The Dark-Side of Co-Creation

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Abstract
Co-creation with customers – defined as the joint creation of value by a firm and its customers (Perks et al., 2012) – is an emerging topic in the study on how to actively involve customers in the innovation process. Current literature on co-creation has mainly focused on the benefits of co-creation, such as higher satisfaction towards the co-created products and/or services (Mahr et al., 2014), higher customer loyalty towards the brand (Cossío-Silva et al., 2016), and increased customer repurchase even in situations when failure to fulfil a service previously occurred (Hazée et al., 2017). Co-creation is especially reasoned to benefit startups because customers are considered a valuable resource that can compensate for startup’s limited resource availability (Mohannak, 1997; Perks et al., 2012).

Nevertheless, managing the co-creation process is ‘a complex endeavor’ (Perks et al., 2012, pp. 948). Co-creation requires the firm to go through a trial and error process of change in work routines and approaches with its customers until it reaches the desired outcomes (Perks et al., 2012), yet the type of changes and how the changes needs to be attained has not been studied. This suggests that there are still particular facets of our understanding in co-creation left in the dark. We would like to contribute to this ongoing research by addressing the following research question: How do start-ups manage the complexity of the co-creation process given their resource constraints?

The literature on co-creation with customer mainly uses the service dominant logic (S-D logic) by Vargo and Lusch (2004) as its main theoretical framework. Under the S-D logic, the customer possesses two distinct roles in co-creation: (i) as the determiner of value-in-use, where customers evaluate their experience in consuming the product/service based on how it serves their need; and (ii) as co-producer, where customers are required to participate in the creation of core offerings through shared invention, design, and production (Lusch & Vargo, 2006). The duality role of the customer is the one reason behind the complexity of the co-creation process.

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Abstract

Co-creation with customer is an emerging topic in the study on how to actively involve customer in the innovation process. Current literature on co-creation many focus on the benefits of co-creating with customer. However, conducting co-creation with customer is a complex endeavor, requiring firms to a trial and error process until it reaches the desired innovation outcomes. This suggest that there are particular facets of our understanding in co-creation left in the dark. We explore how startups manage the complexity of the co-creation process using a single embedded case study. Using a qualitative research approach, we found that there are three types of trust a startup must build in order to manage the complexity of the co-creation process: (i) inter-cocreator trust; (ii) trust in the co-creation process; and (iii) trust in oneself as co-producer.

1. Introduction

Co-creation with customers is becoming a noticeable notion, attracting research from various disciplines to study how to actively involve customers in the innovation process (Gemser and Perks, 2015). Co-creation – defined as the joint creation of value by the firm and its customers (Perks et al., 2012) – has become a promising discourse in both the entrepreneurship and innovation literature due to its effect on innovation (Berends et al., 2014, Coviello and Joseph, 2012, Perks et al., 2012). It is the latest topic in a stream of research that emphasizes the importance of involving customers in different stages of a company’s innovation process, joining other topics such as the theoretical concept of effectuation (Sarasvathy, 2001) and the more practice oriented lean startup method (Ries, 2011) in the entrepreneurship literature; and the lead-users as source of innovation (von Hippel, 1986), crowdsourcing (Afuah and Tucci, 2012), and user involvement (Magnusson et al., 2003) in the innovation literature.

The co-creation literature has so far largely focused on two main subject matters identifying: (i) a framework of co-creation with customers, and (ii) the benefits of co-creating with customers. Regarding the first, studies that focused on developing the framework for co-creation, have advanced the literature by recognizing co-creation as a process (Payne et al., 2008), identifying the factors that incentivize customers to participate in co-creation activities (Nambisan and Baron, 2009), and illustrating the spheres where co-creation takes place (Grönnroos and Voima, 2013). Regarding the later, studies that focused on the benefits of co-creating with customers, among other, show that co-creation leads to customer satisfaction with the co-created product and/or service (Mahr et al., 2014), customer loyalty towards the brand (Cossio-Silva et al., 2016), and repurchase from customers even when failure previously occurred (Hazée et al., 2017).

Co-creation with customer is reasoned to benefit especially startups because customers are considered a valuable resource that can compensate for the startups’ limited resource availability (Perks et al., 2012). Co-creation with customers also allows startups to collaboratively design the startups’ future, which lessens a startups dependency on forecasting (Frow et al., 2015, Read et al., 2009) and decreases their liability of newness. A profound example of how startups manage this process and achieve radical innovation is given by Perks et al. (2012), who investigated how a UK-based startup in the insurance industry co-created a radically new market offering with its network of customers. Perks et al. (2012) found that startups can develop radical innovative services despite its limited internal resources by (1) allowing customers to suggest and make incremental changes to the service; and (2) engage in intense interactions with customer while developing a new solution to the service.

While the study by Perks et al. (2012) illustrates the process and success of a startup co-creating, the authors acknowledge that ‘managing the co-creation process is a complex endeavor’ (Perks et al., 2012, pp. 948). Perks et al. (2012) further explains that co-creation requires the firm to go through a trial and error process of change until it reaches the desired innovation outcome, which suggests that there are hidden costs that occur from, among others, identifying and recruiting appropriate customers, adjusting in and managing the co-creation process (Gemser and Perks, 2015). This further exemplifies that there are requirements for co-creating with customers and hints that startups might need to be resourceful to co-create. But seldom has sustained consideration been given...
to the less benign sides of co-creation. In order to fill this research gap, we address the following research question: How do start-ups manage the complexity of the co-creation process given their resource constraints?

In order to answer the research questions above, we conduct an exploratory single case-study using empirical data from a co-creation project between a startup and its business customer. This co-creation project was chosen because the dynamic interactions between the startup and its business customer during the co-creation process provides rich data that can extend the emergent theory of co-creation with customer. Before introducing the case, this paper reviews literatures on co-creation with customers, presenting our current understanding on the notion of co-creation with customer. After describing the empirical setting and methodological choices, the findings will be presented. The paper will conclude with the implications of the findings.

2. Literature Review

2.1. Co-creation with Customer

Co-creation with customer is made possible due to the changing role of customer (Prahalad and Ramaswamy, 2004b). The advancement of the internet has provided customer with limitless amount of information, motivating them to be more involved in every part of the firm’s business system (Prahalad and Ramaswamy, 2004a, Prahalad and Ramaswamy, 2004b). Co-creation with customer possess two distinct characteristics that differentiates it from other topics of involving customer in the entrepreneurship and innovation literature: value-in-use, and co-production (Frow et al., 2015, Lusch and Vargo, 2006, Ranjan and Read, 2016). Value-in-use refers to the value that the customers gives towards a product and/or service when it is being consumed(Lusch and Vargo, 2006). It is how the customer evaluate their experience with the product and/or service in accordance to how it serves their needs (Ranjan and Read, 2016). Co-creation with customer also requires customer to co-produce – to participate in the creation of core offerings through shared invention, design, and production (Lusch and Vargo, 2006).

Payne et al. (2008) proposed a framework that allows customers to participate in the firm’s innovation process through co-creation. This framework consists of three main components: (1) the process of value creation for the firm; (2) the process of value creation for the customer; and (3) encounter process. Each value creation process are further composed of different activities that must be performed by the firm and customers in order to achieve certain goals. In order to succeed in managing the whole co-creation process, firms not only need to facilitate these activities but also manage the different encounter processes that enables the activities (Payne et al., 2008). In a similar notion, Grönroos and Voima (2013) further develop the model of co-creation process to determine how value is jointly created, and argues that co-creation with customer demands a clear distinction between the roles of the firm and the customer, and the interactions between them. In this particular model, the co-creation process pertains in three locus: (1) the customer sphere; (2) the joint co-creation sphere; and (3) the focal firm sphere. The firm has the specific role of being the value facilitator in the three locus of co-creation, whereas the customer only have the role to be a value creator in the customer sphere and a value creator as well as co-creator in the joint sphere. Grönroos and Voima (2013), however, did not elaborate further on the mechanism that allow the firm to be a value facilitator and the customer to be the value creator/co-creator.

Co-creation with customer is increasingly becoming a strategy favored by startups (Ngugi et al., 2010). Nevertheless, startups will face some challenges that are inherently in nature when conducting co-creation with customers. Hoyer et al. (2010) identified four characteristics of the co-creation process that leads to co-creation challenges: (1) the high amount of transparency between co-creators when exchanging information; (2) the unclear distinction on the ownership of intellectual property; (3) the high amount of information that leads to information overload; and (4) the trade-offs between great idea and feasible production. In order to deal with these potential challenges, Hoyer et al. (2010) also argues that the firm needs to have some tools and processes in place in order to conduct the co-creation process. Nevertheless, to our best knowledge, no literature has gone in-depth to discuss the tools and processes that enables firms to overcome the challenges in co-creation with customer.
2.2. Trust

In any collaboration between two parties, trust plays a central role (Mayer et al., 1995, McKnight et al., 1998, Zaheer et al., 1998). Trust allows collaborating parties to reduce the need for complex and formal procedures to monitor each other’s behavior (Baumann and Le Meunier-FitzHugh, 2014, Randall et al., 2011, Williams, 2001). Trust also increases the parties’ organizational performance by reducing the risk of collaboration (Sako and Helper, 1998), and promotes the party’s willingness to invest in specific assets for the collaboration (Dyer and Chu, 2000). The research in trust has expanded exponentially over the years, leading to many definitions of trust (Mayer et al., 1995). For this study, we define trust as the positive expectancy one receives based on another party’s expected action in an interaction characterized by uncertainty (Bhattacharya et al., 1998). We follow this definition of trust because it emphasizes the concept of uncertainty that is inherent in all market conditions in the co-creation literature (Prahalad and Ramaswamy, 2004a).

Trust is a multidimensional concept that exists on different levels (Fulmer and Gelfand, 2012, McAllister, 1995). There is an abundance of trust literature that details the different concepts, dimensions, and levels of trust (see Fulmer and Gelfand, 2012 and Rousseau et al., 1998). For example, Smith and Lohrke (2008) argue that there are two dimensions of trust: (1) affective trust, or the trust developed when individuals emotionally invest in relationships; and (2) cognitive trust, or the trust an individual person develops consciously based upon the best knowledge she or he has (McAllister, 1995). Meanwhile, Lewis and Weigert (1985) differentiates two levels of trust: interpersonal level and institutional level. Trust in the interpersonal level refers to trust that is developed between individual persons, either in the same or different institutions; whereas trust in the institutional level is the organizational trust developed between different institutions (Smith and Lohrke, 2008).

The multidimensionality and different levels of trust, in return, leads to different antecedents and outcomes of trust. For instance, Sako and Helper (1998) found that there are three antecedents of trust: (1) contractual trust, or the mutual conviction that specific written and oral agreements between parties will be adhered to by the both parties during the relationship; (2) competence-based trust, or the expectations that the other party can conduct and fulfill activities as promised; and (3) goodwill trust, or the extent to which a party can rely on the other to take initiatives for mutual benefit. These different antecedents of trust are generally hierarchical, meaning that a party can start from only having a low level of contractual trust towards the other, and moves to have higher goodwill trust. It would require both parties to expand the congruence in beliefs about acceptable behaviors in their relationship (Sako and Helper, 1998). Mayer et al. (1995) further identifies three characteristics of a party that will be considered trustworthy in a relationship: ability, benevolence, and integrity. Ability is the skills, competences, and characteristics that a party have to bring into the relationship; benevolence is the perception that a party wants to do good for the other party; and integrity is the perception that a party adheres to a set of acceptable behaviors by the other party.

Trust is especially important for startups because trust is the foundation for startups to establish any relationships with any other parties in its networks (Aldrich and Fiol, 1994). Nevertheless, building trust is hard for startups because startups generally do not have any prior information or evidence on its activity – referred to as the ‘liability of newness’ by Stinchcombe and March (1965) – that can be used for the needed foundation of trust. In order to overcome this liability of newness, startups typically relies on its social networks, starting on the low interpersonal level before moving to high institutional level as the relationship progresses (Smith and Lohrke, 2008). This also meant that startups relies on different dimensions of trust depending on the stage of the relationship. Smith and Lohrke (2008) further propose that in its early formation, startups will be more dependent on using affective trust to build interpersonal-level trust. Meanwhile during the stage where startups starts to make economic exchanges, they will rely more on affective and cognitive trust to still build trust on the interpersonal level. Lastly, during the early stage of growth, startups will use cognitive trust more dominantly to build trust in the institutional level.
3. Methods

3.1. Single Embedded Case Study

We apply the single embedded case study to investigate the dark-side of co-creation with customers and how startup manage the complexity of the co-creation process. This research design enables the investigation of a "contemporary phenomenon within its real life context" (Yin, 1994) and enables the understanding of micro-level activities in a co-creation process over time (Perks et al. 2012). A qualitative methodology is especially useful to obtain new insights into previously unidentified challenges and mechanisms to manage the co-creation process as there is limited theoretical knowledge to warrant a deductive investigation of this topic.

The case chosen in this study is a co-creation project between a startup that specializes on digital communication in the healthcare sector, Communication (anonymized name), and its customer Health (anonymized name), one of the biggest public health care provider in Scandinavia. There are three departments at Health who participated in the co-creation project between Communication and Health. The co-creation project started with the M-department, a department that specialize in routine care of patients with a special condition and undergoing a series of routine treatment within a fixed timeline. It was then followed with the D-department, a department in charge of low-risk operation procedures, and the T-department who is charge with more complex operation in the upper-part of the chest. In each department, a clinician and an administrative secretary (or a clinician with administrative responsibility) are assigned by Health management to participate in the co-creation project with Communication.

3.2. Data Collection

Empirical data were collected at regular intervals over a 14 months period, to capture the longitudinal elements of the co-creation process and how it unfolded. Primary data were collected in semi-structured interviews with all main participants in the co-creation process both at Health and Communication, which resulted in 25 interviews as well as 9 observations of co-creation meetings. Additionally, we have taken pictures during meetings and collected secondary data (for an overview of all data sources please see Table 3.1.). Wherever possible, the different types of data were triangulated and compared to ensure the credibility of information and statements within the material (Denzin and Lincoln, 2005). The overview of the data sources is given in Table 3.1.

**Interviews.** Interviews were conducted with the three co-founders of Communication, with employees of Communication as well as the co-creation responsible employees at Health. All interviews were conducted in person and at the site. Semi-structured questions were targeted at understanding the role of the interviewee in the co-creation process, their perception of the process, their learning through the process, challenges and opportunities of the process as well as their recommendations for future collaboration. Whenever possible two authors would join the interviews in order to avoid researcher bias. Details of the interview are given in Table 3.2.

**Direct observations.** Observations were mostly undertaken on an ad-hoc basis when Communication announced a new meeting with Health. On the one hand, observations allowed to understand how interactions in the co-creation process really takes place. On the other hand, it allowed for informal discussion with the co-creation partners. Often these discussions were also used to schedule interviews subsequently. Furthermore, we were allowed to join two in-house planning meetings at Communication, were all employees and the three co-founders prioritized tasks for the upcoming six-month period.

**Secondary data.** To gather the secondary data, we digitally archive social media activities, both done by Communication as a firm and by the founders of Communication. We also archive webpages that contains online articles about Communication and its collaboration with Health. We also took pictures during the co-creation meetings that we attended in order to support our observation notes. Lastly, we also obtain the Communication’s own presentation and promotion materials that they use during the co-creation process and to promote their work to investors and future clients.

The use of multiple sources above mitigates respondent and retrospective bias as data are constantly compared and validated (Miles and Huberman, 1994).
Table 3.1. Overview Data Sources

<table>
<thead>
<tr>
<th>Data source</th>
<th>Time</th>
<th>Cases</th>
<th>Notes</th>
<th>Transcribed</th>
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<tr>
<td><strong>Communication</strong></td>
<td></td>
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<td></td>
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<tr>
<td>Interviews co-founders</td>
<td>5.00 hours</td>
<td>4</td>
<td>/</td>
<td>75 single-spaced</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pages</td>
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<tr>
<td>Interviews employees</td>
<td>9.00 hours</td>
<td>11</td>
<td>/</td>
<td>140 single-spaced</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>pages</td>
</tr>
<tr>
<td>Observation meetings at Communication</td>
<td>5 days</td>
<td>5</td>
<td>Field notes, pictures, reflection notes</td>
<td>20 single-spaced</td>
</tr>
<tr>
<td>Secondary data</td>
<td></td>
<td></td>
<td>Social media, webpage, company presentation</td>
<td>20 single-spaced</td>
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<td></td>
<td></td>
<td></td>
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<td>pages</td>
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<tr>
<td><strong>Health</strong></td>
<td></td>
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<tr>
<td>Interviews with participants</td>
<td>8.00 hours</td>
<td>8</td>
<td>/</td>
<td>120 single-spaced</td>
</tr>
<tr>
<td>Observation co-creation meetings at Health</td>
<td></td>
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<td>pages</td>
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<tr>
<td></td>
<td>4 meetings</td>
<td>4</td>
<td>Field notes, pictures, reflection notes</td>
<td>16 single-spaced</td>
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<td></td>
<td>each 4 hours</td>
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<td>pages</td>
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Table 3.2. Overview of Interview

<table>
<thead>
<tr>
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<th>Communication</th>
<th>Health</th>
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</thead>
<tbody>
<tr>
<td><strong>Label</strong></td>
<td><strong>Participant</strong></td>
<td><strong>Label</strong></td>
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<tr>
<td>CEO</td>
<td>CEO of Communication</td>
<td>ITM</td>
</tr>
<tr>
<td>COO</td>
<td>Co-founder of Communication</td>
<td>CLN1</td>
</tr>
<tr>
<td>ANT</td>
<td>Anthropologist at Communication</td>
<td>CLN2</td>
</tr>
<tr>
<td>MGT</td>
<td>Account manager at Communication</td>
<td>CLN3</td>
</tr>
<tr>
<td>DVP1</td>
<td>Developer at Communication, specially assigned to D-department</td>
<td>CLN4</td>
</tr>
<tr>
<td>DVP2</td>
<td>Developer at Communication, specially assigned to T-department</td>
<td>CLN5</td>
</tr>
<tr>
<td>DVP3</td>
<td>Developer at Communication, specially assigned to T-department</td>
<td></td>
</tr>
<tr>
<td>DVP4</td>
<td>Developer at Communication</td>
<td></td>
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<tr>
<td>VDG</td>
<td>Videographer at Communication</td>
<td></td>
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<tr>
<td>STA1 &amp;</td>
<td>Student interns at Communication</td>
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<tr>
<td>STA2</td>
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</tbody>
</table>

3.3. Data Analysis

We undertook a rigorous coding and analysis process according to established inductive procedures (Gioia et al., 2013; Miles & Huberman, 1994). Our coding process was supported by QSR NVivo 10 software, which we used to organize, code and analyze. Two of the three authors physically discussed and assigned codes and created a codebook together, which ensures inter-rater reliability. The codebook helped us to be consistent and create transparency of the relationships between codes (MacQueen et al., 2008). The third author remained an outsider to stay objective to the data (as suggested by Goia et al., 2013: 5) and critically assess the coding.
The coding process followed several iterative cycles, which means we worked recursively between the
data, the emerging patterns and existing theory. In a first cycle, we used attribute and open (or topic) coding
techniques. The former codes factual information about the co-creation partners such as educational background,
affiliation, type of business, type of business model (Lofland and Lofland, 2006). The latter is an initial systematic
categorization of textual raw data, which identifies themes (Miles & Huberman, 1994). In this step we went through
the raw data and asked the question “What is this passage/paragraph about?”, and thereby assigning representative
theme names (codes). This resulted in 46 open codes.

Having reduced the data and gained an initial understanding through the open coding process, in a next
cycle we re-coded the data which resulted in 24 first-order codes (Gioia et al., 2013). In a following step, the first-
order codes were then categorized into (thematic) second-order categories. We asked the question “What is this
statement an expression/example of?”, which is the first step in interpreting the data. Finally, we engaged in pattern
and relationship coding to uncover causal links (Denzin & Lincoln, 2005). The coding was concluded after four
cycles of (re-)coding. Theoretical saturation assumed when information, constructs and relationships were
exhausted (Eisenhardt, 1989).

4. Findings

4.1. The Co-creation Process

The co-creation project between Communication and Health started when Communication approached
the M-department at Health to work together in finding new solutions for digital patient communication.
Communication sent their employees to observe the work of the clinicians at M-department in order to understand
the real situation the clinician faces when communicating with patients. Two clinicians with administrative
responsibilities from the M-department were later brought out from their normal working hours at Health to sit
together with the developers from Communication at Communication’s office for six weeks. During this time, the
developers and clinicians work together on an idea generation process to identify problems that exists within the
communication process between clinicians and patients at Health and generates several hypotheses of solutions
that works best for identified problem. They also perform a small test with a number of real patients in order to earn
some validations on the generated hypotheses. We call this series of activities as the ideation stage.

Based on the result from the ideation stage, a prototype of the digital solution is co-developed by the
developers and the clinicians. The solution itself consist of two inter-connected parts. The first part is a smartphone
application for patients that provides an overview of the patient’s specific treatment at Health. The smartphone
application also provides detailed information and specific tasks the patients must do over the course of the
treatment. The second part of the solution is a browser-based application for the clinicians to keep track of the
patients’ journey in the patient’s own treatment. The developers and clinicians also co-develops an interface
between the patients’ smartphone application and the clinicians’ tracking application, allowing patients to directly
chat with clinicians through the application. In co-developing the solution, the developers would build the codes for
a specific function in the solution, and then giving it to the clinicians who would fill in the content of the solution. This
process would happen continuously until they both agreed on a sufficient version of the solution that they could test
on real patients. This series of activities is called the co-development stage.

During the co-development stage, Communication also approached Health’s management in order to
expand the co-creation project with more departments. Two more departments – namely D-department and T-
department – were assigned to the project by Health’s management. Communication then organized a kick-off
meeting with clinicians from D-department and T-department, where they introduce themselves to the clinicians and
present the problems with communication between clinicians and patients at Health – problems previously identified
with clinicians from M-department. The two clinicians from the M-department were also present during this kick-off
meeting, where they present their experience in working with Communication and the benefits they have received
while working on the project. They also encouraged other clinicians to trust Communication and participate in the
project.

Once the clinicians at D-department and T-department are on-board with the co-creation project,
Communication assigned its developers to conduct an observation at the two departments. Later after observations,
the developers met with assigned clinicians from the two departments and conduct a workshop to generate ideas and hypotheses on how Communication’s digital communication solution can be applied for a treatment at the respective departments. The observations and workshops are similar to the idea generation process at the ideation stage that Communication already did with the clinicians from the M-department. It differs, however, with the following activities of the ideation stage because in this new ideation stage Communication and the clinicians from D-department and T-department did not perform a small test to validate the generated hypotheses.

Communication and the clinicians from D-department and T-department also went through the co-development stage where they went through a series of iteration between coding and content development for a specific treatment within each department. The co-development process between the two departments were conducted at the same time, with Communication assigning two developers for each department who were then responsible for all communication and interactions with clinicians from the department. The co-development process with the two new departments lasted for approximately three months.

The last stage of the co-creation process is the testing stage where Communication and the clinicians from all three departments test their co-developed digital communication solution with real patients from all three departments. In order to conduct this test, Communication made an investment to purchase mobile devices (a Chromebook), installed with the track application for the clinicians to use and interact with the patients during the testing period. Communication and the clinicians still works closely during this stage because both parties are deeply interested with the outcomes of the test. They split the responsibilities during this stage: Communication mainly responsible for all of the technical details surrounding the use of the digital solution, and the clinicians responsible to recruit patients as test users and interact with them through the digital solution. This testing stage lasted for approximately for four months.

During the writing of this paper, the testing period has ended and Communication had conducted an overall evaluation based on the results of the test in all three departments. Based on the result, Communication decided to continue working on testing the digital communication solution with more patients from only two of the departments at Health. Before resuming the test, Communication and the developers from the two departments met again in order to improve the solution, using another cycle of iteration between coding and content development like what they did during the co-development process. In summary, the co-creation process runs similarly to the typical new product development (NPD) process like the Stage-Gate model developed by Cooper and Kleinschmidt (1991).

The co-creation process, however, differs from the typical NPD process in two distinct way. First, the co-creation process involves customer throughout the whole process. NPD processes usually would involve customer only in specific stages of the process, typically in the ideation stage when the firm needed inputs from customers for new product and/or services, and in the testing and validation stage where they test the attractiveness of the developed product and/service. They rarely include customer in other parts of the process, especially in the development process where it is mainly done within the firm’s operational boundaries. Co-creation instead overrides this boundary and delegates its customer to participate actively in the co-development of the product and/or service. Second, co-creation processes allows firms and its customer to go through an iterative co-creation cycle. NPD processes rarely go through such iteration because the firm would focus on how to commercialize the product and/or service after it has been validated during the testing stage. Co-creation process allows the firm and its customer to go back through the ideation stage again and go through to all of the steps in the co-creation process until both parties are satisfied with the end product and/or service. Figure 4.1 below illustrates the co-creation process with this iterative characteristic that differs from the NPD process.

Figure 4.1. The Co-creation Process
4.2. The Challenges of the Co-creation Process

In order to discover the dark-side of co-creation, we first identify the challenges that emerged during the co-creation process. We follow Grönroos and Voima (2013) to categorize the challenges into challenges in the focal startup sphere, the customer sphere, and in the joint spheres. Challenges faced individually by Communication are categorized under challenges in the startup sphere; challenges faced individually by clinicians at Health are categorized under challenges in the customer sphere; and challenges faced by Communication and Health together when they interact in the co-creation process are categorized under challenges in the joint sphere. Furthermore, we differentiate challenges in the joint sphere to challenges faced by the co-creators within the joint sphere and challenges from outside of the co-creation project. Results from this categorization are given in Table 4.1. below.

4.3. Building Trust

In order to overcome the challenges in the co-creation process, the startup firm must establish and build trust with its customer very early in the process. However, we found that Communication also suffers from the liability of newness, being at a disadvantage in the co-creation process because it lacks past experiences as evidence for Health to use to establish trust. We found there are three types of trust that needs to be present for the co-creation process to succeed: (1) inter-cocreator trust; (2) trust in the co-creation process; and (3) trust in oneself as co-producer. These three types of trust are shown in Figure 4.2 below. In the following section, we will further describe how Communication overcomes the challenges in the co-creation process by building these three types of trust.

Smith and Lohrke (2008) argues that startups need to rely on different dimensions of trust in order to achieve trust from the other party in all levels of the relationship. In the following section, we will also show how Communication employs these different dimensions of trust in order to build the three different types of trust needed in the co-creation process. We incorporate Sako and Helper (1998) antecedents of trust (i.e. contractual trust, competence-based trust, and goodwill trust) as additional dimensions to the affective and cognitive trust by Smith and Lohrke (2008) in order to better explain the nuance of building trust within the co-creation process.
<table>
<thead>
<tr>
<th>Table 4.1. Challenges in the Co-creation Process</th>
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<tbody>
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<td><strong>Startup Sphere</strong></td>
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| **Ideation Stage** | • Dealing with different culture, rules, and regulations.  
• Fostering collaboration between developers and clinicians.  
• Ownership  
• Taking a long time to recruit employees and secure funding | Within joint sphere:  
• Timeline of co-creation process  
• Division of roles between co-creators | • Figuring out who should participate in the co-creation project  
• Dealing with different management style  
• Dealing with a complex organizational structure that does not allow the clinicians to be flexible in their work  
• Difficulties to allocate time needed to do the co-creation project |
| **Co-development Stage** | • Having to satisfying different needs from different departments  
• Dealing with different working culture | Within joint sphere:  
• For developers and clinicians to develop ownership towards the solution  
• Finding the time to work together  
• Dealing with changes in the clinicians' daily workflow due to the co-creation | • Difficulties to allocate time needed to do the co-creation project  
• Distributing the right information with the rest of the department |
| **Testing Stage** | • Having limited time to engage with all clinicians in the project  
• How to scale the solution to include more patients | Within joint sphere:  
• Getting patients to participate in the test  
• Managing new clinicians that are now involved in the co-creation project | • Leadership to conduct the test  
• Making the test part of daily work routine |

**4.3.1. Inter-cocreator trust**

The inter-cocreator trust is the interpersonal trust developed between individuals in the ideation stage of the co-creation process. It is the type of trust that the developers from Communication has for the clinicians at Health, and vice versa. In order to establish this type of trust, Smith and Lohrke (2008) argues that startups must start by using affective trust. Here, Communication use experience – both Communication’s own experience and the clinician’s known experience – as the main source to build affective trust. The CEO of communication starts by initiating a dialogue with clinicians from the M-department, using his vast experience as a former nurse and a healthcare software developer to relate with the clinicians’ problem in communication with patients. He would engage in face-to-face meetings with the clinicians, and send simple cues to the clinicians to signal that Communication understood: (i) there are problems with Health’s communication with its patients; (ii) the clinicians
have negative experience in dealing with implementation of digital solutions; and (iii) the clinicians have a big motivation to solve the problem in order to improve their care towards their patients.

During these meetings, the CEO would also bring along members of its development team (the developers) in order for the clinicians to also develop inter-co-creator trust towards them. The developers also uses experience as their main source to build trust. However, because the developers did not have the experience as former health worker like the CEO, they rely on experience based on the observation they have made on the daily workflows of the clinicians. The developers are internally trained to relate the observations with the same messages the CEO has sent to the clinicians. Lastly, the CEO and developer would together assure the clinicians that Communication can help clinicians to solve their problem with patient communication together as long as the clinicians work together with them. The quote below demonstrates the CEO’s effort with his team of developers to build interpersonal trust with the clinicians from Health.

So we kind of played the card that a lot of people who is working in healthcare actually are engaged in healthcare because they have passion about it. They want to help people. Maybe some of them have forgotten over the years, and so on, and maybe become a little bit cynical and so on, but it’s quite easy to rekindle that flame that they want to actually help the patient and doing something good for the patient. So that was our leverage to tell the dream, and to tell them how to do something completely different in the patient communication. And make them listen to us. And co-create with us. (CEO, 2016)

Figure 4.2. Types of trust in the co-creation process

The description on building inter-co-creator trust above not only applies to the clinicians from the M-department, but also to the clinicians from D-department and T-department. However, clinicians from the D-department and T-department does not rely much on the affective trust like the clinicians from M-department. D-department and T-department were involved in the co-creation project because Health’s management assigned them to the project. In other words, the clinicians from D-department and T-department did not have a lot choice other than to trust Communication and participate in the project. The following quotes are from the clinicians at D-department and T-department which illustrates how they got involved in the project.
Our head of our department, that has three different units under it, had decided that they wanted us to be part of the project. They heard about it from the hospital or somewhere else. So actually, we didn't get any mails or anything until the first meeting. We hadn't read about what Communication was and what they were doing. But they like the idea of Communication and thought it could be an interesting thing to use in D-department. (CLN3, 2017)

I think all the decision was (already) made to cooperate with Communication at that point. So I had to take over and be responsible for making this project go on and being responsible for all the clinical things in it. (CLN5, 2017)

4.3.2. Trust in the co-creation process

Trust in the co-creation process is a type of trust at the institutional level that the co-creators developed late in the ideation stage and crucial to have in the following co-development stage. Smith and Lohrke (2008) argues that trust at the institutional level can only happen when the co-creators develop both affective trust and cognitive trust through repeated interactions with each other. We found that trust in the co-creation process does not happen merely through repeated interactions between Communication and the clinicians. Perks et al., (2012) argued that co-creation is a complex process and findings in our empirical case further supports that as we found challenges in the joint sphere on how to do co-creation and what role the co-creators must take during the process. In order to overcome these challenges, Communication sees that the only solution to make clinicians understands the co-creation process is by enforcing them to participate in the co-creation process. As the CEO describes in the following quote, the only way to make the clinicians believe in the co-creation process is by having them to experience it.

So we have some ideas… So instead of me telling them "Okay, patient will do this and you will experience this", I try to facilitate it so they experience it themselves. So we had a couple of examples where the clinicians themselves discover that the benefit on how to synchronize communication, and what is that actually. What does it do, how does it enhance my communication with the patient. So if this patient has this question, and other patient have the same question, in this system I don't have to tell them again, I just use the other question, or have them qualify the question and so on. And some of that beliefs. So if you believe in something, I can't tell you that's not true because you believe in it. But maybe can be put in a situation where you discover yourself that your belief is false, or there's other ways to do this. And that's what we're trying to do. Instead of telling the clinicians there could be other ways you have to discover themselves or see themselves. Again, using ideal principles 'seeing is believing'. And we use that a lot. (CEO, 2016)

Here, Communication relies on contractual trust, creating an agreement with clinicians from the M-department to buy out their time from their normal working hours so that they are free to do co-creation with Communication. The buy-out strategy was important for both parties because: (1) it helped Communication to make the clinicians from M-department fully understand the co-creation process, and (2) it allows clinicians from M-department to develop competence based trust towards Communication from the time they spent during the buy-out. Furthermore, clinicians from the M-department also felt appreciated when Communication bought their time out to do the co-creation project. This leads them to also develop goodwill trust towards Communication, which they exercise through promoting their experience and advocating Communication’s competences to the clinicians from D-department and T-department during the kick-off meeting. The following quote shows the positive effect of the buy-out strategy for clinicians from M-department.

Oh I said they should do that. They should try it you know. I mean these people have to have some loving, you know, push. Because they are... I mean this is a fear of doing something wrong, harming patients, don't have the time. This is real fear. This is real inside fear. And this is okay having this. But these people has to be nurtured to say just "It's okay you're afraid, but just do it!" So that's what I said to them. And it's also I said it's fun. (CLN1, 2017)

That Communication bought us out of our normal jobs to do it. They paid us to come and do it. And we had total freedom from normal work to do it. So you could get into it 100%. That was important. No worries about what is going on back home, your normal life, your work life. Like this is my job. Right now, this is my job. That was something important I think. (CLN2, 2016)
Because of this advocacy, clinicians from D-department and T-department were able to develop competence-based trust towards Communication. This trust is crucial to help clinicians from D-department and T-department to understand the co-creation process because they have seen evidence from clinicians of M-department, and they just need to adjust the process to their own specific departments. The following quote from a clinician at T-department illustrates how her main challenge when joining the project was only about how the solution would fit to her department, and not about the trustworthiness of Communication.

_In the beginning it was partly trying to figure out what was important to get in the application, what was important for the users to have in the application, and also a bit of understanding each other. Because I needed to understand what does this application could do for the patients and I needed to somehow think about how it could help us in the clinical practice and not just be an extra work thing… And the other way around, they needed to figure out what was important to get in this application, and how it could work. So a lot of talking about how it could work so everybody was happy about it, and also figuring out how to make it simple, and not too difficult to use._ (CLN5, 2017)

### 4.3.3. Trust in oneself as co-producer

Trust in oneself as a co-producer is a specific type of trust that exist only in the co-creation process. This type of trust is especially important during the testing stage. During this stage, the co-creators do not meet as often as they do during the co-development stage, whereas the risk of encountering problems are still high because they now have to deal with other clinicians from the department and patients as test users. Therefore, it is crucial for both Communication and clinicians to rely on goodwill trust that all parties involved in the co-creation process takes ownership on the process and carry out testing the co-created solution. Examples of this goodwill trust comes from the clinicians who incorporate activities for the testing into their daily workflow. They are not obliged by the contract to do so, but they also understood the importance of the test that they are willing to make sacrifices by re-arranging their workflow as shown by the clinician below:

_Every morning when I get here, I open up the Track to see if there's any questions or if there's anything there that I need to answer. And then I check it every second hour or so. But there is very little questions for us. The patients do not ask much. So that's it. And then the surgery of this kind every Wednesday. So every Thursday I evaluate on the ones who had surgery. And on Tuesdays there's always some of the check-ups six weeks after surgery. So that's my routine. Tuesday I have to do evaluation, Thursday I have to do evaluation. And then every day I check the Track. And then I meet up with the Communication or write them emails if there's anything or have any questions about or anything we have to do in another way._ (CLN5, 2017)

### 5. Value and Implications

Findings from this study advance our understanding on co-creation with customer by discovering previously-unexplored challenges of the co-creation process. Findings from this study also helps us to understand that there are different types of trust in the co-creation process, discovering new types of trust that only exist in a co-creation process. As Smith and Lohrke (2008) argues that startups need to build trust through a combination of affective and cognitive trust at the interpersonal and institutional level, our findings supports Smith and Lohrke (2008) by showing how different types of trust is developed at different stages of the co-creation process. However, our findings shows that there are more dimensions of trust that must be built by startups and its customers in order to succeed in the co-creation process. This implies that the types of trust that must be built by startups depends heavily on which innovation process the startups use to develop its product and/or services.

### References


