NARRATIVES OF VALUE CO-CREATION: ELDERLY’S UNDERSTANDING OF THEIR OWN ROLE IN THE VALUE CREATION PROCESS

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Research paper

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Abstract

The purpose of this study is to investigate the value (co-)creation processes initiated by the users of a home-based monitoring service. We adopt a narrative approach to analyze a series of interviews to investigate these processes. Our results show three narratives - Value for the present- and the future-self, Service use and resource integrators and users as initiators, and Conditions for meaningful use - that the participants expressed. Through these narratives, the role of the user, the service and the service ecosystem (or system) is identified. The paper contributes to further understanding of the dynamics underpinning value (co-)creation processes by providing an empirically grounded investigation of value initiation practices amongst the elderly.

Keywords: Value (co-)creation, Value initiation, Narratives, Elderly care, Remote monitoring services, Service Logic, Value spheres

1 Introduction

Value co-creation has received much attention in recent years due to its principal placement within contemporary service research (Prahalad and Ramaswamy, 2004; Maglio and Spohrer, 2008; Lusch and Nambisan, 2015). Value co-creation conceptualizes the collaborative combination of resources in a service system (Vargo, Maglio and Akaka, 2008) and centers around the actors, processes, and resources that interact to create value within the service system (Grönroos and Voima, 2013). Despite the explicit spotlight placed on the service beneficiary within the value co-creation process (Vargo and Lusch, 2004, 2008, 2016), a limited amount of studies place foci on the service beneficiaries’ understanding of their own role within the value co-creation process (Courtney, Demeris, Rantz and Skubic, 2008; Greenhalgh et al., 2013; Grönroos and Gummerus, 2014; Heinonen and Strandvik, 2015). Previous studies have discussed the importance of understanding the mechanisms of resource integration (Frow, McColl-Kennedy and Payne, 2016), the incentives of the actors to resource integrate (Nambisan and Baron, 2009) and the role usage patterns play in the value co-creation process (Pfisterer and Roth, 2015). A focus on the individuals understanding of the value co-creation process requires a research approach that emphasizes the service beneficiary and not on the systemic or organizational levels within the value co-creation process (Grönroos and Gummerus, 2014).

An important concept within the co-creation literature is the concept of value (Leclercq, Hammedi and Poncin, 2016). Value at the micro level (Grönroos, 2017) of the service paradigm is often defined as value-in-use, i.e., the value is inherent in the process of engaging with and using a service (Grönroos and Gummerus, 2014). A deeper understanding of how the service beneficiaries formulate their understanding of why a service is valuable to them would provide further insight to the value co-creation process by exploring the dynamics of why someone would use a service over a long period of time.
In this paper, we emphasize the users’ understanding of the value co-creation process through narrative analysis. The data comes from a project within elderly care - more specifically in the remote monitoring systems domain within elderly care. Remote monitoring systems are defined as “monitoring of patients outside hospital conditions by means of technology.” (Malasinghe, Ramzan and Dahal, 2019, p. 57). However, among the elderly, the acceptance and adoption rates of these services are still low (Calvaresi et al., 2017; Peek, Aarts and Wouters, 2017). Numerous studies have provided insights into the different aspects which are important from an acceptance perspective. For instance, Peek et al. (2014) identified that concerns regarding the technology, the benefits and needs of the technology, the alternatives to the technology, the social influence of the technology and, the characteristics of older adults were the most prominent factors for technology acceptance among the elderly when it came to technology assisting them to live longer in their own homes when reviewing the literature. Greenhalgh et al. (2013), similar to Al-Shaqi, Moursheed and Rezgui (2016) and Calvaresi et al. (2017) highlighted the issue that many of the current studies focus too much on the technological aspects of the services rather than on the users and the context in which these services are to be interacted with. The potential of these service from a value co-creation perspective are well understood, but we still lack an understanding about the service beneficiary’s comprehension of what role they play in the value co-creation process, as well as how this understanding could aid the co-creation process in general. As such, the setting of elderly care where acceptance and adoption of technology are generally low provides an opportunity to investigate users’ understanding of the value co-creation process and what potential value it would provide them with.

With this backdrop, the purpose of this study is to investigate the value creation processes initiated by the users of a home-based monitoring service. To achieve the purpose, we formulate the following research questions:

1. How do users initiate value co-creation in a remote monitoring service?

2. How is value co-creation connected to the user’s view of the value of the service?

To that end, we adopt a narrative approach - long recognized in IS research as a method of inquiry (e.g., Hirschheim and Newman, 1991; Boland and Schultze, 1996) - to investigate the value creation processes and follow this introduction with a brief literature review on value creation. The methodological approach and empirical settings are provided next, followed by the analysis of the data. The paper closes with a brief discussion of the results and conclusions.

2 Value (co-)creation and the micro-processes underpinning value identification

The current study is embedded within what can be called the micro level of the service system, i.e., where an end-user interacts with the service (Grönroos and Voima, 2013). It is on this level that the value creation processes are initiated, and it is here that they must be understood in order for the macro and meso levels to be able to attain value from the processes enabled on the micro level (Moretta Tartaglione, Cavacece, Cassia and Russo, 2018; Sweeney, Plewa and Zurbruegg, 2018).

Here we provide an overview of value co-creation and place the current study within the service logic literature. In addition, value and value identification is defined within this paradigm and connected to the current study.

Within the current IS literature the service literature often referenced when discussing questions of a service nature is the service dominant logic (SD-logic) (Lusch and Vargo, 2014). However, SD-logic is a logic that focuses more on the macro and meso level processes of value creation than on the micro level (Grönroos and Gummerus, 2014; Vargo and Lusch, 2016, 2017). Not that SD-logic does not acknowledge the micro-processes needed for value creation, rather it focuses on the institutional role in the value creation process, focusing on all actors in the value creation process (Saarijärvi, Puustinen, Yrjölä and Mäenpää, 2017).

Another conceptualization of the value creation processes inherent in services is that of service logic (Grönroos and Voima, 2013; Grönroos, 2017). The service logic explicitly targets the micro level in
the value creation process from an end-user perspective. The Service Logic, as it is labeled, divides the value creation process into three different spheres (Grönroos and Voima, 2013), as shown in Figure 1 below. Service providers either by themselves or by coming together with other service providers propose value of a given service to the end-user within what is labeled the provider sphere. End-users on the other hand act and live in the user sphere. End-users are fully capable of creating value for themselves within the user sphere, without having to interact with a service provider. This process is value creation. An example of value creation within the user sphere can be found for instance in online communities where users can assist each by sharing their experiences in chronic disease management such as diabetes (Greene, Choudhry, Kilabuk and Shrank, 2011).

If, and only if, the end-user chooses to interact with a service provider then value is co-created between the parties. This value co-creation process follows the same logic as the value co-creation process in the SD-logic, where value is created at the time of interaction and where the ultimate value of an interaction is decided upon by the end-user (Vargo and Lusch, 2016; Grönroos, 2017). An example of value co-creation would be when a person is using a Skype-like service to talk to their physician. They are equally responsible for interacting with each other to create an understanding of the situation. Service providers, as conceptualized within the Service Logic, can hence only propose value to a target group and hope that the group can identify enough value from a service interaction that they are willing to engage and interact with the service. This is labeled the joint sphere and refers to the joint engagement to co-create value between service provider(s) and service end-user.

![Figure 1. A schematic overview of the value creation spheres as presented in Service Logic by Grönroos and Voima (2013).](image)

Value within the Service Logic is defined as “the value-in-use that emerges for the customer appears as a function of the customer’s experiences and logic” (Grönroos and Voima, 2013, p. 133) that is, value comes from using the service. The perspective on value as a derivative of use is an effect of the emphasis placed on the interactions taking place in the service process. The use of the term ‘value’ within this paper refer explicitly to value-in-use.

An effect of the current wave of digitalization is that it has allowed for service providers to extend their reach when it comes to architecting and choreographing the service interactions (Lerch and Gotsch, 2015; Parida, Sjödin, Lenka and Wincent, 2015). Through connecting devices and allowing for home automation, service providers have been able to offer new and innovative solutions for testing and proposing new services, for instance, home-based social care services. Examples of such services include telemonitoring for identifying diseases, tracking the user’s habits to identify changes in daily patterns, and decision-making and feedback mechanisms to keep symptoms of diseases under control (Kim, Gollamudi and Steinhubl, 2017).

Previous research has identified that the end-user micro processes involved in identifying value through the use of digitally enabled services span four different dimensions; the technical dimension, the functional dimension, the spatial dimension and the temporal dimension (Heinonen, 2004, 2006; Heinonen and Strandvik, 2009). Heinonen (2004) describes the different dimensions in the following way: The technical dimension denotes the outcome of the service interaction from an end-user per-
spective, i.e., how much value did the end-user see in finishing the (entire) service process. The functional dimension refers to the customers’ experience during the service process. The temporal dimension refers to the customer’s perception of the time when the service interaction occurred, e.g., could the service interaction be aborted and resumed whenever the end-users felt like it or was there inherent time pressure in finishing the service process. Finally, the spatial dimension concerns the customer perception of the location where the service interaction occurred, e.g., could the service user choose themselves where to access the service or if it was location based.

In addition to the four dimensions, previous research has also shown that for digitally enabled services that aim at improving the quality of life for an elderly person the end user often places emphasis on their self-image to evaluate if they see any need in using a service or not (Peek et al., 2017). According to Peek et al. (2017), the self-image is made up of two dimensions, the status quo – the necessity to perceive a need – and the enabling mechanisms – which encompass the motivational aspects of acquiring and start using a system and the resources needed to acquire the system. Resources in this sense do not mean monetary resources but rather knowledge-based, or operant resources as they would be defined within the service literature (Vargo and Lusch, 2016). The individual’s self-image about the system being developed is reported to be missing in most of the services currently offered to end-users within this domain (Greenhalgh et al., 2013). Previous research on adoption and acceptance has already highlighted the importance of end-user’s necessity for identifying, e.g. usefulness, ease-of-use and their expectations on technology (Davis, 1989; Venkatesh, Morris, Gordon and Davis, 2003; Venkatesh, Thong and Xu, 2016; Brown, Venkatesh and Goyal, 2012; Bhattacherjee and Lin, 2015). However, the determinants used in the current dominant acceptance models within IS research do have an inherent technological starting point for evaluating the potential of acceptance of a given technology. They are prescriptive theoretical approaches for understanding a future state. They, as they are currently formulated, do not allow for the exploration of the interplay between the digitally enabled service and the end-user. This interaction requires concepts and models that allow for an investigation that embeds the technology into the context and adopts an emergent perspective (Orlikowski, 2010).

Service Logic stipulates that it is the end-users who decide if value should be co-created or not, but the service providers still choreograph the interactions. However, we can go further and argue that not even the interactions are choreographed by the service provider but rather by the end-user as well (Heinonen et al., 2010; Heinonen and Strandvik, 2015). Today, we as individuals can combine a multitude of services in order to choreograph our own service experience, and hence also i) what value we identify during this experience and ii) what value we chose to co-create within the experience. Essentially the implications this has for organizations is that they are not the ones that decide what activities that can occur in the joint sphere and who gets to part-take in them or not, it is the end-user.

3 Research setting and method

As we are investigating the value (co-)creation process empirically in a specific setting, we decided to adopt a single-case design (Eisenhardt, 1989; Yin, 2014), an accepted form of research design in IS that leads to generating rich insights about the phenomena under study (Cavaye, 1996; Lee and Baskerville, 2003; Walsham, 2006).

The data for this study comes from an Ambient Assisted Living (AAL) project. The AAL sphere is placed outside of the immediate healthcare system and focuses on developing new and innovative products and services to aid the elderly to live longer at home (Mettler and Raptis, 2012) and reduce the burden on existing healthcare systems (Demiris, 2008). The services within this domain are often of a monitoring nature where sensors are placed in the homes of the elderly and then connected to either a care institution or to extended family, or informal caregivers as they are often called (Al-Shaqi et al., 2016; Calvaresi et al., 2017).
The current study was conducted in conjunction with a bigger project funded by the Ambient Assisted Living Programme\(^1\). The overall aim of the project was to support end-users’ healthiness in an unobtrusive and simple way: through monitoring of daily life behaviors of the users, and supporting end-user and their caregivers with feedback, advice, and motivation in pursuing a healthy and safe lifestyle. The project addressed people over 65 not suffering from major chronic diseases or severe disabilities, yet possibly being affected by (or being at risk of) metabolic or circulatory malfunctioning (e.g., hypertension, mild diabetes) or by mild cognitive deficits in the Netherlands and Sweden. The project’s end goal was to have a proof of concept of the service which could be realized and put on the market in 2-3 years after the project ended. In reality, this meant that a service prototype was installed in the homes of elderly people for 4-6 months as a pilot project.

The piloted service consisted of sensors placed in the homes of the pilot participants. These sensors tracked the behavior of the person(s) living in the household. In the finalized service, the users are meant to be able to choose which of the sensors they would like to be incorporated into their own service experience, however, for the pilot, all sensors were installed in the participating households. The sensors consisted of a pressure sensor placed in the favorite chair/couch of the participant, one bed sensor for sleeping pattern recognition, one toilet sensor, one wearable sensor for movement monitoring, a sensor acting as a nose in the refrigerator to check if the food had gone bad, and sensors for drawers, etc. The participants also received a computer to store the data coming from the sensors, a tablet to be able to access the service application, and what the project called a “snowflake” which was supposed to act as an unobtrusive way of letting the user know whether the sensors were working or if they needed to check the application for messages coming from the service. The tablet application was meant to act as both an interface for signing up and ordering the sensors at the beginning of the service lifetime, and after that as the interface of which the service beneficiary could see long term behavioral patterns from the sensors. The tablet was the main point of entry to the service from a user point-of-view, through the tablet they could look at information about themselves and see charts mapping their behavior and activity level. The data collected from the sensors were stored locally on the computer and could be accessed by project participants through a web-interface.

The data included in this study is a subset of the interviews conducted in the project coming from the Swedish data set as the authors of this paper deemed it important to keep the analysis within the same cultural domain. From here on out we will refer to the Swedish pilot participants as the participants.

The participants, nine in total, ranged between the ages of 66-78, were asked to share their experiences of their interaction with the service. Table 1 below provides an overview of the participants and their interaction with the service during the pilot.

<table>
<thead>
<tr>
<th>Age</th>
<th>Gender</th>
<th>Living Alone</th>
<th>Geographical location</th>
<th>Training of the service</th>
<th>Duration of service usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>F</td>
<td>Yes</td>
<td>Small town in southern Sweden around 35,000 inhabitants</td>
<td>Basic training with an instructor where the trainer introduced the tablet application to the pilot participants</td>
<td>The end-user tested the piloted service for six months.</td>
</tr>
<tr>
<td>73</td>
<td>M</td>
<td>Yes</td>
<td>Small town</td>
<td>Basic training</td>
<td>Six months</td>
</tr>
<tr>
<td>74</td>
<td>M</td>
<td>No</td>
<td>Small town</td>
<td>Basic training</td>
<td>Six months</td>
</tr>
<tr>
<td>73</td>
<td>F</td>
<td>Yes</td>
<td>Small town</td>
<td>Basic training</td>
<td>Six months</td>
</tr>
<tr>
<td>66</td>
<td>F</td>
<td>Yes</td>
<td>Small town</td>
<td>Basic training</td>
<td>Six months</td>
</tr>
<tr>
<td>78</td>
<td>M</td>
<td>No</td>
<td>Small town</td>
<td>Basic training</td>
<td>Six months</td>
</tr>
<tr>
<td>72</td>
<td>F</td>
<td>No</td>
<td>Small town</td>
<td>Basic training</td>
<td>Six months</td>
</tr>
<tr>
<td>72</td>
<td>F</td>
<td>Yes</td>
<td>Small town</td>
<td>Basic training</td>
<td>Six months</td>
</tr>
</tbody>
</table>

Table 1. A demographic overview of the pilot participants and their interaction with the piloted service.

We analyzed our data by employing a narrative approach (Czarniawska and Joerges, 1997; Boje, 2001; Czarniawska, 2002). Narrative approaches have been used in IS research to investigate sense-making in system development (Hirschheim and Newman, 1991; Davidson, 1997) to investigate new forms of working (Boland and Schultze, 1996), to study ERP failures (Bartis and Mitev, 2008) to provide an alternative to artefact-oriented approaches (Pentland and Feldman, 2008). As a methodological tool, narrative approaches provide an interpretative lens to identify the value creation process through participants’ accounts as they make sense of the past events (Catherine Kohler Riessman, 1993), provide legitimacy and accountability to their actions (Czarniawska and Joerges, 1997), create their positions vis-a-vis others (Davies and Harré, 1990) and create the identities of the participants and the relationships among them to project their everyday situation and aspirations (Gergen, 2009). Following an interpretivist approach (Klein and Myers, 1999) we acknowledge that the identified narratives are a result of the interaction between us the authors (audience), and the participants (teller) and that they are context-dependent.

Similar to (Czarniawska, 2002) we believe that re-contextualizing is the more important aspect of the narrative analysis rather than using a specific analytic technique. However, we also draw from Riessman's (2005) arguments that there are often some commonalities in narrative analysis – a sequence and a consequence – which we used to help us in our first level analysis. At this first step of the analysis, the accounts provided by the participants were analyzed to see if they are based around certain events, settings, actors, and how the participants positioned themselves relative to to them to help us identify the relationships between the participants and the service. This relationship provided us a general idea of how the participants interacted with the service and how they saw their – and other actors' - role in the project.

We followed this by analyzing these individual narratives. Through an iterative process of comparison and contrasting the individual narratives, we analyzed how – if – the narratives provided by the participants deviate from each other. In this phase of the analysis, we began to cluster these individual narratives to generate an overall picture and identify the narratives around the service, specifically focusing
on how and under which circumstances the participants attributed value to the service. The identified narratives are presented in the analysis section of the paper.

4 Analysis

Based on our coding and analysis, we were able to identify various narratives. Below, they are grouped under three general headings based on the general themes found in the narratives. They are Value for the present and future self, Service use and resource integrators and users as initiators, Conditions for meaningful use.

![Figure 3](image-url)  
*Figure 3. a graphical representation of the role that the participants placed themselves in relative to the service.*

Our analysis, as can be seen in Figure 2, has shown that temporal issues play an important role - if the user is sick or not - to initiate the value creation process. This positioning of the self in different temporal zones is most prevalent in the first narrative, where the users understanding of themselves and the benefits, they can get from the service is dependent on if they are sick or not. While the participants provided a future self-narrative contra present-self narrative, their background - if they were comfortable with technology in general or not, what we label as “tech-savvy” - if the service provides coverage for the rather mobile lifestyle of the users, if the participants felt they lack a security net were important aspects that influenced the value initiation and (co-)creation process. These issues are reflected in their concerns about the privacy and data access issues as identified in the second narrative, where these concerns are used to explain who should be responsible for monitoring the user (him/herself, a relative or a healthcare provider) and who is allowed to do what. The third identified narrative is anchored in issues that the users identified as necessary for meaningful use, such as the service covering all relevant aspects of the users’ life, not just a “boxed in” version of life, and how the service structure affected the users own understanding of the value of the service.

4.1 Value for the present and future self

In the first of the three-general categorization of the narratives, a temporal aspect was identified. Two main narratives identified how the value creation process relate to the temporal aspects expressed by the participants. One anchored into their experiences here and now, and one where they position themselves in the future. These two narratives, while distinct, are often used in a sequence, where after the introduction of the here-and-now narrative, the future-use narrative is used to balance the position.

As the participants were selected from the target age group, but without any major health issues, a salient narrative used by all participants is that there is not much value in using this service. Repeated in various forms, the participant narrative is built on their health, and how the service does not provide any real value to them: When asked about how his experience and if he found the service in any way helpful, one participant revealed:

“I understand the basics [how to use the service] ... however, I do not see how it [using the service] will benefit me... I really do not get what I can use it for” (Hugo).
Similar formulations can be found in other participants, ranging from getting no value to being confused about the project. Adding to this issue, most of the participants argued that for “meaningful use,” the service should be able to show patterns over time, thus should be used regularly over a period of time. As this was a pilot project, they did not believe that such a pattern could be generated, which in some cases resulted in an inability to recognize the value of the service. The users did not know if their participation was recognized by the service as they felt that their behavioral data and progress on the tablet did not accurately reflect their life as they saw it. This is further elaborated on in the conditions for meaningful use narrative below.

The present-self narrative is balanced by a projection to the future. Hugo continues:

“I really do not get what I can use it for. However, I understand how important it is. If we think of a fictional person…”

Hugo’s, and other participants’ narratives follows similar formulations, where the “fictional person” often takes the role of an anonymous friend, an unnamed elderly generic person, or the future-self that needs help where the service would provide value to the user “in case I fall” (Hugo) “one can just fall and break a leg, it is not uncommon” (Alice) “I have a friend that is really afraid of dying in a heart attack” (Julia).

In all these future use narrations, the temporal change is triggered by having a health problem. As the participants are healthy when interviewed, they do not see any immediate value in using the service. As we will see in the next narrative, their motivation to participate is not to derive value from the service but to fulfill other personal needs. What they see in the service is a potential value, where the immediate value will be accrued when and only if they become sick – fall down, have an accident, get diabetes.

One question then is why these people who derive no immediate value enroll in the project, to begin with. When looking into the narratives provided by the participants, most of the participants position themselves as moral heroes. The participants enroll in the project because they believe that through helping in the project they bring benefits to the society at large, either as just being part of the project and help to refine it:

“I thought that by this [being part of the project], I could contribute to something so that it becomes better for another person” (Oscar)

alternatively, through taking a more active role as a guard, who tries to minimize the adverse effects, such services can have

“I saw this as developing, a technique that, which protects the person's integrity, without going too far in, or without giving rise to any, the privacy impairment I experience TV surveillance is true” (Liam).

Many of the narratives identified as belonging to the present and future self are individual. The users often refer to individual aspects of the value (co-)creation process. In the second identified narrative the users incorporate other aspects as well.

4.2 Resource integrators and the users as initiators of service use

As mentioned, the participants mainly attributed value to the service given a future state; if they became ill or projected the value onto people with already existing healthcare issues. This brings another element into the value creation process revolving around the service, namely how it is positioned within the wider net of healthcare services. It also emphasizes the user’s initiation of value co-creation processes.

The underlying theme in the individual narratives is that this service is a complementary aspect to the already existing healthcare services. A general narrative is that the healthcare systems are already under pressure and are not providing the best quality service, then the service can help it by identifying when people have difficulties. These difficulties are often shown as abrupt changes in the data patterns - the data patterns which were seen as an important element of value for the participants to use the service - which would signal someone from the healthcare system that there is a problem with the user.

To follow the earlier example of Julia’s friend “who had a heart attack, who is afraid to go out,” she
would feel more confident if she knew that someone is actually tracking her and would help her if something goes wrong. In this way, the service enables a better health care provision by providing timely intervention possibilities by the healthcare personnel. Thus, the value for the users will be generated by an interaction between the user, the technological components, and another user: the healthcare providers. When talking about how the service is used, one respondent argues it is the individual that decides when to use the service, but:

“if there is a third party involved that notes changes, controls patterns or raises the alarm when I can not, it is a good thing [...] when it [the respondents health condition] fails, it is the third party’s duty to act.” (Liam)

The privacy/integrity issues introduced as reasons to help in such a project take another role in the narrative that the participants provide on the role of the service in their everyday life. Similar to the intervention by healthcare providers, most participants argued that select few - friends and family - can and should have access to the behavioral data, so that they can track the users and help them if needed. The participants, while not sure about who should have access from healthcare professional perspective - mostly either not mentioned or generic terms like municipality, hospital - where they assert their own choices of who should have access to their data. It is their right to select who can have access.

Both of these narratives highlight the participants value positioning where they do not attribute much value to the service unless it allows others to intervene, that it is connected to other actors – professional healthcare institutions, family and friends, care homes, etc: ‘perhaps if it is connected to an alarm center’ (Alice), “similar to the care homes, where they call you in the morning to check if you are feeling ok” (Hugo). This type of intervention was coupled with trusting the service, that the users would trust the service if it can enable such interventions. In one instance, the two intervention styles are intertwined: when talking about how the data gathered by the service is not that interesting to most, Liam introduces that her immediate family can have access and see if something is not normal, that it is OK to have immediate family to have access to the service, but that it becomes blurry when to limit access “perhaps we shouldn’t spread the information too much” mentioning that even sharing with “daughter-in-law” can be too much – and that perhaps “it is more important that the someone [healthcare provider] that can intervene closer to home, rather than someone living in Stockholm and checks if something has gone wrong” after all.

Whereas in the first narrative the user-focused mostly him/herself, the second narrative showed the need for interaction to gain value from the service. The third narrative develops this further by focusing on meaningful use where interaction with the service takes an important role.

### 4.3 Conditions for meaningful use

At various parts of the narratives, the participants reflected on what made them use/not use the service, going through the barriers against use.

Some parts of these narratives are rather similar to the general arguments found in most adoption/diffusion narrative. Thus we will not provide much detail on them. However, they are used intertwined within narratives about the conditions to use.

One main narrative on this topic is related to what we mentioned before, that the participants at this point – healthy – do not see much value in the service. However, one grievance against the service that it doesn’t reflect the users life “We are not boxed in”, “I am active”, “I go to my summer cottage this week and it doesn’t have the service”, “it is clunky to carry around”, “it should have wi-fi” are several snippets from all the interviews where the participants, in one form or another, talked about how the service is lacking to provide an immersive user experience due to lack of ubiquitousness, that it doesn’t match the real-life situations.

“In many situations, there are other cases, like having another place [a second home]. Also other things. I mean, I had a partner, now I don’t, but then... What happens then when you... when you are here and there? It can also be periodic...” (Emma)
“OK, I would like to have something that captures the totality of… for now it is just, I mean, yeah, you have the cupboard, the fridge, but what about if I go out?” (Oscar)

Going back to Figure 1, we can argue that as the service is always gathering data and provides value to the user through self-tracking. In such case we can then argue that we would near-always be in the joint sphere: the user benefits from use and the provider benefits by improving its capabilities. However, as most participants highlighted, not having this immersion meant they did not use the service actively, which meant that they did not get the benefits from seeing patterns in data – a core argument for using – but that they also did not bring the sensor with them, thus resulting in blank spots in their data. This creates a negative feedback cycle that the less immersive the service is, the less it is passively used, the less it is passively used the more blank spots it has, the more blank spots it has the less meaningful the patterns and interventions are, the less meaningful the patterns are the less use of the service.

Another condition for meaningful use was the need for users to feel confident enough in their use of technology. As mentioned before, in our sample we had a broad range of participants where the tech-savvy people provided a different type of narrative. They were able to see more chances of improving the service. “I do not need it today, but if I need in the future I want…” is a generic formulation for arguing what the participant overall wants the service to do. However, this formulation was followed by arguing that design of the tablet should be similar to an “iPad”, that it should be connected to their “phones,” that it should be a “wearable, clip on” device. While the service was overall found to be “boxed in” and not covering all the aspects related to health, the people who identified as tech-savvy argued that they did not transport the service more out of clunkiness and that they did not need help to start using the service.

“It is too much of a hassle to move everything. I did not know if I was allowed to […] but it is just plugging it to a cable. I could do it myself” (Oscar)

The physical aspects of the service for the overall users - elderly people - should be improved to be more intuitive to how the users might actually use the service. Some users that expressed that they were not familiar with technology expressed confusions about what the service does in certain aspects that the tech-savvy group did not mention. As Oscar’s account also shows, there is a certain amount of insecurity to how the service should be handled, which can be due to basic training the participants received for the pilot. This interaction between lack of tech-savviness and lack of training can be seen in Julia’s account of her interaction with the tablet more clearly.

I am not sure what to do with the tablet either. I do not understand it; it says “my [mobile] device is not working,” and I do not have any bars. And I do not understand it, is it the wi-fi? That is using wi-fi? I do not understand it […] I am not sure what I should see [look for] on the tablet…”

The narratives identified in the analysis can be connected to the user and joint spheres of value (co-)creation within the service logic. In the discussion, we will elaborate on the narratives and their relation to the spheres and how these are connected to our research questions.

5 Discussion

From a theoretical point of view, the narratives identified can be placed inside the user and joint value (co-)creation spheres of the service logic (Grönroos, 2017). The narrative of the present and future self is placed in the user sphere. The joint sphere is occupied by the second narrative – Resource integrators and the users as initiators of service use. The third narrative spans both spheres as it brings up issues reflecting the self as much as it reflects the relationship between the user and the service.

The users’ understanding of their role in these instances place a high emphasis on their ability to initiate use or discontinuing use, thus giving a primary role to the user within the value co-creation process. While technology enthusiastic participants were more confident in their ability to adjust to the service and gain benefits, the overall narrative of the participants shows that as soon as they do not perceive any benefits, they are inclined to reject the service. This positioning of the user throughout the narratives is similar to what service logic indicates that value is only created if the user is willing
to interact with the service, i.e., that value is only created through interaction (Grönroos and Voima, 2013).

The user sphere contains a couple of the identified narratives. Various user narratives provide us a negative aspect due to physical impediments, such as the ability to charge the wearable sensor. In addition, they identify continuous use as a necessity for value identification - for example by helping them understand behavioral patterns. This, however, brings another issue of value creation, where the self-image of the participant does not match the visualized patterns in the service. The participants were not as active as they first thought. Thus, instead of leading to a positive change of behavior and improved healthcare, the mismatch between the self-image of the user and the representation provided by the service can lead to a rejection of the service. One reason for the users not to use the service was that it did not incorporate the summer cottage into the service, only the participant's primary residence. However, even at the primary residence, the use of the service diminishes when the user's self-image does not match the image represented by the service. The importance of matching the service to the user's self-image is an issue highlighted by Wherton et al. (2015) as a reoccurring problem and is one of the incentives for emphasizing the users understanding of the service and their role in the value co-creation process.

Another aspect from the first narrative highlights the shift in the perceived value of the service should the person become sick in a future state, a consequence of needing assistance is that interaction with the service and hence value creation opportunities become more frequent. For example, if a user needs more assistance, the service becomes more visible for the user than if it is latently monitoring the users’ behavioral patterns. Thus, the user – at its present state – stays within the user sphere and value is only identified when the user initiates interaction with the service, e.g., through the tablet. The duration of service use and how it affects the value identification has been highlighted before by for instance Macdonald et al. (2011) who argue that services need to accommodate for the temporal aspects of value identification and provide different kinds of value dependent on the present and future self. A process that in our case is initiated in the user sphere and only moves into the joint sphere when the users perceive a greater need for interaction. Similar ideas can be found in other studies that highlight the intrinsic and extrinsic motivational aspects of using a service (Neghina, Caniëls, Bloemer and van Birgelen, 2015; Pfisterer and Roth, 2015; Leclercq et al., 2016; Peek, Luijkx, et al., 2017).

In the joint sphere, we find narratives where one main point of value co-creation is tied to spatial issues. The most common grievance taken up by the participants was that the service is not fit for how they live their lives, that it was boxed in. Thus, the set-up of the service, as it stands now, is a hindrance towards value co-creation, as it impedes valuable use at present, thus diminishing the potential for continuous use. While the identified present and future self of the user is anchored within the “user sphere” of value creation, when the providers are not able to match the user’s expectations of mobility within the service the value co-creation process is hindered. The issue of mobility and access to services is one of the aspects of value-in-use brought forth by Heinonen (2006), spatial restraints diminish the users' future intention to interact with the service.

Another aspect of value co-creation in the joint sphere is highlighted when the piloted service was able to provide a link between the service and the users overall feeling of security. This feeling was achieved either through an ability to share behavioral data with family and/or friends or generating a possibility of an (early) intervention via healthcare providers. However, most of the participants emphasized that the service should not substitute the existing social security nets. This shows that the service should not be taking the already existing roles, but enable the user to have more flexibility, more security, while at the same time providing more efficient use of healthcare resources. Each of these interactions can be conceptualised as a co-creation opportunity, where the providers enable the users to take an active role in their own healthcare, by creating a service ecosystem around the service, and the users continued use of the service assisting to improve the service provision. Linkages between various actors inside the service ecosystem are the fundamentals of the value co-creation process and a key aspect to consider for any co-creation process (Prahalad and Ramaswamy, 2004; Frow et al., 2016). However, these processes should be mapped to the users understanding of the value co-
creation process (Greenhalgh et al., 2013; Grönroos and Gummerus, 2014; Heinonen and Strandvik, 2015).

In the identified value (co-)creation instances, and similar to the extant literature, the background of the users played an important role (Courtney et al., 2008; Pfisterer and Roth, 2015; Peek, Luijkx, et al., 2017). For the pilot participants, having their overall use patterns, having their family informed, having interventions if they fall were all factors that increased their willingness to interact with the service and hence co-create value. The participants could immediately identify how the service dealt with these issues and formulating suggestions of how the healthcare system should be changed to provide an impetus for this digitized healthcare. On the other hand, the non-tech-oriented participants expressed confusion and stayed at a generic level for their future use cases, once again highlighting the importance of value creation in the joint sphere, where the users are willing to interact with the providers through using the service to create value.

The results of the study are in line with previous studies looking into factors affecting adoption and acceptance of assistive technologies. For instance, Courtney et al. (2007) identified that the concept of self is an important factor for accepting technologies within the elderly population. They identified that being someone who uses technology as an aid was a mental step amongst the elderly population. This finding can be likened with accepting that it is time to start using hearing aids. However, what this investigation showed was that it is just as important that the technology is perceived to represent an accurate picture of the person using the technology. i.e., the concept of self in this domain can be expanded to also include technology representative aspects. Similar findings are presented by Peek et al. (2017) where “internal technology related schemas and attitudes” is considered as one of the status quo issues that need to be overcome for accepting assistive technologies.

Overall the results deepen our understanding of what various spheres of value (co-)creation coexists within the Service Logic. They provide a user account of the value (co-)creation process and what aspects that are important to consider for purposes of facilitating interaction among actors on a more general level. The identified narratives also provide insights into the two research questions by highlighting issues that connect to the initiation stages of the value (co-)creation process and how this is connected to their own understanding of their own role within the process, a perspective that is necessary to understand the full picture of the value (co-)creation process (Greenhalgh et al., 2013; Grönroos and Gummerus, 2014; Frow et al., 2016; Leclercq et al., 2016).

6 Conclusions

We intended to provide an empirically grounded investigation of the value (co-)creation process on a micro-level, in our case, elderly peoples interaction with a remote (behavioral) monitoring service. However, while the focus is on the micro-level, as the participants narratives has shown, the value co-creation process touches upon many different actors and thus while the value initiation and creation are the user's primary domain, this initiation and continuous use of the service is dependent upon many contingencies, necessitating an ecosystem/systems-thinking perspective, similar views are, e.g. expressed by Frow et al. (2016) and supported empirically by (Macdonald et al., 2011). This type of multi-level thinking becomes even more necessary when the participants’ temporal concerns are considered.

Our results have shown that the user is willing to participate in value co-creation if their identified value covers several aspects. While recognizing that this is a pilot project, users expressed issues regarding privacy and access to data as important elements to be resolved. Their concerns that the service should not replace but complement the existing healthcare services and should accommodate the user’s life patterns were important components that drive the users to interact with the service.

Based on our results, there are several issues to be discussed. First, from a value (co-)creation perspective, it is noteworthy that while technology acceptance (as in the service fulfills a need) is an important aspect, however, for our case it is only the first step. Disruptions or complete termination of the (co-)creation process are caused by either technical issues or by the user not being able to identify actions
that provide them with immediate value. As we are moving towards services that minimize users’ need for interaction – i.e., data gathered by automated systems – the immediate value gained by using the service should be the focus of value (co-)creation. The service should provide enough cause for the users to acknowledge that the service might fulfill a need as well as providing arguments in the shape of functionalities that reflect value (co-)creation opportunities both for the future and present self.

Furthermore, while the piloted service was available and ready to be used at the users’ residence, it was only when the user consents to use it in the prescribed manner that the value co-creation process was initiated. While the argument that ubiquitous/pervasive technologies would lead to a more latent interaction holds true, the users still have primacy in the value co-creation process as they have the agency to stop using the service in any time they choose.

As this study was conducted on a pilot project, one way to further investigate how the users interact with the service, and how value co-creation occurs is to consider a service that is on the market and follow the use of the service over a longer period. As our analysis has shown, the temporal and spatial aspects of use are important aspects that enable/hinders the value (co-)creation process and adopting a long-term perspective can highlight why and how users interact with the service in a meaningful way, and how they change throughout the use. By investigating how and why the users’ interaction occurs and changes over time, how they identify value and how the value co-creation occurs over time, this line of research can generate insight to how to design services that can provide a seamless user experience and enable value co-creation across the service ecosystem that is based on the emergent aspects of value (co-)creation.

References


