers more to psychological dispositions of the customer towards the brand and focuses on measuring attitudes (Evanschitzky et al. 2006). It is important to highlight that a customer's attitude may often relate to behavior, however, it is also possible for someone to hold a positive attitude towards a brand without actually purchasing from it (Dick & Basu 1994).

Therefore, the term is very important for firms in particular when not only looking at past behaviors but also at predicting customers' future patronage (Evanschitzky et al. 2006; Kumar & Shah 2004; Dick & Basu 1994).

For the purpose of this thesis, it is not differentiated between attitudinal and behavioral loyalty as such, but rather between key variables, namely overall loyalty, (positive) word of mouth, (re) purchase intentions and intentions to (re) use. Overall loyalty refers to the construct measuring loyalty without looking at one particular type whereas the other three components are measuring a specific type of loyalty. Therefore, word of mouth is part of the attitudinal dimension due to it relating to the customer's favorable attitudes towards the provider rather than (repeat) patronage. (Re)purchase intentions as well as intentions to (re)use a certain technology for example measure the customer's intentions to repeat business with the same offering provider in future and are thus part of the behavioral loyalty construct. To get an overall idea of the loyalty construct in relation to customer participation the three variables will be referred to as the loyalty construct from now on and are merged for analysis.

The purpose of this chapter is to provide an initial overview of some of the key outcome variables as discussed in the literature. This was applied to the approach taken for this meta-analysis and in table 14 an overview of all outcome variables, including examples and indicative papers, is given. In the next chapter, the corresponding hypotheses regarding the customer participation – outcome link including moderating effects are developed.

Table 14 Outcome definitions, examples and indicative manuscripts

Category	*Definition*	*Coding examples*	*Indicative Paper*
Customer Outcomes			
Customer Satisfaction	A cognitive and affective process where customers decide whether their needs are met. This can be related to a product, service, process or provider. Therefore, the outcome can be transaction specific, which results from the evaluation of a single transaction, or general, which results from multiple experiences between customer and firm and is therefore accumulated over time.	Customer satisfaction, satisfaction with service recovery, process satisfaction	Gallan et al. (2013), Wang, Harris, and Patterson (2013)
Customer Loyalty	A concept measuring the strength of the customer's relationship with the firm and his/her actions based on this. Loyalty can be measured in three different ways, which are: a) customer's intention to (re) use (a certain technology for example), b) the customer's intention to (re) purchase from the same offering provider and/or c) the customer's intentions to recommend the firm/offering to others.	Loyalty, (positive) word of mouth, intention to (re)use self-service technology, intention to repurchase	Wang et al. (2013), Roggeveen et al. (2012),
Relationship Quality: Trust	A concept measuring the customer's perceptions on reliance of the firm in general or specific products and/or services. Regarding specific products or services the concept measures the customer's belief of the ability/performance of a certain product/service. More generally, the variable captures the customer's perception of a firm in general (i.e. policies, reliability, integrity)	Trust, trust towards technology, trust towards service provider	Benamati et al. (2010), Johnson et al. (2008)

Relationship Quality: Commitment	Measured in the form of the customer's attachment to the firm/offering, the identification with the firm/offering or involvement with the firm/offering.	Organizational commitment, affective commitment	Auh et al (2007)
Justice perception	The customer's perceived fairness and/or rightfulness of the participation process. The customer's evaluation can relate to the overall design, complexity and interaction during the process.	Interactional justice, procedural justice, overall justice	Greer et al. (2014), Xu et al. (2014)
Perceived Value/Benefit	The customer's perception of how the participation process or use of a certain product / service meets his/her needs and/or expectations. The evaluation can relate to specific transactions or processes but also to the general relationship with the firm as well as general attitudes towards something (i.e. technology-based services).	Relationship value, hedonic value, utilitarian value, customer value	Collier et al. (2014), Yim et al. (2012)
Service Quality	The customer's perception of how well the service delivered meets his/her expectations. The evaluation can relate to one specific service or product (transaction specific) or an accumulation over time (general).	(Expected) service quality, product quality	Dong et al. (2015), Dabholkar (1996), Lin and Hsieh (2006)
Price Premium	The customer's willingness to pay (a higher) price for the firm's core offering (which can be either a service, product or both).	Willingness to pay, selection of higher priced item	Miceli et al. (2013), Norton et al. (2012), Fuchs et al. (2010)

Firm Outcomes			
Product/Service Innovation: Effectiveness	The firm's ability to develop a product or service that is different from other products or services available on the market.	Product innovativeness, service innovativeness	Pee (2016), Tu et al. (2014)
Product/Service innovation: Efficiency	The firm's ability to bring its services or products to the market in the most cost-effective way.	New product speed to market, project efficiency	Fang (2008), Melton and Hartline (2010)
Firm New Project Performance	The firm's new product / service / innovation's financial performance.	(New) product success, market success, NPD success compared with competitors	Keszey and Biemans (2016), Gustaffson et al. (2012), Langerak and Hultink (2005)
Firm General Performance	The firm's general financial performance. This consists of all financial performance outcomes apart from financial outcomes related to new project development.	Financial performance	Chen et al. (2013), Skaggs and Youndt (2004)
Employee Job Stress	The employee's negative reaction towards work pressure and other demands resulting from customer participation.	Job stress	Chan, Yim, and Lam (2010), Yim, Chan, and Lam (2012)

7.2 Hypothesis Development

The purpose of this chapter is to outline the hypotheses tested with the meta-analysis. For this, the hypotheses are developed using different theories. The first part looks at the customer participation – outcome main effects, which is then followed by the moderator hypotheses. An overview of the main theories to be used for developing the hypotheses can be found in table 15. This part of the thesis then proceeds with subchapter 7.2.1, which is looking at the main effects of customer participation on firm / customer outcomes, followed by the moderator hypotheses, which are developed in subchapter 7.2.2.

Table 15 Main theories used for hypotheses

Type	Party	Theory to be used
Main Effect	Customer	• Locus of Control • Self-Serving Bias • Associative Self-Anchoring • Balance Theory
Main Effect	Firm	• Resource Dependence Theory
Moderator: Forced	Customer	• Reactance Theory • Locus of Control
Moderator: Goods vs Services	Customer / Firm	• Service Characteristics
Moderator: Technology	Customer	• Locus of Control

Moderator Technology	Firm	• Economic Rationale
Moderator: Service Recovery	Customer	• Service Recovery Paradox • Script Theory
Purchase Stages	Customer	• Primacy Effect • Recency Effect

7.2.1 Main Effects

7.2.1.1 Customer Outcomes

Customers are no longer considered passive recipients of goods and services; they instead actively participate in providing the firm's core offering. As a consequence, the customer has a higher level of control over the core offering of the firm. The more intense a customer participates, the higher the perceived level of control over the outcome of participation. Perceived control refers to "an individual's felt ability to perform a particular behavior" (Robertson et al. 2016, p. 91) and the level of control ultimately influences the perceived quality of the outcome of participation (Collier & Sherrell 2010).

However, based on the concept of locus of control (Rotter 1954), individuals may attribute the outcome of their behavior in two distinct ways: they are either driven by an external locus of control, meaning that they view external agents as responsible for the outcome, or they might perceive themselves as responsible for the outcome, thereby having an internal locus of control (Marks 1998). Following this argument, participation will result in the locus of control to be perceived as being internal as

customers themselves significantly and actively contribute to the delivery of the core offering. Research highlights that people possessing internal locus of control are characterized by faster recovery in a mental health context (Reynaert et al. 1995) and more effective coping with the situation (Vickers, Conway & Haight 1983). Supporting this, Cochran and Laub (1994) find that people driven by internal locus of control have a better mental health than people who have external locus of control. This ties in with Eisingerich and Bell (2006) who state that customers "are more willing to assume responsibility for jointly produced outcomes" (p. 89) and therefore "tend to share the credit as well as the blame" (ibid.) for outcomes. As a consequence, the outcome of participation will likely be perceived as more positive.

However, literature on self-serving biases argues that individuals attribute positive outcomes to themselves and negative results to other (e.g., Bendapudi & Leone, 2003; Mezulis et al. 2004 for meta-analytic evidence). In the context of customer participation, that would suggest for both events, negative as well as positive, customer outcomes may be perceived as lower. In the case of a positive result, the customer sees him or herself in a positive light rather than the customer-firm relationship. If the outcome is negative, the customer will blame the firm and view the provider as more unfavorably. This is due to the monetary and non-monetary costs customers face when participating in the different stages of the core offering of the firm (Youngdahl & Kellogg 1997; Lovelock 1994). The customer may perceive his/her input as unjust when participating, especially when the outcome is seen as negative (Walster, Berscheid, & Walster 1973). Instead of taking responsibility for their actions, customers blame the firm for the negative result. This is in line with Deutsch (1985) who stresses that "… if I am the victim of pain or harm, to think well of myself, it is necessary for me to believe

that it was not my due...." (p. 47).[33] Following the argument presented above, the customer outcomes of a customer participation situations, in particular with a negative outcome, would be expected to be lower as opposed to no customer participation situations. In a positive situation, even though the customer may be inclined to take more credit for the outcome compared to a no customer participation situation, the positive feelings are still expected to lead to generally higher customer outcomes as can be explained by associative self-anchoring (Gawronski & Bodenhausen 2006). This notion suggests a "formation of associations between an object and the self" (Troye & Supphellen 2012, p. 34) based on certain conditions. It is argued that self-produced outcomes lead to a connection between the producer (customer) and the actual offering. As research (Gawronski, Bodenhausen, & Becker 2007; Bosson, Swann, & Pennebaker 2000; Greenwald & Farnham 2000) that people generally perceive themselves as positive, associative self-anchoring states that this evaluation gets transferred to the self-produced outcome, which is therefore also rated as more favorably. In this case the (positive) outcome of a customer participation situation would be rated as higher by the customer as opposed to the outcome of no customer participation.

However, it is still believed that customer participation overall leads to more positive outcomes compared to situations without customer participation, also in situations with a negative result. This is the case because the effect of the self-serving bias may be counterbalanced with balance theory as introduced by Heider (1958). Balance theory looks at the relation between objects and persons as perceived by people. The core aspect of this theory is that certain relationships between objects and individuals are balanced, and that others are out of balance. It is the balanced structures, which are preferred. Furthermore, it is said that unbalanced structures lead people to

[33] All references in this block from no 18 (HsiuJu) Meta-analysis.

have negative feelings and therefore, people aim for balanced relationships. In case a structure is not in balance, people strive to restore that balance (Heider 1958). In a customer participation situation with a negative outcome the customer may perceive imbalance due to individuals generally perceiving themselves and their actions as positive (Gawronski, Bodenhausen, & Becker 2007; Bosson, Swann, & Pennebaker 2000; Greenwald & Farnham 2000). A negative outcome for which the customer is partially responsible due to customer participation does not fit that notion. Therefore, to restore balance the customer may automatically rate the outcome as more positive and ultimately, the customer outcome variables as higher as opposed to no customer participation. As a result, the following is hypothesized:

> ***H1a:*** **Customer participation exerts an overall positive effect on customer outcome variables.**

7.2.1.2 Firm Outcomes

The resource dependence theory (RDT) (Pfeffer & Salancik 1978) is a widely used managerial framework looking at how organizations operate in the market. More precisely, RDT examines the relationship between an organization and its surrounding environment (Drees & Heugens 2013) to show how firms can reduce and manage uncertainty and environmental interdependence (Hillman et al. 2009). RDT follows the approach that a firm's resources and its external environment are interconnected, leading to interdependencies between firm and environment (Pfeffer & Salancik 2003). Interdependencies exist because the firm's offerings are of interest to the organization's external environment. Further, interdependencies arise from the need of the firm to gain

access to its environment in order to be able to produce its offerings; controlling access to critical resources is key to firm performance (Pfeffer & Salancik 2003).

Drees and Heugens (2013) stress that organizations react in various ways to access external resources. Letting customers participate in the creation and/or delivery of the core offering can be seen as a way for firms to gain access to critical players from the external environment. By incorporating customers in the delivery processes, the firm acquires knowledge on customer needs and wants, which can be used to create, modify or tailor the offer to make it relevant and desirable for the customer, ultimately making them purchase the offer and thereby improving company outcomes.

With respect customer participation, research has shown that using customer insights is crucial to new product development success (Evanschitzky et al. 2012; de Brentani 1995; Atuahene-Gima 1996) and positively linked to service innovation (Chen et al. 2015). Furthermore, using customers as participating resources has shown to positively influence economic outcomes (e.g. Bendapudi & Leone 2003; Fitzsimmons 1985; Lovelock and Young, 1979; Mills and Morris, 1986). Therefore, the following is argued:

H2: **Customer participation exerts an overall positive effect on firm outcome variables.**

7.2.2 Moderating Effects

7.2.2.1 Importance of Selected Moderators

In the previous subchapter, subchapter 7.2.1, the expected impact of customer participation on both firm and customer outcomes were outlined. This subchapter serves as the basis for the moderator hypothesis development and by first introducing why the chosen moderators, namely forced/unforced participation, participation in the three purchase stages: pre-purchase, service encounter, and post-purchase, participation in service recovery, technology usage and participation in goods or services are selected. Therefore, the importance of the moderators is outlined.

First, it is looked at why forced/unforced customer participation is chosen as one moderator. Generally, there have already been a few papers which place their focus on forcing customers into customer participation (e.g. Reinders, Dabholkar, & Frambach 2008; Flores & Vasquez-Parraga 2015). Reinders, Dabholkar, and Frambach (2008) find that forcing customer into using self-service technology for example leads to negative attitudes towards using said technology. Furthermore, the research findings reveal that forced participation does not only lead to negative attitudes towards the technology but also the service provider, ultimately highlighting the importance of providing the customer with an employee as a fall-back option and therefore choice in regards to whether customers want to participate by using technology or let staff do the checkout. This is supported by findings of Flores and Vasquez-Parraga (2015) who show that providing customers with a choice in regards to whether they want to participate or not is beneficial and leads to both higher customer and firm outcomes. The positive effect of choice is further supported by Bitner, Ostrom and Meuter (2002), who find that customers dislike being forced into participation.

All these findings seem to provide evidence that forcing customers into customer participation is not a good thing to do from the provider's perspective. However, these findings relate to customer participation situations where customers can switch to an alternative provider who offers that element of choice. Switching to another provider to avoid forced participation may not always be possible as some services require the customer to participate and customers would face the same situation with every other provider. This is the case with the financial industry for example (e.g. Auh et al. 2007). To get the best service possible the customer is forced to participate to some extent as no or limited participation may be self-detrimental. In cases like these the findings show that forced customer participation can in fact be a positive thing and lead to higher outcomes (Auh et al. 2007; Gallan et al. 2013). Therefore, it is important to identify the overall impact of forcing customers to participate has on the relationship between customer participation and outcome variables as the purpose is to identify which situations can strengthen or weaken the customer participation – outcome link.[34]

The second moderator, which is used for the customer participation – outcome relationship is technology. Here it is looked at whether technology is used for customer participation or not. Generally, as has been identified in literature, technology is used for replacing employees (Curran, Meuter, & Surprenant 2003), therefore ultimately reducing human interaction. Most scenarios, for example the use of self-service technologies, enable people to completely avoid human contact (Meuter et al. 2000;

[34] For testing the impact of forced/unforced customer participation contexts the two different situations as outlined above are merged for being able to identify who benefits from forcing/not forcing customers into customer participation, the customer or the firm. In future, it is important to distinguish between the two types of forced participation, however, at completion of data collection, there were only 3 papers part of the meta-analysis which
examine the context where customers have the chance to switch to an alternative provider to avoid being forced into participation. Due to the limited amount of papers, effect sizes are limited and for some key outcomes no correlations exist so far. Therefore, the main aim at this stage is to generally identify and get an initial overview of whether forcing people into participation is good or not.

Dabholkar 1996). As a result, the technology moderator enables the identification of two aspects in one, namely the customer's preference of using technology and therefore enjoying advantages such as increased speed of delivery of service, higher customization, and increased precision of encounters (Berry 1999) over the need for having human contact/interacting with employees when being involved in customer participation. Technology has become an everyday part of people's lives and it brings benefits for firms such as reduced costs and increased productivity (Dabholkar 1996; Kelley 1994; Alpar 1992), which is why firms increasingly try to make use of said technology. Furthermore, the fact that a large amount of customer participation studies are explicitly based in a technology context[35], highlights the need for examining whether the use of technology strengthens or weakens the customer participation – outcome link for the customer and the firm. As a result, by using technology as a moderator it will be revealed whether the advantages of using technology for both the customer and the firm outweigh the need for human contact in a customer participation setting or whether human interaction may actually become even more important with the introduction of an increasing number of technologies.[36]

The third moderator to be looked at in regards to its impact on the customer participation – outcome link is whether the firm operates in a goods or services setting. Generally, unlike the other moderators so far, this is not necessarily changeable by the firm, however, the importance of examining whether the impact the two settings have on the relationship between participation and outcomes differs was already recognized in a new product development context only. The first publications looked at new

[35] 49% of all research papers part of the meta-analysis are based on a technology setting.
[36] The fact that the presence of technology leads to less human contact and vice versa is mirrored by the fact that initially a human interaction moderator was included. However, this mirrored multicollinearity with technology and was therefore taken out of the study and only one moderator, technology, was used.

offering development in a product context (e.g. Sethi 2000; Sethi, Smith, & Park 2001), however, following, a distinction was made between products and services and research started explicitly looking at new service development contexts only (e.g. Magnusson, Matthing, Kristensson 2003; Carbonell, Rodriguez-Escudero, & Pujari 2009). This shows researchers' recognition of services being different from goods (Zeithaml, Parasuraman, & Berry 1985), which requires research to be conducted into both areas separately to derive valid conclusions. Both services and goods possess characterstics which are unique to their setting and also bring along their own challenges and opportunities for both the customer and the firm alike (Zeithaml, Parasuraman, & Berry 1985; Vargo & Lusch, 2004; Eastlick et al. 2012). Services being fundamentally different from goods regarding certain aspects as outlined in the hypothesis section, is recognized by this research and justifies the importance of using the setting as a moderator to study the impact on the customer participation – outcome link. Firms may not be able to change the setting they operate in however, it is both of interest to the customer and firm whether the challenges of a certain context outweigh the opportunities or the other way around. Furthermore, it is the idea of this thesis to see who benefits from customer participation, the customer or the firm, and for this a more holistic approach, services versus goods as opposed to different industries such as financial services or education, provides a good starting point for future research.

The next moderator, the three different purchase stages, namely pre-purchase, service encounter and post-purchase are chosen as important for testing the impact on the customer participation – outcome link. This is the case because the different purchase stages form an essential part of the customer participation definition as used for this thesis. It was identified in the literature review that customer participation can happen at any stage of the life cycle of the offering and therefore, it is of interest to

study who and if anyone benefits from participating in the purchase stages. In case the customer participation – outcome link is strengthened, or weakened, for one or both of the partners involved, it needs to be identified for which purchase stage that is the case. It is already interesting to note that there are several streams in the customer participation literature, which can be classified as new project development (Gustaffson, Kristensson, & Witell 2012; Fuchs, Prandelli, & Schreier 2010; Melton & Hartline 2010), which happens in the pre-purchase stage, the use of technology-based services (van Beuningen et al. 2009; Reinders, Dabholkar, & Frambach 2008; Oyedele & Simpson 2007), which is mostly happening in the service encounter stage, and finally, many do-it-yourself (Troye & Supphellen 2012) as well as all service recovery (Roggeveen, Tsiros, & Grewal 2012; Dong, Evans, & Zou 2008) studies are taking part in the post-purchase stage. Furthermore, even though different streams can be identified, no research has explicitly looked at the comparison between the different purchase stages regarding the impact of customer participation on outcomes. However, it is important to find out who benefits and who loses when participating in the different purchase stages, due to customer participation happening at different stages of the life cycle of the offering.

The final moderator to be looked at for examining the customer participation – outcome link is service recovery. As highlighted in the previous paragraph, service recovery situations normally happen in the post-purchase stage. With the purchase stage moderator it is looked at more broadly how the impact of customer participation on outcome variables changes in the different stages. However, due to service recovery only being one group of the post-purchase stage it is important to look at service

recovery as a moderator in isolation.[37] Due to the fact that service failures are inevitable at some point for service providers as outlined in the hypothesis chapter, it is important to know for firms if a service failure can be recovered. One possible strategy to recover service failures is customer participation as identified by various studies such as Roggeveen, Tsiros, and Grewal (2012), and Dong, Evans, and Zou (2008). However, it is not certain, whether letting the customer actively participate in shaping a solution to the service failure, always leads to a successful outcome for both the customer and the firm. As Roggeveen, Tsiros, and Grewal (2012) highlight, the effect customer participation in service recovery has on customer evaluations depends on factors such as the severity of the service failure, showing that customer outcomes are not always affected in the same way. Furthermore, Heidenreich, Wittkowski, Handrich, and Falk (2015) find that the level of customer outcomes after service failure depends on the participation level of the customer in service recovery. These findings indicate that it is not yet clear whether customer participation in service recovery helps strengthen the participation – outcome link or not and if so, who the main beneficiary is, the customer or the firm. Therefore, it is important to have service failure as a separate moderator as part of the meta-analysis. In the following subchapters, the moderator hypotheses are developed. The following table provides an overview of the different moderators by defining the different situations. The first moderator hypothesis to be developed is that of forced customer participation, which is done in subchapter 7.2.2.2.

[37] The same could have been done with new project development, however, due to the meta-analysis on customer participation in new project development contexts published only in 2016, a further examination of the new project development context was not the focus of this thesis.

Moderator	Definition	Example	Coding
Type	This moderator measures how the customer participates. Participation can be forced or unforced. The two types are defined below. Forced: A situation which makes the customer participate without having a choice in order for the transaction to be completed. Unforced: A situation which gives the customer a choice whether he/she wants to participate.	Forced: Forced use of self-service technology Unforced: Participation in new project development	Forced = 1 Unforced = 0
Setting	This moderator measures the surroundings in which customer participation can take place, namely services and/or goods. Services and goods are defined below.		Goods = 1 Services = 0

	Services: A situation in which the customer participates in the production / delivery / maintenance or recovery aspect of an offering that brings value through intangible elements. Goods: A situation in which the customer participates in the production / delivery / maintenance or recovery of an offering that consists of physical and therefre tangible elements.	Service: Designing your own holiday Goods: Designing your own shoe	
Methods Used	This moderator measures whether technology was used for customer participation or not. The definitions for technology and no technology usage can be found below. Yes: Situations in which the customer uses technology in the form of a system or device during the participation process. No: Situations in which the customer does not use technology during the participation process. This also captures situations in which the use of technology is not explicitly mentioned.	Yes: Use of self-service technologies. No: New project development.	Technology = 1 No Technology = 0

Service Provision	This moderator captures whether the customer participates in service recovery or not. Yes: Situations in which the customer participates in response to a service failure. No: Situations in which the customer participates without responding to a service failure.	The customer participates by looking for a solution (together with an employee) after having encountered an error message regarding booking a holiday. No: Customer designs his/her own train journey without encountering an error message.	Service Recovery = 1 No Service Recovery = 0
Purchase Stages	This moderator measures where the customer participates regarding the core offering, namely pre-purchase, service		Pre-Purchase = 1 Other = 0

	encounter and/or post-purchase. The different stages are defined below. Pre-Purchase: The customer participates before having bought the product or service. Service Encounter: The customer participates during the delivery of the core offering of the firm. Post-Purchase: The customer participates after having bought the service or product.	Pre-Purchase: The customer participates in new project development. Service Encounter: The customer checks out his / her groceries at the supermarket. Post-Purchase: The customer assembles a product he/she has bought from IKEA.	Post-Purchase = 1 Other = 0 Service Encounter = 1 Other = 0

7.2.2.2 Forced Participation

Customers often face situations in which they are forced to participate in the activities of a firm. The economic rationale associated with customer participation (Bendapudi & Leone, 2003) aligned with the growth of innovations in service technology means that many organizations seek opportunities to increase customer use of, in particular, self-service technology. However, research in this area suggests customers dislike being forced into participating (Bitner, Ostrom, & Meuter, 2002). Reinders, Dabholkar, and Frambach (2008) observe that forcing consumers to do something is associated with reducing freedom of choice, which is directly associated with the customer's perceived control over entering into the production and/or delivery of the core offering of the firm (Esmark et al. 2015). Research in this area suggests that reducing a customer's control over whether he/she decides to participate leads to an as lower perceived outcome compared to customers with higher control (Hui & Bateson 1991), which can be explained by people accepting responsibility for the result in a non-forced situation (Esmark et al. 2015; Bendapudi & Leone 2003). These findings can be explained by Brehm's (1966) reactance theory, which examines how people react negatively when their perceived freedom of choice is threatened/reduced. Brehm (1966) identifies that if customers perceive that they are forced into a certain behavior, they respond with reactance, a negative or unpleasant motivational feeling, to regain their control.

These arguments are commensurate, with the external vs internal locus of control debate above. A shift in locus of control (Rotter, 1996) is expected when looking at forced versus non-forced customer participation situations. In a forced customer participation context the customer is expected to be driven more by external locus of control, due to reduced freedom of choice and control. In a non-forced situation, it is expected that the customer exerts an attitude driven by internal locus of

control, which means that the customer can control if he/she wants to participate or not. Higher perceived control leads to positive feelings, for example higher subjective well-being, which might be expected to lead to favorable customer outcomes (Thompson & Spacapan, 1991). However, even in situations with forced participation the customer is still in more control over the outcome as opposed to a situation with no customer participation situation. Hence, the overall effect is still expected to be positive, but reduced in forced situations and thus the following is hypothesized:

> ***H3:*** **The positive effect of customer participation on customer outcome variables is stronger in situations where customers can choose whether to participate than in situations where they are forced to participate.**

7.2.2.3 Goods vs Services

7.2.2.3.1 Customers

Services are differentiated from goods based on a number of key characteristics (Zeithaml, Parasuraman, & Berry 1985) which may account for differing outcomes of customer participation. Specifically, services differ based on the role of the customer, the predictability of individual encounters and the ability of customers to assess the quality of services.

In a service setting production and consumption are typically viewed as simultaneous so customers, generally, are required to participate more in a service setting and across multiple touchpoints (Kuehnl, Jozic, & Homburg, 2019). Early research on services considered this to be a service problem (Zeithaml, Parasuraman, & Berry 1985) but other views suggest that inseparability represents an opportunity for

firms to involve the customer more in decision making and customization (Vargo & Lusch, 2004), producing offerings better suited to individual customer needs.

Service purchases can be seen as more uncertain due to their heterogeneity, namely that quality can vary from provider to provider, from customer to customer as well as from one day to the next (Zeithaml, Parasuraman, & Berry 1985). Given this uncertainty it is likely that customers may seek to gain more control over their experiences, which can impact on customer motivation and behavior in service contexts (Bateson 1985; Xie, Bagozzi & Troye 2008).

The quality of services can be challenging to assess in advance due to their relative intangibility versus goods (Lovelock 1981). When it comes to buying services, the customer can find it difficult to check service quality in advance compared to buying goods (Parasuraman, Zeithaml, & Berry, 1985). With goods, perceived uncertainty regarding product performance will be lower as customer can check the quality of goods before buying the product (for example by reading product descriptions). This implies that customers may experience higher perceived risk when purchasing services over goods (Eastlick et al, 2012).

Through customer participation firms can shift customers' belief in external factors as customers take over increased responsibility for the product or service production, delivery, maintenance and/or recovery. As services purchases are typically more interactive than goods, firms have more opportunity to cede control of encounters to customers, increase the internal locus of control, reduce variability of encounters and further improve customer outcome. However, even though the previously named factors are all positive from a customer participation point of view, it is still expected that participation in a goods setting leads to more favorable outcomes for the customer.

Even though participation can reduce certain risk elements such as variability of services encounters, the variability of service encounter outcomes is still higher compared to that of goods. Furthermore, even by incorporating the customer more in the actual service production, delivery, maintenance, and/or recovery, the outcomes can vary from one day to the next due to uncontrollable factors like employee performance and mood. As highlighted by Chan, Yim, and Lam (2010), customer participation leads to increased employee stress, which can negatively impact on the outcome and increasingly so in a services setting due to the inability to separate production and consumption (Parasuraman, Zeithaml, & Berry 1985). Additionally, by allowing the customer to participate in goods production, the goods can be tailored more to the customer's needs and wants, thus further improving perceived performance and benefit of the product. Thus, a stronger positive impact of customer participation on outcome variables is to be expected in a services context compared to goods and the following is therefore hypothesized:

H4: The positive effect of customer participation on customer outcome variables will be stronger in goods settings than in services settings.

7.2.2.3.2 Firms

As outlined in the previous section, there are several key characteristics which differentiate services from goods (Zeithaml, Parasuraman, & Betty 1985) and which may explain the differing firm outcomes in regards to customer participation. One key aspect which separates services from goods is their high interactivity element (ibid.). Services usually require production and consumption to happen simultaneously.

Research finds that customers who co-produce a firm's product(s) show a higher sense of ownership (Wathieu et al. 2002) and are willing to pay a higher price for the outcome (Peck & Shu 2009). Customers feel attached to a product and the impact stemming from customer participation is straight forward for firms to convey due to the tangible nature of the product. Ultimately, providing customers with the choice to co-produce and innovate a product enables firms to charge a higher price for the offering (Fuchs, Prandelli & Schreier 2010), therefore impacting on general as well as new product performance outcomes in a positive way. However, compared to this, this impact is more difficult to assess in service provision. Due to their intangibility (Zeithaml, Parasuraman, & Betty 1985), it is difficult for firms to convey the final result to customers, as the service provided can vary even on a daily basis. This can be due to the company's employees' mood for example, which can impact directly on the result. This is why the provision of services can be seen as unpredictable and it may be difficult for firms to provide customers with a direct sense of ownership when it comes to customer participation as the end result depends on various different input factors.

One of these input factors is human labor, which has been repeatedly demonstrated to be a critical factor when it comes to the provision as services, especially since employees feel an increase in job stress (Chan, Yim, & Lam 2010), which can directly impact on the evaluation of outcomes and is not in the customers' own hands. As a result, it can be expected that it is easier for firms to make customers believe that they can directly influence the outcome in a product setting as compared to service settings, which enables companies to produce products customers want to buy and also charge a higher price which customers are willing to pay (Fuchs, Prandelli, & Schreier 2010).

This is in line with information asymmetry, a term stemming from economics. Information asymmetry takes into account how much information about a product or service a company holds compared to its customers (Spence 1973). Greater imbalance, meaning the company holds more information on the offering/outcome as opposed to its customers, has been found to harm the customer-firm relationship due to the customer not knowing whether the firm's offering can live up to expectations (Stock 2011). As a result, companies are expected to try and reduce the information asymmetry as far as possible to increase their performance, however, even in a customer participation situation this may be easier in a goods setting compared to services, due to the complex, intangible and thus varying (Rubalcaba, Gago, & Gallego 2010) nature of the latter. It is complexity in particular which can turn customers away as has been found by Calantone, Chan, and Cui (2006) and Thompson, Hamilton, and Rust (2005) and therefore reducing the positive effect of customer participation on firm outcome variables in a service as opposed to goods setting.

Furthermore, Evangelista and Sirilli (1998) highlight the importance of human labor in a service setting as opposed to manufacturing (products). Service co-production generally requires (strong) interaction between the customer and firm/employees (Rubalcaba, Gago, & Gallego 2010). Furthermore, research points out that service innovation in particular requires careful consideration of organizational aspects, which go beyond those for product innovation (Sundbo 1998; Gadrey, Gallouj, & Weinstein 1995). This highlights the complexity of services (innovation), and an increased care in planning may be assumed to result in increased costs the firm has to face, therefore increasing their expenditures more as opposed to goods (innovation). Adding to this, it can be said that employees' behavior is somewhat unpredictable and out of the firm's control. However, research (Chan, Yim, & Lam 2010) has shown that customer

participation increases employees' job stress, which can directly impact on the customer participation experience in a negative way, and therefore this may be particularly problematic for the firm in encounters characterized by high customer-employee contact. Due to the reasons outlined above, the following hypothesis is stated:

H5: The positive effect of customer participation on firm outcome variables is stronger in goods settings than in services settings.

7.2.2.4 Technology

7.2.2.4.1 Customers

The use of technology has been studied in research extensively (e.g. Dabholkar 1996; Reinders, Dabholkar, & Frambach 2008; Evanschitzky et al. 2015). It has been found that different factors, such as the ease of use and enjoyment of using the technology (Curran & Meuter 2007), can influence people's attitudes towards the technology and thus actual use of technology-based services (Curran, Meuter, & Surprenant 2003). Many customer participation contexts involve the use of technology. For this thesis it is only looked at technology's impact on outcome variables and thus technology needs to be regarded from a general perspective.

Coming from locus of control as introduced by Rotter (1966), and thus contrary to the human interaction argumentation as outlined in the previous hypothesis, it can be argued that the use of technology can lead the human being to assign the outcome more to his/her own abilities rather than to external circumstances. Key antecedent variables of whether people like to use technology are all subjective variables such as ease of use and people's own personal characteristics, abilities and attitudes (Curran & Meuter

2007; Weijters et al. 2007). Due to these variables being of subjective nature they can be characterized as personal abilities to deal with technology and thus the customer may be more inclined to attribute the outcome to him/herself. This can be supported by studies who focus on customer's characteristics and abilities to use technology-based services (Weijters et al. 2007) and find that people with higher perceived self-efficacy for example are more inclined to use self-service technologies (Dabholkar & Bagozzi 2002).

People being driven by internal locus of control tend to take stronger responsibility for the outcome of the situation. In a customer participation context characterized by the use of technology, customers may attribute the outcome of the use of technology-based services rather to themselves instead of blaming the firm due to the reason as described in the previous paragraph. People possessing internal locus of control are characterized by more positive outcome variables as opposed to external locus of control. So, in a customer participation context where technology is involved people are to be expected to be driven by internal locus of control and thus the following is expected:

H6: The positive effect of customer participation on customer outcome variables is stronger in settings with use of technology than in settings without the use of technology.

7.2.2.4.2 Firms

From the firm's perspective, technology is usually seen as a way to replace human interaction (Curran, Meuter, & Surprenant 2003) and ultimately help customers avoid

interpersonal encounters with employees (Meuter et al. 2000; Dabholkar 1996). Research has identified numerous (mostly economic) reasons for companies to utilize technology in customer-firm interactions/encounters such as increased speed of delivery, precision of encounters, as well as customization (Berry 1999). Furthermore, technology also enables the provider to reduce costs and thus increase productivity (Dabholkar 1996; Kelley 1994; Alpar 1992). Also, Meuter and Bitner (1998) highlight differentiation through technological reputation as a further economic reason for companies to utilize technology in their business practices. In addition, Curran, Meuter and Surprenant (2003) stress the availability of technology as a key advantage for firms. Compared to human labor, technology is said to enable customers to use it at their own convenience. Increasing the number of employees to address demand can be very costly for the firm, however, technology makes it possible for the provider to "cheaply extend the times at which the service is available to more adequately suit the preferences of the consumer" (ibid., p. 211).

Non-economic reasons for using technology over human labor in customer-firm encounters is that of unpredictable performance of a company's employees. Schneider and Bowen (1985) point out in this context that the personality as well as mood of employees can negatively affect a customer's encounter with a firm. Even though companies are aware of this, it is not possible for businesses to change their employees' human nature, which makes the encounter unpredictable from both the firm's as well as customer's perspective (Curran, Meuter, and Surprenant 2003). Adding to this, Chan, Yim, and Lam (2010) stress that employees can be particularly stressed in a customer participation situation due to customer participation representing a source of uncertainty for personnel. One reason for this is that the customer may be posing a threat to employees as the customer is seen as a "partial employee" (Dong, Evans, & Zou 2008)

and thus ultimately replacing the firm's personnel. This uncertainty can have a direct effect on the employees' well-being by increasing job stress (Hsieh, Yen, & Chin 2004) and as a result decreasing job satisfaction (Chan, Yim, & Lam 2010). By replacing personnel with technology, the firm has the option to provide a more constant and predictable encounter for the customer with the firm (Curran, Meuter, & Surprenant 2003), which can positively impact on the customer's participation experience, improving the firm's offering due to the customer being more willing to share his/her knowledge and ultimately enabling the firm to provide a service/product that better matches the customers' wants and needs.

As a result, the economic and non-economic reasons for a firm to use technology as opposed to human labor in a customer participation situation leads to the following hypothesis:

H7: The positive effect of customer participation on firm outcome variables is stronger in settings with use of technology than in settings without the use of technology.

7.2.2.5 Service Recovery

7.2.2.5.1 Customers

Service failures are inevitable. However, service failures do not necessarily result in the company losing their customers as a service failure can also provide the firm with the opportunity to reinforce a strong customer bond (Dong, Evans, & Zou 2008). Thus, it is a matter of how companies handle service failures. An effective service recovery, which can be defined as a set of measures taken by an organization in response to a service

failure (Grönroos 1990), can have a positive impact on the customers' perception of the firm in the form of increased loyalty and retention (Hart, Heskett, & Sasser 1990), it can minimize the risk of the customer spreading negative word of mouth and it can improve the firm's general performance (Zeithaml & Bitner 2003; Tax, Brown, & Chandrashekaran 1998).

This can be explained by the service recovery paradox, which explains that customer satisfaction is greater post recovery compared to satisfaction levels before service failure (Maxham 2001; Smith & Bolton 1998; McCollough & Bharadwaj 1992). For the service recovery paradox to occur it is of utmost importance that recovery efforts are perceived as sufficient and successful by the customer in order to result in positive outcomes for the firm and customer alike (Boshoff & Leong 1998). This can be explained by the disconfirmation framework (McCollough, Berry, & Yadav 2000; Oliver 1997) which states that "paradox is related to a secondary satisfaction following a service failure in which customers compare their expectations for recovery to their perceptions of the service recovery performance" (De Matos, Henrique, & Vargas Rossi 2007, p. 61). If the performance of the service recovery is greater than the expectations the customer had, positive disconfirmation and thus a paradox may occur. If the service recovery falls below customer expectations, negative disconfirmation happens and results in a double negative effect (Bitner, Booms, & Tetreault 1990; Smith & Bolton 1998).

This paradox can be explained by the script theory, which is a psychological theory introduced by Tomkins (1987). Script theory posits that human behavior follows patterns/series of actions called scripts. These scripts are learned by people and are then used to interpret and evaluate new experiences. In a service recovery context, the service delivery would be regarded to contain a sequence. This sequence would be

characterized by customers and employees to have similar beliefs about their occurrence as well as the customer's and employee's role in the process (Bitner, Booms, & Mohr 1997). A service failure would deviate occurrences from the expected script and lead to higher sensitivity as perceived by the customer regarding the failure and recovery process (De Matos, Henrique, & Vargas Rossi 2007). Therefore, satisfaction with the service recovery process becomes more important compared to satisfaction levels pre-service failure in determining satisfaction as the final outcome (Bitner, Booms, & Tetreault 1990).

In cases with high customer input, customers work as "partial employees" and thus they have a direct impact on the outcome of the service recovery process (Dong, Evans, & Zou 2008). The authors state that customer participation results in the customer perceiving service quality as higher. Kelley, Donnelly, and Skinner (1990) add to this by highlighting that the quality of the service outcome, which is perceived as higher by the customer, will lead to greater satisfaction due to the customer being satisfied with the outcome. Additionally, when participating in the service recovery process, the customer tends to give him/herself more credit for the provided effort with the potential to result in higher satisfaction (Bendapudi & Leone 2003). Based on the previous discussion and the findings of the meta-analysis conducted by DeMatos, Henrique, and Vargas Rossi (2007) the following is stated:

H8: The positive effect of customer participation on customer outcomes variables is stronger in service recovery situations for customer attitudinal outcomes than in situations without service recovery. Customer behavioral outcomes are expected to stay the same.

7.2.2.6 Purchase Stages

7.2.2.6.1 Customers

The consumer decision making process consists of several stages which can be classified into three overall categories, namely pre-purchase (before buying), (service) encounter (during the buying/design process) and post-purchase (after the good or service has been bought). Consumers go through these stages in a sequential order when buying a good or service, which means they are first exposed to the pre-purchase stage, followed by the (service) encounter, and finally customers go through the post-purchase/evaluation stage.

Customers can be involved in customer participation in all three stages, however, which stage is the most beneficial one for the customer can be hypothesized by looking at serial positioning, which consists of the primacy and recency effect (Murdock 1962). This effect stems from learning behavior and explains what people recall after an encounter. Murdock (1962) finds in a learning context that it is much more likely that people recall words presented either early (primacy) or late (recency) in a list. Words in the middle of a list are much more likely to be forgotten. The importance of positioning was already shown by Asch (1946) who highlighted the importance of first impressions (primacy effects). Ultimately, the work demonstrated that people held more favorable attitudes towards something whose description started with something nice as opposed to something whose description ended with niceties.

Waugh and Norman (1965) explain the primacy effect with memory advantage due to items being shown first having less competition for limited memory capacity. The recency effect is also explained with memory advantage because the last items

presented to the consumer may be accessible for longer in the short-term memory (Murphy, Hofacker, & Mizerski 2006).

Both the primacy and recency effect have been studied in various contexts, one of them being the marketing domain (e.g. Murphy, Hofacker, & Mizerski 2006; Buda & Zhang 2000; Lohse 1997). Murphy, Hofacker, and Mizerski (2006) for example demonstrate the efficiency of the first and final link(s) presented to consumers in an online consumer clicking behavior context. Furthermore, Buda and Zhang (2000) found a primacy effect of information presentation order and its impact on outcome variables such as willingness to pay/purchase, attractiveness, and a product's perceived performance. However, the authors also already indicated that it depends on which type of information (professional vs. non-expert) is presented first, whether a primacy or recency effect takes place. Lohse (1997) purely demonstrates the effectiveness of the primacy effect by showing that respondents tend to pick the advertisement that is presented at the top of a page as opposed to something presented at the bottom. These findings are supported by Ditmer and Griffin (1994) and Miller (1980) who researched that customers in a restaurant tend to order dishes at the top of a page more often than the same items when presented at the bottom.

This review demonstrates the importance of both primacy and recency effects regarding customer attitudes and choice/intentions. In a customer participation context, it can therefore be stated that it leads to more beneficial outcomes for customers when involved in customer participation in the pre-purchase and post-purchase stages as opposed to the (service) encounter. As already highlighted in the main effect section, customer participation is expected to increase customer outcome variables as opposed to no customer participation, therefore it is assumed that customer participation generally leads to favorable results for the customer. Now, looking at the individual purchase

stages, incorporating the customer in customer participation in the pre-purchase stage, for example in new product or service development, should therefore lead to even more favorable outcomes from the customer's point of view due to the primacy effect as outlined above. If the customer remembers things that happen/are presented to him/her first, then it can be assumed that a positive customer participation experience puts the customer in an even better position regarding outcome variables. However, due to no clear findings on which effect is stronger, the primacy or recency effect, it can also be assumed that the last contact point with the product or service, which happens in the post-purchase stage, has a strong impact on the customer's outcome variables, therefore leading to more favorable customer outcomes when participating in the post-purchase stage. Nonetheless, in either case it can be stated that pre-purchase and post-purchase customer participation leads to even better customer outcomes as opposed to customer participation in the (service) encounter stage. As a result, the following two rivalling hypotheses are stated:

H9a: The positive effect of customer participation on customer outcome variables is stronger in situations where customers participate in the pre-purchase stage as opposed to post-purchase and (service) encounter.

H9b: The positive effect of customer participation on customer outcome variables is stronger in situations where customers participate in the post-purchase stage as opposed to pre-purchase and (service) encounter.

7.2.2.6.2 Firms

Research has shown that involving the customer in the pre-purchase stage has many positive outcomes from the firm's perspective.[38] Involving the customer in the pre-purchase stage is particularly important in an age where customers are more in control of their choice selections. The modern world is described by increased competition, more available choice and products as well as the fact that it has become much simpler for customers to seek information online on offerings as well as suppliers (Harrison, Waite, & Hunter 2006; Prahalad & Ramaswamy 2000). As a result, a slight shift has occurred for both customers and firms alike in regards to offer and demand, which makes it more difficult for firms to keep their business going. Firms are less in control due to the fact that customers can gain easier access to information on offerings as well as firms facing increased competition. This requires firms to better satisfy their customers' needs and wants as it is no longer the offering provider that determines the products that get produced as used to be the case (Pitt et al. 2006). Therefore, it is important for firms to capture what the customer desires in regards to offerings.

One strategy that has been repeatedly identified over the years on how to best capture customers' needs and wants is by letting the customers participate in new product or service development (Langerak & Hultink 2005; Fuchs, Prandelli, & Schreier 2010; Melton & Hartline 2015). Researchers see involving the customer in new product and/or service development, and therefore in the pre-purchase stage, as a way for the company to get access to external market knowledge, which enables firms to produce offerings that better meet their customers' needs (Fang, Palmatier, & Evans

[38] Due to the majority (83%) of the pre-purchase studies being based in a new project development context, the approach used to argue the hypothesis will be on arguments used from authors looking at the NPD/NSD setting. Therefore, new product/service development arguments are exemplary for the pre-purchase stage.

2008) at a reduced risk and lower costs (Fuchs & Schreier 2010; Nambisan & Nambisan 2008; Prandelli, Verona, & Raccagni 2006; Prahalad & Ramaswamy 2000). Furthermore, by letting customers participate in the production of the core offering of the firm, Sawhney, Verona, and Prandelli (2005) highlight that customers may be willing to pay a higher price for the offering, which would have a positive impact on firm financial outcomes.

Further key points which positively impact on firm outcomes in regards to customer participation in the new project development stage are highlighted by Dyer (1996) and Langerak and Hultink (2005). Dyer (1996) sees involving the customer in the production of the core offering of the firm as a way to reduce communication errors between the customer and the offering provider, therefore ultimately increasing the new project's speed to market (Langerak & Hultink 2005). This is expected to increase firm performance variables by reducing costs the firm has to spend. This is in line with Cui and Wu (2015) and Langerak and Hultink (2005) who demonstrate that letting the customer participate in new project development increases new product performance and thus profitability.

However, not all research sees involving the customer in new project development as only positive. Fang (2008) for example identifies that the speed to market is not necessarily faster by letting the customer participate in the production of the core offering. The author stresses that speed to market depends on the complexity of the task the customer needs to carry out, with more complex tasks slowing speed to market down. Furthermore, Chang and Taylor (2016) point out that customer participation in new product and/or service development can lead to inefficient processes at times, which may be explainable with customers lacking original ideas regarding innovation (Christensen 1997) or not being able to voice their needs and

wants clearly (Franke, Keinz, & Steger 2009). However, these seem to be factors which the firm can minimize by providing proper customer training and using customers most suitable for the task. Furthermore, the general indication of the impact of customer participation in new project development, and therefore the pre-purchase stage, on firm outcomes is positive, which is why the following hypothesis is stated:

> **H10: The positive effect of customer participation on firm outcome variables is stronger in situations where customers participate in the pre-purchase stage as opposed to post-purchase and (service) encounter.**

An overview of the hypotheses can be found in table 16 and the next subchapter, subchapter 7.3, is dedicated to the data analysis.

Table 16 Customer and firm hypotheses: Main and moderating effects

MainEffect/ Moderator	Customer	Firm
Main Effect	H1: Customer Participation increases outcome variables	H2: Customer Participation increases outcome variable
Moderator: Forced	H3: Customer Participation less positive in forced contexts	Multicollinearity
Moderator: Goods/Services	H4: Increase of positive effect of customer participation on outcome variable in goods setting	H5: Increase of positive effect of customer participation on outcome variable in goods setting

Moderator: Technology	H6: Higher positive effect on outcome variables in technology setting	H7: Increase of positive effect on outcome variable in technology setting
Moderator: Service Recovery	H8: Increase of positive effect on attitudinal outcomes (satisfaction, service evaluation) in service recovery setting. Behavioral outcomes expected to stay the same	Multicollinearity
Moderator: Purchase Stages	H9a: Increase of positive effect on outcome variables in pre-purchase stage H9b: Increase of positive effect on outcome variables in post-purchase stage	H10: Increase of positive effect on outcomes in pre-purchase stage

7.3 Analysis

7.3.1 Effect Size Computation[39]

Before computing the effect sizes, scales used for measuring the items were reversed where needed to ensure that 1 represents the lowest value and 5 or 7 the highest. Furthermore, effect sizes were reversed, to ensure that all constructs measure the same thing. For example, perceived unfairness was reversed so that it represents the outcome variable fairness / justice. The effect size metric selected for the meta-analysis is the correlation coefficient. Higher values indicate a stronger influence of participation on its customer and firm outcome variables. A negative sign in the correlation coefficient indicates that participation reduces the outcome variable, while a positive sign indicates

[39] For further information on meta-analysis procedures please see chapter 4.

that participation increases the outcome. For studies that reported other measures (e.g., mean differences), the measures were converted to correlation coefficients following common guidelines for meta-analyses (see methodology chapter 4 for further explanation). All correlations were adjusted for measurement error, following the procedure proposed by Hunter and Schmidt (2004). When a study did not report on reliability or when it used a single-item measure, the mean reliability was used for that construct across all studies, following the procedure in prior meta-analyses from the marketing literature (e.g., Kirca, Jayachandran & Bearden 2005).

7.3.2 Integration of Correlation-Based Effect Sizes

To capture the overall effect of customer participation on each outcome variable, the correlation-based effect sizes were integrated and an average estimate was computed. The dependencies between multiple correlation estimates from the same data set were considered in the following way. When a data set presented findings for different outcome variables, the findings were treated as independent because the correlation estimates for each outcome variable were integrated separately. Some data sets however, reported multiple, and thus dependent, relevant effects for the same outcome variables. The dependencies of correlation estimates and the nested structure of the data were accounted for by using multilevel or hierarchical linear modeling (Raudenbush & Bryk 2002). By specifying that correlation estimates are clustered under the higher-level unit of a data set, multilevel modeling addresses the dependence problem. The following model was estimated:

Level 1: $r_{ij} = \beta_{0j} + u_{ij}$ and

Level 2: $\beta_{0j} = \gamma_{00} + v_{0j}$,

where r_{ij} is the i-th correlation reported within the j-th data set, β_0 is the intercept for the j-th data set, u_{ij} is random error attributable to the i-th correlation in data set j, γ_{00} is the overall intercept, and v_{0j} is the data set-level residual error term. The known sampling error for each effect size is supplied as data input. Following, fail-safe *N*s were computed to address publication bias (Rosenthal 1979). For any relationship of interest, fail-safe *N* represents the number of additional non-significant correlations that are needed in order to make the integrated correlation for that relationship non-significant at $p = .05$. Fail-safe *N*s were calculated for all integrated correlations that turned out to be significant at $p < .05$ by using the correlation estimates that were adjusted for measurement error. Furthermore, a homogeneity test (Q-value) was carried out in order to decide whether observed effect sizes are more variable than would be expected from sampling error alone (Hedges & Olkin 1985).

7.3.3 Meta-Regression

This study aims to explain the variation in observed correlations by using several moderator variables in a meta-regression model. For this, a multimoderator analysis was carried out. A single moderator analysis is a procedure preferable to a simultaneous test of all moderators if the sample size for some combinations of study characteristics are small (Hunter & Schmidt 2004). However, the authors also highlight that it can lead to errors in interpretation when moderators are not considered in combination, as is being done by feeding the moderating variables into the analysis one after the other. Highly correlated moderator variables for example can confound the results and therefore lead to misleading interpretations of findings. As a result, Hunter and Schmidt (2004) state

that a simultaneous/complete analysis of all moderators is to be preferred over a single moderator analysis, whenever sufficient studies and numbers per cell are available for a multiple moderator analysis to be conducted. This is particularly the case if interactions between moderators are to be expected.

Thus, instead of basing the results on a single moderator analysis[40], a more comprehensive analysis of moderators to confirm the initial results was conducted, following the procedure in prior meta-analyses (e.g., Hess, McNab & Basoglu 2014).

To ensure a sufficient sample size for the simultaneous test of several moderator variables, effect sizes for related outcome variables were combined as follows. General satisfaction and transaction specific satisfaction were combined to a set of effect sizes referring to satisfaction. All service evaluation variables, namely service quality specific, service quality fairness/justice and service quality perceived value/benefit were combined. Furthermore, all firm performance-related effect sizes, namely firm new product performance, firm new product performance effectiveness, firm new product performance efficiency, and general firm performance were combined. The moderators were applied to loyalty effect sizes, but not to price premium, relationship quality commitment, relationship quality trust, and employee job stress due to an insufficient number of effects sizes for these outcome variables.

The meta-regression was conducted with hierarchical linear modeling and the model was specified by utilizing the maximum likelihood estimation. This is the case as it generates robust, consistent, and efficient estimates (Hox & Leeuw 2003). The specific model with the HLM software was estimated as follows:

[40] For a general overview, the single moderator analysis results are provided in appendix D.

Level 1: $r_{ij} = \beta_{0j} + \beta_j \times X_{ij} + u_{ij}$ and

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{0j} \times U_j + v_{0j}$,

where r_{ij} is the i-th correlation reported within the j-th data set, β_0 is the intercept for the j-th data set, β_j is the parameter estimate of influencing moderators X_{ij} for the j-th data set, u_{ij} is random error attributable to the i-th correlation in data set j, γ_{00} is the overall intercept, γ_{0j} is the parameter estimate of influencing moderators U_j, and v_{0j} is the data set-level residual error term. The first equation (1) describes the effect of the moderator variables that vary within data sets and the second equation (2) describes the effects of the moderator variables that vary between data sets on the intercept β_{0j} in the level 1 equation. The continuous variable "year" was mean-centered.

To ensure the robustness of the results, multicollinearity was checked for by inspecting bivariate correlations and VIF factors. Sensitivity analyses were conducted by omitting each of the affected variables one at a time (Bijmolt, van Heerde, & Pieters 2005). Variables which suffered from multicollinearity and altered the substantive results regarding other variables when included in the model were dropped. Then, moderator regression analysis was run with any pair of moderator variables and their cross-level interactions to identify additional sources of variance in effect sizes. All moderator variables were retained for the multiple moderator analysis that turned out to be significant in either the single moderator analysis or in the two-moderator analysis. The multiple moderator analysis used the same formula as the single moderator analysis except that the main effects of multiple moderators were included.

An overview of the description of the moderators and their coding can be found in table 17 below.

Table 17 Description of moderator variables and coding

Variable	Description	Coding
Forced	Captures differences regarding type of participation (forced or not forced).	Forced = 1, Non-forced = 0
Purchase Stage	Captures differences regarding the purchase stage customers participate in (pre-purchase, service encounter, post-purchase).	Pre-Purchase = 1 Other = 0 Post-Purchase = 1 Other = 0 Service Encounter = 1 Other = 0
Core Offering of the Firm	Captures differences regarding the core offering of the firm (good, services)	Goods = 1 Services = 0
Technology	Captures differences regarding the use of technology in customer participation (technology, no technology)	Technology = 1 No Technology = 0
Service Recovery	Captures differences regarding context (service recovery, no service recovery)	Service Recovery = 1 No Recovery = 0
Background	Captures differences regarding market firm operates in (B2B,	B2C = 1 B2B = 0

	B2C)	
Study Type	Captures differences regarding the study type (experiment, survey)	Survey = 1 Experiment = 0
Year		Continuous

Hunter and Schmidt (2004) stress the importance of basing the interpretation of findings including the conclusion on the multivariate moderator analysis if one is conducted. This avoids incorrect interpretation of findings based on confounding effects due to interactions between moderators. As a result, the hypotheses are tested based on the results from the multivariate moderator analysis. The results from the single moderator analysis can however be found in appendix D. Subchapter 7.4 looks at the results of the main effects as well as the findings of the multivariate moderator analysis, which is used for testing the hypotheses.

7.4 RESULTS

Table 18 presents an overview of the bivariate correlations for all outcome variables, which are used for testing the main effects, namely the effect of customer participation on customer and firm outcomes. The sign of all correlations is positive, indicating a positive relationship between participation and outcome variables. However, not all relationships turn out to be significant. The relationship with employee job stress and service quality fairness/justice are not significant. The relationships with price premium, and firm new product performance effectiveness are only marginal significant ($p < .10$). The significant effect sizes are medium according to Cohen's (1988) classification, with

service quality process specific and value/benefit showing almost large mean correlations above 0.4. However, the overall positive effect of customer participation on both customer and firm outcomes provides support for H1 and H2. The homogeneity test indicates heterogeneity for all relationships. The fail-safe N indicates that all significant integrated correlation are strong and do not suffer from publication bias according to Rosenthal's (1979) rule of thumb (The fail-safe N should be more than 5 times the number of effect sizes plus 10).

The findings differ from those of table 12 in chapter 6 in some parts, which are pointed out in the following. However, it is the results from table 18 which are used for testing the hypotheses due to the results from table 12 being non-weighted effect sizes, whereas the results from table 18 are weighted. First of all, both tables present positive results for all bivariate relationships for both customer and firm outcomes and customer participation. For the unweighted customer satisfaction and participation effect sizes, both transaction specific and general satisfaction results are significant at 0.001/0.002 level, similar to the weighted versions. Furthermore, general satisfaction in both cases shields a medium effect size. However, the unweighted transaction specific score is only a small effect size (0.128), whereas the weighted version represents a medium effect (0.302). In both cases, general satisfaction scores are higher than transaction specific ones.

For customer willingness to pay / price premium, the weighted effect size is only marginally significant at 0.10 level, which is different from the non-weighted score, which is significant at 0.05. In both cases, willingness to pay shields a small effect size as an outcome variable of customer participation (0.188 non-weighted / 0.208 weighted).

The next variables to be compared are the service quality measures. Similarly to the weighted version, the non-weighted value / benefit measure reveals a medium effect size of 0.403, highly significant at 0.001 level. The weighted version also shows a medium effect size (0.415), significant at the same level. The second service quality measure is service quality specific. For the weighted version this is a medium effect size (0.428) and also the highest of the three weighted service quality measures, whereas the non-weighted result only scores a small effect size (0.212). Both scores are highly significant at 0.001 / 0.002 level. The last service quality measure is justice / fairness, which is the lowest score for both the weighted and non-weighted version. However, the non-weighted result is highly significant at 0.002 but the weighted effect size is not significant.

The unweighted customer commitment variable scores a small effect size (0.254), whereas the weighted commitment measure shields a medium score (0.384). Both results in relation to customer participation are highly significant at 0.001 / 0.002 level. Fur customer trust, the weighted score is again higher (0.328) than the unweighted score (0.303), however, compared to customer commitment, for trust both effect sizes are of medium strength. Nevertheless, the weighted score of customer trust is highly significant at 0.001 level, whereas the non-weighted result is slightly less significant at 0.01 level.

From the firm's perspective, the first variable to be compared is job stress. Similar to the weighted score, the non-weighted job stress shields a small effect size of 0.220, with the weighted one scoring 0.215. However, the weighted version of job stress is not significant, whereas the unweighted score is significant at 0.005 level. Both firm general performance variables score a small effect size of 0.233 (weighted) and 0.189

(unweighted) respectively. Both scores in relation to customer participation are highly significant at 0.001 / 0.002 level.

The new product / service related variables, namely effectiveness, efficiency and new project performance are compared last. For new project performance a similar pattern is found for both the weighted and unweighted scores. The weighted version reveals a medium effect size of 0.359 which is highly significant at 0.001 level. Compared to this, the unweighted score also shields a medium effect size (0.334), also highly significant at 0.002 level. New project effectiveness however, shows slightly different significance levels for the positive weighted and non-weighted variable scores. The weighted score in relation to customer participation shows a small effect size (0.131), which is only marginally signficant at 0.1 level. However, compared to this, even though the unweighted score also only leads to a small effect size (0.262), it is now highly significant at 0.001 level. Finally, the unweighted new project efficiency score shields a small effect size of 0.248, which is significant at 0.01 level. Compared to this, the weighted new project efficiency score is higher as it results in a medium effect size of 0.334, highly significant at 0.001 level.

Now that the weighted and unweighted bivariate relationships of outcome variables in relation to customer participation have been looked at, the remainder of the chapter is now dedicated to the moderator hypotheses and results.

Due to the variable relationships showing heterogeneity, which means that the outcomes differ depending on certain situations, a multivariate moderator meta-regression model was used to capture settings which drive the difference in variable outcomes. The results for this model can be found in table 19 and are analyzed next. This analysis serves as the basis for testing the moderator hypotheses due to the

shortcomings of the single moderator meta-regression models as described in the previous subchapter, subchapter 7.3.3.

For the multi moderator meta-regression models, several significant effects are found. Forced participation significantly increases the influence of customer participation on service evaluation. Therefore, H3 has to be rejected with the effect being significant in the opposite direction. The influence of participation on firm outcomes is significantly higher in a goods setting, in support of H5. However, there is no significant impact of customer participation on customer outcomes in a goods or services setting, leading to the rejection of H4. For technology, the influence of participation on firm performance is significantly higher in technology contexts, providing support for H7. However, the impact of customer participation on each customer outcome variable is not significant in a technology setting, resulting in the rejection of H6. In a service recovery setting, customer participation significantly increases service evaluation outcomes and thus partially supporting H8. Participation exerts a significantly stronger effect on customer service evaluation in the pre-purchase stage as opposed to service encounter and post-purchase combined, thus providing partial support for H9a. However, the effect of participation on customer outcomes service evaluation and loyalty in the post-purchase stage is significantly weaker compared to pre-purchase and service encounter combined, which is why H9b has to be rejected. Firm outcomes do not significantly differ in the pre-purchase stage, leading to the rejection of H10.

The next chapter, chapter 8, is dedicated to the discussion of the findings and its key purpose is to address the individual research questions, research questions 1, 2 and 3, in depth. Following this, the thesis is concluded with chapter 9, which outlines the research limitations in combination with ideas for future research.

Table 18 Outcomes of participation: Bivariate relationships

	# manuscripts	# studies	# effect sizes	Total sample size	Corrected mean r	Q-value	Fail safe N
Satisfaction, general	15	17	22	5,849	.353***	611.410***	10,290
Satisfaction, transaction specific	37	50	158	9,467	.302***	9,186.010***	88,953
Loyalty	39	48	92	16,601	.377***	32,652.121***	3,716,030
Price premium	7	21	51	2,684	.208^{+}	12,802.087***	-
Service quality justice/fairness	8	9	56	2,650	.136	2,180.248***	-
Service quality perceived value/benefit	27	28	50	8,853	.415***	590.774***	89,868
Service quality specific	9	12	49	2,029	.428***	1,363.225***	12,142
Relationship quality commitment	12	15	27	3,608	.384***	741.907***	6,931
Relationship quality trust	11	11	13	4,036	.328*	1,917.164***	5,892
Employee job stress	4	4	6	1,031	.215	83.971***	-
Firm NP performance effectiveness	15	16	24	2,710	.131^{+}	406.501***	-
Firm NP performance efficiency	10	11	17	12,336	.334***	32,143.389***	32,400
Firm general performance	15	15	22	2,695	.233***	182.585***	1,562
Firm NP performance	22	22	39	5,494	.359***	346.158***	15,138

Note: The corrected mean correlation coefficients (r) are the sample size-weighted, reliability-corrected estimates of the population correlation coefficients. The fail-safe N indicates the number of additional non-significant correlations needed to render the results for that relationship non-significant at p =.05

$^{+}p < .10$; $*p < .05$; $**p < .01$; $***p < .001$

Table 19 Moderators of participation: Multivariate moderator analysis

	Satisfaction		Loyalty		Service evaluation		Firm performance	
Moderators	β (SE)	Predicted	β (SE)	Predicted	β (SE)	Predicted	β (SE)	Predicted
Intercept	.385 (.150)*		.352 (.233)		.395 (.166)*		.168 (.174)	
Dependent variables							-	
Satisfaction: transaction vs general	-.105 (.056)$^{+}$	.305 vs. .200	-		-		-	
Service evaluation: other vs. fairness/justice	-		-		-.203 (.082)*	.365 vs. .162	-	
Service evaluation: other vs. value/benefit	-		-		-.027 (.051)		-	
Service evaluation: other vs. Specific	-		-		base		-	
Firm performance: other vs. NP performance effectiveness	-		-		-		-.079 (.030)*	.326 vs. .247
Firm performance: other vs. NP performance efficiency	-		-		-		.032 (.029)	
Firm performance: other vs. NP performance	-		-		-		-.031 (.304)	
Firm performance: other vs. general performance	-		-		-		base	
Substantial and methodological moderators								
Prepurchase: other vs. Yes	.041 (.064)		-.027 (.118)		-.196 (.096)*	.280 vs. .476	.101 (.161)	
Service encounter: other vs. Yes	.121 (.100)		.129 (.171)		.073 (.084)		-.266 (.141)$^{+}$	.341 vs. .075
Postpurchase: other vs. Yes	-.045 (.081)		-.384 (.126)**	.481 vs. .097	-.159 (.083)$^{+}$	.380 vs. .221	.124 (.109)	
Forced: non-forced vs. Forced	.047 (.079)		-.189 (.120)		.233 (.088)*	.230 vs. .463	mc	
Service: other/mixed vs. Service	-.041 (.073)		.235 (.157)		.176 (.161)		mc	
Good: other/mixed vs. Good	mc		mc		mc		.141 (.083)$^{+}$	.250 vs. .395
Technology: no technology vs. Technology	.129 (.087)		-.061 (.114)		-.105 (.139)		.348 (.149)*	.238 vs. .586

Service recovery: no recovery/other vs. service recovery	.084 (.132)	.113 (.324)	.304 (.150)* .256 vs. .560	mc
B2C: other vs. B2C	mc	mc	mc	mc
B2B: other vs. B2B	-.108 (.118)	.047 (.121)	.062 (.153)	-.134 (.096)
B2C and B2B: other vs. B2C *and* B2B	mc	mc	mc	mc
Year	.004 (.063)	-.006 (.012)	-.008 (.005)$^{+}$	.013 (.007)$^{+}$
Study type: survey vs. Experimental	-.429 (.108)*** .449 vs. .020	-.272 (.184)	-.342 (.095)*** .377 vs. .035	.072 (.258)
# effect sizes	180	92	155	102
# data sets	68	48	44	46
VIF Factors per Moderator Before and After Deletion				
Forced	1.641/1.567	1.851/1.314	1.707/1.675	/
Technology	4.057/2.111	4.728/2.724	3.572/2.281	2.497 (.96)
Recovery	2.957/1.270	6.661/6.540	5.785/3.453	/ (1.00)
Pre-Purchase	2.603/2.374	5.315/6.318	1.118/1.012	2.776/2.620
Service Encounter	4.118/3.281	5.993/5.241	8.907/3.600	2.388/2.292
Post-Purchase	2.733/2.311	4.950/4.144	5.264/3.105	1.558/1.495
B2C	41.36/5.307	7.166/4.317	15.072/4.663	1.517/1.101
B2B	31.632/mc	X/mc	20.734/mc	X/mc
Study Type	2.795/2.292	5.041/4.077	2.927/2.030	1.195/1.075
Goods	13.16/4.422	5.450/4.207	8.739/7.713	3.072/1.107
Services	10.042/mc	X/mc	X/mc	X/mc

ICCs per Dependent Variable	0.253	0.156	0.334	0.105

Note. For binary moderator variables, the first column shows the unstandardized regression coefficient followed by the standard error (in brackets). The second column shows the predicted effects of participation on outcomes for the specific subgroups. For the continuous variable (year) the first column shows the unstandardized regression coefficient followed by the standard error (in brackets).

"mc" indicates that the moderator highly correlates (multicollinearity) with other moderating variables. Moderators showing multicollinearity are not calculated. "/" indicates that no or not sufficient numbers were present to calculate. X indicates that the moderator could not be tested due to tolerance limit reached.

$^{+}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

8. Discussion of Findings

The overall purpose of this PhD thesis is to identify in which situations customer participation as a marketing strategy should be used and when it should be avoided. Generally, customer participation should be used when both participating parties, the customer and the firm, benefit from participation. The overlying research problem was important to address due to inconsistent findings in literature, as some researchers find customer participation positively affecting outcome variables, whereas another stream finds a negative impact of customer participation on outcomes as outlined in the research gap chapter in detail. In order to find an answer to the research problem, three research questions were identified.

First, it needs to be identified, which customer and firm outcomes there are. This is important so that it can be researched who benefits from customer participation and in which situations. Subchapter 8.1 is dedicated to answering the first research question by outlining which outcome variables there are. The second research question looks at which situations may strengthen or weaken the impact customer participation has on firm and customer outcomes. These situations are called moderating variables and will be summarized in subchapter 8.2. The third subchapter, subchapter 8.3, then ties the first two research questions together and discusses when and in which situations customer participation should be used and which party benefits from the marketing strategy (the most). In order to find the answers to the research questions, a comprehensive meta-analysis was conducted, therefore, providing meta-analytical evidence for the different research questions at hand.

8.1 Research Question 1

In order to be able to find out which party benefits (more) from customer participation regarding outcome variables, it first needed to be identified which outcomes there are for a) the customer and b) the firm. Based on the meta-analytical procedure outlined in chapter 5 in depth, the most frequently studied firm and customer outcomes were identified. In total, 11 customer and 5 firm outcomes were identified for the inclusion in study 2. First, the focus of this subchapter is on the outcomes from the customer's perspective. After the customer outcomes, the firm variables are outlined.

For the customers, the following outcomes are the most frequently studied in literature and by fulfilling the requirements as outlined in chapter 5, these were identified as suitable for the meta-analysis:

1. Customer Satisfaction
2. Perceived Value/Benefit
3. Justice/Fairness
4. Willingness to Pay (Higher Price) / Price Premium
5. Service Quality Transaction Specific
6. (Intention to) Use
7. Commitment
8. Trust
9. (Re)Purchase Intention
10. Loyalty
11. Word of Mouth

By looking at the outcome variables, it was possible to categorize the 11 outcomes into six overall groups. The first group is customer satisfaction, which consists of general

and transaction specific satisfaction measures. The second group is customer loyalty, which contains the specific loyalty measures, word of mouth, (re)purchase intentions, and (intention to) use variables. Willingness to pay a higher price / price premium is a standalone group and therefore this measure forms the third group. Group four looks at service quality measures, which consist of transaction specific service quality, perceived justice/fairness, and value/benefit. The next group consists of customer commitment towards the offering provider and the final overall category contains variables measuring the customer's trust towards the firm. All named outcome variables have been studied in relation to customer participation in research most frequently and therefore are the most important customer outcomes in a customer participation context.

The first key finding regarding customer participation and outcome variables is that overall customer participation leads to a positive impact on outcomes. The outcomes can be found in table 17 by looking at the mean scores. As can be seen from the mean scores, both customer and firm outcome variables are positive and significant with only one exception. Service quality justice/fairness indicates a non-significant but positive value. Looking at the bigger picture, it can be said that customer participation does have a positive impact on customer outcome variables. Similar for firm outcomes, which show positive and significant results apart from job stress, which is positive but not significant. Again, this overall confirms that customer participation does have a positive impact on firm and customer outcome variables, and therefore customer participation used as a marketing strategy benefits both customer and firm alike. This key finding in regards to customer participation and outcomes shows that meta-analytic evidence has been found that customers and firms benefit from customer participation and therefore should be generally used by the two parties, which supports several theoretical underpinnings which are now discussed.

First of all, the theory of locus of control (Rotter 1954) has been found suitable as a theoretical way of explaining why customers benefit from customer participation. Customer participation leads to people being driven more by internal as opposed to external locus of control. People perceiving internal locus of control show a higher sense of responsibility for outcomes and do not tend to blame external factors like luck or chance (Marks 1998). People being driven by higher internal locus of control are generally shown to be more associated with positive feelings like good mental health (Cochran & Laub 1994) and faster recovery in a health context (Reynaert et al. 1995). By having customers participate firms enable a shift of beliefs from external to internal locus of control and thus enabling more positive customer outcomes. Furthermore, it was argued that participating customers are more likely to accept responsibility for jointly produced outcomes and therefore accept the shared responsibility of the outcome, regardless of its direction (Eisingerich & Bell 2006). The different ways of reasoning hold true as the findings of the meta-analysis support the notion that people being driven by internal locus of control, which is increased by having customers participate, show more favorable outcomes compared to non-participating people.

However, interestingly, the mean scores for customer outcomes vary as can be seen in table 17. Customer outcomes range from low-medium according to Cohen (1988), with service evaluation justice/fairness being the smallest and only non-significant customer effect size. Compared to this, it is the other two service evaluation outcomes, namely service quality specific and value/benefit, which reveal the largest mean scores. This finding shows that customers rate specific service evaluations and service quality value/benefit as high, therefore showing agreement with customer participation improving service quality transaction specific ratings as well as customers seeing that the marketing strategy provides them with value/benefit, therefore providing

meta-analytical confirmation for previous findings in literature (e.g. Zainuddin, Russell-Bennet, & Previte 2013; Wolf & McQuitty 2013; Chan, Yim, & Lam 2010). However, customer outcomes regarding the perceived justice/fairness of the participation process are less strong, with the effect size being classified as small according to Cohen (1988) and actually not significant. This indicates that the evidence for the customer's perceived justice/fairness of customer participation is much weaker and therefore a more critical factor which needs to be looked at. Customers may agree that customer participation provides them with value/benefit, for example more individualized offerings, however, from a meta-analytical perspective it is not supported that customers perceive the process as fair or just. Interestingly, research comes from different angles when looking at the link between justice/fairness and customer participation. Roggeveen, Tsiros, and Grewal (2012) for example find an overlying positive impact of customer participation on justice measures, arguing that involving customers in participation leads to them perceiving the process as more equitable. However, this may not always be the case as Blau (1964) points out that equity is judged by customers based on the evaluation of obligations which are generated by the customer-firm encounter. In a customer participation context, due to the customer being more active and taking over work that was previously carried out by the firm, customers may perceive the exchange as unjust or less fair, especially when the customer's benefit does not become crystal clear, which could be communicated with price reductions or a more personalized offering for example. Overall, this finding shows that the justice/fairness component needs more exploration in future research to assess how firms can increase the perceived justice/fairness to match this customer outcome to the positive strength of the other customer variables.

The preceding discussion on justice/fairness perceptions may also explain the second smallest and only marginal significant result for the customer's willingness to pay a higher price/price premium for offerings the customer contributed to. One stream of research argues that customers overvalue their own work, ultimately resulting in customers' willingness to pay a higher price for self-produced offerings (Norton, Mochon, & Ariely 2012). The meta-analytic evidence however only shows a small positive link between the relationship of customer participation and willingness to pay (a higher price), therefore indicating that customers may actually not be that happy with paying a higher price for (partially) self-produced offerings. One possible explanation for this can be the customer's perception of lower fairness/justice due to the customer taking on more work and the firm shifting labor over to the buyer. Essentially, with customer participation, customers are taking over work which was previously carried out by employees (Hsieh, Yen, & Chin 2004), which is why the benefits of customer participation need to be communicated more clearly as to why customers should be paying a higher price for their own labor input.

In summary, customer participation leads to positive outcomes for customers and should therefore be used as a marketing strategy. However, particular attention should be paid to the perceived justice/fairness and willingness to pay variables, as their results may be interconnected. By firms managing to increase their customers' perceived fairness/justice when participating in customer participation, by communicating the benefits more clearly for example, customers may be enjoying the process even more and ultimately be willing to pay a higher price for the (self-produced) offering even if customers are doing work that was originally carried out by the firm's employees. An overview of the main effects of customer participation on customer outcomes can be found in table 20. The effect sizes are classified according to

Cohen (1988).

Now that the customer outcomes have been identified, the remainder of this subchapter deals with the overview of the firm outcomes. Therefore, this part of the subchapter is answering the second part of the first research question.

Table 20 Customer outcomes main effects ranking

Customer Outcome	Effect Size / Classification
Service Quality Justice/Fairness	0.136 / Small
Price Premium	0.208 / Small
Customer Satisfaction Transaction Specific	0.302 / Medium
Customer Trust	0.328 / Medium
Customer Satisfaction General	0.353 / Medium
Customer Loyalty	0.377 / Medium
Customer Commitment	0.384 / Medium
Service Quality Value/Benefit	0.415 / Medium
Service Quality Specific	0.428 / Medium

Compared to 9 customer outcome variables, only 5 firm outcomes were identified, which met the requirements for being included in this study's meta-analysis. The 5 most frequently studied firm outcomes in relation to customer participation are as follows:

1. Organizational / General Performance
2. (New) Product Effectiveness/Innovation
3. (New) Product Efficiency
4. General New Product Performance

5. Job Stress

Generally, there are three overlying categories, namely variables looking at general performance and variables looking specifically at new product/service performance measures. Job stress is dealing with the employee's perceived stress when being involved in customer participation and is the least studied outcome variable so far with only 6 effect sizes.

Like the customer outcomes, the firm variables' effect sizes vary according to the strength customer participation exerts on the outcomes. More precisely, the firm outcomes' mean scores range from low to medium according to Cohen (1988). The lowest coefficient, which is classified as a small effect size, is that for (new) product effectiveness with a score of 0.131. On the higher end of the spectrum of firm outcome measures is general new product performance with a medium effect size of 0.359. Again, like customer outcomes, there is no relationship between customer participation and firm outcomes which provides a large coefficient. The weighted mean correlation scores for the individual firm outcomes are presented in table 21 and ranked from the smallest to the largest score. The effect sizes are classified according to Cohen (1988).

Similar to customer outcomes, the findings indicate that using customer participation provides an overall positive result from the firm's perspective, which supports the theoretical underpinning provided by the resource dependence theory (Pfeffer & Salancik 1978), which was used for hypothesizing the impact of customer participation on firm outcomes. Coming from the managerial framework, it was argued that by having customers participate in the production, delivery, maintenance and/or recovery of the core offering, firms gain critical access to their external enviroment, which is needed to produce their offerings. Therefore, by having customers participate

in the different stages of the core offering, firms gain knowledge on customers' needs and wants, which enables firms to produce better and more profitable results. This way of reasoning is supported by the findings of this thesis, as firm outcomes are positively affected.

The result which needs the firm's attention, due to it showing a positive direction, is the employee's perceived job stress. The positive value, even though it is not significant, indicates that customer participation increases perceived job stress in support of findings by Chan, Yim, and Lam (2010). Therefore, firms need to be aware of the potentially negative impact of customer participation due to increased job stress, which may have a negative effect on the employee's mood, which can ultimately impact on customer and firm performance variables. As a result, the meta-analytic findings reveal that customer participation should be used by firms, however, offering providers should be paying particular attention to their employees and find ways of how to reduce perceived job stress as this can negatively affect job satisfaction (ibid.). This could be done by managing employees' perceived work load and providing staff with proper training on how to handle customers particularly in difficult situations and how potential problems can be solved. Having the right skill set to handle customers and also their own feelings can be very important for employees as it is said to be able to reduce the very large effect of emotional labor (Bitner, Booms, & Mohr 1994). Furthermore, the authors highlight that staff should be educated in such a way that they are able to adapt their own behaviors to any given situation and thus accommodate customers requests and needs to contribute to a satisfying encounter with the customer.

Table 21 Firm outcomes main effects ranking

Firm Outcome	Effect Size / Classification
(New) Product Performance Effectiveness	0.131 / Small
Employee Job Stress	0.215 / Small
Organizational / General Performance	0.233 / Small
(New) Product Performance Efficiency	0.334 / Medium
General New Product Performance	0.359 / Medium

To summarize the first key finding, it needs to be said that customer participation leads to a positive result for both the customer and the firm and it is advisable for firms to make use of the marketing strategy. However, it needs to be stressed that the effect sizes for both customer and firm outcomes are not equally strong as both sets of outcomes range from low-medium according to Cohen (1988).[41] Furthermore, interestingly the effect sizes are heterogenous[42], which means the outcome variables are diverse and not the same. This finding shows that there are situations at play which strenghten or weaken the positive effect customer participation exerts on customer and firm outcome variables. It is these situations which are looked at next in subchapter 8.2.

8.2 Research Question 2

In the previous subchapter, subchapter 8.1, it was looked at how customer participation impacts on different customer and firm outcomes, therefore answering and discussing

[41] As can be seen from table 18 customer outcome means range from 0.136 (low, service quality justice/fairness) – 0.428 (medium, service quality specific) and firm outcomes range from 0.131 (low, new product performance effectiveness) – 0.359 (medium, new product performance).
[42] Which can be seen from the Q-value in table 18. A significant Q-value means that the variable is heterogenous.

the first research question in depth. This subchapter now places the focus on research question 2 and examines different moderators which can impact on the customer participation – firm and customer outcome link. For this, situations are looked at in isolation without comparing customer to firm outcomes directly. The third research question, which looks at the direct comparison of outcomes and thus identification of trade-off situations regarding moderators and the customer participation – outcome link is the focus of chapter 8.3.

8.2.1 Customer Participation and Technology

The first moderator to be looked at for both the firm and the customer is technology. By looking at the predicted effects of the multivariate regressions displayed in table 19, it can be seen that the use of technology leads to significantly higher firm outcomes, as predicted. This reveals that using technology leads to an increase in the positive effect customer participation exerts on outcomes for the offering provider when compared to the main effects.[43] Concluding for firm outcomes, the economic and non-economic rationales for using technology in customer participation situations seem to apply. One of the economic reasons presented was that technology leads to cost savings and increased productivity for firms (Dabholkar 1996; Kelley 1994; Alpar 1992), therefore impacting on outcomes positively. Non-economic reasons for an increase in firm outcomes when using technology were that of technology being more predictable than human labor (Curran, Meuter, & Surprenant 2003), therefore enabling the offering provider to deliver more constant and reliable encounters, ultimately speeding processes

[43] The firm effect for for technology vs no technology is 0.588 vs 0.239 and the main effects for firm outcomes are as follows: 0.131 (New project performance effectiveness), 0.334 (new project performance efficiency), 0.233 (General performance) and 0.359 (general new project performance).

up and impacting on financial outcomes positively. The findings of this meta-analysis confirm the predicted positive effect, which is stronger for firms when using technology in customer participation situations.

From the customer's point of view, the customer seems to be indifferent regarding the use of technology versus the use of no technology in customer participation contexts. This is due to the fact that the use of technology does not significantly increase customer outcomes as originally predicted but it also does not decrease the positive impact of customer participation on customer results.[44] Therefore, technology is the first moderating variable which has a significant impact on outcomes, even though this is only the case for firm variables.

8.2.2 Customer Participation in Service Recovery

The second moderator which impacts on the customer participation – customer outcome link is service recovery. Customer participation in service recovery situations strengthens the positive impact of the marketing strategy on customer outcomes. [45] In a service recovery context, the customer shows significantly higher outcomes for perceived service quality.[46] This provides partial support for the predicted results, which were saying that customer attitudinal outcomes are higher in a service recovery setting.

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[44] This can be seen by looking at the beta coefficients for customer outcomes as displayed in table 18. These coefficients are all insignificant, meaning the customer outcomes are not increased but also not decreased, therefore the technology moderator does not impact significantly on the customer outcome main effects, which are as follows: 0.353 (general customer satisfaction), 0.302 (customer satisfaction transaction specific), 0.377 (customer loyalty), 0.136 (service quality justice/fairness), 0.415 (service quality value/benefit), and 0.428 (service quality specific). Only main effects for the variables which were tested in the multivariate model are displayed.

[45] Service recovery can only be discussed for customer outcomes due to missing results for firm outcomes (multicollinearity).

[46] Customer outcome service quality main effect: 0.136; 0.415; and 0.428. Effects service recovery vs no service recovery for service quality measure: 0.560 vs. 0.256.

As the predicted effect holds true for one attitudinal outcome, namely service quality, the findings are partially in line with the hypothesized effect. As a result, and from a customer's point of view, it is recommended for firms to let the customer participate when trying to recover a (failed) service experience, as this increases the positive effect on the service quality perception with the other remaining customer outcome variables, namely loyalty and customer satisfaction, staying the same.

Therefore, previous findings by Maxham (2001) and Zeithaml and Bitner (2003) for example, that service recovery can positively impact on customer outcomes, are supported. Ultimately, this way of reasoning is grounded in the service recovery paradox, which states that customer satisfaction levels are greater post recovery compared to pre failure (Maxham 2001; Smith & Bolton 1998; McCollough & Bharadwaj 1992). However, firms have to keep in mind that for a paradox to occur it is of utmost importance that the service recovery efforts are perceived as sufficient and successful by the customer (Boshoff & Leong 1998). The chance for a satisfactory recovery to occur can actually be increased by letting the customer participate in the service recovery process due to the customer having a greater say and impact on the outcome, as the findings of this meta-analysis show. To summarize, letting the customer participate in service recovery strengthens the positive impact of customer participation on the perceived service quality with customer loyalty and customer satisfaction not being significantly affected. Therefore, service recovery is the second moderator which impacts on outcome variables.

8.2.3 Customer Participation in Goods Versus Services Settings

The goods compared to services setting is the next variable which impacts on outcomes. The firm outcomes are found to be stronger in a goods setting and furthermore, the positive impact of customer participation on firm outcomes overall is increased when customers participate in goods situations.[47] As predicted, good settings as opposed to service contexts increase the strength of the positive impact customer participation has on firm outcome variables. Therefore, the meta-analytical findings provide support for the challenges firms face in regards to services. Research has found that customers who participate in the co-production of a firm's product show a higher sense of ownership (Wathieu et al. 2002) and willingness to pay a higher price for the end result (Fuchs, Prandelli & Schreier 2010; Peck & Shu 2009). This is supported by this meta-analysis, which reveals higher firm outcomes, which are mostly financially driven, in goods settings. Due to the tangible nature of goods as opposed to services the outcome of customer participation in goods settings is straight forward for firms to convey, therefore making the results easy to assess for other customers. This links to information asymmetry, which companies try to reduce as much as possible due to the negative impact it can have (Stock 2011). In a goods setting, reducing information asymmetry is easier for firms as opposed to services due to the tangibility of products, ultimately impacting on firm outcomes positively. Another economic rationale which is supported by this study's findings is the assumption that services are more complex than goods and require more careful planning from the firm's side (Sundbo 1998; Gadrey, Gallouj, & Weinstein 1995). This ends up in higher expenditures for firms and thus

[47] Firm outcomes main effects: 0.131; 0.233; 0.334; 0.359. Firm outcomes goods vs services: 0.395 vs 0.250.

reduced firm outcomes, which cannot be directly minimized by customer participation as such as services are more complex in nature as opposed to goods.

As a result, customer participation in a goods setting is the third moderator which impacts on the customer participation – outcome link, even though this is only the case for firm outcomes as customer outcomes are not significantly affected by the goods versus services moderator.

8.2.4 Customer Participation in the Different Purchase Stages

The fourth situation impacting on outcome variables is the purchase stage, consisting of pre-purchase, service encounter and post-purchase. From the customer's point of view, participating in the pre-purchase stage leads to significantly higher outcomes regarding service quality, with loyalty and satisfaction not being significantly affected.[48] The findings of this meta-analysis regarding an increase in customer outcomes when participating in the pre-purchase stage confirm the previously predicted effect, therefore, finding support for the primacy effect (Murdock 1962) also in customer participation situations. The primacy effect was first used in a learning context and states that people remember words best that are presented at the start, or early, in a list. This effect was applied to customer participation in the different purchase stages, with the pre-purchase stage representing the start of the stages the customer goes through when making a purchase decision. Therefore, it was hypothesized that the customer would remember the things that happen in the pre-purchase stage better, in line with the

[48] As a reminder, customer outcome variable main effects are as follows: 0.353 (general customer satisfaction), 0.302 (customer satisfaction transaction specific), 0.377 (customer loyalty), 0.136 (service quality justice/fairness), 0.415 (service quality value/benefit), and 0.428 (service quality specific). Only main effects for the variables which were tested in the multivariate model are displayed. Customer service quality effect pre-purchase vs. service encounter/post-purchase is: 0.478 vs. 0.279.

primacy effect. The findings of this meta-analysis support this effect, meaning that the customer remembers the effect of customer participation, which has a generally positive impact on customer outcomes, better when participating in the first stage of the three purchase stages. From the firm's perspective, letting customers participate in the pre-purchase stage does not have a significant impact on firm outcomes, however, outcomes are still positive. Due to customer outcomes being significantly affected, participation in the pre-purchase stage is the next moderator which impacts on outcomes.

The second purchase stage, which has an impact on customer outcomes, is the post-purchase stage. From the customer's point of view, outcomes are affected due to the post-purchase stage significantly lowering customer outcomes loyalty and service quality.[49] This finding does not align with the originally predicted effect as it was predicted that customer participation in the post-purchase stage would lead to stronger customer outcome evaluations as opposed to the other two stages due to the recency effect. As a result, no support for the recency effect, which stems from a learning background and states that people remember things from a list best when they are presented at the end (Murdock 1962), in a customer participation setting is found. Interestingly, the findings show the opposite by reducing the positive impact of customer participation on outcome variables in the post-purchase stage.[50] This seems to be an indicator for the primacy effect being stronger compared to the recency effect. Earlier than the recency effect, the primacy effect was already used in literature as far

[49] As a reminder, customer outcomes in regards to customer participation main effect: 0.353 (general customer satisfaction), 0.302 (customer satisfaction transaction specific), 0.377 (customer loyalty), 0.136 (service quality justice/fairness), 0.415 (service quality value/benefit), and 0.428 (service quality specific). Only main effects for the variables which were tested in the multivariate model are displayed. Customer loyalty post purchase versus pre-purchase/service encounter: 0.095 vs 0.480. Customer service quality post-purchase versus pre-purchase/service encounter: 0.222 vs 0.381.

[50] It needs to be stressed that involving customers in participation in the post-purchase stage only decreases the positive effect customer participation has on customer outcomes. Participation in the post-purchase stage does NOT lead to a negative effect, the impact is only less positive.

back as 1946, with Asch (1946) introducing the importance of first impressions. The idea that the primacy effect is stronger than the recency effect is further supported by Baird and Zelin (2000) who showed that presenting positive news before bad news as opposed to bad news followed by good news resulted in better evaluations of a firm's future performance and investment strength. Furthermore, similar effects in different contexts were found, all supporting the importance of the primacy effect. For example, Ditmer and Griffin (1994) and Miller (1980) studied the importance of positioning effects in a restaurant setting. The researchers found that customers ordered items presented at the top of the menu more often than the same items when being displayed at the bottom. Additionally, Koppell and Steen (2004) demonstrated the strength of the primacy effect in a political setting by showing that presidential candidates listed first on the list receive more votes than people listed in any other position. There is research (e.g. Duncan & Murdock 2000; Krosnick & Alwin 1987) that finds support for the recency effect, however, many times the same research also then finds evidence for the primacy effect (e.g. Krosnick & Alwin 1987). All in all, there seems to be more research finding support for the primacy effect, which has been applied to different contexts and still found to be true as outlined in this paragraph. This meta-analysis does not find support for the recency effect, however, the findings further strengthen the importance of the primacy effect also in a customer participation setting in relation to the pre-purchase stage.

In summary, the post-purchase stage is the next moderator which has an impact on outcome variables, due to customer outcomes being significantly affected. Firm outcomes are not significantly affected by letting customers participate post-purchase, however, firm results are found to be significantly stronger when letting customers

participate in the service encounter stage. As a result, all three purchase stages have an impact on outcomes.

8.2.5 Forced Versus Unforced Customer Participation

The final moderator which has been looked at in this meta-analysis and has been found to have an impact on outcomes is that of forced participation. From the customer's perspective, forcing customers into participation strengthens the impact customer participation has on perceived service quality. [51] This is contradictory to the originally predicted results as it does not lead to higher customer outcomes when providing the customer with a choice on whether he/she wants to participate or not. Interestingly, the opposite happens as customers show higher outcomes for service quality in forced customer participation settings with customer loyalty and satisfaction not being significantly affected.[52] Therefore, it seems to be good to force the customer into participation due to higher results found for one customer outcome. This finding goes against to what was previously predicted and as a consequence, support for reactance theory (Brehm 1966) and customers not liking being forced into participation as stated by Bitner, Ostrom, and Meuter (2002) is not found. Reinders, Dabholkar, and Frambach (2008) argue that forcing people into doing something reduces their freedom of choice, which ultimately leads to lower control as perceived by the customer and reduces outcomes compared to situations with higher perceived control (Hui & Bateson 1991).

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[51] Due to multicollinearity issues regarding the firm outcomes, the interpretation is only possible for the customer variables.

[52] As a reminder, customer outcomes in regards to customer participation main effect: 0.353 (general customer satisfaction), 0.302 (customer satisfaction transaction specific), 0.377 (customer loyalty), 0.136 (service quality justice/fairness), 0.415 (service quality value/benefit), and 0.428 (service quality specific). Only main effects for the variables which were tested in the multivariate model are displayed. Customer service quality forced versus unforced: 0.463 vs 0.230.

However, the findings of this meta-analysis show that the opposite holds, which provides evidence that customers rate forced situations as more favorably. This can be explained with a term called overchoice (Toffler 1970).

The cognitive process of choice overload, as overchoice is also commonly referred to, looks at how people are facing problems and difficulties when presented with options. It is said that choice overload generally only occurs when people are facing multiple options of similar quality, however, in a customer participation setting overchoice and its negative consequences may already occur with fewer options, at times it may possibly only require two choices for overchoice to occur. This can be assumed due to customer participation being a complex phenomenon for customers, which at times even requires customer training in regards to the task at hand. Furthermore, for customer participation to happen the customer has to provide (extensive) input in regards to time, effort and mental capacity, therefore making the marketing strategy more volatile to negative evaluations from the customer's point of view as many things can go wrong when participating. As a result, the customer may see him/herself facing a difficult decision when being presented with a choice of whether he/she wants to participate or not as the decision can become overwhelming due to the different directions the outcome can take. This links to a phenomenon called buyer's remorse, which looks at customers feeling regret after having made a purchase (Rosenzweig & Gilovich 2012). A buyer can feel dissatisfaction after having made a purchase (choice) not only due to financial reasons but also because of invested resources for example. Felt remorse can only happen when the customer is faced with a (difficult) decision. In a forced situation, customers do not have to make any decisions as they do not have a choice, therefore it should be assumed that the decision making

process is simplified and buyer's remorse cannot occur or is minimized due to the missing alternative.

Overall, reducing freedom of choice for the customer leading to higher outcomes can further be explained by the consumer decision making process as already mentioned in the previous paragraph. Generally, the decision making process is complex, as the customer has to go through different sequences in order to reach a decision. In choice situations the customer has to go through five different stages, namely goal identification, information gathering/weighing up of available options, consequences of each alternative have to be considered, the actual decision making and finally the decision making evaluation. This is a lengthy process the customer goes through when faced with a decision. However, in a forced customer participation situation the process is much more simplified as the customer is essentially only facing the first stage of the process, which is goal identification. Due to the customer having no choice in a forced situation, he/she does not have to go through the remaining four stages, thus making the decision making process much easier for the customer. The ways of reasoning presented in the previous paragraphs can be seen as explanations for the customer perceiving higher service quality outcomes when being presented with no choice in a customer participation setting, therefore leading to an even higher benefit.

In summary, the forced participation moderator is the final moderator looked at in this thesis which has an impact on customer outcomes. Now that moderators which impact on the customer participation – outcome link have been introduced, subchapter 8.3, the final subchapter of chapter 8, is dedicated to identifying trade-off situations to identify which situations lead to 1) both parties profiting more from customer participation, 2) the customer profiting more but firm does not, 3) the firm profiting more but customer does not, and 4) both parties not profiting more from the marketing

strategy in a given situation. Situation 4 can happen either by both parties not being significantly affected or by both partners showing lower outcomes. This serves the purpose of identifying how critical situations, one partner benefits more and the other does not, can be turned into equally beneficial situations for both customer and firm.

8.3 Research Question 3

The third research question that is looked at in this PhD thesis is who benefits (more) when customer participation is used, who is neither better nor worse off and who loses, therefore, looking at a direct comparison of outcomes regarding moderators to identify trade-off situations. As can be seen when looking at table 18 and 19, customer participation is always positive. The different moderating variables weaken or strengthen the positive impact of customer participation on outcomes, however, they do not lead to negative results. Therefore, it can already be said that no one loses from customer participation. Partners always profit from the marketing strategy, in some situations more and in others less. As a result, the first key recommendation for firms is to always use customer participation as a marketing strategy given the situations tested in this meta-analysis. However, as indicated, both partners do not always benefit equally and some situations lead to one partner being better off than the other. Therefore, the following situations are looked at in this subchapter:

- Which situation leads to more beneficial outcomes for both customer and firm?
- Which situation leads to more beneficial outcomes for customers but not for firms?

- Which situation leads to more beneficial outcomes for firms but not for customers?
- Which situation does not lead to more beneficial outcomes for both customer and firm?

It is now the focus of the remaining part of this subchapter to identify the different situations and provide recommendations on how these situations, in particular the so-called "critical situations"[53], can be managed so that an equally profitable situation for both parties occurs. Ideally, that way a knock-on effect can be created to make customer participation even more profitable overall from both the firm's as well as customer's perspective, ultimately answering research question 3.

To be able to answer the third research question, the findings are now looked at with the focus on identifying trade-off situations. Previously, the focus was on discussing main effects only (RQ 1) followed by moderators in isolation (RQ 2). Now it is looked at trade-off situations, with the purpose of identifying which party profits more from customer participation and in which situations, and furthermore, which situation leads to which of the four possible outcomes as introduced in the previous paragraph. Following the identification of these situations it is examined how the so-called critical situations, one partner benefits more while the other does not, can be turned into an equally beneficial situation for both parties involved in customer participation. The thesis is then concluded with the conclusion chapter, chapter 9, looking at research limitations in combination with ideas for future research.

[53] The situations are only called "critical" for the purpose of this meta-analysis as due to both parties benefiting they are not critical as such. Both parties show positive effects for outcome variables, therefore, no party is actually negatively affected. The situations are only referred to as critical because one partner profits more than the other. At no stage / In no situation is customer participation found to be a negative strategy.

To answer research question 3, the different scenarios for both customer and firm have to be identified first. As already highlighted, the first situation which leads to a mutually beneficial outcome for both participating parties can be identified by looking at the main effects of customer participation on customer and firm outcomes, which were discussed in depth in subchapter 8.1. As was identified, customer participation as a marketing strategy leads to overall positive outcomes for both the customer and the firm, therefore leading to the first beneficial situation for both parties involved. As a result, firms should be incorporating their customers in the production, delivery, maintenance and/or recovery of their core offering. After having established that customer participation leads to both customer and firm profiting from the marketing strategy, the remainder of this subchapter is now dedicated to looking at situations which strengthen or weaken the positive customer participation – outcome link to identify where and which trade-offs are made, thus extending the discussion of research questions 1 and 2.

8.3.1 Use of Technology

The first moderator to be looked at for the firm and customer is technology. By looking at the predicted effects of the multivariate regressions as displayed in table 19, it can be seen that the use of technology leads to the first critical situation for customer and firm outcomes. As predicted for the firm, and as discussed in depth in subchapter 8.2, using technology leads to an increase in the positive effect customer participation exerts on the outcomes for the offering provider when compared to the main effects.[54] However, the customer seems to be indifferent to the use of technology versus the use of no

[54] The firm effect for for technology vs no technology is 0.588 vs 0.239 and the main effects for firm outcomes are as follows: 0.131 (New project performance effectiveness), 0.334 (new project performance efficiency), 0.233 (General performance) and 0.359 (general new project performance).

technology when it comes to participation, therefore the use of technology does not further strengthen customer outcome variables as originally predicted.[55] This means that the use of technology compared to no use of technology does not have a significant impact on customer outcomes, therefore, the customer is neither benefiting more nor less. As a result, the first critical situation exists, because the firm benefits more from using technology whereas the customer does not, the customer is left indifferent compared to non technology usage. Concluding, for firm outcomes, the economic and non-economic rationales seem to apply, as outlined in the previous subchapter. The findings of this meta-analysis confirm the predicted positive effect, which is stronger for firm outcomes when making use of technology in customer participation situations.

However, from the customer's perspective the use of technology when participating is not as positive as predicted compared to non-usage as a significant increase in the positive effect customer participation exerts on customer outcomes has not been found. This could be due to several reasons. It was hypothesized that technology would lead to a stronger positive impact on customer outcome variables due to an increase in internal locus of control, which is said to lead to more positive outcomes as opposed to external locus of control (Marks 1998). This was argued to be the case due to research finding that subjective customer abilities and characteristics (Curran & Meuter 2007; Weijters et al. 2007), such as perceived self-efficacy, having an influence on the use of such technology, leading to the customer feeling a stronger sense of control over the outcome. However, the results do not support such an effect

[55] This can be seen by looking at the beta coefficients for customer outcomes as displayed in table 18. These coefficients are all insignificant, meaning the customer outcomes are not increased but also not decreased, therefore the technology moderator does not impact significantly on the customer outcome main effects, which are as follows: 0.353 (general customer satisfaction), 0.302 (customer satisfaction transaction specific), 0.377 (customer loyalty), 0.136 (service quality justice/fairness), 0.415 (service quality value/benefit), and 0.428 (service quality specific). Only main effects for the variables which were tested in the multivariate model are displayed.

and show that technology situations do not perform significantly better compared to no technology situations from a customer outcome point of view.

The first reason why this might be the case is the negative side of technology. Research has identified negative aspects of technology as perceived by people, which may have the potential to lever out the positive effect of technology on outcome variables as originally predicted. One key aspect for this could be the human labor technology replaces (Curran & Meuter 2005). Customers may view the social element in particular in service encounters as highly important and therefore prefer dealing with people over using self-service technologies (Zeithaml & Gilly 1987) regardless of their computer abilities. Furthermore, Curran and Meuter (2005) state that customers do not see "a significant benefit of the technology and will continue to do things as they have always done them" (p. 104), which is again not linked to the customer's abilities but rather to the fact that people are said to be creatures of habit. Overall, the findings of this meta-analysis show that from the customer's perspective the importance of human contact may be stronger than anticipated. Thus, potential risks regarding human interaction such as non-controllability of employees' mood and behavior with customers (Chan, Yim, & Lam 2010) as well as general inconsistency of service provided (Curran, Meuter, & Surprenant 2003) may not have as much of a negative impact in customer participation situations as research indicates. As a result, and to increase customers' perceived value of the use of technology when participating, it may be important for firms to ensure that the human element is not completely replaced by technology, so that customers still have the chance to interact with employees during the (service) encounter. Firms could use some of their additional income they make when using technology for customer participation, and invest this in employees to ensure the human contact does not suffer. Furthermore, it may be important for

customers to see that technology does not solely serve the purpose of replacing staff, which firms can address by employing people, making them visible for customers and making sure that self-service checkouts are always manned . This could lead to an increase in customer outcomes regarding the use of technology in customer participation as it could also have a positive effect on customers' perceived anxiety when it comes to technology. By employing sufficient staff these issues can be addressed and minimized given the right management.

Furthermore, the habit effect may be automatically decreased over time, due to technology replacing the human encounter and therefore becoming a habit itself in future. Younger people nowadays are growing up with technologies and feel much more confident with their use. Therefore, the use of technology-based services as such will very likely become a habit, or already is a habit to the younger generation, and minimize the issue. This should then, over time, increase the positive impact of the use of technology on customer outcomes in customer participation situations.

To summarize, the use of technology in customer participation situations is recommended due to both customer and firm benefiting. However, the results reveal that firms benefit more from making use of technology than customers. Therefore, it is important for firms to find ways how to increase customer outcomes to achieve a situation in which both parties benefit equally benefit / benefit more from customer participation. It is suggested for firms to use some of their additional profit made from using technology and invest it in the customer experience by employing sufficient staff for example to ensure the human interaction element is not completely replaced. Furthermore, employees can help customers in case they are struggling with technologies, ultimately decreasing their perceived level of technology anxiety (Meuter

et al. 2000), providing a more enjoyable encounter for customers, and ultimately raising customer outcomes in technology situations.

8.3.2 Customer Participation in Service Recovery

The first situation which creates a more beneficial situation for the customer, and thus strengthens the positive impact customer participation has on customer outcomes, is that of customer participation in service recovery.[56] In a service recovery context, the customer is not worse off when participating compared to situations without a service recovery, however, the perceived service quality is actually significantly higher compared to no service recovery contexts. This result is partially in line with the originally predicted results as discussed in detail in subchapter 8.2.[57] Therefore, customer participation in a service recovery context leads to a more profitable outcome from the customer's point of view. As a result, it is recommended for firms to let the customer participate when trying to recover a (failed) service, as this has a positive effect on the service quality perception with the other remaining customer outcome variables, namely loyalty and customer satisfaction, not being significantly affected.

8.3.3 Customer Participation in Goods Versus Services Settings

The goods compared to services setting is the next identified setting which creates a similar outcome to the technology context, namely a critical situation. The firm outcomes are found to be stronger in a goods setting and furthermore, the positive

[56] Service recovery can only be discussed for customer outcomes due to missing results for firm outcomes (multicollinearity).
[57] Customer outcome service quality main effect: 0.136; 0.415; and 0.428. Effects service recovery vs no service recovery for service quality measure: 0.560 vs. 0.256.

impact of customer participation on firm outcomes overall is increased when customers participate in goods situations.[58] Therefore, for firms operating in a goods setting and offering customer participation is a situation, in which the offering provider benefits even more, and the meta-analytical findings provide support for the challenges firms face regarding the provision of services. This is in line with the originally hypothesized effect as discussed in depth in subchapter 8.2. However, from the customer's point of view, the outcome variables are not significantly different and therefore, the customer is not profiting even more from participating in a goods over service setting. Thus, the goods setting leads to the next critical situation with one party profiting more from participation while the other partner is not being significantly affected.

From the customer's perspective, participation in a goods context does not lead to significantly higher customer outcomes as originally predicted. Therefore, the drawbacks of services as opposed to goods from a general perspective as well as in a customer participation setting do not seem to impact on customer outcomes as much as hypothesized. This means that services contexts do not perform less positive compared to goods settings regarding customer participation and customer outcomes. More precisely, the variability, and thus uncertainty, of services regarding the end result (Zeithaml, Parasuraman, & Berry 1985) does not seem to put the customer outcomes at disadvantage as opposed to goods settings. This could be due to the fact that customer participation enables the customer to reduce some of the uncertainty due to the customer having an impact on the final outcome. The say the customer has in shaping the outcome of a service experience as opposed to goods is higher due to the inseparability of service production and consumption (ibid.). As a result, even though the service

[58] Firm outcomes main effects: 0.131; 0.233; 0.334; 0.359. Firm outcomes goods vs services: 0.395 vs 0.250.

experience may still be higher regarding uncertainty and variability as opposed to goods, the perceived control over the end result as perceived by the customer may be higher, leading to higher perceived control over the outcome counterbalancing the drawbacks of higher uncertainty and variability. Zeithaml, Parasuraman, and Berry (1985) initially saw the customer participating more in service settings as a problem. However, the findings of this meta-analysis rather support the view that the participation by the customer in services settings posits an opportunity for firms to involve the customer more in decision making and tailoring the project more to the customer's needs as indicated by Vargo and Lusch (2004).

A further reason for services performing similarly well to goods when it comes to customer participation is that of the role of the employee. Services are described as more interactive than goods, thus leading to higher interaction between the customer and the firm's employees. Even though there are risks and challenges in regards to customer-employee interaction (see Chan, Yim, & Lam 2010), other research (e.g. Zeithaml & Gilly 1987) has highlighted the importance of the interactive/human element for the customer, ultimately offsetting the uncontrollable elements like employee mood and performance. The human element may be an even more important factor for customers nowadays, in a world where technology is increasingly replacing human labor (Curran & Meuter 2005). The fact that services settings are generally higher in interaction as compared to good contexts may therefore be a reason why customers evaluate their outcomes more positively than expected.

If human interaction is one of the key contributing factors to customers enjoying service experiences, it is important for the firm to also keep the interaction level high in a goods setting, which may impact on customer participation in the production, delivery, maintenance, and/or recovery of goods positively, thus, further increasing the

already positive evaluation of customer outcomes in regards to customer participation in good settings. Due to the increased positive impact of customer participation on firm outcomes in a goods setting it is important for firms to identify ways of how to raise customer outcomes in order to find a way to create a situation in which both parties profit even more when being involved in customer participation. In summary, customer participation is recommended to be used for both types of settings, services and goods. To match the more beneficial result for firms in a goods setting, the firm should explore ways of how customer participation can be made even more enjoyable for customers.

8.3.4 Customer Participation in the Different Purchase Stages

The next identified situation which leads to several critical situations in which one partner benefits more than the other from customer participation are the different purchase stages, namely pre-purchase, service encounter and post-purchase. From the customer's point of view, participating in the pre-purchase stage leads to a more beneficial outcome due to an increase of the positive impact customer participation has on service quality, with customer loyalty and satisfaction not being significantly affected.[59] Therefore, due to an increase in one customer outcome variable, the customer is better off from participating in the pre-purchase stage compared to a combination of the service encounter and post-purchase stage. However, from the firm's perspective, the outcome variables are not significantly affected and therefore, letting customers participate in the pre-purchase stage does not lead to the firm benefiting even

[59] As a reminder, customer outcome variable main effects are as follows: 0.353 (general customer satisfaction), 0.302 (customer satisfaction transaction specific), 0.377 (customer loyalty), 0.136 (service quality justice/fairness), 0.415 (service quality value/benefit), and 0.428 (service quality specific). Only main effects for the variables which were tested in the multivariate model are displayed. Customer service quality effect pre-purchase vs. service encounter/post-purchase is: 0.478 vs. 0.279.

more from participation. However, it needs to be stressed that the firm is also not worse off by letting the customer participate in the first purchase stage, the offering provider still profits, which can be seen from the positive main effect, it is just that outcomes are not increased further. As a result, customer participation in the pre-purchase stage leads to a critical situation due to the customer profiting more than the firm.

The findings of this meta-analysis regarding an increase in customer outcomes for customer participation in the pre-purchase stage confirm the previously predicted primacy effect as outlined in detail in subchapter 8.2. However, from the firm's perspective, incorporating the customer in customer participation in the pre-purchase stage does not lead to even better firm outcomes, as originally predicted.

Customer participation in new product/service development is usually taking place in the pre-purchase stage[60] and several studies have found a positive effect of incorporating the customer in new project development on key firm outcomes, such as project innovativeness (Santos-Vijande, Gonzalez-Mieres, & Lopez-Sanchez 2013; Tu, Hwang, & Wong 2014) and new product performance/profitability (Cui & Wu 2015; Langerak & Hultink 2005). Researchers argue the positive impact of involving customers in new project development with firms gaining access to user knowledge early on in the development process, thus being able to match the product/service better to customer needs (Fang, Palmatier, & Evans 2008). In addition, Dyer (1996) views customer participation as a way to reduce communication errors between offering provider and customer, thereby enhancing the project's speed to market. Langerak and Hultink (2005) support this view and see the marketing strategy used in new project

[60] The large majority (83%) of the papers happening in the pre-purchase stage are based in a new product/service development context, which is why the focus regarding interpretation will be on this setting. Furthermore, similar effects/ways of reasoning are assumed to hold for the rest of the remaining studies which incorporate the customer in participation in the pre-purchase stage.

development as one way to accelerate the project development speed, resulting in decreased costs and therefore positively impacting on project performance.

So far, these are all indicators for customer participation in the pre-purchase stage to actually enhance the positive impact of the marketing strategy on firm outcome variables. However, another stream of research has also identified several challenges as well as negative effects even firms are facing when incorporating the customer in the new project development stage and thus in pre-purchase. The project's speed to market is not always enhanced by customer participation as findings by Fang (2008) indicate. The author highlights that the product's speed to market strongly depends on the process complexity. The more complex the tasks the customer has to perform, the longer it takes for the project to be introduced into the market. Furthermore, more complex tasks require more communication and further greater interaction depth, which also diminishes the project's speed to market (ibid.) and ultimately reducing firm outcomes.[61] Additional research highlights the fact that customer participation in new project development in particular can lead to inefficient processes and poor performance (Chang & Taylor 2016). This can be due to the fact that customers are sometimes lacking in their ability to provide information on innovation due to their limited creative ideas (Christensen 1997) or them not being able to clearly communicate their needs and wants (Franke, Keinz, & Steger 2009). On top of this, Hoyer, Chandy, Dorotic, Krafft , and Singh (2010) highlight that firms can find themselves struggling with the complexity that customer participation brings along in regards to aligning firm objectives and customers' interests. The recent meta-analysis on customer participation in new product development as conducted by Chang and Taylor (2016) provides further

[61] A reduction in performance variables does not indicate that the outcome is negative. Variables can already be reduced by not being as strong as expected but still being positive.

support for customer participation being not always a firm performance enhancer but also critical strategy which needs to be managed carefully. The research finds evidence that the new product development process can be divided into several stages and that participation in some stages is better than in others in regards to firm (financial) performance variables. The study further finds that the impact of customer participation on firm outcome variables varies, depending on context variables such as technological turbulence and industry sector. Therefore meta-analytical evidence is provided in regards to the positive impact of customer participation on firm outcome variables which can be enhanced but also diminished depending on certain circumstances and as such the marketing strategy's impact on outcomes is not as straight forward.

Ultimately, it can be summarized, in line with the results presented previously, that customer participation in the pre-purchase stage positively affects firm outcome variables. However, it is the challenges firms face when letting the customer participate in the project development process as outlined above, which can explain why the positive effect of customer participation in the pre-purchase stage is not strengthened, as originally predicted. The discussion on the challenges regarding customer participation in the new project development process shows that the positive impact on firm outcome variables can vary depending on aspects like complexity of the task, which may be directly linked to the activity level of the customer, industry sector, and the management of customer participation by the firm.

Overall, it is recommended for customer and firm, to let the customer participate in the pre-purchase stage. For the customer this is a situation in which he/she profits even more due to higher outcomes, but also for firms it is recommended, due to the generally positive impact customer participation in the pre-purchase stage has on firm outcomes, it is just that the impact is not as strong as assumed. However, in order to

create a situation in which both parties profit more from participation, firms should be aware of the challenges the incorporation of the customer in new process development pose, and try to minimize them as far as possible, to further increase the strength of the positive effect customer participation has on firm outcomes. It is very important for firms to manage customer participation in the pre-purchase stage carefully. This can be done, for example, with careful and proper management of the customer participation process and by incorporating the customer's input in the right development stage (Chang & Taylor 2016), which needs careful and rigoros planning from the firm's side. The importance of using the customer's input in the right development stage is stressed by the authors as they highlight that incorporating the customer in some development stages over others increases the firm's financial performance. It is also important for firms to actually be aware of what to do with their customers' input as many times information gets lost and not acted upon. Said, Macdonald, Wilson, and Marcos (2015) highlight that for customer insight to be useful, mere dissemination of the information is not enough. However, this seems to be a bigger issue for large firms as opposed to smaller companies (Chang & Taylor 2016). Proper training for a firm's customers in regards to the tasks they have to carry out to reduce (perceived) complexity and further enable customers to voice their needs and wants better is also crucial for success. Finally, the selection of customers to participate in the new project development, and therefore the pre-purchase stage, requires the firm's careful attention as not every customer may be suitable for participation (Christensen 1997). Hence, it is recommended that customers should be screened by firms regarding their abilities, motivations and intentions when it comes to customer participation in new project development to ultimately increase firm outcome variables and work towards an equally beneficial situation for both the customer and the firm in the pre-purchase stage. All in

all, customer participation in new process development, and thus the pre-purchase stage, is a positive aspect, however, firms can carry out certain tasks to increase the positive impact on their performance variables even further and ultimately achieve an equally beneficial situation for customer and firm alike.

The post-purchase stage is the only situation which creates a situation in which no one is profiting more from a customer participation point of view. This is the case due to the firm outcomes showing a generally positive impact but not being significantly affected, however, it is the customer who profits less from participation in the post-purchase stage in regards to two outcome variables, namely customer loyalty and (perceived) service quality.[62] This finding does not align with the originally predicted effect as discussed in depth in subchapter 8.2. However, even though the customer profits less from customer participation in the post-purchase stage, it is still recommended for firms and customers to participate in the final stage of the purchase stages due to the effect still being positive.

8.3.5 Forced Versus Unforced Customer Participation

The final situation which has been looked at in this meta-analysis and which creates a more beneficial outcome for the customer is forced participation.[63] From the customer's perspective, and contradictory to the intially predicted results as outlined in subchapter 8.2 in depth, it does not lead to a more positive result when providing the customer with

[62] As a reminder, customer outcomes in regards to customer participation main effect: 0.353 (general customer satisfaction), 0.302 (customer satisfaction transaction specific), 0.377 (customer loyalty), 0.136 (service quality justice/fairness), 0.415 (service quality value/benefit), and 0.428 (service quality specific). Only main effects for the variables which were tested in the multivariate model are displayed. Customer loyalty post purchase versus pre-purchase/service encounter: 0.095 vs 0.480. Customer service quality post-purchase versus pre-purchase/service encounter: 0.222 vs 0.381.

[63] Due to multicollinearity issues regarding the firm outcomes, the interpretation is only possible for the customer variables.

a choice on whether he/she wants to take part in customer participation or not. However, interestingly, the opposite happens as customers show higher outcomes for service quality in forced customer participation settings, with loyalty and satisfaction not being significantly affected.[64] Therefore, it seems to be good for firms to force the customer into participation due to higher results found for one outcome and thus providing more benefit for the customer. In summary, both forced and non-forced situations lead to positive outcomes for the customer and therefore, customer participation should be used in both settings. However, forced participation makes the customer benefit even more from participation, which is why forcing customers into participating seems to be the better choice for firms as discussed in depth in subchapter 8.2.

This chapter looked at the interpretation of the results and served as the basis for answering the third research question which looks at who wins (more) and who loses / wins less when customer participation is used. Furthermore, it was of interest in case one partner, either the firm or the customer, is profiting more from the marketing strategy, how this situation can be turned so that both parties involved benefit equally. Finding ways for how to make customer participation even better is important as this can create a knock-on effect and increase customer and firm outcomes further, ultimately leading to a strong competitive advantage. In summary it needs to be stressed that no participating partner actually "loses" from customer participation as all effects are positive. However, there are certain situations which strengthen or weaken the positive impact customer participation has on firm and customer outcome variables.

[64] As a reminder, customer outcomes in regards to customer participation main effect: 0.353 (general customer satisfaction), 0.302 (customer satisfaction transaction specific), 0.377 (customer loyalty), 0.136 (service quality justice/fairness), 0.415 (service quality value/benefit), and 0.428 (service quality specific). Only main effects for the variables which were tested in the multivariate model are displayed. Customer service quality forced versus unforced: 0.463 vs 0.230.

This subchapter identified the different scenarios, including trade-off situations, and an overview of the findings can be found in tables 22 and 23. The final chapter of this thesis concludes the research by identifying research limitations and ideas for future research.

9. Conclusion

The purpose of chapter 8 was to critically discussed the findings in relation to the individual research questions, research questions 1, 2 and 3. First, customer participation and its impact on firm and customer outcomes was looked at in isolation and the outcomes were discussed, which addresses research question 1. Following the discussion on the first research question, the second research question was looked at in depth by studying the impact of certain moderators on the customer participation – outcome link. Finally, the different situations, namely equally beneficial, critical situations and situations in which no one benefits more from the marketing strategy given the situations were identified and critically discussed. A particular emphasis was placed on critical situations and recommendations were provided on how these can be turned into equally beneficial situations for both the customer and the firm, therefore answering research question 3. Now that the research findings have been critically discussed in relation to the research questions, chapter 9, which is the final chapter of this thesis, looks at the research limitations. Furthermore, ideas for future research are provided. This is the focus of subchapter 9.1. The thesis is then concluded with an overall conclusion, which is looked at in chapter 9.2.

9.1 Research Limitations and Ideas for Future Research

There are several limitations this research has, which are addressed in this subchapter. The research limitations are outlined and ideas for future research to address the limitations are highlighted.

The first research limitation to be raised is the time data collection for this meta-analysis was finalized. The data collection for the purpose of this thesis and given some practical considerations ended in 2016. The contributing factor was that the money available for second coding needed to be spent in 2016. However, it needs to be highlighted that strong fail safe N's were found, which shows that many non-significant results for the individual customer participation – outcome links would have to be found to make the current effects not significant, which shows the robustness of current findings. Nonetheless, it is recommended to extend the literature search and cover the missing years up until now for the opportunity to test more moderators which have not had a sufficient number of effects for this study.

The second research limitation is that this PhD thesis only looks at the impact of customer participation on firm and customer outcome variables. As highlighted in chapter 5, antecedent variables in relation to customer participation were captured but not taken into consideration due to the nature of the research. The purpose of this thesis is to identify the impact of customer participation on outcome variables and to further find moderators which impact on the marketing strategy – outcome link. This was identified as very important due to the inconsistent findings in research. It was seen as the highest priority to get an overview of customer participation and its effect on outcome variables for both customer and firm. Outcome variables are key determinants for a firm's future success and the customer's future behavior. Future research however

should examine the customer participation – outcome link by taking antecedent variables into consideration and therefore having an antecedent – customer participation – outcome focus. This study will provide further insight into the effect the marketing strategy has on outcomes, as this research only tested certain moderators to explain the heterogeneity of results. Further and more in depth understanding can be revealed by studying antecedent variables and the role they play regarding the customer participation – outcome link.

The third research limitation is that it was only looked at a moderator model for this thesis. In future, it will be interesting to look at the customer participation – outcome relationship through a mediating model. Being more precise, it will be of interest for firms to see the impact customer participation has on their outcomes mediated by customer outcomes. Customer outcomes have been found as an important predictor regarding firm results, with customer loyalty and satisfaction being one of the key variables to mention. Therefore, it will be of interest to test whether, and if so to what extent, this holds in a customer participation context and if customer outcomes can mediate the impact of the marketing strategy on firm outcomes. This will be useful to know for marketers as by having more of an understanding of the importance of certain customer outcomes regarding their impact on firm variables, a more holistic picture can be formed when examining the construct of customer participation.

The next research limitation is the choice of moderators for examining the impact of customer participation on outcomes. For this thesis, only some key moderators were chosen, namely forced participation, services versus goods, technology settings, the different purchase stages and service recovery as a separate moderator. The moderators were carefully selected and it was focused on important variables to get a first overview of their impact on the marketing strategy – outcome link. However, even

though the moderators were carefully selected, the number is limited and further research should look at different moderators to get a further understanding of how differences can be explained. Key moderators to be looked at in future research could be for example country, the customer's activity level regarding customer participation, and a more refined version of industry. For the first meta-analysis on customer participation of this size, the focus was on getting a first understanding of some of the key moderators and their impact on the customer participation – outcome link, however, further research needs to look at country, a moderator, which was not addressed in this research. However, due to a large amount manuscripts conducting research into several countries, a clear picture of countries in isolation may be difficult to get from a meta-analysis point of view. Therefore, a broader context may have to be chosen.

Another key aspect, as mentioned in the previous paragraph, to examine in future research is that of the different activity levels of customer participation. Research has already identified that customers can participate to certain levels of intensity with some research splitting the key construct into low and high or low, medium and high. However, due to the fuzzy nature of the key construct as such and the fact that different terms are used for the same / very similar ideas, further research may be required to identify the different levels of customer participation activities as they can be highly subjective in nature. However, the idea that the impact of customer participation on outcomes can vary depending on the customer's activity level has already been recognized in academic research. Now it is important for future research to identify different activity levels, clearly label them and then study the effect of activity levels on the customer participation – outcome link. Therefore, primary research with the purpose of identifying and defining different activity levels as such may have to be carried out first before the activity level can be used as a moderating variable.

Another interesting moderator to be looked at in future is a more refined version of study settings. For this meta-analysis, it was coded for b2b/b2c contexts, even though this variable did not play a key part when developing the hypotheses as other moderators were selected as more important for the first meta-analysis of this size. Still, the results were calculated, which is why it is recommended for future research to refine the context and study different industries like finance, education and/or health sector.

Additionally, it may be interesting for future research to split up the forced customer participation moderator or study the forced context in more depth by carrying out more primary research. As identified, this meta-analysis only looks at whether customer participation contexts are forced or whether customers have a choice. However, it is not distinguished between situations where customers can switch to an alternative provider that offers that element of choice or not. Switching to another provider to avoid forced participation may not always be possible as some services require the customer to participate and customers would therefore face the same situation with every provider. This is the case with the financial industry for example (e.g. Auh et al. 2007). To get the best service possible the customer is forced into participation to some extent as no or limited participation may be self-detrimental. However, research has already shown that forcing customers into participation can have negative effects if other service providers offer that element of choice. Therefore, future research may want to focus more on the difference between the two types of forced participation and further explore their impact. Due to the limited amount of the second type of research up to date, more primary research is required to derive more explanatory results of the impact of forced participation.

Another limitation of the meta-analysis is that no explicitly negatively worded constructs were used as part of the outcomes due to them not meeting the requirements

as outlined in chapter 5. However, one variable which indicates a negative implication of customer participation is that of the employee's perceived job stress. The impact of customer participation on job stress is not significant, however, it is positive, indicating that employees perceive increased job stress in customer participation situations, which may be a potential risk. It has to be highlighted, that only 4 studies examined the impact of customer participation on job stress so far, which is why it is recommended for future research to further explore the potential risk of the marketing strategy to identify how this can be best managed / approached by firms and customers alike.

This leads to the next idea for future research. As identified, no explicitly negatively worded constructs were looked at apart from job stress, which may have negative implications for customers and firms. Therefore, it is recommended for future research to conduct further primary research by focusing more on negatively worded constructs / outcome variables. It has been identified in research that customer participation does not necessarily lead to a positive outcome for customer and firm. Even though the meta-analytic findings reveal an overall positive impact of customer participation on outcomes, further research may be required to examine the potential risks and downfalls by paying particular attention to negatively worded constructs.

The final research limitation to be mentioned is that of the use of the key construct customer participation. For the purpose of this thesis, the main variable was measured not only as customer participation but also as the customer's attitude towards participation / use of self-service technology as well as the customer's willingess to participate. These constructs are not directly measuring the activity level of the customer but rather look at the customer's willingness towards carrying out activity levels as well as attitudes towards participation. For future research, it would be important to look at whether the results differ by looking at customer participation,

attitudes towards participation and willingness towards participation in isolation / separately.

Now that the research limitations and ideas for future research have been outlined, the final subchapter, subchapter 9.2, concludes this thesis.

9.2 Conclusion

A research article by Heidenreich, Wittkowski, Handrich, and Falk (2015) sparked the idea for conducting a meta-analysis on the topic of customer participation. The authors highlighted that the marketing strategy is not always a good thing by outlining potential risks and challenges. When looking into the literature it was found that generally, there are two "streams" around customer participation, one stream finding positive effects on outcome variables, the other finding negative effects. Therefore, research shows that customer participation has advantages and can be beneficial for both the customer and the firm, however, it needs to be treated with caution as other research outlines the "dark" side of the marketing strategy by pointing out risks for firms and customers.

The contrasting results in research sparked the idea of conducting a meta-analysis on the topic for getting meta-analytic evidence on who benefits (most) from customer participation and who does not. The urgency for conducting a meta-analysis on customer participation was further pointed out in 2016 with the first meta-analysis published on customer participation. However, this research only focuses on the new product development context and therefore does only allow for generalizability of findings in the new product development area. For this meta-analysis, the key actors are the customer and the firm, and the focus is therefore on the general impact of customer participation on customer and firm outcomes. Furthermore, specific moderators were

tested to identify their impact on the customer participation – outcome link. The research is not limited to a specific "stream" but looks at customer participation in different contexts, therefore, extending the meta-analysis published in 2016.

This research tests the effect of customer participation on 6 overall customer outcomes, which are customer satisfaction, customer loyalty, service quality measures, price premium / willingness to pay a higher price, commitment and trust. 2 overall firm outcome groups looked at are job stress and performance variables, consisting of new product performance effectiveness, new product performance efficiency, general new product performance, and general performance.

The results are based on a total of 144 manuscripts consisting of 228 studies and a total number of 80.043 observations. 626 effect sizes on the customer participation – outcome relationships were included in the research. The key findings are that customer participation generally positively impacts on customer and firm outcomes and that no negative effects were found. The tested moderating variables, namely forced participation, participation in goods vs services, the use of technology, service recovery and the different purchase stages, only strengthen or weaken the positive impact of customer participation on outcomes. However, attention needs to be paid to the employees' perceived job stress as customer participation leads to an increase in job stress. Furthermore, firms need to explore ways on how to make customers perceive the justice/fairness when participating higher. Interestingly, it seems to be beneficial to force customers into participation due to customers scoring higher on outcomes as opposed to non-forced situations.

Overall, the research provides meta-analytic evidence that both customers and firm benefit from participation, but certain situations make one party benefit more than

the other. Recommendations have been provided how to make situations equally beneficial for both parties involved. The research provides important insight into the construct customer participation and enhances the understanding of the impact the marketing strategy exerts on customer and firm outcomes. There are several research limitations, however, overall, this research is an important step forward for both theory and practice regarding the nature of customer participation.

Table 22 Research question 3 outcomes

Outcome	Moderator	Outcome Variable Result	Interpretation*
Customer / Firm	Service Recovery (Yes / No)	Customer: Significantly higher score on at least one outcome variable Firm: MC**	Customer benefits more
	Technology (Yes / No)	Customer: Not significantly different Firm: Significantly higher score	Critical Situation (Firm benefits more but customer does not)
	Goods vs Services	Customer: Not significantly different Firm: Significantly higher score	Critical situation (Firm benefits more but customer does not)
	Purchase Stages (Pre-Purchase, Service Encounter, Post-Purchase)	Customer: Pre-purchase significantly higher score / service encounter not significantly different / post-purchase significantly lower score Firm: Service encounter significantly higher score / Other stages not significantly different	Pre-Purchase: Critical situation (customer benefits more but firm does not) Service Encounter: Critical situation (Firm benefits more but customer does not) Post-Purchase: Neither party

			benefits more (the firm is not significantly affected and the customer benefits less)
	Forced Participation (Yes / No)	Customer: Significantly higher scores for at least one outcome variable Firm: MC**	Customer benefits more

*A win situation occurs when both partner are scoring significantly higher on outcome variable(s). If one party benefits but the other does not by either remaining unchanged or being worse off, a critical situation occurs. A lose situation happens when no party benefits but one partner is worse off from customer participation.
**Multicollinearity. Interpretation of findings not possible. Therefore, the interpretation only holds for customer outcomes.

Table 23 Customer participation - outcome scenarios: An overview

Critical Situation 1 (Customer Benefits More, Firm Does Not) • Pre – Purchase Stage	More Beneficial Situations for Both* • Forced Participation • Service Recovery
Neither Party Benefits More • Post – Purchase Stage	Critical Situation 2 (Firm Benefits More, Customer Does Not) • Service Encounter • Goods • Technology

*Customer benefits more only due to test not being possible for firms because of multicollinearity.

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Appendix

Appendix A: List of Terms used in Search for Research and Aliases

1. Co-Creation
2. Co-Production
3. Customer Participation
4. Intention to use (self-service technologies)
5. Trial of self-service technology
6. (Self) Customization
7. Use of self-service technology
8. Intention to adopt self-service technology
9. Customer Cooperation
10. Customer Effort
11. Co-Development
12. Shared Responsibility
13. DIY Behavior
14. Self-Customization
15. Re-use Intention
16. User/Customer Involvement
17. Co-Design
18. Co-Innovation
19. Self-Service

Aliases used for Customer Participation

- Co-Creation
- Co-Production
- Attitude towards (Customer Participation; Co-Production; Co-Creation)
- Willingness to (Co-Create; Participate; Co-Produce)
- Co-Innovation
- (Self)-Customization

- DIY Behavior
- Customer Involvement
- Customer Effort
- Customer Cooperation

Appendix B: List of Variables Coded for Study Paper File

1. Paper Number (Identification Purposes)
2. Study Number (Identification Purposes)
3. Authors
4. Publication Year
5. Manuscript Title
6. Publication Type
7. Publication Title
8. Publication Ranking
9. Page Start – End
10. Country (Over 50 different countries / combinations)
11. Sample Size
12. Gender Percent Female
13. Age Average
14. Study Type
    - Experiment
    - Survey
15. Data Collection
    - Online
    - Post
    - Students in Class
    - Lab / No Student
16. Setting (Over 50 different settings)
17. B2B / B2C / C2C

Appendix C: List of Variables Coded for Effect Size File

1. Paper Number (Identification Purposes)
2. Study Number (Identification Purposes)
3. Customer Participation Variable Name
4. Customer Participation Operationalization
5. Customer Participation Items
6. Customer Participation Scale
7. Customer Participation Reliability Coefficient
8. Customer Participation Reliability Type
9. Variable "2" Name
10. Variable "2" Items
11. Variable "2" Scale
12. Variable "2" Reliability Coefficient
13. Variable "2" Reliability Type
14. Experimental Conditions (If Experiment)
15. Experiment Mean Values
16. Experiment Standard Deviations
17. Experiment Participant Per "Group"
18. Correlation Coefficients
19. "Other" Coefficient
20. Type of Coefficient
21. Statistics Source Page

Appendix D: Single Moderator Analysis Results

Moderators	Outcome variable: Satisfaction, general	Satisfaction, transaction specific	Loyalty	Price premium	Service quality justice/fairness	Service quality perceived value/benefit	Service quality specific
Forced: non-forced vs. forced	.321 vs. .501 (17 vs. 5)	.363 vs. .172* (81 vs. 77)	.413 vs. .222* (74 vs. 18)	.165 vs. .240 (27 vs. 24)	.010 vs. .427 (47 vs. 9)	.380 vs. .514* (35 vs. 15)	.491 vs. .246 (12 vs. 37)
Service: other/mixed vs. service	--	.300 vs. .312 (73 vs. 85)	.208 vs. .453** (39 vs. 53)	.151 vs. .538 (45 vs. 6)	.260 vs. .101 (7 vs. 49)	.367 vs. .438 (12 vs. 38)	.316 vs. .505 (8 vs. 41)
Good: other/mixed vs. good	--	.282 vs. .339 (122 vs. 36)	.450 vs. .178** (55 vs. 37)	.538 vs. .151 (6 vs. 45)	.101 vs. .260 (49 vs. 7)	.450 vs. .327^{+} (40 vs. 10)	.476 vs. .281 (43 vs. 6)
Technology: no technology vs. technology	.400 vs. .183 (18 vs. 4)	.162 vs. .362* (66 vs. 92)	.311 vs. .410 (25 vs. 67)	.425 vs. .141 (13 vs. 38)	.090 vs. .502 (50 vs. 6)	.437 vs. .394 (22 vs. 28)	.396 vs. .443 (5 vs. 44)
New product development: other vs. new product/service development	--	--	.376 vs. .384 (80 vs. 12)	.228 vs. .122 (40 vs. 11)	--	.428 vs. .373 (40 vs. 10)	.441 vs. .387 (45 vs. 4)
Human interaction: no interaction vs. interaction	.290 vs. .377 (5 vs. 17)	.315 vs. .278 (128 vs. 30)	.402 vs. .326 (67 vs. 25)	.174 vs. .859 (47 vs. 4)	.502 vs. .090 (6 vs. 50)	.407 vs. .425 (31 vs. 19)	.443 vs. .396 (44 vs. 5)
Service recovery: no recovery/other vs. service recovery	--	.351 vs. .068* (131 vs. 27)	.404 vs. -.033* (80 vs. 12)	--	.209 vs. .077 (23 vs. 33)	--	--
B2C: other vs. B2C	.260 vs. .380 (4 vs. 18)	.373 vs. .271 (32 vs. 126)	.276 vs. .397 (17 vs. 75)	--	.260 vs. .101 (7 vs. 49)	.349 vs. .445 (14 vs. 36)	.316 vs. .505 (8 vs. 41)
B2B: other vs. B2B	--	.285 vs. .355 (128 vs. 30)	.407 vs. .194* (76 vs. 16)	--	.101 vs. .260 (49 vs. 7)	.431 vs. .373 (39 vs. 11)	.467 vs. .230 (45 vs. 4)
B2C and B2B: other vs. B2C *and* B2B	--	--	--	--	--	--	.445 vs. .375 (45 vs. 4)
Year	.010 / .008 (22)	-.003 / .005 (158)	.009 / .008 (92)	.008 / .065 (51)	-.034 / .025 (56)	.008 / .003* (50)	-.010 / .010 (49)
Study type: survey vs. experimental	--	.487 vs. .090*** (33 vs. 125)	.480 vs. .151 (42 vs. 50)	--	.307 vs. .051 (5 vs. 51)	.431 vs. .308 (42 vs. 8)	.484 vs. .162 (37 vs. 12)
% Gender (female)	-.001 / .004 (11)	.006 / .003* (82)	.005 / .002^{+} (64)	.004 / .007 (37)	-.011 / .011 (31)	.002 / .002 (34)	.005 / .005 (44)
Age (average)	--	.004 / .008 (59)	.001 / .010 (21)	.018 / .025 (30)	--	.012 / .005* (15)	-.002 / .010 (40)

Moderators	Outcome variable					
	Relationship quality commitment	Relationship quality trust	Firm NP performance effectiveness	Firm NP performance efficiency	Firm general performance	Firm NP performance
Forced: non-forced vs. forced	.359 vs. .450 (22 vs. 5)	--	--	--	--	--
Service: other/mixed vs. service	.197 vs. .507* (17 vs. 10)	.316 vs. .334 (4 vs. 9)	.106 vs. .205 (20 vs. 4)	.365 vs. .194 (13 vs. 4)	.277 vs. .203 (11 vs. 11)	.353 vs. .365 (18 vs. 21)
Good: other/mixed vs. good	.507 vs. .197* (10 vs. 17)	.334 vs. .316 (9 vs. 4)	.141 vs .122 (8 vs. 16)	.111 vs. .465* (8 vs. 9)	.193 vs. .312 (13 vs. 9)	.358 vs. .360 (26 vs. 13)
Technology: no technology vs. technology	.413 vs. .018 (21 vs. 6)	.335 vs. .324 (4 vs. 9)	--	--	--	.341 vs. .422 (33 vs. 6)
New product development: other vs. new product/service development	--	.334 vs. .316 (9 vs. 4)	--	--	--	.435 vs. .333 (6 vs. 33)
Human interaction: no interaction vs. interaction	.157 vs. .533** (17 vs. 10)	.324 vs. .335 (9 vs. 4)	--	--	--	.422 vs. .346 (4 vs. 35)
Service recovery: no recovery/other vs. service recovery	--	--	--	--	--	--
B2C: other vs. B2C	.532 vs. .307 (10 vs. 17)	--	.126 vs. .141 (16 vs. 8)	--	.248 vs. .220 (9 vs. 13)	.359 vs. .357 (30 vs. 9)
B2B: other vs. B2B	.362 vs. .466 (19 vs. 8)	--	.211 vs. .027 (12 vs. 12)	--	.238 vs. .212 (18 vs. 4)	.337 vs. .435 (31 vs. 8)
B2C and B2B: other vs. B2C *and* B2B	--	--	.076 vs. .305 (20 vs. 4)	.219 vs. .398 (7 vs. 10)	.218 vs. .273 (17 vs. 5)	.392 vs. .326 (17 vs. 22)
Year	.006 / .012 (27)	.056 / .021* (13)	.004 / .015 (24)	.034 / .021 (17)	.006 / .013 (22)	.015 / .004** (39)
Study type: survey vs. experimental	--	--	--	--	--	--
Age (average)	--	--	--	--	--	--

Note. For binary moderator variables, the first line provides the means for both subgroups and the second line the number of correlations per subgroup (in brackets). For continuous moderator variables (year, % gender, and age), the first line provides the unstandardized regression coefficient and the standard error (separated by a dash), and the second line the sample size (in brackets).

"--" indicates that the number of effect sizes was too small: either the total number of effect sizes or the number of effects sizes in a subgroup of a binary moderator was =< 3 or the continuous moderator did not show sufficient variation to obtain robust test results; therefore the analysis was not performed.

$^{+}p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.