The Role of customer co-production in value creation

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Abstract

Purpose – Drawing from S-D logic this paper builds on the proposition of customers as co-producers, identifying levels of participation, and linking customer co-production to value creation.

Methodology/approach – A theoretical framework is proposed linking level of participation, customer co-production, and value co-creation. This exploratory research is based on twenty in-depth interviews of customers. Analysis of the depth interview data was guided by the systematic approach to qualitative research in the work of (Corbin and Strauss 2008). It was assisted by using the computer assisted qualitative data analysis software ATLAS.ti.

Findings – The findings suggest that face-to-face contact and using self-service technologies are regarded as opposite poles in terms of levels of co-production. Two groups could be identified: One group typically considered using self-service technologies as requiring the highest amount of own input or contribution whereas the other group shared a contrary view. Six factors could be identified that may influence participation in co-production and the amount of value-in-use that can be created: distinctive preferences, age, situational factors, customer role clarity and ability to co-produce, customer willingness to co-produce, and perceived "importance" of service.

Research implications –
The present research provides a starting point for further research on modelling the relationship between level of participation, customer co-production, and value co-creation.

Practical implications –
The research project offers insights into why customers take specific levels of participation.

Originality/value –
The study relates levels of participation to co-production, and demonstrates a direct relationship between participation, co-production and value creation. Moreover, the research develops theory, building on S-D logic.

Key words: S-D logic, co-production, self-service technologies, customer participation, value co-creation

Paper type – Research paper

Introduction

Recently, the traditional producer-consumer model has begun to be replaced by the notion of co-creation of value. Central to emerging concepts, such as service-dominant (S-D) logic is that customers now are seen as actively involved in creating value, instead of being only passive recipients of service and the associated value (Beckett and Nayak 2008; Payne et al. 2008; Vargo and Lusch 2004; Xie et al. 2008). The customer is regarded as a resource together with whom the firm can create a valued solution that fulfils the customer's needs and solves his or her problems (Grönroos 2007, pp. 28-29).

Customer co-production is seen as a component of co-creation of value. It is distinct from co-creation of value even though it is nested within this concept. It can encompass assisting the firm through sharing of information, undertaking specific activities by oneself (e.g., co-designing of an object) or using self-service technologies. It can occur with customers and any other partners in the value network. Although it may imply a more effortful participation of customers in firm processes it is regarded as subordinate to co-creation of value (Lusch and Vargo 2006; McColl-Kennedy et al. 2009; Vargo 2008; Vargo and Lusch 2008). Whereas co-creation of value is not an option but occurs by the very act of customers using a firm's offering and integrating it with other resources to co-create value with the firm, co-production is (relatively) optional (Lusch and Vargo 2009; Vargo and Lusch 2008).

First, we introduce conceptualizations of co-production with reference to value creation and service-dominant logic. Then, we describe factors of customer co-production implicating different levels of participation. Third, the outcome of a qualitative study is presented that was undertaken in order to shed light on participation in co-production from the point of view of the customer. We finish with a discussion presenting conclusions and recommendations.

1   Conceptualization of customer co-production

Co-production is often defined with reference to customer participation. As a consequence, both conceptualizations are presented below and related to each other.

In the context of service-dominant logic, co-production is defined as "participation in the creation of the core offering itself" (Lusch and Vargo 2006, p. 284).

Etgar (2008) describes co-production as follows (p. 98):
> The various activities involve intellectual work of initiating and designing, resource aggregating and processing activities which lead to creation of outputs that serve as platforms for delivery of values used/consumed later on, up till ensuring delivery and executing use (consumption). Co-production implies that consumers participate in the performance of the various activities performed in one or more of these stages.
> Co-production encompasses all cooperation formats between consumers and production partners.

Wikström (1996) defines co-production as "buyer-seller social interaction and adaptability with a view to attaining further value." (p. 10)

Customer participation is defined by Dabholkar (1990) as "the degree to which the customer is involved in producing and delivering the service" (p. 484).

Silpakit and Fisk (1985) define customer participation as "the degree of consumers' effort and involvement, both mental and physical, necessary to participate in production and delivery of services." (p. 117)

Similarly, Risch Rodie and Schultz Kleine (2000) define customer participation as "a *behavioral* concept that refers to the actions and resources supplied by customers for service production and/or delivery." (p. 111) The term *behavioral* concept stresses the active role the customer plays (Silpakit and Fisk 1985, p. 117).

Kellogg et al. (1997) regard customer participation as a quality assurance behaviour, intended to ensure service satisfaction. They distinguish between four forms of customer participation (p. 210):

1. **Preparation**

   Preparing for the service by such actions as seeking referrals, researching competitors and arriving early.

2. **Relationship building**

   Building a relationship with the service provider through such actions as smiling, offering words of kindness, getting to know providers, "trying to build loyalty", and asking for servers by name.

3. **Information exchange**

   Providing and seeking information to clarify service expectations and seek status.

4. **Intervention**

   Providing negative performance feedback and involving oneself in problem diagnosis and resolution.

According to Ennew and Binks (1999) participation can be thought of having three dimensions; information sharing, responsible behaviour, and personal interaction. First, an information sharing between both, customer and firm should take place in order to ensure that needs are met. Second, a responsible behaviour should occur. Both parties have to obey certain duties and responsibilities. The customer may be placed in the role of a "partial employee" and may have to confirm to the role expected of him or her. Third, the personal interaction is of importance. Factors such as trust, reliability, support, cooperation, flexibility, and commitment should be present or emerge during the relationship.

It can be summarized that customers assume an active role. They supply operand and operant resources, specifically mental, physical, and/or emotional inputs.

> Hence, we define customer co-production as "participation of customers in the creation of the core offering itself by contributing operand and operant resources in order to create value".

2 Factors of customer co-production

Participation in co-production to create value can occur in varying degrees. It ranges from none at all where all of the production work is done by the firm and its employees and merely the customer's presence is required, to extensive co-production activities by the customer

where customers actively co-produce a service (Lusch and Vargo 2009; Vargo and Lusch 2008).

The maximum possible form of customer co-production is "self-service"; customers perform activities entirely by themselves using own assets, or tools, facilities, and systems provided by a firm (Lovelock and Wirtz 2007, p. 246). Customers have to contribute the maximum possible combination of operant and operand resources. Self-service is often carried out using self-service technologies (SSTs) that can be defined as "technological interfaces that enable customers to produce a service independent of direct service employee involvement." (Meuter et al. 2000, p. 50) Automated teller machines (ATMs), automated hotel checkout, banking by telephone, and services over the Internet are examples (Meuter et al. 2000).

Levels of customer co-production are influenced by customers' ability, role clarity, and willingness to participate. This means that these factors influence how much customers actually participate and the amount of value-in-use that can be created (Risch Rodie and Schultz Kleine 2000, p. 117, 120).

2.1   Customer ability to co-produce

Customer ability refers to customers' possession of the required operand and operant resources to participate. A customer's ability to co-produce is determined by his or her pertinent resources such as appliances, knowledge, skills, experience, energy, effort, money, or time (Risch Rodie and Schultz Kleine 2000, p. 117). Withdrawing cash from an automated teller machine is an example. The customer needs some skills to operate the automated teller machine, following a predetermined set of standard procedures. Furthermore, a plastic card is required (Grönroos 2008). Additionally, a belief of self-efficacy is necessary. When a person believes that he or she is incapable of performing a particular task, he or she will not engage in the behaviour, even if he or she acknowledges that it is a better alternative (Meuter et al. 2005). Changes in a customer's resource mix may change his or her ability to co-produce (Risch Rodie and Schultz Kleine 2000, p. 118).

2.2   Customer role clarity

Customer role clarity, also referred to as ("motivational direction") (Kelley et al. 1992) is defined as "understanding how to perform a role" (Bowen 1986; Risch Rodie and Schultz Kleine 2000, p. 117). Role clarity determines knowledge and hence influences ability to co-produce (Larsson and Bowen 1989). Customer's own experiences with a particular setting or a similar one may lead to role clarity. A customer entirely new to a particular service context may gain role clarity by relying on experience with related contexts and/or by using other customers' behaviour for guidance (Risch Rodie and Schultz Kleine 2000, pp. 117-118).

2.3   Customer willingness to co-produce

Co-production requires customer willingness to co-produce (Risch Rodie and Schultz Kleine 2000, p. 118). Willingness to perform has been shown to be dependent on motivational levels (Larsson and Bowen 1989). Prahalad (2004) stresses that customers generally want to engage with firms. This phenomenon is particularly fostered by (1) ubiquitous connectivity that enables customers to be well informed and networked, (2) convergence of technologies, and (3) globalization of information (Prahalad 2004). Notwithstanding, it should not be neglected that customers are typically not directly paid by the firm for the input they contribute (Cova and Dalli 2009). The input however may cause costs associated with the use of operand and operant resources. Those costs can be evaluated either objectively through market prices (e.g.,

telephone charges), or subjectively by the customer himself/herself (e.g., time and effort) (Etgar 2008).

Hence, willingness to co-produce is influenced by benefits a customer may expect to receive. Customers weigh the benefits they expect to accrue from co-production against the relevant costs of participation (Etgar 2008). The perceived benefit/cost ratio affects the appeal of options. Benefits of co-production for customers may include (a) efficiency in the process, (b) efficacy of the outcome, and (c) hedonic/emotional benefits. These motivating benefits are not mutually exclusive; different customers may carry out the same actions while seeking different benefits (Risch Rodie and Schultz Kleine 2000, p. 118).

Efficiency in the process

Customers may participate in co-production to maximize efficiency, or minimize total monetary and nonmonetary costs (Bateson 1985b; Dabholkar 1996; Risch Rodie and Schultz Kleine 2000, p. 118; Silpakit and Fisk 1985). As Risch Rodie and Schultz Kleine (2000) state this may be most applicable to routine and low-risk contexts such as using a self-service food and drink dispenser. Customers commonly strive to make the most efficient use of their time, money, effort, and other resources (Risch Rodie and Schultz Kleine 2000, pp. 118-119). Swan and Oliver (1991) found that customers measure their inputs such as time, and energy. The level of perceived input may affect overall satisfaction (Swan and Oliver 1991).

Customers may particularly be willing to adopt self-service technologies such as touch-tone phone systems, interactive kiosks, and the Internet as a means for enhancing efficiency (Risch Rodie and Schultz Kleine 2000, pp. 118-119). Research indicates that certain customers prefer not to interact with employees in order to reduce time compared to a full service encounter (Lovelock and Young 1979).

Efficacy of the outcome

Customer co-production may be motivated by the objective to reduce the likelihood of substandard outcomes (Risch Rodie and Schultz Kleine 2000, p. 119). Kellogg et al. (1997) mention: "There seems to be a propensity on the part of customers to work at getting the level of quality they desire." (p. 212)

Certain service types may implicate particular levels of perceived risks such as financial, performance, physical, psychological, social, or convenience loss (Etgar 2008; Risch Rodie and Schultz Kleine 2000, p. 119). Physical risk refers to the possibility of bodily harm to the customer such as getting injured due to medical malpractice (Etgar 2008). Financial risks are defined as "the danger of a net financial loss to a customer" (Etgar 2008, p. 101). For example, this may occur due to ill investment advice. Performance risk refers to potential losses of expected benefits due to malfunctions or performance failures. Psychological and social risks refer to instances where the customer's self-esteem or how he or she is perceived by others may be harmed (Etgar 2008). Customers as co-producers co-assure the quality of service during service encounters (Kellogg et al. 1997). Their inputs may allow to customize the service to customer specifications (Risch Rodie and Schultz Kleine 2000, p. 119). Customers may tailor the service to match their ability, needs, and desires. Willingness to co-produce to achieve customization may particularly occur when there are large and noticeable differences of attributes concerning the offering, whether physical or perceived. Notwithstanding, it should not be neglected that the firm's view of choice still limits

customization as it is designing and providing the available options (Prahalad and Ramaswamy 2004, p. 43). Moreover, as Wikström (1996) stresses customization may also cause uncertainty as the outcome can hardly be inspected in advance. Customers may also inform themselves, seek to clarify their requirements and expectations by asking the firm additional questions and providing more in-depth information (Kellogg et al. 1997).

Levels of co-production may be higher if customers perceive potential or imminent service failure without increased participation (Kellogg et al. 1997).

Psychological benefits

Customer co-production can lead to psychological benefits. Etgar (2008) distinguishes between intrinsic and extrinsic benefits. Intrinsic benefits imply that an experience is appreciated for its own sake, while extrinsic benefits serve as means to an end. Potential intrinsic benefits can be a desire for play and fun, a search for aesthetics, and a drive for ethics or spirituality. Hedonic experiences may be among the benefits of for example, visiting a spectator sports event, or a theme amusement park (Risch Rodie and Schultz Kleine 2000, p. 119). Novelty or anticipated enjoyment may also motivate customers to participate (Dabholkar 1996; Risch Rodie and Schultz Kleine 2000, p. 119). In a critical-incident investigation of customer experiences with self-service technologies, Meuter et al. (2000) found that for many customers, satisfaction results from the mere fascination with the capabilities of various self-service technologies.

Extrinsic benefits such as a search for excellence, autonomy, self-expression and uniqueness, for exercising and using personal inherent capabilities, and realizing hidden fantasies may also motivate customer co-production. A river rafter may derive satisfaction and a sense of having an "extraordinary hedonic experience". Additionally, experiential benefits such as pleasure, accomplishment, prestige, harmony with nature, personal growth, self-renewal, and a sense of camaraderie and community among participants may motivate his or her participation (Risch Rodie and Schultz Kleine 2000, p. 119).

Furthermore, a higher degree of co-production may be motivated by the desire for increased perceived control (Risch Rodie and Schultz Kleine 2000, p. 119). Perceived control has been described as the amount of control that a customer feels he or she has over the process or outcome of a service encounter (Bateson and Hui 1987; Dabholkar 1996). Certain people tend to feel more in control when they perform the service for themselves (Dabholkar 2000, p. 104). Scholars state that the need for control over one's environment is a key driving force in human beings; humans occasionally strive to demonstrate their competence, superiority, and mastery over the environment (Bateson 2000, pp. 127-128). Research indicates that customer participation may lead to an increased feeling of independence, self-efficacy, and self-control (Langer et al. 1975; Risch Rodie and Schultz Kleine 2000, p. 120). These psychological benefits may be ends in themselves (Bateson 1985a, p. 77; Risch Rodie and Schultz Kleine 2000, p. 120). Moreover, as customers usually dislike high levels of anxiety that uncertainties may bring to their psyche, exercising direct control may serve as a risk reducing mechanism (Etgar 2008). Anything that interferes with that sense of control may reduce customer satisfaction (Bateson and Hui 1987, p. 190).

Bateson (1985b) and Dabholkar (1996) found that perceived control of the situation such as using an automatic teller machine, carrying one's own bags on to an aircraft, and pumping one's own gas is inherently attractive to certain customers. In particular, technologically

proficient customers perceive a higher sense of control and greater quality by using technology-based self-service options (Dabholkar 1996).

However, in service encounters customers usually have to give up some personal control and have to accept certain procedures required of them (particularly contributing certain inputs) for a beneficial outcome (Bateson 2000, p. 130).

2.4 Literature Review

Some scholars have empirically researched customer participation. For instance, Langeard et al. (1981) segmented customers according to their willingness to participate. According to their findings, highly participating customers consider amount of time, control, and efficiency of doing it oneself as most important. By contrast, those customers rejecting self-service options tend to be concerned with the risk of failure, and with the amount of effort required of them.

Bateson (1985) investigated customer's decision-making process concerning different ways of receiving the same service. In particular, choice between a self-service option and personal face-to-face contact was examined when monetary or time-saving incentives are controlled. Ultimately, Bateson (1985) identified a series of dimensions relevant for customers, transcending specific types of service:

- amount of time required
- desire to feel in control
- amount of effort required
- degree of dependence on other people
- efficiency
- amount of human contact involved
- degree of risk involved (particularly financial risk, psycho-social, and performance risk)

Bateson (1985) concludes that saving time and being in control is particularly important to those customers preferring self-service options. The study suggests that customers choose self-service options primarily to feel in control.

According to Meuter et al. (2000), in case of choice between face-to-face contact and technology based self-service, customers will not perform technology-based self-service, unless they perceive an advantage for doing so. In particular, ease of use, avoid of service personnel, saving time, being relieved of constraints concerning time and place, and saving money are mentioned by the authors as possible benefits of technology-based self-service.

Notwithstanding, little empirical research has addressed the customer's role in co-production, yet. A more general understanding of what customers as co-producers and co-creators of value would prefer by themselves is needed.

2.5 Qualitative Study

Following scholars such as Woodruff and Flint (2006) that recommend qualitative research in order to gain insight into customer value phenomena, an own research project was undertaken to shed light on levels of customer co-production. Moreover, even though previous literature

has uncovered a number of factors influencing participation in co-production, depth interviews were conducted to see if there might be further aspects. As a consequence, the following research questions motivate the study:

- How do customers perceive levels of co-production?
- Which factors influence participation in co-production?

2.5.1 Method

As Corbin and Strauss (2008) stress the primary purpose of qualitative research is discovery and not hypothesis testing. At the beginning of a research project a scholar typically does not know which variables are important or what their properties are, or how these vary dimensionally (Corbin and Strauss 2008, p. 317). Hence, researchers have recommended the use of qualitative methods when attempting to uncover what lies behind any phenomena about which little is known yet. In addition, qualitative approaches can be used to obtain the intricate details of phenomena that are difficult to convey with quantitative methods (Strauss and Corbin 1990, p. 19). In particular, a structured depth interview methodology was used.

The depth interview methodology was chosen to explore factors influencing participation in co-production for two reasons. Firstly, this open-ended, discovery-oriented methodology can provide a deeper understanding from the customer's perspective (Hudson and Ozanne 1988). By interviewing in depth the respondents' motivations, feelings, attitudes and prejudices which determine their actions can be uncovered and deeply explored (Berent 1966). In this sense, depth interviews yield information. The informant is provided the opportunity to examine, to reason out, and to analyze his or her motives for actions which previously he or she had always done more or less automatically (Berent 1966). Secondly, depth interviews have proven valuable in expanding current understanding of other areas of customer behaviour, including relational benefits customers receive in what has traditionally been described as services industries (Gwinner et al. 1998), authenticity in consumption (Beverland and Farrelly 2010), and symbolic consumer behaviour (Schouten 1991). This method has also been increasingly used in the theory development process in other areas of marketing (e.g., Trocchia and Berkowitz 1999; Wright 1996).

2.5.2 Sample and Interview Format

The variation and variety in the phenomenon under study was intended to be captured in the empirical material as far as possible. As such, purposeful sampling (also referred to as "theoretical" sampling) was applied (Lincoln and Guba 1985, p. 102; Patton 1990). In fact, a maximum variation sampling strategy was used which implies searching deliberately for outlier cases to see whether main patterns sill hold in order and which increases the richness of the information obtained (Miles and Huberman 1994, p. 28; Patton 1990, p. 172). Information-rich cases were selected to study in depth; a wide range of variations on dimensions of interest such as age, gender, education, occupation and residence patterns were purposefully picked (Patton 1990, p. 172). It was deliberately created variety and contrast in the respondent pool (MacCracken 1992, p. 37). The major aim was to identify common patterns within that variation. Authors such as Rubin and Rubin (1995, pp. 43-47), Corbin and Strauss (2008, pp. 143-157) and Lincoln and Guba (1985, pp. 102-103) however suggest that sampling in qualitative research should be iterative and flexible. As such it was allowed to adapt to the conditions in the field and to new insights resulting from data collection. Changes

in the original sampling plan were made according to emergent themes. Furthermore, the structure of the interview guide changed based on the results of previous interviews. As the interviews progressed, greater attention was drawn on emergent themes.

The interviews were conducted between August 2009 and February 2010. Informants were recruited by networking through friends and casual acquaintances. When potential informants were identified, the referring persons were asked to act as intermediaries in making contact. The final selection of 20 customer respondents consisted of 10 men and 10 women with a wide range of ages (21 to 72) and from a variety of occupations (e.g., nurse, IT systems administrator, pensioner, salesperson) and social backgrounds.

Scholars suggest sampling to be continued until a point of saturation or redundancy is reached in respondents' discussions, where further interviews yield little new knowledge (Kvale 2007, pp. 43-44; Lincoln and Guba 1985, p. 202; Strauss and Corbin 1990, p. 188). Although redundancy in what respondents had to say seemed to have occurred after about 16 interviews, 4 more interviews were conducted to ensure that no new information would be missed.

Interviews were conducted by the author and one assistant after receiving some specific training in order to account for interviewer-related factors such as interviewer bias (Corbin and Strauss 2008, p. 303; Pareek and Rao 1980, pp. 154-157; Vijver 2003, p. 149). Interview respondents were interviewed face-to-face wherever they felt most comfortable. Indeed, the interviews were primarily conducted in the participants' homes and ranged from 17 to 100 minutes (30 minutes in average).

Confidentiality and anonymity were granted to all participants in order to aid open and honest discussion on the part of the informants. They were assured that there are no right or wrong answers and that they should answer questions as honestly as possible. These procedures were intended to reduce informants' evaluation apprehension and make them less likely to edit their responses to be more socially desirable, lenient, acquiescent, and consistent with how they think the interviewer wants them to respond (Podsakoff et al. 2003).

Despite the semi-structured format, the interviewer decided sequence and wording of the open-ended questions in the course of the interview. The interviews remained fairly conversational and situational. The interviewer was free to explore, probe, and ask questions to elucidate and illuminate a particular subject.

In order to illuminate the questions under study, non-directive "grand-tour" questions were asked (MacCracken 1992, pp. 34-35). "Floating prompts" such as repeating the key elements of the respondent's last remark in an interrogative manner were used to prompt the respondent to say more about a particular aspect (MacCracken 1992, p. 35). At the end of some question categories, "planned prompts" in particular "contrast prompts" were asked in order to give the respondents the opportunity to consider and discuss phenomena that did not come readily to his or her mind or speech (MacCracken 1992, pp. 35-36).

Discussions flowed like a conversation. In fact, interviews were kept as loosely structured as possible, allowing informants the freedom to broach topics in their own ways and at their own paces. Although there were some pre-planned questions to ask during the interview, questions were also allowed to flow naturally, based on information provided by the respondent. In fact, the flow of the conversation dictated the questions asked and those omitted, as well as the

order of the questions. Informants spoke for virtually the entire period, with the researchers only engaging in floating prompts, asking for clarification on certain terms.

All interviews were tape-recorded to allow for a smoother flowing interview and the capturing of respondents' verbatim comments. To facilitate further analysis, the interviews were subsequently transcribed.

2.5.3 Data Analysis

Analysis of the depth interview data was guided in general by the systematic approach to qualitative research in the work of Corbin and Strauss (2008) and Glaser and Strauss (1967), using some of the procedures associated with grounded theory. One of the authors served as the primary data analyst in this stage of the project. Data analysis was assisted by using the computer assisted qualitative data analysis software ATLAS.ti.

It was read through all the data before rereading records for each case three times (Spiggle 1994). Coding of each interview followed a procedure that was reflective of the coding schemes suggested by Corbin and Strauss (2008) and Ely et al. (1994). It was moved through the data horizontally (i.e. grouping indicators of categories and constructs, fragmenting cases) (Spiggle 1994).

Categorization of "significant" ideas and findings proceeded deductively and inductively. Some passages were assigned to a priori constructs, themes, or ideas. In addition, emergent categories from the data were also identified (Ely et al. 1994, pp. 145-147; Spiggle 1994). Incidents in the data were compared with other incidents appearing to belong to the same category, as well as with the emerging category (Corbin and Strauss 2008, p. 195; Spiggle 1994). A process of abstracting followed, by grouping previously identified categories that shared certain common features into more general, conceptual classes (Spiggle 1994). Themes developed depending on whether those conceptual classes appeared many times, and/or appeared infrequently but carried important emotional or factual impact (Ely et al. 1994, p. 150).

Coding was done in the original language in order to capture all nuances of words (Corbin and Strauss 2008, p. 320). Merely concepts that emerged from the data seeming equivalent to ones recalled from the literature (Corbin and Strauss 2008, p. 37) were named in English. Notes about insights and ideas were written down. Diagrams were created to explore relationships (Spiggle 1994).

2.5.4 Findings

Several aspects were suggested from analysis of the depth interviews and will be discussed briefly in the following paragraphs. The findings are compared with results from a number of previous studies on customer participation, self-service, and the use of self-service technologies. Scholars such as Corbin and Strauss (2008) allow the use of technical literature to confirm and challenge findings, reveal shortcomings, and identify research gaps in the literature (Corbin and Strauss 2008, p. 37).

Key passages from the interviews and their codes were translated into English using back translation, approximating the original as close as possible (Brislin 1980, p. 431; Corbin and Strauss 2008, p. 320; Harkness 2003, p. 41).

2.5.4.1 Levels of Customer Co-Production

Throughout the interviews it was found that customer perceptions and preferences do not vary considerably between several technology-based forms such as Internet, self-service kiosk, automated machines, and automated phone systems. Those forms, summarized by literature under the umbrella-term "self-service technologies" (Meuter et al. 2000), apparently are considered by the respondents to a certain extent as similar, as one respondent described:

> I would say that the difference between it [self-service kiosks, automated machines] and the Internet is not very huge. It is merely a copy of what you are doing on your pc at home. It just stands somewhere at a non-private place outside. I don't see a huge difference (. …) It is somehow almost the same. (Male, 18-24 years old)

Another interviewee mentioned: "The Internet is quasi a self-service kiosk as you simply type in." (Male, 18-24 years old) One woman declared: "Well, it [self-service kiosks, automated machines] is like the Internet, in principle."

Respondents mainly focused on discussing face-to-face interaction as opposed to self-service technologies, as demonstrated in the following quote: "Actually, I would distinguish between two groups: a communicative level where you announce your problems or your order using your voice, and a technical one." (Male, 25-35 years old)

In particular the Internet was discussed in comparison to face-to-face interaction. This is in line with research such as Prahalad and Ramaswamy (2004) that refer to the Internet as "the ultimate self-service technology" (p. 45):

> Internet and all of that stuff is part of modern times. I however consider a personal conversation, being face-to-face, talking with each other as most important (. …) I see the person. It depends on the appearance. Language or a conversation provides more individualism (. …) You can not articulate yourself as well as when sitting in front of somebody and looking at each other. (Female, 55-64 years old).

Throughout the interviews it was found that respondents typically regard face-to-face contact and using self-service technologies as opposite poles in terms of levels of co-production. However, they differ regarding their perceptions in term of the amount of input or contribution required. Two groups could be identified: The first group typically regards using self-service technologies as requiring the highest amount of own input or contribution in comparison to a face-to-face contact, as demonstrated in the following quote:

> Eventually, I think, that in case of a personal contact and telephone there is comparatively rather less own contribution necessary, as the other person can do most of the work so to say and you can simply more or less listen absent-mindedly. Of course, if you have a face-to-face talk, you have to get together with the other one somehow; there is some own contribution necessary. And when you use some kind of self-service kiosk, the self-service kiosk has to be moved to the person or the other way round and you have to operate it adequately. With the Internet it is like that, that you have to search for all kind of information by yourself. Consequently, the degree of own contribution is relatively high in this case, I think. (Male, 25-34 years old)

Another interviewee describes:

> The Internet [requires] most of all [own contribution/input] because there is rarely explained anything (…) telephone almost the same, because in case of telephone you have to react very quickly because otherwise the tape will restart at the beginning, and in case of face-to-face interaction you can remain very passive because when you make a mistake, your counterpart tells you that. (Male, 18-24 years old)

This is in line with literature that commonly describes self-service technologies as requiring the highest level of own input or participation respectively (e.g., Lovelock and Wirtz 2007, p. 246; Silpakit and Fisk 1985, p. 118).

In contrast to this view, several respondents share an opposing view. A second group of respondents could be identified that regard a face-to-face encounter as requiring the highest amount of own contribution, as demonstrated in the following quote:

> I assume, automated machines require the fewest amount of personal contribution as input screens are already precast (…) I merely tick something or so on. Internet requires a little bit more own contribution as I have to illustrate something in a written form. A one-to-one talk requires the most, first of all I tell something then my counterpart will tell me what he or she has written down and if he or she could understand everything. Then, you clear up potential misunderstandings. Hence, I think it requires the highest amount of personal effort. (Female, 18-24 years old)

Another interviewee mentioned:

> Internet, self-service kiosk (…) probably require the least amount of effort. First, I can do everything at home. Second, I need not leave home (…) I have to have a connection and then I need not have to wait. In case I have a personal conversation for example at a bank, first of all, I have to make an appointment. Then, I have to leave home. (Male, 35-44 years old)

The findings indicate that level of participation is difficult to measure. Respondents differ concerning their expectations and perceptions of the meaning of participating. Scholars such as Bowen (1990) also mention that perceptions of customers may vary depending on his or her interest in the service and his or her frame of reference:

> While the one person may drop his car off at an auto repair shop, content to pick it up when the repairs have been completed, another person will watch the mechanic and ask questions during the entire process. While first person would rate auto repair low on participation, the second person would rate it high. Along the same lines some people may view selecting items off a menu as a involvement in the service, while others would not, because they did not actually prepare the food. (Bowen 1990, p. 46)

2.5.4.2 Factors of customer co-production

Throughout the interviews six factors were identified influencing how much customers actually participate and hence how much value-in-use can be created: distinctive preferences, age, situational factors, customer role clarity and ability to co-produce, customer willingness to co-produce, and perceived "importance" of service. Each of the six factors will be discussed briefly in the following paragraphs.

2.5.4.2.1 Distinctive preferences

Throughout the interviews it was found that certain individuals might have distinctive preferences for a particular level of co-production that is either face-to-face interaction or technology based service provision regardless of situation, as demonstrated in the following quote: "I find it [self-service technologies] dislikeable in a word. I don't want to have anything to do with it. I don't like it (. …) It is (…) technology and not human." (Female, 65-74 years old) One respondent (Male, 35-44 years old) declared: "I'm not a real fan of the Internet. I don't want to condemn it but it is a little bit too anonymous for me. I prefer face-to-face contact." He added: "I would never do banking online because I don't trust in it."

This is in line with research that revealed similar findings (Bateson 1985b; Howard and Worboys 2003; Langeard et al. 1981). Lee (2002) as well as Prendergast and Marr (1994) identified in the setting of what has traditionally been described as financial services, a cluster of customers that shared a strong preference for face-to-face interaction. Langeard et al. (1981) as well as Bateson (1985b) found that certain groups of customers generally tend to desire human interaction whereas others tend to prefer using self-service options, holding constant all other factors, such as monetary or convenience incentives. Rayport and Jaworski (2004) identified that by tendency, walk-in customers in one fast-food restaurant preferred to relate to a real human being behind a counter, whereas drive-through customers wanted an efficient transaction, favouring speed, accuracy, and responsiveness. Lovelock and Wirtz (2007, p. 246) mention that several customers view service encounters as social experiences and prefer to deal with people.

2.5.4.2.2 Age

Several respondents mentioned age as a distinguishing feature as one respondent explains: "It depends upon age. Older people prefer to do it [purchase of a ticket] face-to-face, because they are used to it. Younger people prefer to do it via the Internet, because they want to be flexible and want to make spontaneous decisions." (Male, 18-24 years old) Another respondent mentioned: "I simply believe that people of a certain age (…) have big problems with it [electronic devices]. Hence, they certainly prefer to go to the woman or man behind the counter and want to buy the ticket there." (Male, 45-54 years old) In fact, one woman described "I don't use it [self-service technologies] (. …) I did not learn it. I'm too old." (Female, 55-64 years old)

Research indicates that people preferring self-service technologies are by tendency younger, better educated, more technologically savvy, and concentrated disproportionately in professional jobs, with significantly better earning prospects than the general population (Rayport and Jaworski 2004). However, in a study undertaken by Meuter et al. (2003) it was found that respondents with higher levels of technology anxiety, that is anxiety with all forms of technology, leading to a weakened belief of self-efficacy, use fewer self-service technologies. It is concluded that technology anxiety is a better, more consistent predictor of usage of self-service technologies than are demographic variables. As Parasuraman (2000) argues people differ concerning their readiness to embrace technologies.

Notwithstanding, age may at least partly determine the speed with which people gain knowledge of, role clarity, and access to newer self-service technologies (cf. also Howard and Worboys 2003).

2.5.4.2.3 Situational factors

Interviewees commonly mentioned situational factors as influencing participation in co-production, as demonstrated in the following quote:

> I do it [choice between different modes of service provision and hence levels of co-production] spontaneously depending on whether I have time (…) which opportunity is most convenient whether I'm at home maybe sitting at the desk or whether I'm nearby by chance or whether I'm on my way thinking I just call before I forget. It is really spontaneous. (Female, 25-34 years old)

Another respondent explained:

> It [choice between different modes of service provision and hence levels of co-production] depends on whether I want to do it in the middle of the night or during the day or whether I do it somehow when I come home in the evening. The question is: can there still somebody be reached? (Male, 25-34 years old)

Scholars such as Langeard et al. (1981, pp. 2-3) and Bateson (1985b) also mention the relevance of situational factors such as waiting time, crowding, whether the customer is alone, with friends or family, or in a hurry.

2.5.4.2.4 Customer role clarity and ability to co-produce

As elaborated in chapter 2.1, pertinent resources such as appliances, knowledge, skills, experience, energy, effort, money or time may determine customer ability to participate in co-production. In line with this one respondent stated: "I couldn't buy things online as I didn't have a credit card for a long time." (Male, 18-24 years old) Another interviewee described: "I can use the Internet merely where it is available and in case I have enough time to do so." (Male, 35-44 years old) Customer role clarity meshes with customer ability to co-produce as it determines knowledge and consequently influences ability to co-produce. In fact, numerous informants indicated that knowledge and role clarity influence customer decision making concerning mode of service provision, as demonstrated in the following quote: "You can do it [order services] via telephone , but I don't do it. I'm not familiar with it." (Female, 18-24 years old) Another interviewee explained:

> Recently, I went to IKEA. In the meantime, there are electronic self-checkout desks. I think this is super because there were no queues as apparently nobody thought to be capable of using it. The queues were in front of the traditional checkout desks. (Male, 25-34 years old)

Throughout the interviews it was found that a lack of knowledge and/or customer role clarity may lead to a preference for face-to-face interaction, as one interviewee described: "Any time it is about a complex issue that is unclear to me or where you have to ask somebody (…) I seek a personal encounter with a firm." (Male, 25-34 years old)

The importance of confidence and knowledge of services and their impact on customer decision-making is reflective of findings from previous research.
Dabholkar (1990) stresses that in case a high level of expertise is required and/or customers are not familiar with a service most customers would prefer face-to-face interaction. Lee (2002) revealed in the context of what has traditionally been described as financial services that those customers that were most open to self-service technologies were the most knowledgeable about financial matters.

A personal encounter is widely regarded as the best way to approach an unfamiliar field, particularly as questions can be raised easily. One interviewee explained:

> At the beginning when there may be several open questions and when you approach a new field there should be personal counselling. You sit facing an expert (…) who can answer several greenhorn or stupid questions; basically somebody who can offer good advice, good ideas and solid knowledge. When you are experienced to some extent in certain areas, I think, for me personally, the easiest way is just to quickly go on the Internet. (Male, 35-44 years old)

Another respondent described: "When I have no idea about an aspect, I need somebody who explains it to me." (Female, 18-24 years old)

It might also be regarded as convenient to be relieved of having to inform oneself, as demonstrated in the following quote:

> In case it is about issues where I have rarely any idea about (…) you get the information via telephone or a face-to-face conversation without having to do a lot. You simply have to ask a question once or twice and then you will get everything explained. (Male, 25-34 years old)

2.5.4.2.5 Customer willingness to co-produce

Efficiency in the process

Several respondents indicated that saving time, effort and money in comparison to the alternative, is essential for them in terms of participation in co-production. Typically, efficiency seems to be associated with using self-service technologies, as illustrated in the following quote: "I can stay at home. I can book my flights at home. I can check in at home. I don't have to queue at the airport. It [the Internet] is much quicker." (Female, 18-24 years old). Another interviewee mentioned: "I used to order photofinishing in a shop. Nowadays, I wouldn't do that any more as it is much cheaper via the Internet." (Male, 25-34 years old)

One respondent explained:

> When I can order my train or plane ticket at my desk at home somehow at 1 a.m. during the night or so on time is used more effectively than in case I have to drive or walk to a travel agency, depending on its hours of business. (Male, 25-34 years old)

Another interviewee described:

> I weigh discount against loss depending on the situation. Concerning my contract for my mobile phone [web-based] I get 150 short messages for free and concerning my gas contract [web-based] I get a discount of five or three percent. My online bank account is for free and I benefit from better rates. If I didn't get these discounts I would not renounce the opportunity to get information on a face-to-face basis. (Male, 18-24 years old)

As literature suggests several customers may participate in co-production to maximize efficiency, or minimize total monetary and nonmonetary costs (see Chapter 2.3).

Psychological benefits

Actually, several respondents indicated that being to a certain extent relieved of doing certain things themselves might be regarded as a potentially negative interference, as demonstrated in the following quote: "When I go to the counter, somebody thinks in lieu of me what I do not

necessarily appreciate." (Female, 18-24 years old) Several respondents preferred to retain control which was typically associated with using self-service technologies, as one interviewee describes:

> The advantage of a self-service photo kiosk is that although I can do everything on my own or rather have to, it is not complicated for me at all. I can choose which photos I want to take with me and which ones I don't. I don't need to fill in a form sheet or explain something to a sales person in a shop. I do it just how I want it. (Male, 18-24 years old)

Another respondent mentioned: "I don't want somebody else explain to me 'oh I'm sorry there are no tickets available in this price category but you can sit there or over there'. I prefer to look at it myself." (Female, 18-24 years old)

Retaining control was also commonly considered to be a means to increase efficiency, as demonstrated in the following quote: "Well I always think it is great when you can make your own contribution so that something proceeds more quickly. Then I regard self-service devices as commendable." (Male, 25-34 years old)

As elaborated upon in Chapter 2.3, perceived control can be a psychological benefit, motivating customer willingness to co-produce.

2.5.4.2.6 Perceived "importance" of service

Furthermore, the qualitative study provides some evidence that type of service and the associated "importance" influence participation in co-production. "Importance" was usually associated with perceived risk particularly perceived financial risk. Perceived importance suggests a preference for a face-to-face encounter, as demonstrated in the following quote:

> It depends on the importance of it. If it is about photofinishing, it is about 10 or 20 Euros, I can well do that on my own; I know how to do it and I can simply navigate through the programme. If it is about investing 30.000 Euros, I don't want to take a foolhardy risk. (Female, 18-24 years old)

Another respondent explained "When it is about important things I always prefer face-to-face interaction because I can get some sort of impression of the firm." (Male, 35-44 years old) One woman (35-44 years old) stated: "When much money is involved, I don't want to do things merely via telephone and so on."

This is in line with research that suggests that for complex and high-perceived-risk types of service such as obtaining a mortgage, people tend to rely on personal, face-to-face encounters (Berry et al. 2002; Black et al. 2002; Lee 2002).

3   Discussion and Implications

Discussing co-production demonstrates linkages between co-production, customer participation, and value creation. Moreover, a conceptualization of customer co-production is provided linking customer participation and value creation.

The qualitative study reveals that face-to-face contact and using self-service technologies are regarded as opposite poles in terms of levels of co-production. Among respondents two groups could be identified: One group typically considered using self-service technologies as requiring the highest amount of own input or contribution whereas the other group shared a

contrary view. Six factors could be identified that may influence participation in co-production: distinctive preferences, age, situational factors, customer role clarity and ability to co-produce, customer willingness to co-produce, and perceived "importance" of service. This means that these factors may influence how much customers actually participate and the amount of value-in-use that can be created.

Furthermore, it was identified that a lack of customer role clarity, a high perceived "importance" of a service as well as a striving for efficiency or retaining control was typically associated with using self-service technologies.

Analysis of the depth interview data yielded a novel framework for understanding customer participation in co-production. Clearly, more research is needed in order to expand on this framework. Furthermore, this research employed depth interviews. Limitations of depth interviews involve that depth interviews cannot be carried out with a representative sample of the population.

In addition, customers frequently fail to optimize their co-production role by participating less ("underparticipation") or even more ("overparticipation") than required (Chase and Stewart 1994; Dellande et al. 2004; Risch Rodie and Schultz Kleine 2000, p. 121; Tax et al. 2006). Consequently, scholars stress that companies have to provide guidance concerning how customers can participate in co-production in order to avoid failures, inadequate outcomes, and ultimately customer dissatisfaction (Chase and Stewart 1994; Kleinaltenkamp et al. 1997, p. 40; Tax et al. 2006). Tax et al. (2006) state: "Companies need to ensure that their customers understand where they should be, when they should be there and what they should be doing at various points in the process." (p. 36)

Hence, several leading academics and business executives in the field of service regard it as a research priority to define the customer's role in the co-creation of the service experience (Ostrom et al. 2010). Co-production is part of it.

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