Value in servitization: from customer value to multi-stakeholder value

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ABSTRACT,
Servitization is a topic that has a growing importance in contemporary business. Manufacturers increasingly compete through offering new services in addition to their products. Creating and capturing value is essential in servitization as it drives buying decisions. To successfully offer a new service, its value must be assessed. This study aims to investigate value of a new service offering within a multi-stakeholder setting. By examining scientific articles and conducting exploratory research in the form of a case study will provide a better understanding on how stakeholders asses the value of a new service proposition. This research displays the role and interdependencies of the stakeholders together with a cost-benefit analysis conducted on the service. Conclusions will draw upon the consideration and importance of those stakeholders and the implications it has for the manufacturer firm. Therefore, this paper contributes to the value and servitization literature.

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Servitization, Value, Value Assessment, Manufacturing, Stakeholder Perspective

1. INTRODUCTION

1.1 Background

FaCom, a Dutch façade manufacturing company, has recently introduced its new service offering: façade-as-a-service. This new offering is based on their core product, ought to be delivered as a service. In one of their current projects that emphasizes sustainability and circularity, FaCom is going to deliver their 'façade-as-a-service' for several apartments, which are part of a project that is going to be realised in the Netherlands. In this project, they work together with multiple stakeholders within a consortium. To implement their service with success, one of the key issues is to understand, assess, and capitalize its value. In this situation however, it is important to consider FaCom's stakeholders, as they play an important role in the value creation process (Reypens et al., 2016). Hence, this situation represents one of the many examples where manufacturing firms offer new services, which is described in the following phenomenon: servitization.

Servitization explains the shift from product-based business models to service-based business models. Introduced by Vandermerwe and Rada (1988), servitization describes the changing trend in business where modern corporations increasingly offer customer-focused combinations of goods, services, support, self-service, and knowledge. It has a growing interest in research where the challenge is to understand and manage transformation and transition processes that companies must undergo to compete through services (Baines et al., 2019). When this is done successfully, it is argued that these new services deliver customer value and generate revenue and profitability (Baines et al., 2009). However, the shift in these processes can be difficult because services are complex and varied (Story et al., 2017), which could lead to higher costs without generating higher revenue and profitability. This is called the "service paradox", which firms have to overcome (Gebauer et al., 2005).

As research points out that servitization also generates implications for the creation, capture and delivery of value (Martin et al., 2019), it is important to understand the value of a new service offering. While value is a widely used concept that has been given many definitions since its origination, its conceptualization remains ambiguous. Not only has this concept been changed and redefined throughout the years, it has grown interest in business markets where the role of customers has become more important (Eggert et al., 2018). On the one hand, value can be understood as an objective representation of goods and services created by firms and provided to customers (Kuzgun & Asugman, 2015). This conceptualization is called value-in-exchange, where prices are an example of this objective representation (Eggert et al., 2019). On the other hand, value can be understood as a subjective representation which is determined by the customer and is therefore context specific (Eggert et al., 2018). This conceptualization is called value-in-use and has become dominant in marketing literature, where it drives relational outcomes and rebuy decisions (Eggert el al., 2019), which are essential in servitization (Lightfoot et al., 2013).

Because value is co-created and involves the collaboration with multiple actors (Vargo & Lusch, 2004b; Chandler & Vargo, 2011), investigating the value of a new service proposition requires not only the interaction with a firm's customers, but all relevant stakeholders within the value co-creation process (Frow & Payne, 2011). Vargo and Lusch (2016) see this as a service ecosystem, referring to a system of actors that are connected by resources and mutual value creation through service exchange. It sets the idea of value being created by the interaction of multiple relevant actors. Given this, to better understand and assess a service proposition, investigating those actors is necessary as it reflects their evaluation of value along with their perceived benefits and costs (Kumar & Reinartz, 2016). Therefore, having a careful conceptualization of value and a thorough explanation of its processes will help to evaluate servitization and determine its success (Martin et al., 2019).

1.2 Research Gap

In the literature of servitization, most research is conducted on behalf of the supplier and the customer. Studies, for example, focus on the value co-creation processes from a dyadic level of analysis (Martin et al., 2019). An example of this dyadic relationship can be found in the concept of value-in-use, which describes the process where the customer creates value during the usage of a product or service in response to the value proposed by the supplier. Looking from a broader marketing perspective, this value creation process can be seen from different levels of context (Chandler & Vargo, 2011). Such levels of context are described in the Service Dominant (S-D) logic, which argues that all exchanges are service-for-service exchanges and where value is co-created (e.g. Vargo & Lusch, 2008). However, as these levels of context, such as multi-actor interactions and complex networks (Chandler & Vargo, 2011) are being explored by the S-D logic, there is a gap to be found within the servitization literature (Martin et al., 2019). More specifically, Frow and Payne (2011) argue that the stakeholder perspective shows little attention within the servitization literature. Hence, the first gap in servitization addresses the lack of research on value being analyzed from a multi-stakeholder perspective.

Furthermore, research of Reypens et al., (2016) shows the importance of value co-creation and the processes stakeholders go through with creating and capturing value. However, in this multi-stakeholder setting, it does not show the value assessment of the offering by those stakeholders. Therefore, the second gap relates to the topic of value assessment within a multi-stakeholder model.

1.3 Purpose of the Study

Given the described research gaps, I will adopt a multi-stakeholder value creation perspective. As Martin et al. (2019) state that there are still undeveloped topics within a multi-actor level of analysis on value creation, there is a need to investigate this topic. Furthermore, Frow and Payne (2011) suggest that further research must be conducted on stakeholder alignment, as there is little case-based research that aims to understand how this stakeholder alignment is achieved. This implies that adopting a multi-stakeholder perspective can also contribute to the understanding of stakeholder alignment. At last there is a deeper exploration needed to enhance the understanding of value, how it is derived and determined (Vargo et al., 2017).

Therefore, the purpose of this study is to investigate value of a new service offering for multiple stakeholders. My objective is to gain knowledge on the value elements and value drivers of the stakeholders and how they assess the value of the new service offering compared to its next-best alternative. So, my research question is:

What is the value of a new service offering in a multi-stakeholder setting?

To answer this question, I will use three sub questions to narrow down my research and to make it better understandable.

The sub questions I use are the following:

What does the concept of value mean according to the different stakeholders?

What are the elements of value and the value drivers that determine the overall value for the different stakeholders?

How do these different stakeholders assess the new service offering, compared to its next-best alternative?

1.4 Theoretical Positioning

I will approach the concept of value from a value-in-use perspective. This perspective describes the subjective conceptualization of value, which is perceived differently by each actor. Other than value-in-exchange, which is supplier-driven and delivers value to the customer, value-in-use involves value co-creation with a consideration of the relevant actors (Eggert et al., 2018). In contemporary literature, value-in-exchange is challenged by value-in-use, as value-in-use explains the customer's usage experience with the product-service offering (Vargo & Lusch, 2004). Using this perspective, a value proposition seeks co-creative engagement of actors, sharing resources and knowledge and a contribution to mutually rewarding outcomes (Eggert et al., 2018). Therefore, this perspective helps to better assess and discuss the value of a value proposition.

1.5 Research Strategy and Data

The research setting will be in the form of a case study. As previously mentioned, the case study concerns the Dutch façade company FaCom, that wants to investigate the value of its new circular lease façade, which they offer "as-a-service". Building on the current servitization literature, value is assessed from a multi-stakeholder perspective. To put this in practice, FaCom's stakeholders are asked for an in-depth interview for assessing the value of their new service. Following this method of data gathering, it must become clear how these stakeholders assess and value the service. To visualise this, a stakeholder model and value analysis are made to create an overview where practical results can be linked to theory.

1.6 Expected Contribution

The case study will show the overall value of the new façade-as-a-service proposition for multiple stakeholders. Assessing this value is expected to contribute to a better understanding and conceptualization from different viewpoints. My research tends to give FaCom more information on how the new offering is valued in relation to its next-best alternative. It also explains the underlying thoughts and reasons for this. Furthermore, the outcomes of this research could provide a more thorough explanation of the stakeholders' interdependencies and roles.

1.7 Outline of the Study

This report starts with an introduction, followed by an analysis of the relevant literature. It will continue with the methodology section and will carry on with the data collection and data analysis. The last part consists of the results, final conclusions, and a discussion section for further research.

In the theory section, both concepts "servitization" and "value" are explained, where value is put into a servitization context. The subsequent methodology section will outline the case study and the method of data collection and analysis. Within this section, the theoretical and practical approach of data gathering will be defined. Following with the results, the outcomes and analysis of the interviews that are conducted in the case study are displayed. The last section will combine the outcomes towards the theoretical perspective and substantiates the final conclusions.

2. THEORETICAL FRAMEWORK

In the following theoretical section, servitization and value within a servitization context are explained. I will discuss both its conceptualization and its characteristics, whereas a more in-depth discussion will follow on the concept of value-in-use, which I will use in the case study of this research.

2.1 Servitization

2.1.1 Servitization Definition and Characteristics

Servitization is a term which has been introduced by Vandermerwe and Rada (1988) to describe the changing trend in business where firms extend their product-oriented portfolio with services. This "servitization of business" implies that manufacturers add value to their core offerings through services. Using the definition of Lightfoot et al. (2013), servitization is referred to a transition in selling products to selling integrated product-service offerings to generate and deliver value-in-use. These integrated product-service offerings can vary from simple services that improve the condition of the product (e.g. maintenance), to sophisticated services that improve the capability of a product (e.g. solutions).

It has become clear that servitization generates implications for manufacturing firms which results in several potential advantages and disadvantages (Baines et al., 2017). As manufacturers may contemplate servitization as a new strategy and a process of changing business models, they may pursue the logic that servitization creates more innovation and increases customer value, sales, and profitability (Kohtamäki et al., 2018). Crozet & milet (2107) have translated these advantages into concrete examples. They argue that servitized firms are more profitable, employ more workers, and have higher total sales than non-servitized firms. However, offering new services can bring problems as servitization may result in a decline of overall firm performance and has its challenges of allocating the right resources and capabilities (Kohtamäki et al., 2018). Gebauer et al. (2005) state that servitized firms increase their revenues and costs, but do not increase the correspondingly returns, which they call the "service paradox". A reason for this "service paradox" is that servitized firms, compared to pure manufacturing firms, have higher total costs and net assets that cannot be compensated enough by higher revenues and margins (Neely, 2008). Therefore, servitization is regarded as a highly complex phenomenon (Kohtamäki et al., 2018). Its success is determined by the alignment of multiple dimensions, which help to overcome the "service paradox" (Baines et al., 2009; Gebauer et al., 2005).

2.1.2 Product Service Systems

One of the concepts within the servitization literature is related to Product Service Systems (PSS). PSS are systems that involve offerings which include an integrated combination of products and services (e.g. Kuijken et al., 2017). These integrated combinations of products and services are designed to deliver performance. According to Goedkoop et al. (1999), a PSS is a marketable set of products and services that is capable of jointly fulfilling a user's need.

In their Business Effectiveness Model (Figure 1), Gielingh and Nederveen (2010) regard a PSS as the most efficient business model in terms of enterprise efficiency with respect to the delivery of client value. They argue that user value is optimized by additional services which ensure that the product remains 'fit-

for-use'. They argue as well that delivering those additional services will reduce the risk for the client but will increase the risk for the supplier.

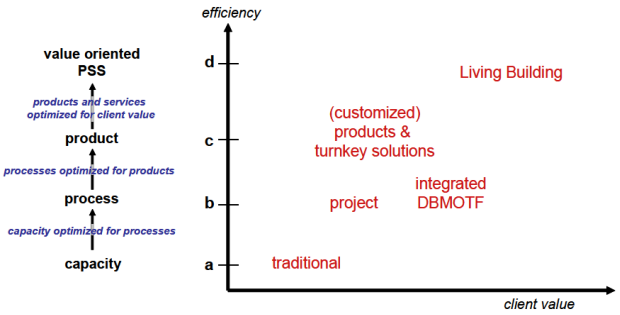

Figure 1. Four levels of business efficiency versus client value in current construction business offerings (Gielingh, 2006)

Identical to research in servitization, PSS generates implications for the suppliers and customers. According to Ulaga & Reinartz (2011), it may provide lower costs for suppliers or customers. Next to other strategic and economic benefits, PSS may help shift consumption patterns towards more sustainable practices (e.g. Goedkoop et al., 1999). On the contrary, manufacturers may struggle to improve their performance through PSS due to a lack of knowledge to effectively apply performance indicators (Kuijken et al., 2017).

2.2 Service Dominant Logic

The Service Dominant (S-D) logic represents a certain view on business and in particular towards value. It appoints to the fact that exchanges, either social or economic, can be considered in terms of service-for-service exchanges. The value that is created from those exchanges is directly linked to the experience a customer gets while using it (Vargo & Lusch, 2008). Within the S-D logic; the service that is exchanged, is defined in terms of applied resources. These resources, which can be in the form of knowledge or skills, can be transferred between one entity to another entity. This transference reflects the process of doing something beneficial for, or beneficial in connection with another entity (Vargo & Lusch, 2008). By zooming out to a wider perspective, Vargo and Lusch (2016) argue the exchange within a multi-actor ecosystem, where the service value is created and transferred between all relevant actors. Research by Adner (2006) builds on this idea by explaining the ecosystems' potential. Here, the challenge for manufacturing firms is to align their innovation strategy in such a way that interdependence and integration risks are minimized, and innovations are not delayed by their partners' resources (e.g. components). When successfully managing this so-called "adoption chain risk" within an ecosystem, it allows firms to create superior value.

Furthermore, within the S-D logic, value is considered as being intangible, heterogeneous, and co-created. Value is always experienced by customers as a function of how they use it (Vargo & Lusch, 2004). The S-D logic highlights the need to understand what value customers derive from services, instead of distinguishing value from a manufacturers' perspective (e.g. Vargo & Lusch, 2008). Therefore, from a marketing perspective, the S-D logic is closely related to the value concept within the servitization literature.

2.3 Value

For the conceptualization of value, one must go back to the very beginning of the 18th century where the fundamental distinction in value was made by Adam Smith. He argued that the conceptualization of value can be distinct in an objective and subjective type. Contemporary literature differentiates these types of value as value-in-use and value-in-exchange, where value-in-use represents the subjective value. Its subjective form is the starting point of a consideration that actors of value have individual experiences and assess those experiences differently (Eggert et al., 2019). While distinguishing between those two types of value, its conceptualization remains ambiguous (Eggert et al., 2018). So, not only the value perceived from an offering is subjective, but various conceptualizations exist which are approached differently as well.

One of these conceptualizations of value is formulated by Anderson et al. (2007). They state that value in business markets is the worth in monetary terms of the technical, economic, service, and social benefits a customer firm receives in exchange for the price it pays for a market offering. Towards this definition, the authors suggest that any market offering can be represented as a set of categorized benefits. It is important to notice that these benefits themselves are not expressed in monetary terms. This implies that the value of these benefits is not changed by raising of lowering the price of the market offering. So, the price is only part of the tradeoff and reflects the customers' willingness-to-pay. A reflection of this conceptualization is the 'expected' value-in-use, where the customer evaluates these perceived benefits accumulated from an offering (Eggert et al., 2019). This will be outlined further in the following subsection.

2.3.1 Value-in-use

The concept of value-in-use originates from Adam Smith in Smith, 1776, where he recognized that value has two different meanings. Value-in-use is seen as the utility, which contributes to achieving something. It is created by the customer during the time of use. The concept has developed throughout the years and emphasizes within the S-D logic. The S-D logic suggests that value is co-created within an ecosystem of actors, such as customers (Eggert, 2018). So, not only the company creates and delivers value to the customer, but all parties play a role in value co-creation and therefore, the value proposition sets expectations of value-in-use (Payne et al., 2017).

Furthermore, Eggert et al., (2019) distinguishes the concept in 'expected' value-in-use and 'experienced' value-in-use. The expected value relates to the promised or expected value offered within a value proposition and can be seen as a cost-benefit ratio of this proposition, offered at the time of exchange. Experienced value is driven by the actual usage of a product or service, which is perceived and facilitates or hinders achieving an actor's goals (Macdonald et al., 2016). Although expected and experienced value-in-use may have different drivers, the concepts are interrelated. Expectations are shaped by past experiences of an offering that can influence the experienced value-in-use (Eggert et al., 2019).

2.3.2 Measuring Value

The assessment of value, relating to both expected and experienced value-in-use, is happening in a certain context and makes it complicated to measure, as perceptions are influenced both internally and externally (Eggert et al., 2019). The perceived value of an offering derives from the benefits and undesired consequences that come with them. Both benefits and undesired consequences, or costs, are expected or experienced by the customer (Kumar & Reinartz, 2016). Those benefits and costs are part of the attributes or features of the offering. This can be in the form of concrete and abstract attributes, which are monetary and non-monetary. Price (monetary) and risk (non-

monetary) can be such features that are considered as costs and have an impact on the perceived value of an offering. Therefore, measuring value is important and is seen as the natural starting point (Kumar & Reinartz, 2016). Furthermore, Kumar and Reinartz (2016) propose three key tasks that need to be completed to measure value. Those are: (1) measure the overall perceived value, (2) measure the associated underlying attributes and benefits, and (3) determine the relative weights of those attributes and benefits.

3. METHODOLOGY

Central to this research is the case study that I conduct for FaCom, which represents manufacturing firms offering a new as-a-service proposition that is valued by relevant stakeholders. Within this methodology section, I will outline the relevance of conducting a case study and the reason for choosing the FaCom case. Next, I will give a description of the case and subsequently I will define the method of data collection and analysis.

3.1 Research Design: Single Case Study

This research has a qualitative design and adopts an exploratory research method in the form of a single case study. According to Yin (2003), a case study investigates a contemporary phenomenon in-depth, in a real-world context, where the boundaries of the phenomenon and its context may not be clear. As there is little known about valuing a new offering in a multi-stakeholder setting within the servitization literature, case-based research can have its contribution. Exploratory case studies question the "why" and "how" in research. Therefore, conducting an exploratory case study is a suitable research method to examine this phenomenon in real life.

The FaCom case can be used to answer my research question. As FaCom wants to know how their stakeholders value their new service proposition, defining value and investigating its drivers will help to understand the value proposition. This case does not only offer the opportunity to investigate value in servitization but gives access to interview de relevant stakeholders which are directly involved. Within the traditional building industry, this case is relatively unique and can have a significant contribution towards new business models. The stakeholder setting facilitates this perfectly. Furthermore, as exploratory case studies question the "why" and "how" of a phenomenon, this method can be used regarding investigating value for the relevant stakeholders. So, the FaCom case is a good example of an exploratory and qualitative case study, which helps to better understand how value is assessed in this context, and therefore, will help answering the research question.

3.2 Case Description

FaCom is a Dutch façade manufacturer that operates within the Netherlands. FaCom has recently introduced their new market offering: façade-as-a-service (FaaS). Compared to their traditional product, façade-as-a-product (FaaP), FaCom wants to bring a new service offering to the market. It is based on their traditional façades, but delivered as a service proposition and therefore regarded as a Product Service System (PSS). It consists of an integrated combination of the actual product, the façade, and the services, which range from 'basic' services (e.g. maintenance and repair), to 'advanced' services (e.g. contractual form and risk sharing) (Story et al., 2017). In order to make FaaS a successful market offering, one of the key characteristics is to investigate the value of their service proposition. In this case, this is done by measuring and assessing the value for multiple stakeholders.

In one of their current projects, FaCom will implement FaaS. This project describes the case study that is conducted within this research. This project is a building project where FaCom, together with their partners, is going to realize a dozen of apartments. For this project, they are going to deliver a circular lease façade which they offer as-a-service. They work together with several partners within the consortium. This consortium consists of FaCom, the project developer, the construction company, and the architect. The apartments that are going to be realized are apartments for sale. The initiator of the project is the project developer. Since the project still has to be realized and therefore not been completed yet, there are no end-users (apartment owners). However, given the importance of the end-user, FaCom wants to investigate the value for potential end-users. According to FaCom, these potential end-users must fit into a group of people that are interested in buying an apartment and have feeling with sustainability and circularity. Therefore, these four stakeholders (project developer, construction company, architect, and potential end-user) are relevant in this case study.

3.3 Description of Stakeholders

3.3.1 End-user

According to FaCom, the potential customer is the most important stakeholder, as they are the end-users of their service. To get information that is as useful and accurate as possible, I aimed for people that are interested in living in an apartment and have affection for sustainability and circularity. Regarding the importance of the customer, a sample of two potential customers was chosen to conduct the interview with. Both interested in apartments, but viewing it from slightly different perspectives. I will regard them both as one entity, so one stakeholder: the potential end-user.

3.3.2 Project Developer

The project developer resulted by a merger between two project developers. Since several years, it has been part of an overhead multinational construction group and operates as a subsidiary. The company develops projects for living, working and leisure. Their company mission is to be socially responsible by developing and building in a sustainable way. They are part of the consortium and responsible for the realization, execution, and delivery of the project. The interview was conducted with a Project Developer and an intern. The Project Developer is directly involved within this project. Both the Project Developer and intern had an equal role in the interview.

3.3.3 Architect

The architectural firm is a Dutch firm which is design driven. It designs, develops, and realizes buildings that are modern and timeless. With having a variety of projects, their goal is to make their designs sustainable and pleasant for the end-user. They also design infrastructure and building projects and they are as well involved with the realization of it. Due to access limitations, this firm substitutes the original architect of the project. As this architectural firm is not part of the project, it is still familiar with FaaS. They work together with FaCom in other projects and are considered as an important and valuable source.

3.3.4 Construction Company

The construction company is a subsidiary of a multinational construction group. They construct in all areas for infrastructure, living and working. As being part of the same group as the project developer within this project, they share the same values towards building in a socially responsive and sustainable way. The construction company is part of the consortium and directly

involved in the project. The interview was conducted with the Category Manager Façade & Roof.

3.4 Data Collection

The collection of data will be done through interviews. This qualitative method of data collection will be in an exploratory context, on the role of value assessment. The interviews are semi-structured, where there is a list of predetermined topics with corresponding questions (Withing, 2007). The reason for choosing this approach is that semi-structured interviews have a flexible structure. It also helps pursuing certain answers with questions as "why?", to gain further in-depth insights in the answers given to those questions. In total, five interviews are conducted which include one interview with each stakeholder, except for the potential end-user, that is represented by two potential end-users with one interview each.

The interviews consist of three parts that take a certain structure and buildup into account. The first part in this structure consists of an introduction, where more 'general' topics are discussed. Such topics include the firm's mission and vision, sustainability, and servitization. The second part will consist of more in-depth questions that tackle the concept of value. Including topics on value and façades, such as the stakeholders' perception of value and its drivers, and their opinion on a successful façade. The third part consists of questions related to FaaS in comparison with FaaP. The topics of discussion included the 'as-a-service' proposition compared to the 'as-a-product' proposition and the value elements related to the service offering.

The reason for having this structure is that it contains a logical buildup. Instead of directly jumping to the relative complex topics of value, beginning with relatively simple questions, which are familiar to answer, gives the interviewee a better understanding of the context. Through this way of getting into the context, it makes it easier to grasp and understand. From there, I move to more in-depth questions on the topic of value assessment.

For constructing my interview questions, I follow the research of Kumar and Reinartz (2016) on measuring value, which is outlined in the theoretical part. As the objective is to gain insights on how the stakeholders value FaCom's new service proposition, it is important to measure this value. In their method, Kumar and Reinartz (2016) propose the measurement of value in three steps: (1) measure overall perceived value, (2) measure associated or underlying attributes/benefits and (3) determine relative weights of those attributes/benefits. Following these steps, some questions reflect on asking the relevant stakeholders about the positive and negative attributes of FaaS. So, by following their method of value measurement, a better analysis can be made as well, which I discuss further in the data analysis section.

An overview of the interviews and the questions can be found in Appendix 2 and Appendix 3. The interviews were triangulated to better validate the answers. This is done through reviewing information on websites and public reports. Furthermore, after conducting and transcribing the interviews, questions have been translated into English, as they have been held in Dutch.

3.5 Data Analysis

During the interviews, some notes were written down which include keywords. After each interview was conducted and transcribed, I examined the outputs multiple times to avoid quick conclusions and misinterpretations. I have examined the transcriptions and compared them with each other. By doing this, similarities and unique differences can be found. I triangulated the outcomes with a 'business' logic. For the project developer, construction company and architect, this business logic implies validating answers with regard to their company values, mission and vision statements, and general established implications that play a role within business. For the potential customers, this implies validating answers on behalf of the 'personal' logic. This personal logic can be, for example, following market trends, customer behavior, and logical thinking processes, which enable to better understand the answers given.

In order to further assess the data retrieved from the interviews more in-depth, I will make use of the definition of Anderson et al. (2007) as they define value as the perceived worth of a market offering expressed in a set of economic, technical, service and social benefits. By using their definition, value concepts can be set out more specifically. After having assessed the data, I can display the perceived advantages and disadvantages of the façade-as-a-service in a Cost-Benefit Model to create a good overview. I will do this without monetizing the 'costs' (monetizing benefits and costs is part of the Cost-Benefit Analysis), as this is not the aim of the research.

4. RESULTS

In the following section, the results from the case study are displayed. Beginning with an overview of the project and the relationship between the investigated stakeholders; their interdependencies, relevance, and decision-making power. Following with the conceptualization of value perceived by each stakeholder. The subsequent section discusses the assessment of the value proposition expressed in the costs and benefits in relation to the façade. Here, all potential costs and benefits that the stakeholders indicate are analysed and grounded with their business logic. The last section shows the perceived benefits and costs of FaaS compared to FaaP.

4.1 Project Overview

4.1.1 Traditional Building Project versus FaCom Building Project

Traditional building projects, which can be seen as linear business models (Zuidema, 2015) (Appendix 1), differ from the building project in this case study. When building apartments in the traditional way, an incentive is given to the project developer by the municipality. Depending on the need, the project must fulfil certain criteria. The project developer will define the project and includes the suppliers and contractors, for example the architect, façade manufacturer, and construction company. When the project is completed, so when the apartments are built, the project developer either sells it to an external investor or sells it directly to the end-users. The latter implies that the project developer operates as the investor of the project. Depending on the monetary construction, the end-users either buy or rent the apartment. In the case of buying, the end-user is represented in a 'Vereniging van Eigenaren' (VVE), which is an overarching whole that is responsible for the shared areas. The VVE looks after these shared areas and takes care of the maintenance. To do so, the end-user pays a monthly fee of which the VVE uses to pay contractors that conduct the maintenance. Furthermore, when the project is realized, it can be considered as a finished job for the façade manufacturer, as it has delivered the façade that met the predetermined criteria. In Figure 2, this traditional business model is visualized with the relevant stakeholders of this case study.

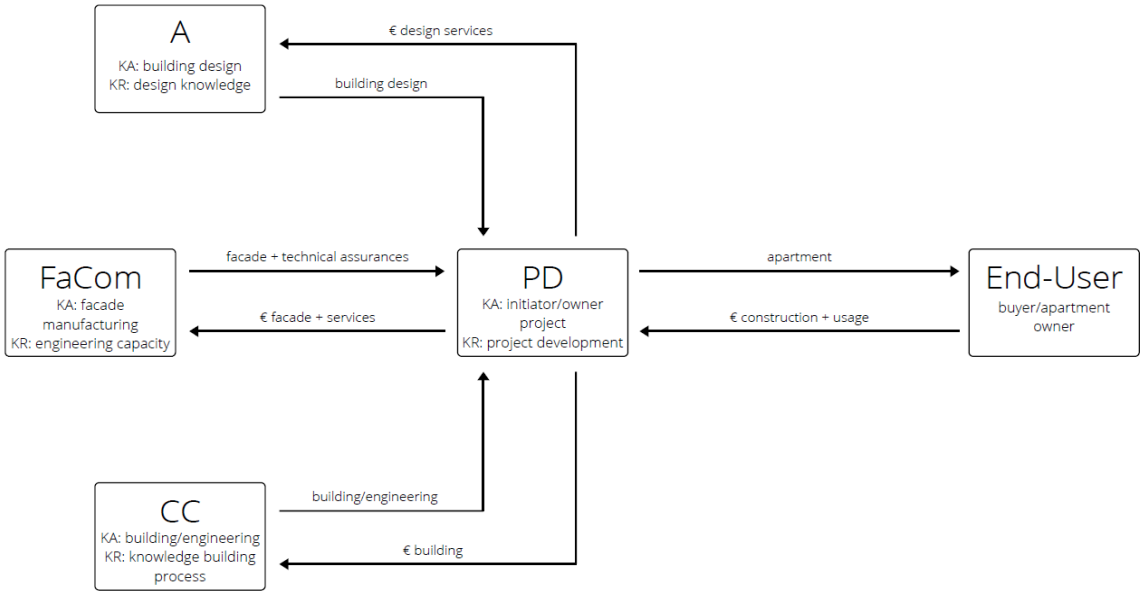

Figure 2. Traditional building project implementing FaaP

Considering the relevant stakeholders in this model; Facom, the architect (indicated as 'A'), and the construction company (indicated as 'CC') stand on the supply side. Their customer, which is the project developer (indicated as 'PD') stands in the middle, as this stakeholder initiates the project, gathers contractors, and delivers the project to the end-user. These four stakeholders are part of the consortium and are mostly chosen because they meet predetermined criteria and offer a low price. Their key activities and resources are stated in the figure. The architect, FaCom, and the construction company all deliver their products and services directly to the project developer and get paid in return. The project developer sells the apartments to an external buyer or directly to the end-users. Important to notice is that all stakeholders within the consortium complement each other by delivering their piece to the project. In this situation, the contractors are not directly interdependent, but rather indirectly interrelated. For example, the construction company does not have the decision power to alter an architect's design. However, it must comply with the design criteria in order to build what is agreed upon.

In contrast, the structure of the project of FaCom is slightly different. The first and most important change is the ownership of the façade. With implementing FaaS, FaCom stays the owner of the service. This also implies that FaCom is responsible for its performance. So not the end-user, but the façade manufacturer carries the ownership, the responsibility of performance, and the accompanied risks. The second change concerns the monetary value stream. In this case, FaCom is not only paid by the project developer, but by the end-user on a basis of a lease contract. Therefore, the price of the apartment is lower, but the end-user pays a monthly fee for the façade. The third change is that FaCom, together with other façade manufacturers, is represented within a sole entity that is directly related to the VVE and regulates the maintenance. This is done due to risk considerations. Based on the same model, the changes in the structure due to offering FaaS are displayed in Figure 3.

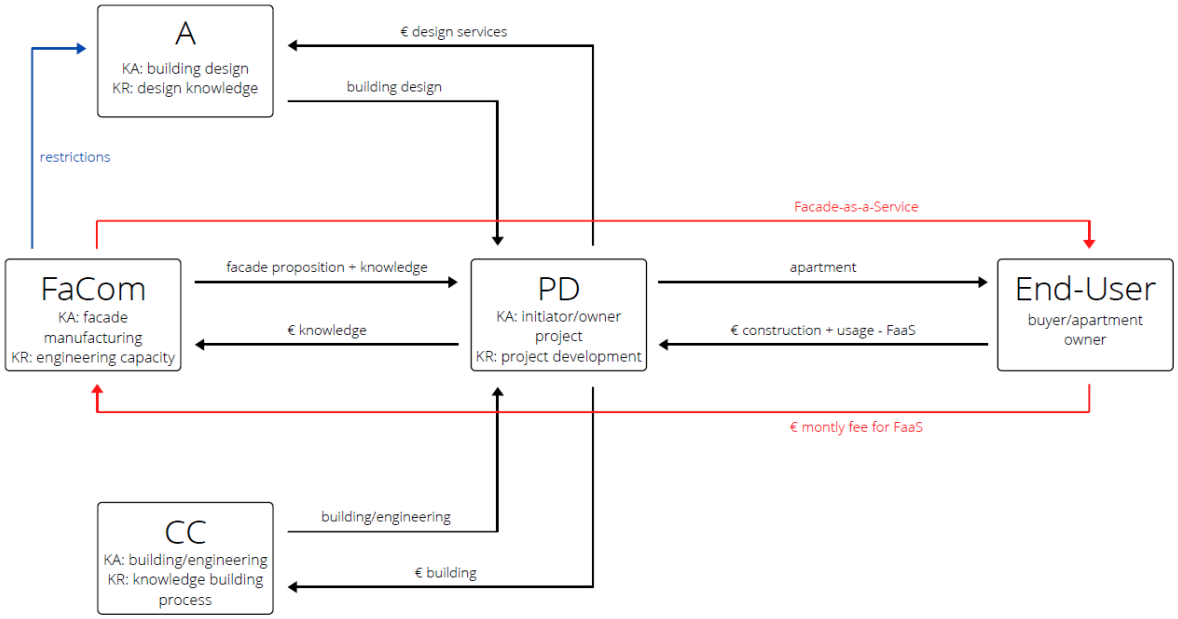

Figure 3. FaCom building project implementing FaaS

As shown in Figure 3, a direct relationship exists between the end-user and the façade manufacturer. As FaCom being the owner, it directly provides FaaS to the end-user, who pays a monthly fee in return. This changes the relationship with the project developer as well. In the traditional situation, FaCom delivers its FaaP to the project developer and gets paid. Now, in their current project, FaCom is involved earlier in the process and supplies knowledge regarding the new proposition. The project developer is still initiator of the project but adopting FaaS brings in new restrictions. The criteria are drawn up by FaCom and the project developer. Therefore, restrictions are laid on the design of the building, as the architect must fulfill these. This changes the position of the architect and has an impact on their creative freedom, as their design is now subject to FaCom and the project developer. The role of the construction company does not change much. The construction company is still responsible for the build of the rest of the apartment, as FaCom takes full responsibility of the façade. However, it but must be in line with the service proposition.

4.1.2 Stakeholders' Perspective Towards FaaS

This decision-making power holds that these four stakeholders have its influence on 'making or braking' the service proposition. According to FaCom, their number one stakeholder that has the biggest decision-making power is the end-user. FaCom argues that, if the customer does not like the service, FaaS can never be implemented successfully within the servitized business model. So, the end-user is considered to be the most important client towards valuing FaaS. The second most important stakeholder is the project developer. As the project developer is the initiator of the project, there must be enough alignment to proceed with adopting FaaS. If not, then FaCom cannot implement it. So, the decision-making power of the project developer is significant as it has the authority to decide on what type of façade they want for their project. The third most important stakeholder according to FaCom is the architect. The role of the architect in this case is relatively limited. Due to the restrictions on the design, which must facilitate the service, the architect has less freedom and power on the influence of the design. In fact, this power lies more at the project developer, as they decide what the architect must deliver. The last and least important stakeholder in terms of influence and decision-making power is the construction company. As the ownership and responsibility of the façade lies within the hands of FaCom, the construction company has a minimal influence on it. However, it is important to keep in mind that the construction company still plays its part in the realization of the other parts of the building. So, this stakeholder cannot be put out of play.

4.2 Value Assessment

The first and interesting result regarding the value assessment is that the representatives of the project developer, the construction company, and the architectural firm place themselves into the position of an end-user. At answering some questions, they think and reason from an end-user perspective. In this way, they provide a more comprehensive view towards the questions, as their answers reflect the potential standpoints of the end-user as well.

The second result regarding the value assessment is that some stakeholders have difficulty in defining the idea of FaCom's service, which is sometimes vague. Especially with differentiating the façade-as-a-service with the façade-as-a-product, questions arise such as the following:

"Well, maybe you need to approach the service by asking: which problem does the façade-as-a-service solve?" (Project developer)

"As an owner of a building, what is actually the advantage of not having that façade? Of not being its owner?" (Architect)

The first quote addresses the actual differences between the FaaP and FaaS proposition. Here, the project developer questions FaaS as it has the potential to create value if it substantiates itself from FaaP by solving a problem. The architect addresses the ownership of the façade, questioning the potential advantage of having the ownership at the suppliers' side. Moreover, this shows the critical side of the stakeholders.

To get a better indication of how the stakeholders conceptualize value and how they perceive it, the following Table 1 shows their value perceptions. Furthermore, all elements and value drivers that have come along in the interviews can be found in Appendix 4-8.

Table 1. Value conceptualization per stakeholder

Potential customer *"Value can be described in terms of quality, utility and product lifetime. It needs to serve a purpose. Value can be negative as well".*
Project developer *"Value is perceived as an added element, which can lead to monetary value in the future. Value is about information, because it is made clear that you get a better quality of the product. It is a feeling issue, if it gives a good feeling, something has value."*
Architect *"Value can manifest itself in second or multiple-order effects. It can be seen in the preservation over a long period of time. Keep value destruction as low as possible and value preservation as high as possible."*
Construction company *"Value is not only money but having (technical) knowledge and experience and using it. Value for the façade is when it meets the predetermined requirements."*

It shows that all stakeholders have different and similar elements that create value. These elements do not only relate to the new service offering, but also include personal motives and business drivers in general as well. As personal and business motives do not directly tell something about the service offering, it is as important because it contributes to a better understanding of their value assessment.

4.3 Cost-Benefit Analysis

For every stakeholder, the potential costs and benefits in relation to the façade are stated below. Starting with the end-user, which is considered as the most important stakeholder, followed by the project developer, architect and construction company. Per stakeholder, the perceived costs and benefits are grounded by their business logic and illustrated by quotes from the interview. For the end-user, this will concern their 'personal' logic, as the end-user is not a firm. A summary of these findings can be found in the Cost-Benefit Analysis in Table 2.

4.3.1 Costs and Benefits for the End-user

Sustainability and circularity are important to the end-user. The reason behind this importance is that people, in general, want to be part of the solution and not the problem. Being part of the solution, in this context, means that the end-user carries a responsibility towards the environment and has a moral imperative towards climate change. Implementing a circular façade will help to improve the end-user's image towards others and has an impact on social status. Therefore, this can be an important and beneficial aspect of the value proposition. The following quotes illustrate this:

"Sustainability is important and has become much more significant in recent years. This is because we are becoming

increasingly aware of the role we play on this earth… So, in that sense, sustainability is an increasingly important factor in all the decisions you make." (Potential end-user 1)

"Circularity is good as well. It is good for the environment and also for companies, which are involved in it. So, it is actually not just an environmental thing, but also economically sensible." (Potential end-user 2)

Aspects such as temperature, light(management), and air(management) are seen as important factors that determine the comfort within an apartment. Being able to regulate them is necessary, but it is also in line with expectations. In other words, when buying a new apartment, end-users expect to have a good temperature, light, and air regulation regardless of how this is arranged. Therefore, it does not matter if this is achieved through the façade or other uses. However, integrating these aspects into the façade can be valuable:

"Normally, you have heating or cooling systems within the house that create comfort. But if all these things could be integrated in a façade, that would be very valuable." (Potential end-user 1)

Innovation is another important aspect of the proposition. Being flexible and offering novelties facilitates in having a state-of-the-art façade, which is considered as valuable.

"Being able to do technical things with light, watering and sun blinds is interesting, such as building your own 'home kit'." (Potential end-user 2)

Another advantage according to the end-user concerns the lower mortgage. Buying an apartment is a relatively big investment whereby nearly all buyers need a mortgage. By separating the façade from the apartment, the monetary value of the apartment as a whole can be lowered. This is the result of the different contract form of FaaS, where end-users pay a monthly fee. This is interesting for potential buyers:

"If you can keep the costs down in the short term, you might need a lower mortgage, and you could have a nice house." (Potential end-user 2)

There are also potential disadvantages perceived by the end-user, whereof long-term commitment and customer lock-in are a risk. When leasing the façade, an end-user must make a long-term commitment to FaCom. As the end-user is also dependent on FaCom's services only, because there is no option to change from service provider, a risk is perceived towards the reliability of the supplier:

"How solid is the party from which you take the facade-as-a-service from? Because you are hoping it will still exist in a number of years' time and be able to provide that service." (Potential end-user 1)

Therefore, it can be concluded that end-users aim for low risks in their investments and benefit from all guarantees given by the supplier.

4.3.2 Costs and Benefits for the Project Developer

The aim for the project developer is to stay more involved in their products and services. As there is a trend in moving to a more sustainable and circular business model, the FaaS proposition can help to reach this objective. According to the project developer, a circular business model facilitates in having a value stream that is more constant. This specific project helps the project developer on their way to change their current business model, as it serves as an example with a different revenue stream. In other words, this project can be seen as a 'try-out' initiative for evaluating its feasibility.

"Looking from a helicopter view to the circular economy, we are going to turn our business model into a circular business model, where we are now having a transaction model … Within the circular economy, where you spread revenue over a longer period of time, will make you less vulnerable to an economic crisis." (Project developer)

A second point that adds to this circular business model is sustainability. Fossil fuels are not infinite and the use of it damages the environment. The government responds by searching for new sustainable solutions and sets new regulations. This also affects the building business. Furthermore, being sustainable and offering projects that have a better GRESB rating (Environmental, Social and Governance benchmark) for investors makes the company more attractive. Not only the governmental regulations on sustainable building are important, but also comparable and reliable benchmarks play a role. Through this, investors are able to compete better and projects become clearer and more transparent, which increases the overall visibility. Furthermore, it may decrease risk due to better ratings and increases a project's attractiveness. As investors are potential customers to the project developer within the Business-to-Business market, the façade can play a beneficial role.

"What I hear from investors is that they are also interested in certain ratings, such as GRESB, which is a kind of sustainability rating between investment funds … Maybe circularity ratings will be added as well. And if you can score on them, then that certainly has value." (Project developer)

There are also costs perceived that the project developer associates with the new service proposition. There is a higher risk towards bankruptcy of the supplier. Especially within the exploitation phase, because FaCom carries the ownership of the façade. If something happens to FaCom during that period, the stakeholders within the consortium must find another party to continue with, which could be a challenge. As investors also consider these types of risks, it is an important aspect for the project developer to consider.

"The supplier's bankruptcy risk during the exploitation period, becomes a thing for the person who buys the property." (Project developer)

4.3.3 Costs and Benefits for the Architect

It becomes clear that the architect shows relatively less benefits than costs. The first factor to note is that FaaS limits the creative freedom the architect normally has on the project. In this specific case, there are guidelines from the project developer and the façade manufacturer. As the façade is a substantial part of the outside of a building and therefore appearance, agreements must be made on the design and functionality. On the one hand, the façade is an important element of the design of the building. On the other hand, the architect needs FaCom's knowledge to make a functional building. By adopting FaaS, more knowledge is added and used from the manufacturer, however, it limits the creative freedom an architect strives for.

The second factor considers the increased flexibility the architect aims for. The architect tries to design and realise buildings which are futureproof, meaning that different people can use the building and its spaces for different purposes over a longer period

of time. This is important for making a building sustainable and in helping to increase its value retention. The following quote addresses this very well:

"Because what we actually want to do is make buildings that are very future-proof. So, a building must, must have a kind of flexibility … And there you try to prepare your building as much as possible, so that it stays there for a long time, preferably as long as possible, and that it can adapt itself as well as possible to a new user." (Architect)

4.3.4 Costs and Benefits for the Construction Company

By using an 'as-a-service' proposition, the construction company can increase its attractiveness. As FaaS is unique and new, it can help in winning tenders. According to the construction company, tenders are based on certain criteria which can be characterized as unique. Therefore, offering other contract forms, such as the 'as-a-service' proposition, the construction company can strengthen its position towards competitor offerings. In other words, with FaaS, it can better match tender criteria/requirements.

"There is a growing demand for a kind of balance between money and sustainability/circularity and other contract forms. Other contract forms, such as a lease facade, could help to make projects feasible." (Construction company)

Furthermore, the construction company considers the accompanying risk of reputational damage, which derives from any building errors or maintenance operations. They see a potential advantage in the quality of the service and the responsibility that is shifted to the service supplier.

"The facade would create value if we would never see a van with our logo again. So, no maintenance, or low maintenance." (Construction company)

This quote illustrates the importance of maintaining a good reputation. With FaaS, they can create such an opportunity as they do not carry the risks and when the maintenance is done by the supplier. On the contrary, if FaCom fails to comply with their service, the risk of having reputation damage returns. This is due to the fact that the construction company has a renowned name and a higher visibility than the façade manufacturer. However, this particular risk is considered smaller than leaving the full responsibility at FaCom.

A potential cost lies within the market. According to the construction company, the overall building market, which is often seen as very traditional, must be ready to adopt this 'as-a-service' concept. Not only construction companies and contractors must support this concept, but also investors, who play an important role. Adding that up together, the adoption chain risk proposed by Adner (2006) must be considered as well. All suppliers within the chain must support this concept to such an extent that they are willing to invest in their innovation and operation activities. Because without trust and allocating the right resources, the service proposition will not be adopted easily.

"Within the construction world, not only construction companies but also investors get cold feet for this concept… How can you get this concept into the spotlights? It is not just a one-time concept." (Construction company)

Table 2. Cost-Benefit Analysis per stakeholder

Benefit/ Cost		**Business/Personal Logic**	**Type of Benefit/Cost**
End-user			
Benefits	Lower mortgage	Not including the service as part of the apartment as a whole lowers mortgage, which increases chances on the housing market.	Economical
	Innovations on functionality	Having service flexibility by offering novelties. Innovations feed the customers' need to have state-of-the-art technologies which could potentially be used.	Social
	Sustainability and circularity	Being part of the 'green' solution towards changing environment and doing something good gives a good feeling.	Economical
Costs	Long-term commitment/ lock-in	Risk of bankruptcy supplier increases and trust in solidness of supplier is questioned due to long-term commitment and lock-in.	Social / Economical
Project developer			
Benefits	Changing business model	Adopting services such as FaaS helps moving towards a circular business model where value streams can be more reliable and constant. One of their goals is to move to such a model, which is driven by the changing economy.	Economical
	Sustainability/circularity rating	The 'sustainability rating' is a value driver both for investor and customer. When performing well on this rating, investors are more likely to invest and helps attaining projects.	Social / Economical
Costs	Risk of supplier bankruptcy	Due to long-period commitment, suppliers may face higher bankruptcy risks which can be negatively assessed by external investors.	Economical
Architect			
Benefits	Flexibility/modularity	Sustainable materials and modular designs facilitate in building flexibility and long-term use, which increase the futureproofness of buildings.	Economical / Technical
Costs	Design/Esthetical value	Limitations due to compliance on design retains architectural freedom and creativity, which are most important characteristics for architects.	Social
Construction company			
Benefits	Uniqueness of service	Short-term uniqueness of the value proposition helps to bring in projects from tenders which are characterized by certain unique criteria. Due to other contract forms, the construction company can strengthen its position towards competitor offerings.	Economical
	'Care-free' solution	Ensuring higher product quality through management and responsibility on the supplier side has a positive effect on visibility, which is associated with a negative company image.	Service / Social
Costs	Traditional (immature) market	Within the construction industry, markets move slow and adoption of new services can run into problems due to adoption chain risks (Adner, 2006).	Economical

4.4 Matching Expectations FaaS

In this section, the stakeholders' expectations are related to the current façade-as-a-service proposition within the project. Per stakeholder, relevant aspects of the façade, either proposed by FaaS or expected to be included in the service are listed. By matching these, it can be made clearer where the service proposition is already fulfilling the stakeholders' needs and where it can improve. In other words, it gives FaCom an overview of the stakeholders' opinion on FaaS and their further wishes. This is lined out in Table 3 below:

Table 3. Stakeholders' expectations towards FaaS

Stakeholder	Aspects/Elements	Stakeholder Expectation	FaaS included	Match
End-user	Lower mortgage	Expecting	Yes	Yes
	Sun blinds	Expecting	Yes	Yes
	Cirlinq	Not expecting	Yes	No
	Care-free service	Expecting	Yes	Yes
	Innovations/new technologies	Expecting	-	-
Project developer	Lower mortgage	Expecting	Yes	Yes
	Basic functionality (wind/water/air performances)	Expecting	Yes	Yes
	Energy generation	Expecting	No	No
	Cirlinq	Not expecting	Yes	No
Architect	Customization/detachability	Expected	Yes	Yes
	Integrated heat/cooling system	Expected	No	No
Construction company	Solar panels	Expecting	No	No
	Innovations/new technologies	Expecting	-	-
	Plug-and-play add-ons	Expecting	No	No
	Lower mortgage	Expecting	Yes	Yes

From this table, it can be concluded that the expectations on the FaaS proposition does not always match the service as it is going to be proposed in FaCom's current building project. Interesting to see is that most stakeholders expect the service to include innovations and new technologies. Varying from integrating technologies on wind, water, and air management to inventive heating and cooling systems that can replace other central systems. This falls in line with the opinion of the project developer and the construction company to integrate solar panels into the façade which generate energy. However, in FaCom's current project, this is not included in the service yet. Furthermore, the expectation to have a lower mortgage fits with all stakeholders except the architect as well. Also interesting is that Cirlinq, which is a platform that provides product information and tracks its performance, is not considered as a valuable addition to the service according to the end-user and project developer. But for FaCom, it is seen as a necessary part which they already included in their service.

5. CONCLUSION

After displaying the results, the following practical and theoretical conclusions can be made that contribute to the literature and the façade manufacturing firm: FaCom.

5.1 Theoretical Contribution

The theoretical implications on the nature of value and value creation are supported within this research. By looking at the changing business model, which is a result of the new service offering, it adds to the literature of servitization that relationships within the business model change. This change is visible in the importance and decision-making power a stakeholder can have. Arguing that the ecosystem, which in this case considers the end-user and stakeholders within the consortium, need to be in balance, as one can affect the other. Therefore, pointing out that imbalance between those stakeholders may lead to value destruction of the value proposition. It also adds to the value literature that value-in-use can be expected without being experienced first, where expectations are based on previous experiences (Eggert et al., 2018).

Following the results of this case study, FaCom has to consider the exposure towards the adoption chain risk proposed by Adner (2006) as well. Due to the fact that these stakeholders have to be convinced about the idea and play a role in the decision-making process, as they decide to make or break the proposition, keeping them convinced is a challenge.

5.2 Practical Contribution

The practical contribution of this research is that I provide FaCom a more thorough insight of the valuation of their new service offering. By setting out the advantages and disadvantages, there are still perceived risks that FaCom can tackle. Based on my research, FaCom must investigate more in their end-user stakeholder group. As this group has difficulty in separating the façade as a sole entity, it is important to increase awareness and to clarify the proposition and its advantages. This research also shows the importance towards aligning elements that are expected from all stakeholders. FaCom has to invest in their service proposition by adding the expected elements that are supported by all stakeholders, such as new innovations and technologies. Furthermore, it provides a guideline that proposes that the service proposition must be more flexible, so that it can be used in multiple future projects.

6. DISCUSSION

6.1 Limitations

During my research, I came across several limitations that influence my research. It is important to consider that the benefits and costs are potential benefits and costs. As the service offering is not implemented yet, underlying reasons, motives and thoughts of the stakeholders are translated into potential advantages and disadvantages that are based on the available information.

Another limitation comes from the end-user perceptions on an apartment, with all integrated aspects which conclude 'home'. Viewing a façade and its accompanying functions as part of the whole apartment, is straightforward. Therefore, a possible limitation within this study can be the distinction between façade and apartment, which may be the 'same', according the potential end-user and may influence their way of thinking slightly. This could influence their answers.

Another limitation originates from the fact that the architect of the project could not be interviewed due to time and access limitations. However, I could interview another architect that works together with FaCom in similar projects, which nevertheless resulted in interesting thoughts on value and critical thinking towards façade-as-a-service. There is also a limitation on the validity of the interviews through the interpretation of the writer. The answers can be assessed differently due the context and therefore, the outcomes can be slightly biased.

6.2 Research Opportunities

First, further research opportunities will lay at investigating other firms in different branches that are in a similar situation of servitizing their product. Considering further research within this case could be done on the possibilities for a pricing strategy of this particular service in a value-based pricing strategy setting. Determining the value of a proposition is the most important aspect of the value-based pricing strategy (Hinterhuber, 2004). Value-based pricing is the most challenging but rewarding strategy in pricing. Therefore, it is interesting to see how the as-a-service proposition can contribute to this.

Further research could also mean including more stakeholders like suppliers, creditors and investors, to see if results are different. My research is primarily based on the partners within the consortium and potential customers. It is interesting to broaden the number of stakeholders to see how other parties such as FaCom's suppliers and investors value this servitized offering.

Zooming out to the servitization literature in general, research could be done on different forms of stakeholder networks. This research has addressed stakeholders that also act within a consortium. It is interesting to further explore other forms and investigate similarities and differences between networks and markets and what implication this has on the value proposition of the offering.

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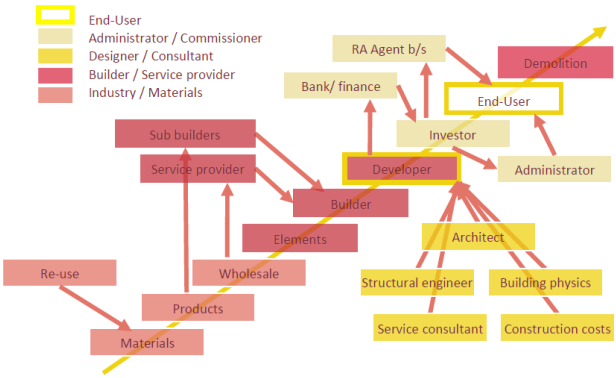
9. APPENDIX

Appendix 1. Linear business model in present traditional building world (Zuidema, 2015)



Appendix 2. Overview of interviews

Interview	Stakeholder	Function Respondent(s)	Type of Interview	Duration
1	Project developer	Project developer & intern	Videocall	1:15:11
2	Construction company	Façade and Roof manager	Videocall	48:38
3	Architect	Director	Videocall	39:08
4	Potential end-user 1		Face to face	39:26
	Potential end-user 2		Videocall	39:41

Appendix 3. Interview questions

Part	Topic	Sample questions
1	General	• What is your company mission and vision? • What is your vision regarding sustainability? • What is your perception of a service?
2	Value	• What is your definition of the concept of value? • What are important value drivers?
3	Façade-as-a-service	• Which elements of FaaS are important? • What are the benefits and costs of FaaS? • Are there any important elements of FaaS missing? • What is the most important factor to invest in FaaS? • How do you relate FaaS compared to its alternative, FaaP?

Appendix 4. Value drivers project developer

Project developer	
Elements/drivers that create value	**Reasons**
Information about improved quality of a house/apartment	If information about quality and sustainable aspects of the building is clearer, people make better and more responsible decisions which improves the overall impression.
Autonomy of customer	Not being dependent on a company that supplies energy. Having your own energy supplies results in lower bills and gives a good feeling.
Environmental responsibility	Doing good and being part of the 'solution' drives customers.
Functionality of the façade	Meeting the predefined requirements on light, wind, temperature, and safety guarantee the quality.
Architecture	The architecture is a determinant of construction physics and safety aspects and determines the aesthetic value.
Lower mortgage	With a façade-as-a-service, customers can get a lower mortgage.
Image of circularity	Having a circular façade helps communicate the 'circularity' of the building, which creates a competitive advantage.
Design	Quality of the design is important as it is the image of the building and attracts customers.
Avoiding risks	Investors (B2B market) look for the lowest risks, so lowering risks and increasing property value attracts investors.
Early involvement façade company within building process	The involvement of a façade company in the early stage of the process covers financial risks.
Transition to circular business model	A circular façade-as-a-service helps towards implementing a circular business model, which is seen as less vulnerable.

Appendix 5. Value drivers construction company

Construction company	
Elements/drivers that create value	**Reasons**
Sustainable partnerships	Tenders are more focused on sustainability. Having partners that support this will strengthen the position towards winning those tenders.
Other contract types	A lease façade can help making projects achievable through lowering direct costs.
Unique offering	Being unique and having better value for money creates a competitive advantage.
Knowledge	Using the supplier's knowledge on sustainability and innovation essential to strengthen their position and making projects successful.
Functionality of façade	Meeting the predetermined requirements on wind and waterproofness and being comfortable.
Aesthetic value	The architecture and design are very important, so a project must meet the requirements of the architect.
Low maintenance	A product/service being low in maintenance ensures quality and the construction company maintains a good reputation.
Guarantees	Providing assurance through agreements with other suppliers helps covering potential risks.
Flexibility and adaptability	Flexibility in spaces and adaptability of façade elements/ 'gadgets' can make a home more customized on someone's life phase. So, the flexibility of adding and removing elements create value.
Lower total costs	Due to other forms of financing you can decrease total costs and increase value for money, which attracts potential customers.
Energy generation	Integrated energy generation systems in the façade help getting the building energy neutral and create a lot of value for people that want to be self-supporting.
Monitoring	Monitoring the façade and tracking performance levels create valuable insights for the customer and the supplier.

Appendix 6. Value drivers architect

Architect	
Elements/drivers that create value	**Reasons**
Aesthetic value	As the façade being the interface of a building, it is the most important element of observation for end users.
Flexibility of buildings	Buildings with a certain degree of flexibility can be used by end users for multifunctional purposes throughout time.
Knowledge of supplier	Suppliers have a lot of knowledge of their products/services which is essential for the architect to use.
Modularity	Detachability and modularity of constructions are important within the design, to make the building as useful in the future.
Substitution possibilities	When integrating energy systems with solar panels, heat and light controls, and a ventilation system, a façade could possibly substitute central systems. It also reduces transport from central systems to different spaces.
Product life cycle	Managing product life cycle is important and having a clear plan at the end of the cycle for processing old materials.
Integrity	Being aware and preserve the value of a product as long as possible is an integer way of doing business.
Adaptability of the façade	Producing the product in such a 'simple' way, that it is adaptable for future technologies and alterations.

Appendix 7. Value drivers potential end-user 1

Potential end-user 1	
Elements/drivers that create value	**Reasons**
Transparency	Having insights in the materials and the sustainability of the systems used.
Aesthetic value	The customer primarily takes a decision based on the design of the apartment and the façade.
Customization of the façade	Being able to customize the façade to a certain extant has a value as there is often minimal customization possible on a façade in an apartment.
Sufficient light	Having sufficient light is important as it increases the comfort within the building.
Functionality of façade	Important is to have wind and waterproof materials and good connections between the doors and windows, for a good communication between the inside and outside.
Low maintenance	A façade with low maintenance decreases maintenance costs, which is seen as an expense.
Central contact point	Having a central contact point for problem solving and maintenance issues is valuable, as it is straightforward and information flows directly to the right source.
Sustainability	Living in a sustainable building with a sustainable façade gives the customer a good feeling.
Guarantee of the service	Having the service guaranteed for a long period of time will decrease risk and increase trust.

Appendix 8. Value drivers potential end-user 2

Potential end-user 2	
Elements/drivers that create value	**Reasons**
Sustainability	Sustainability and circularity are important, and most sustainable choices are less expensive, so it is an economical choice as well.
Uniqueness location of apartment	An apartment has a higher value if it has a unique location and offers something extra.
Functionality of the façade	The façade needs to be safe and wind and waterproof.
Low mortgage	Paying for a service instead and lowering the costs results in a lower mortgage, which creates a lot of value.
Possibility of grading up	Having the flexibility to upgrade the façade, or its software when integrated into functional elements.
Proactiveness of the service	When there are new aspects or technologies that can be applied to the façade, it must be proactively communicated and applied.
Option of buying the façade and vice versa	Having an option for buying or leasing after a period of time when customers have an incentive to change adds flexibility.