

Master Thesis

The consequences of servitization
for the role of the existing channel
partners: a case study

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23-08-2019

Abstract

Substantial research has been conducted on the topic 'servitization'. Besides, researchers also conducted substantial research on the relationships with channel partners. However, the role of channel partners is rarely investigated in servitization literature. In order to investigate if and how the role of the existing channel partners of the focal firm will change within the process from the commissioning phase until the aftercare regarding access control systems when a servitization strategy will be implemented and how these existing channel partners can be engaged in this servitization strategy, an attempt has been made to obtain an answer to the following research question:

"What are the consequences regarding the role of the channel partner within the process from the commissioning phase until the aftercare regarding access control systems, when Tech Solutions implements a servitization strategy, and what are the possible ways for engaging the existing channel partners in this servitization strategy?"

Contextually driven design research has been used in order to study the research question. The research problem has been identified and analyzed. In the end, a design has been made in order to engage existing channel partners in a servitization strategy. This research presents qualitative research. The approach 'systematic combining' is used in this research, which is characterized by a continuous movement between an empirical world and a theoretical world and builds more on the refinement of existing theories than on inventing new ones.

It has been found that changes will occur in the activities regarding setting up the server and the configuration of the access control systems. In addition, the change from reactive customer support towards customer success management will occur. Finally, Key Account Management will be more focused on up-selling. The existing channel partners, which are responsible for setting up the servers in the current situation, will be engaged in the activities regarding setting up the server to a less extent because the transition will be made towards cloud servers. The channel partners which are responsible for the configuration of access control systems in the current situation can still be engaged in the configuration of access control systems, despite the fact that these activities seem to be required to a less extent. In the aftercare phase, the existing channel partners can be engaged to a great extent in the provision of customer success management and the related key account management focused on upselling.

This research has made both theoretical and practical contributions. Regarding the theoretical contribution, this contextually driven design research investigated, in detail, in what way servitization can cause frictions and deformations in relationships between a supplier and its existing channel partners and in what way these channel partners can anticipate these deformations in order to be engaged in the new servitization strategy. Regarding the practical contribution, the empirical findings in this study provide a new understanding of the consequences of servitization for existing channel partners and the engagement of these existing channel partner within a servitization strategy. The outcome of the study will help the focal company and other firms to better understand what are the consequences of servitization, within certain phases in the product-service delivery process, for the role channel partners. It also contributes to the understanding of engaging existing channel partners in the newly emerged activities.

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1. Introduction

In this introduction, the company, for which this thesis will be written, will be described. In addition, the key topic, the problem and the research goal will be explained. In the last paragraph, the research question and the related sub-questions will be presented.

1.1. Company

1.2. Key topic

The key topic of this research is the rarely investigated role of channel partners in a servitized environment. Where the topic ‘servitization’ and the topic ‘relationships with channel partners’ received substantial attention of researchers, the role of channel partners in a servitized environment received little attention.

In order to investigate this key topic, it will be investigated if and how the role of the existing channel partners of the focal firm will change within the process from the commissioning phase until the aftercare regarding access control systems when a servitization strategy will be implemented and how these existing channel partners can be engaged in this servitization strategy. In other words, within this research, it will be investigated whether the demand of the firm will change with respect to its existing types of channel partners, due to servitization. So, this research investigates if and how the role of the existing types of channel partners will change when the firm will offer ACaaS. The possible change in demand of Tech Solutions, and therefore the role of the existing types of channel partners, will be investigated for the process from the commissioning phase until the aftercare regarding access control systems. The aim of this research will be explained in more detail in the paragraphs ‘problem description’ and ‘the research goal’.

So, Tech Solutions wants to offer access control as a service (ACaaS). This transition can be seen as the implementation of the servitization process. In order to determine if and how the role of the existing channel partners of Tech Solutions will change when the focal firm implements a servitization strategy and how the channel partner can be engaged in this servitization strategy, the case context first needs to become clear.

1.2.1. Case Context

In this paragraph, it will be examined what literature states about ACaaS and the servitization process.

Access Control as a Service

Preliminary investigation has shown that the focal firm wants to deliver Access-Control-as-a Service, which can be abbreviated to ACaaS (Appendix 1, Appendix 2). Where ACaaS did not receive substantial attention of researchers, researchers conducted substantial research regarding Software-as-a-service (SaaS). In essence, the operations of enabling SaaS is the same as the operations of enabling

ACaaS. Therefore, the definition and reasons for SaaS will be used to determine how and why the firm wants to deliver ACaaS. SaaS can be described as a concept in which the software publisher (seller) runs and maintains all the hardware and software, possibly in cooperation with other partners, and the buyers obtain access based on a financial compensation (Choudhary, 2007). So, a business signs up to use the application hosted by the company that develops and sells the software, which unburdens¹ the buyers in maintaining the software (Dubey & Wagle, 2007).

When the firm wants to offer ACaaS, this will work nearly the same. There is also a separation between the hardware and software which makes offering 'access control' to the end-user possible. Tech Solutions can offer ACaaS, by running and maintaining all the hardware and software, possibly in cooperation with other (channel) partners. So, all the activities/tasks regarding access control will be managed for the end-user against financial compensation. The end-user obtains access to the software regarding the access control systems.

A possible reason for offering ACaaS was remarked by Godse and Mulik (2009). They stated that SaaS let organizations focus on their core business instead of support services such as IT infrastructure management and software maintenance. This means that ACaaS gives organizations the opportunity to outsource their access control activities/tasks in order to focus on their core business. So, outsourcing is a possible reason for end-users to 'buy' Access-Control-as-a-service. Next, it will be explained why the transition towards ACaaS can be seen as a step in the servitization process.

Servitization process

The transition towards ACaaS can be seen as a step in the servitization process. Baines, Lightfoot, and Benedettini (2009) define servitization as the innovation of organizations capabilities and processes to shift from selling products to selling integrated products and services that deliver value in use. Value in use can be described as the situation in which the customer experiences how its processes function more efficiently and effectively with the support of the supplier's activities (Grönroos, 2007). It can be argued that the firm is already in the servitization process. Ducq, Chen, and Alix (2012) distinguish 4 stages in the servitization process (see figure 1).

¹ 'To unburden' means that someone takes care of something for someone. In other words, 'taking something off someone's hands'. So, in this case, TECH SOLUTIONS takes care of all the security management activities regarding access control systems for the end-user.

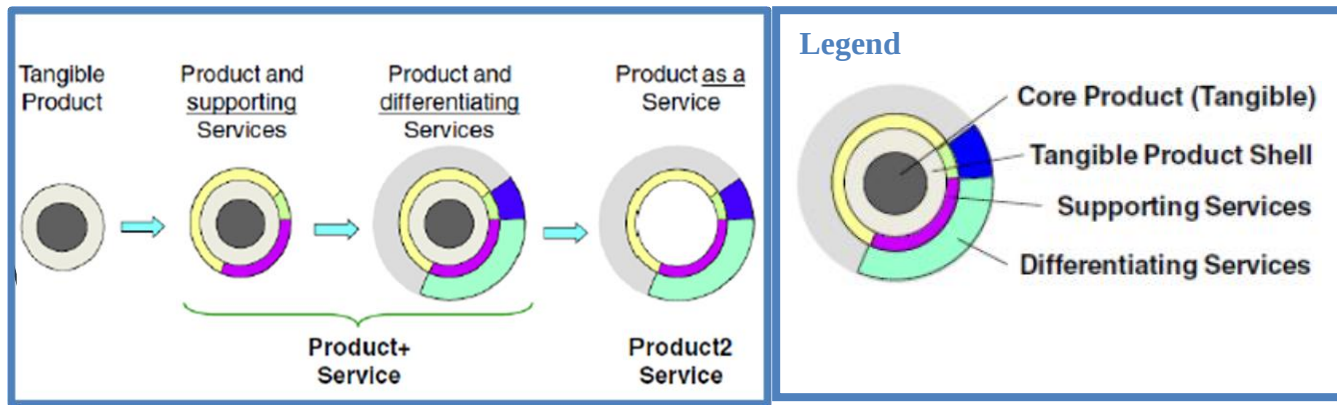


Figure 1 - The Servitization Process (Ducq, Chen, & Alix, 2012)

At the moment, the firm seems to be in-between stage two and three. The first stage is the selling of a tangible product. In the second stage, supporting services are added, i.e. maintenance and repair. So these services support the product (Ducq et al., 2012). Stage three is an evolution of stage two, it is more elaborated and by individualization of the extended product and it increases the differentiation (Wiesner, Peruzzini, Doumeingts, & Thoben, 2012). Training is an example of a differentiation service. Training could be provided to the users of the product in order to increase the efficiency of the usage. It can be noted that these types of services are merely focused on supporting the customer rather than focused on maintaining the product. The type of offering in this stage can be described as an extended product, which can be defined as an integrated offer of a product extended by services in order to provide a solution to the customer (Eschenbächer, Thoben, Hesmer, & Herter, 2011). The fourth stage visualizes the transformation towards a more service-oriented approach, whereby the value is mainly in the service content rather than in the content of the product. As can be seen in figure 1, the core tangible product has been left out in stage four. This implies/depicts a change in ownership in such a way that ownership is not transferred to the customer, but stays at the original equipment manufacturer (OEM). This stage is the highest level of servitization (Opresnik & Taisch, 2015). In this stage, the product is still part of the offering, but only the functionality of the product is sold. The ownership stays, as posed above, at the OEM and the characteristics of the product are less essential to the customer (Opresnik & Taisch, 2015). The offering in this stage is called a functional sale. Functional sale can be defined as the notion of selling the functionality rather than just the transfer of a tangible product from the manufacturer to the customer (Gupta, Wallace, & Sondheimer, 2008). In addition, it can be stated that the revenue comes purely from services, and the outcome could be regarded as the delivery of a capability and/or the selling of functionality.

Based on the interview with a business developer within the firm (Appendix 1), it can be concluded that the firm wants to reach stage 4. So, the firm wants to offer the product as a service. The main argument is that the end-user wants to be unburdened (Appendix 1). It wants to fully outsource the function 'access control'. As a result, end-users can focus on their core business. It is not determined yet whether the ownership of the product, the access control hardware, stays at Tech Solutions or still transfers to the end-users (Appendix 1).

1.3. Problem description

As argued in the previous paragraph, the firm wants to offer ACaaS. The firm does not know if and how its demand with respect to the existing types of channel partners will change due to the implementation of the servitization strategy (Appendix 1, Appendix 2, Appendix 3). So, it will be investigated if and how the role of the existing types of channels partners will change within the process from the commissioning phase until the aftercare regarding access control systems when the firm will offer ACaaS. In order to determine if and how the role of the existing types of channel partners will change within the process from the commissioning phase until the aftercare regarding access control systems, a scenario will be described. This scenario describes in what way Tech Solutions intends to offer ACaaS. In other words, the scenario describes how the company wants to make the above-mentioned step - to stage 4 - in the servitization process. It has been decided to create a scenario, because certain choices, which need to be made in order to make this transition, are not made by the firm yet. By describing the scenario, it can be determined what Tech Solutions requires from its existing types of channel partners when ACaaS will be offered. In doing so, it can be investigated if and how the role of the existing types of channel partners will change when ACaaS will be offered to the end-user.

It is possible that the role of the channel partner will change. As Håkansson and Waluszewski (2011) state: “even if possibilities always exist in any industrial structure to take out new qualities or features from a resource, this cannot be done without work” (p. 570). In addition, Håkansson and Waluszewski (2011) remark that “even if it is possible to utilize certain path dependency to create new solutions, this is not a smooth and easy process, working more or less automatically” (p. 570). According to Page (2006), path dependency is about “current and future states, actions, or decisions depend on the path of previous states, actions, or decisions” (p. 88). So, it can be stated that there has to be movement in order to create any change. This is supported by Håkansson and Waluszewski (2011), who state the following: “whenever there is a movement of a resource in relation to other resources, there will be friction” (p. 570). This means that there will also be other frictions in the relationship between supplier, existing types of channel partners and end-users when new paths are created. Therefore, it seems important for the firm to engage its existing types of channel partners in the servitization strategy, because it is possible that there will be some type of deformation and a possible friction when the firm wants to make a transition towards ACaaS. Based on Håkansson and Waluszewski (2011) it can be noted that the firm may need existing- and potential channel partners in order to offer ACaaS. Given the influence of path dependency, as remarked above, it is not possible to just ignore the existing channel partners and to put these channel partners aside (Håkansson & Waluszewski, 2011). To offer ACaaS, the firm might also need new channel partners. So, the firm must remain attractive for both existing- and new channel partners. Due to the fact that the research focuses on the existing channel partners and their potentially changing role, the aim of this research is to answer the question how the firm can engage its existing channel partners in its servitization strategy.

In conclusion, the firm wants to know how the role of the existing types of channel partner will change, within the process from the commissioning phase until

the aftercare, when it implements a servitization strategy and next to that, it wants to know how it is possible to engage its channel partners in its servitization strategy.

1.4. Research goal

The goal of this research is to investigate if and how the role of the channel partner will change, within the process from the commissioning phase until the aftercare regarding access control systems, when the firm implements a servitization strategy. Another research goal is that the focal firm wants to know in what way they can engage its existing channel partners in its servitization strategy, hence recommendations will be provided following the results of the study.

The outcome of the study will help the company (and possibly other firms) to better understand what are the possible consequences regarding the role of the channel partners if the firm implements a servitization strategy. The study will also portray in what way the firm can engage its channel partners in the servitization strategy.

1.5. Research Question and Sub-questions

As mentioned in the topic and the problem description, this research is about servitization and the possible change of the role of the channel partner within the process from the commissioning phase until the aftercare regarding access control systems. This paragraph presents the research questions which are designed to gain insight into the research objective. The central research question is as follows: “What are the consequences regarding the role of the existing channel partner within the process from the commissioning phase until the aftercare regarding access control systems, when Tech Solutions implements a servitization strategy, and what are the possible ways for engaging the channel partners in this servitization strategy?”

In order to answer this central research question the next sub-questions are formulated:

1. In what way are the roles divided between the existing channel partners and Tech Solutions within the process from the commissioning phase until the aftercare regarding access control systems, at the moment?
2. What will be the possible servitization strategy implemented by Tech Solutions within the process from the commissioning phase until the aftercare regarding access control systems?
3. What will the role of the channel partners be like within the process from the commissioning phase until the aftercare regarding access control systems, when the firm implements the servitization strategy explored in sub-question 2?
4. How can the firm engage its existing channel partners in its servitization strategy within the process from the commissioning phase until the aftercare regarding access control systems?

These sub-questions help to identify the possible change of the role of the channel partner and the way the firm can engage its channel partners in its servitization strategy.

Contextually driven design research will be used in order to answer the research question and sub-questions. In order to execute this contextually driven design research, an abductive approach will be used. By conducting a value analysis between the current situation and the future situation, when ACaaS will be offered, it can be determined how the demand of Tech Solutions with regard to its existing types of channel partners will change and it can be determined to what extent this will match the core competences of the different types of channel partners. Eventually, it will be described how (certain types of) channel partners can be engaged when Tech Solutions will offer ACaaS. The concepts and the use of contextually driven design research, the abductive approach and the value analysis will be explained in detail in the 'Methodology' section.

2. Theoretical background

This chapter discusses the theoretical background of this research. A short description will be given of the different relationships with channel partners, the different types of channel partners and the possible partner levels of channel partners in theoretical terms and then will be applied to the context of Tech Solutions. Subsequently, the relevance of relationships with the external network in a servitized environment will be cited. Lastly, the possible transformation of business relationships as a result of servitization will be discussed.

2.1. Channel Partners of Tech Solutions

To have a better insight into the role of the channel partners of Tech Solutions, the type of relationships with Tech Solutions will be analyzed and the types of channel, distinguished by Tech Solutions, will be described.

2.1.1. Horizontal and vertical relationships with Tech Solutions

The channel partners of Tech Solutions can be described as organizations which are in a mutual partnership with Tech Solutions (Christopher, Payne, & Ballantyne, 2002). This is portrayed in the Business Canvas Model (Appendix 9). The channel partners are Key Partners of Tech Solutions and also belong to the Customer Segment of Tech Solutions. In other words, they execute activities/services/tasks for Tech Solutions in order to deliver access control (Cost Structure) and they can be described as resellers because they purchase and sell the access control systems of Tech Solutions (Revenue Streams). So, channel partners are relevant to a great extent. They are not only a partner in bringing a product to the market, but without the channel partner, the access control systems would not function at all. The channel partners ensure that the 'semi-finished' product, will be a solution for end-users (Appendix 2).

The channel partners have both horizontal and vertical relationships with Tech Solutions. The channel partner with the role of Key Partner, which means that they provide activities/services/tasks for Tech Solutions in order to deliver access control, can be seen as a horizontal relationship with Tech Solutions. Ring and Van de Ven (1992) state that there is a mutual dependence between actors within a horizontal relationship. The actors have to cooperate and coordinate their efforts in order to provide maximum value to the external customer. In other words, they have to form a partnership in order to best serve their customers. In addition, Leitner, Meizer, Prochazka, and Sihn (2011) state that the actors can share information, facilities or resources with the goal of reducing costs and/or improving service.

The channel partner can also belong to the Customer Segment, which means that they are a reseller. This buyer-seller relationship can be described as a vertical relationship (Bengtsson, 2000). Bengtsson (2000) states that cooperative relationships between vertical actors are easy to grasp as they are usually visible and built on a distribution of activities and resources among actors in a supply chain. Dwyer, Schurr, and Oh (1987) remarked that the possibility of significant gains in joint-and consequently individual- payoffs, as a result of effective communication

and collaboration to attain goals, is a relevant characteristic of buyer-seller relationships. In addition, Hakansson and Snehota (1995) note that business buyer-seller relationships provide value. In short, it can be stated that the aim of vertical relationships is to realize value for the customer and through co-creation in supply chains.

2.1.2. Types of channel partners

Tech Solutions distinguishes five types of channel partners. These channel partners consist of constructors, man guarding organizations, integrators, installers, and value-added distributors. These types of channel partners can have a horizontal-and/or a vertical relationship with Tech Solutions. In this paragraph, the types of channel partners will be introduced shortly. The core businesses of the types of channel partners will be described in detail in the chapter 'current situation'.

The first type of channel partner is the constructor. Initially, the core business of a constructor is building a building, but there is a trend in which it is becoming increasingly common that constructors deliver a building in its entirety. These construction companies fully equip the building. This means that these construction companies also place access control systems (Appendix 3).

Man guarding organizations are organizations which employ security guards in order to ensure corporate security. Initially, these organizations target manpower to provide companies with corporate security, but it is becoming increasingly common that these man guarding organizations have the role of a full-service party. In other words, they have to ensure that the whole property of companies is safe. In order to ensure this, these man guarding organizations need to have cameras, access control systems, etc. (Appendix 3).

Integrators are actually the classic channel partners of Tech Solutions. Traditionally, the integrator makes sure that many different systems are linked together. Linking these different systems is very complicated. So, they take away the problems/issues for the end-users who want to have an integrated access control system, but are not able to integrate the systems, because of the complexity (Appendix 3).

The fourth type of channel partner is the installer. In the past, installers were only responsible for the installation work. So, they simply earned cash for the number of worked hours. In addition, these installers generate a great part of their revenue through maintenance contracts. These days, it is becoming increasingly common that the installers, especially for large projects, want to offer the whole system themselves. So, installers are becoming increasingly responsible for the choice of access control systems (Appendix 3).

Value Added distributor help small installers, who work very sporadically with access control systems. A Value-Added-Distributor supplies these small installers with an off-the-shelf system that they can install immediately. This means that these small installers can install the system without having to 'think' about it. The installer does not need to have the knowledge regarding the system, only just the user knowledge, because the configuration and pre-installation will be executed by the Value Added Distributor (Appendix 3).

2.2. Partner Levels

In order to distinguish the channel partners, Tech Solutions established four channel partner levels (Tech Solutions, Channel Partner Programme Guide, n.d.). These partner levels consist of:

- Certified Partner
- Advanced Partner
- Expert Partner
- Alliance Partner

Partner level is based on:

1. Product knowledge (*experience of Tech Solutions product projects*)
2. Training certificates
3. Annual spend
4. Loyalty

This will be explained in more detail in the section ‘current situation’.

2.3. Importance of relationships with the external network in a servitized environment

In the introduction, it was discussed that it is possible that the role of the channel partner will change when the firm wants to offer ACaaS. It was also discussed that frictions may arise in the relationship between supplier, channel partners, and end-users when new paths are created in order to offer ACaaS (Håkansson & Waluszewski, 2011). In short, there is a possibility that there will be some type of deformation and a possible friction when the firm wants to make a transition towards ACaaS. In order to investigate what the consequences regarding the role of the existing channel partners are, when Tech Solutions will offer ACaaS, theoretical evidence will be used. This theoretical evidence will be used as a theoretical background for this research and describes how the possible changes of the roles of channel partners, in general, can change when a servitization strategy will be implemented.

According to Windahl and Lakemond (2006) relationships with the external network play an essential role in servitization. In addition, Cohen, Agrawal, and Agrawal (2006) state that from the network perspective, services are more easily deployed through relational exchange and may be provided by members of the supply network. This is supported by Binder and Clegg (2007), they state that “few organizations are able to provide one-stop, systemic product-service solutions systemic product-service solutions from their own resources and so meeting this need, particularly in a complex servitized context, is typically achieved by entering into collaborative relationships where partners engage in collective activities with common enterprise goals” (p. 140). Hence, manufacturers may outsource the delivery of services, such as installation, configuration, maintenance, aftercare, because they have strong product-oriented capabilities, but are often weak in service-oriented ones (Saccani, Visintin, & Rapaccini, 2014). In addition, it can be remarked that partnerships between firms, that have been formed to enhance their

resource base, provide integrated solutions whilst enabling manufacturers to maintain their traditional product-identity by focusing on their unique resources and core competences (Bustinza, Gomes, Vendrell-Herrero, & Baines, 2017).

In conclusion, in order to successfully provide solutions/effective service deliveries, relationships with suppliers delivering such services are critical for these manufacturers (Windahl & Lakemond, 2006). In other words, an effective service delivery requires a supplier/third party in order to acquire a high degree of knowledge about a particular product and the business environments and organizations targeted (Lockett, Johnson, Evans, & Bastl, 2011; Saccani, 2014).

2.4 Possible transformation of business relationships as a result of servitization

To analyze the possible transformation of business relationships as a result of servitization, the impact of servitization on business relationships, in general, will be discussed and the aims of having business relationships in servitized environments will be described.

2.4.1. Impact of servitization on business relationships

Vandermerwe and Rada (1988) argue that servitization will have a critical impact on the way managers think, act, and do business in the future. It will continue to make the dividing line between traditional manufacturers and service companies less clear and change some of the relationships and competitive dynamics in which business operates. Servitization will colour and shape the strategies and relationships of companies. Additionally, Johnson and Mena (2008) note that the emergence of a servitization strategy also requires companies to be engaged in multi-organizational collaborations in order to facilitate greater levels of information and knowledge exchange, and increased interdependency. Lockett et al. (2011), in their turn, describe another change of business relationships as a result of the implementation of a servitization strategy. They argue that relationships in servitized environments are characterized by increased complexity compared to the “traditional” manufacturing supply chain.

In short, business relationships will be shaped as a result of servitization. The dividing line between traditional manufacturers and services companies will become less clear and the relationships in servitized environments will be more complex compared to the traditional manufacturing supply chain. The business relationships in servitized environments have to facilitate greater levels of information and knowledge exchange and increased interdependency.

2.4.2. Aims of business relationships in servitized environments

As stated in paragraph 2.3. ‘Importance of relationships with the external network in servitization’, in a servitized environment third parties are required in order to acquire a high degree of knowledge about a particular product and the business environments and organizations targeted (Lockett et al., 2011; Saccani, 2014). This means that many servitizing companies gather closely integrated

partners, such as service firms, other manufacturers and maintenance specialists, to deliver services (Baines, Lightfoot, Peppard, Johnson, Tiwari, & Shehab, 2009b). Ahvenniemi, Nenonen, and Martinsuo (2013) remark that these third parties “may have a crucial role in opening up or controlling a suppliers’ access to the end-users” (p.83). For example, system integrators may have a key role as information providers of end-users’ activities towards product suppliers, or as barriers to such information (Finne & Holmström 2013). So, information exchanges should be intense and bidirectional, providing greater knowledge of the end customers (Oliva & Kallenberg, 2003). Wan and Cleg (2013) suggested that the most effective mechanism for facilitating supply networks that support the provision of servitization is through effective management of inter-organizational relationships. Additionally, they argued that these relationships need to be more responsive and agile to be able to offer varying service solutions. In other words, by having responsive and agile inter-organizational relationships, meta-competencies and end-to-end product solutions can be created (Wan & Clegg, 2013). Lockett et al. (2011) found three things regarding business relationships in servitized environments. First, they found that if a company requires suppliers to support it in offering service solutions, they should enable these suppliers to have access to relevant information. Second, they found that higher levels of information exchange will require changes in the nature of relationships between supply chain actors. Third, and finally, that the above-mentioned information exchange and the nature of the relationship are mutually reinforcing.

In conclusion, it can be mentioned that relationships in a servitized environment include bidirectional information exchange between the actors. Next to that, it can be argued that the nature of the relationship has to change when this bidirectional information exchange between the actors needs to be included.

3. Methodology

This chapter discusses the methodology and techniques applied to answer the research questions. The first paragraph discusses the research design. The second paragraph pays attention to the data collection and paragraph three presents the methodology overview.

3.1. Research design

The aim of this design research is to reconcile empirical- and theoretical evidence in order to determine what the role of the channel partner be like, within the process from the commissioning phase until the aftercare regarding access control systems, when the firm implements a servitization strategy. In addition, it will be investigated in what way the firm can engage (certain types of) its channel partners in its servitization strategy.

Contextually driven design research will be used in order to study the research question. The method proposed by S. Brinkkemper (n.d.) will be used. This research design consists of 4 stages: problem, analysis, design, and solution (see figure 1). In this research, the first 3 stages will be executed. First, the problem will be identified. In this research, it is a problem that the company does not know what the consequences can be regarding the role of their channel partners, within the process from the commissioning phase until the aftercare regarding access control systems, when it wants to offer ACaaS. The company also does not know how it can engage its existing- and new channel partners in the servitization strategy, which will be implemented when it will offer ACaaS. Second, the problem will be analyzed. So, it will be determined which are the most important consequences of servitization regarding the role of the channel partner, within the process from the commissioning phase until the aftercare regarding access control systems. This will be done by analyzing the current role of the channel partner and by determining what will change in the demand of the firm with respect to its channel partners, within the process from the commissioning phase until the aftercare regarding access control systems. Delivering access control as a service can be seen as the implementation of a servitization strategy. The determination of the current- and future role of the channel partners, within the process from the commissioning phase until the aftercare regarding access control systems, will be based on theoretical- and empirical evidence. Finally, it will be investigated how the firm can engage (certain types of) its channel partners in its implemented servitization strategy. To investigate this, both empirical and theoretical evidence will be used.

Systematic combining

As stated above, the aim of the research is to combine empirical and theoretical evidence in order to determine what the future role of the channel partner, within the process from the commissioning phase until the aftercare regarding access control systems, will be like. Empirical- and theoretical evidence will be reconciled by using 'systematic combining' (Dubois & Gadde, 2002). This approach is characterized by a continuous movement between an empirical world and a model or

theoretical world. Dubois and Gadde (2002) describe systematic combining can as “a nonlinear, path-dependent process of combining efforts with the ultimate objective of matching theory and reality” (p. 556). In addition, they state that this approach builds more on the refinement of existing theories than on inventing new ones. Dubois and Gadde (2002) state that this approach “creates fruitful cross-fertilization where new combinations are developed through a mixture of established theory and new concepts derived from the confrontation with reality” (p. 559). Confronting theory with the empirical world is the main objective of any research (Dubois & Gadde, 2002). Dubois and Gadde (2002) argue that this confrontation is more or less continuous throughout the research process in systematic combining. They found that the researcher, by constantly going ‘back and forth’ from one type of research activity to another and between empirical observations and theory, is able to expand his understanding of both theory and empirical phenomena.

The attempt to propose systematic combining as a proper case study approach has been inspired by what is referred to as ‘abduction’ (Dubois & Gadde, 2002). Pierce (1931) and Kirkeby (1994) state that abduction is about investigating the relationship between ‘everyday language and concepts’. When the objective of the researchers is to discover new things — other variables and other relationships, an abductive approach is fruitful. The main concern of an abductive approach is related to the generation of new concepts and development of theoretical models, rather than confirmation of the existing theory.

Triangulation can be denoted by combining sources of evidence, while shifting between analysis and interpretation (Yin, 1994; Denzin, 1978). The main advantage of triangulation is the development of converging lines of inquiry (Yin, 1994). Dubois and Gadde (2002) state that the framework should evolve during the study because empirical observations inspire changes of the view of theory and vice versa. It is important to keep in mind that the matching processes have no obvious patterns. The efforts to match theory and reality can take a researcher in various directions. There is never one single way of matching (Dubois & Gadde, 2002).

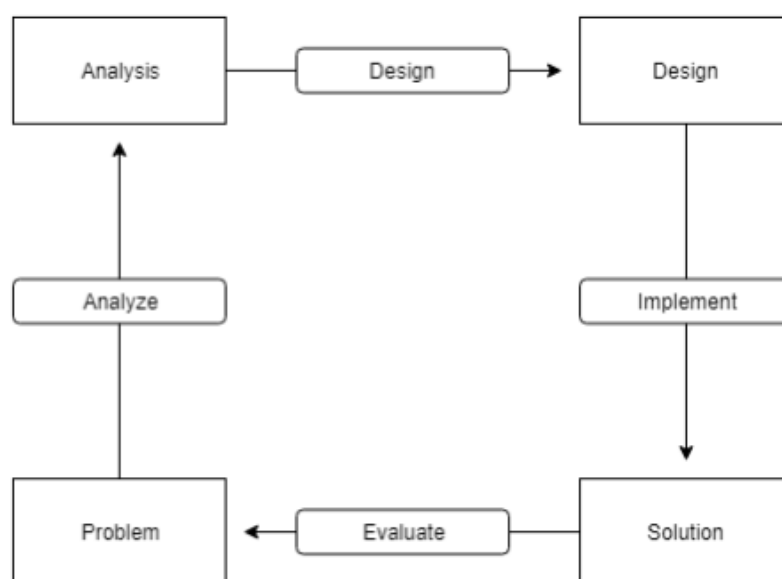


Figure 2 - Brinkkemper, S. (n.d.). Design Research - Wetenschappelijke onderzoeksmethoden

3.2 Data collection

This paragraph shows how the data will be collected for the problem identification, the problem analysis and the design for solving the identified problem.

3.2.1. Problem identification

In the introduction, under paragraph ‘problem description’, the problem has been identified. This problem has been identified by conducting semi-structured interviews and conversations with employees of Tech Solutions (Appendix 1, Appendix 2, Appendix 3). Besides empirical evidence (the semi-structured interviews and conversations), theoretical evidence is also used to identify the problem. This theoretical evidence explains why the transition towards ACaaS may cause problems.

3.2.2. Problem Analysis

The problem will be analyzed by determining the current situation, the scenario which describes the changes that will be made in order to offer ACaaS and the future situation.

Current situation

The current role division between Tech Solutions and its channel partner will be analyzed by conducting semi-structured interviews and having conversations with employees of Tech Solutions. To visualize this role division, a visualization developed by a business developer of the firm will be used. This visualization portrays the whole process from the end-user request for access control systems until the aftercare regarding access control systems. This visualization is adjusted by information collected from semi-structured interviews/conversations with employees of Tech Solutions and by scientific articles obtained from literature databases such as Google Scholar and Scopus. The visualization will be used as a starting point because it seems easier/better in the communication with the employees within the firm. This seems better because employees within the department are familiar with this language/vocabulary. This makes it more likely that they can be of great added value in the determination of the current demand of Tech Solutions with respect to the channel partners. With the use of this practical visualization, developed by a business developer of the firm, the context and vocabulary of the firm are used. Therefore, it can be remarked that contextually driven design research is used.

The current role of the channel partners will be determined by dividing the channel partners in the way the company does. The company distinguishes five types of channel partners. By looking at the business structure and the core competences of these different types of channel partners, the current role of the channel partners in the delivery of access control systems will be determined. So, it will not be determined for which activities the channel partners are responsible, but it will be determined which activities within the delivery of access control are the core competences of the channel partner. For example, a certain type of channel partner offers the full-service ‘security’, but it needs other firms to deliver this full-service. In

that case, it will be analyzed which specific activities are executed and preferred by this type of channel partner, i.e. the strengths of the channel partners will be determined. It will be examined which customer group is served by which type of channel partner and it will also be analyzed what is offered by the different types of channel partners to these specific customer groups. Next to that, the current demand of Tech Solutions with respect to its channel partners will be analyzed. In order to determine the tasks for which a particular type of channel partner is responsible, the current demand of Tech Solutions with respect to its channel partners and the core competences of the different types of channel partners will be compared.

In conclusion, the current demand of Tech Solutions with respect to its channel partners and the core competences of the different channel partners will be determined by conducting semi-structured interviews and conversations and by using the practical visualization, which is developed by a business developer of the firm. By comparing the current demand of Tech Solutions with respect to its channel partners and the core competences of the different types of channel partners, it can be determined which core competences of the five different types of channel partners match the current demand of Tech Solutions with respect to its channel partners.

Scenario

In order to determine if and how the role of the channel partner will change, within the process from the commissioning phase until the aftercare regarding access control systems, a scenario will be described. By describing this scenario, it can be determined what Tech Solutions needs from its channel partners when ACaaS will be offered. The scenario will be described by using empirical- and theoretical evidence. The empirical evidence with regard to the scenario will be gained by organizing a workshop. In this workshop, it will be determined which changes are required in order to offer ACaaS. The workshop will be attended by four employees of Tech Solutions. This group includes three business developers and one product manager of Tech Solutions. The workshop will consist of six steps. This step-by-step plan is shown in the table below.

Step 1 - Quote	The workshop will be started with a quote. This will be done in order to draw the attention of the participators and to get the participators in the right mood to start the workshop.
Step 2 – Background information	Some background information will be given. It will be explained where the research is about and why the workshop is organized.
Step 3 – Explaining practical visualization	The practical visualization, developed by a business developer of the firm, adjusted by semi-structured interviews with employees of the firm and theoretical evidence, will be explained.
Determination of the scenario - Repetition of step 4-5-6	
Possible changes which occur in the sales-, engineering-, installation-, commissioning-, delivery- and aftercare phase.	

Step 4 – Write activities/services/tasks down (individual)	Participants will be asked to write individually down what they think will change in a certain phase firm wants to offer ACaaS.
Step 5 – Grade the steps which are written down individually by giving dots	Each participant receives six dots in order to grade the most relevant changes which are needed in order to offer ACaaS. For their first place, they have to give 3 dots, the second place 2 dots and the third place 1 dot.
Step 6 – Open group discussion	An open group discussion will take place to determine which are the 3 most required changes in order to offer ACaaS.

Table 1 – Step-by-step plan of the workshop

In addition, theoretical evidence will be used to explain the content of the steps that seems most necessary to be taken when the firm wants to make the transition towards ACaaS. So, it will be investigated what is written in the literature about the consequences of the steps which seem most necessary to be taken when the firm wants to make the transitions towards ACaaS or in other words when the firm wants to servitize.

Future situation

To determine the demand of Tech Solutions with respect to the channel partner when the firm wants to offer ACaaS, the influence of the scenario will be assessed. So, it will be determined what the consequences are of the changes, which will be made in order to offer ACaaS, regarding the demand of the firm with respect to its channel partners. In other words, it will be analyzed what will change for the channel partner in the offering of its ‘product’ to its specific customer group. For example, a certain type of channel partner offers the full-service ‘security’. For this type of channel partner, it will be analyzed what will change in the offering of the full-service ‘security’ to its customer group. If servitization results in a better fit between the required activities for the channel partner in offering its product and the strengths of the channel partner, this would be advantageous. This could mean that there is a better fit between the channel partner and its own customer group because it becomes easier for the channel partner to offer the ‘product’ requested by the customer group.

By organizing the workshop, sufficient information should be obtained in order to determine if and how the demand of the firm with respect to its channel partners will change when ACaaS will be offered. If necessary, the information gained through the workshop will be supplemented by conducting new individual interviews with the participants of the workshop. In addition to the above-mentioned empirical evidence, theoretical evidence will also be used. The intention of using theoretical evidence is to determine what the consequences are of the choices made within the scenario. So, the theoretical evidence will be used to determine the consequences of certain steps in the servitization process for the role division between the firm and its channel partners.

The aim of the research is to determine what the role of the channel partners will be like if the firm implements its servitization strategy, which is described in the scenario. This will be done by comparing the possible changed demand of Tech

Solutions with regard to its channel partners and core competences of the five different types of channel partners, which have remained the same. This comparison will be made by using the practical visualization, developed by a business developer of the firm.

In short, the possible new role of the channel partner will be determined by comparing the possible changed demand of Tech Solutions with regard to its channel partners and the constant core competences of the channel partner.

3.2.3. Design of the solution

The design of the solution is in line with the second aim of the research. After the problem identification and problem analysis, a design will be created in order to solve this problem. So, the design provides a way in which the problem can be dealt with. This will be done by investigating in what way the different types of channel partners can be engaged in the servitization strategy. In other words, it needs to be determined how the firm can remain/become attractive for its existing channel partners when ACaaS will be offered. Both empirical- and theoretical evidence will be used to create the design of the solution. Empirical evidence will be gained by conducting interviews. These interviews will be conducted in order to determine the view of the firm on engaging the channel partners when ACaaS will be offered. In addition, theoretical evidence will be used in order to determine what researchers remarked about the engagement of (channel) partners.

In short, empirical evidence and theoretical evidence will be used in order to investigate how the channel partners can be engaged in the servitization strategy, which will be implemented when ACaaS will be offered.

3.3. Methodology overview

The data collection methods of each sub-question are shown in table 2.

Research question	
“What are the consequences regarding the role of the existing channel partner within the process from the commissioning phase until the aftercare regarding access control systems, when Tech Solutions implements a servitization strategy, and what are the possible ways for engaging the channel partners in this servitization strategy?”	
Sub research questions	Data collection method
1. In what way are the roles divided between the existing channel partners and Tech Solutions within the process from the commissioning phase until the aftercare regarding access control systems, at the moment?	<u>Empirical evidence:</u> Semi-structured interviews Conversations <u>Theoretical evidence:</u> Visualization/model developed by a business developer of the firm Literature review
2. What will be the possible servitization strategy implemented by Tech Solutions within the process from the commissioning phase until the aftercare regarding access control systems?	<u>Empirical evidence:</u> Workshop Optionally supplemented by interviews <u>Theoretical evidence:</u> Literature review
3. What will the role of the channel partners be like within the process from the commissioning phase until the aftercare regarding access control systems, when the firm implements the servitization strategy explored in sub-question 2?	Based on servitization strategy explored in sub-question 2. <u>Empirical evidence:</u> Workshop Interviews <u>Theoretical evidence:</u> Literature review
4. How can the firm engage its existing channel partners in its servitization strategy within the process from the commissioning phase until the aftercare regarding access control systems?	<u>Empirical evidence:</u> Interviews <u>Theoretical evidence:</u> Literature review

Table 2 – Data collection methods

4. Current situation

In order to get an answer to the research question and the sub-questions, it is important to get a clearer view of the current situation regarding the division of roles between the firm and their channel partners. To get this clearer view, the organization will be introduced, the current organization design of Tech Solutions, from a theoretical perspective, will be described and the current role division between the firm and its channel partners will be visualized and described.

4.1. Empirical evidence

To get a clearer view of the division of roles between the firm and their channel partners, empirical evidence is collected. Interviews have been conducted with both a channel partner manager and a client manager of the firm. The Channel Partner Programme guide has also been used to visualize the current situation. At the moment, Tech Solutions has an international Channel Partner network of certified integrators, and only these partners can buy, install and maintain TS Access Control systems (access control system provided by Tech Solutions). They encourage lots of collaboration and there is scope to offer attractive discounts to Channel Partners. Tech Solutions also creates extra value for its partners by generating demand through direct contact with selected customers and consultants. So, together with their Channel Partners, Tech Solutions is committed for promoting, selling, and maintaining TS Access Control products and working together to strengthen our mutual market positions. To ensure a successful collaboration between Tech Solutions and Channel Partners, they each focus on their own specific tasks.

The Channel Partner Programme describes the relationships and the division of roles between Tech Solutions, the Channel Partner and the End-users. The visualization of the relationship between Tech Solutions and its channel partners is shown in figure 3.

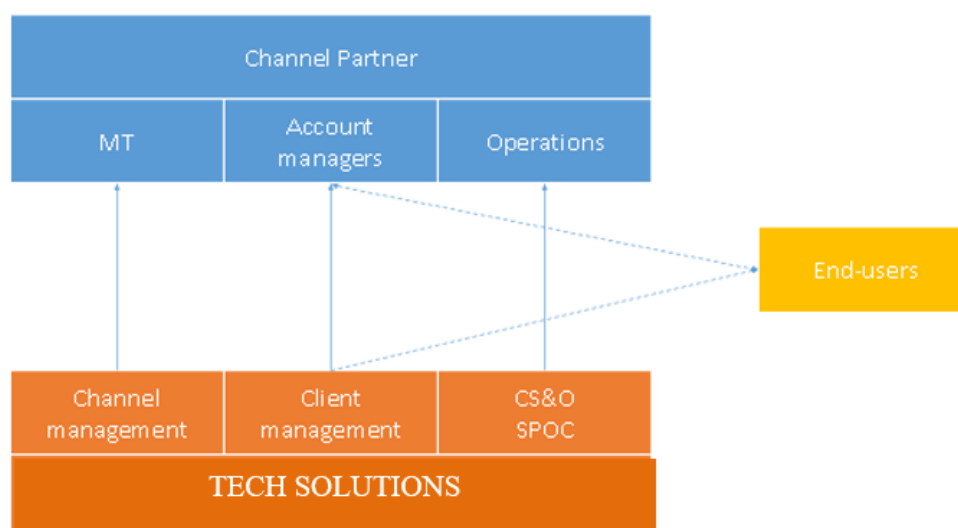


Figure 3 – Visualization Channel Partner Programme

Tech Solutions encourages collaboration with the channel partner (Appendix 4, Appendix 5). To encourage the collaboration with channel partners, Tech Solutions offers attractive discounts to Channel Partners based on the partner's product knowledge, training certificates, annual spend and loyalty (Tech Solutions, Channel Partner Programme Guide, n.d.). They also create extra value for their partners by generating demand through direct contact with selected customers and consultants. So, both Tech Solutions and their Channel Partners are committed for promoting, selling, and maintaining TS Access Control products and working together to strengthen their mutual market positions.

In order to manage the triangular relationship with the Channel Partner and the end-user, Tech Solutions brought 3 functions into existence (see figure 3). The channel partner manager is in very close contact with the management team (MT) of the channel partner. He coordinates and manages the programme. The client manager supports the programme. He provides commercial training, supports the account managers of the channel partner during meetings with the end-user and is also in direct contact with the end-user. The single point of contact (SPOC) provides technical training and offers technical support for the operation department of the channel partner. This operation department installs and configures the systems of Tech Solutions for the end-user. To achieve beneficial collaborations between Tech Solutions and their channel partners, and to ensure transparency within their network, they established four different channel partner levels: Certified Partner, Advanced Partner, Expert Partner, and Alliance Partner. These levels are mainly based on the partner's product knowledge, training certificates, annual spend and loyalty (Tech Solutions, Channel Partner Programme Guide, n.d.).

Partner levels

The channel partners can obtain four partner levels. These partner levels consist of:

- Certified Partner
- Advanced Partner
- Expert Partner
- Alliance Partner

Partner level is based on:

1. Product knowledge (*experience of TS Access Control projects*)
2. Training certificates
3. Annual spend
4. Loyalty

1. Product knowledge

Certified Partner

A Certified Partner is accredited to provide, sell, install, commission and service TS Access Control products. Certified Partners have a basic technical knowledge of TS Access Control products. They get a discount on TS Access Control list prices and have access to our helpdesk and valuable technical and commercial documents through the partner portal on the website of the firm.

Advanced Partners

An Advanced Partner has more qualifications than a Certified Partner and is able to create extra value for customers with TS Access Control products. Through the TS Access Control training programme, an Advanced Partner has gained knowledge of additional topics. This means they are able to offer, for example, more sophisticated access control solutions or to apply graphical alarm handler and intrusion functionality on the TS Access Control platform. Advanced Partners also have commercially staff trained in TS Access Control to add value to end customers in the pre-sales and sales phases.

Expert Partners

An Expert Partner has built on the Advanced Partner qualifications and has extensive knowledge of TS Access Control products. The value that Expert Partners can offer end customers is of the highest level. Expert Partners have significant experience of TS Access Control projects. This is demonstrated by a minimum annual purchase value of TS Access Control products, and means-end customers can rely on their proven expertise.

Alliance Partners

An Alliance Partner has even more qualifications than an Expert Partner, and guarantees end customers a seamless collaboration with the firm by selling TS Access Control as the sole access control product in its personal portfolio. Alliance Partners underline their commitment by being largely dependent on the sales of TS Access Control products in their operations.

2. Training certificates

The extent and level of training certificates which are achieved. These trainings are given by the personnel of the Tech Solutions.

3. Annual spend

Annual spend requirements by partner level are:

	Certified	Advanced	Expert	Alliance
Annual spend	No threshold	> 50k	> 100k	> 100k

To allow for fluctuations, the annual spend is based on the average of the three preceding calendar years. If a partner has not been active for three years, the years up to the current year will apply. To prevent the first year's start-up phase skewing the average, we do not take the first year into account after the second year. Below is an example, to explain this principle.

Year	Annual spend (x1000)	Basis	Average spend (x1000)	Potential level
1	50	-	0	Certified
2	100	Year 1	50	Advanced
3	300	Year 2	100	Expert/Alliance
4	500	Year 2 + 3	200	Expert/Alliance
5	700	Year 2 + 3 + 4	300	Expert/Alliance
6		Year 3 + 4 + 5	500	Expert/Alliance

4. Loyalty

Partners that are fully committed to TS Access Control have the opportunity to distinguish themselves as an Alliance Partner. To achieve the status of Alliance Partner, they must meet the following criteria:

- They must already have reached the expert level
- TS Access Control is the sole access control product within their product portfolio
- At least 30% of their annual turnover is based on TS Access Control net purchase value (annual spend with the company)
- They provide quarterly insights on the project funnel and a forecast on expected orders for major projects in the subsequent quarter(s)

These requirements are assessed annually, with the percentage of the annual turnover being proved by allowing us access to financial statements.

4.2. Current organizational design of the firm

In order to get a clearer view of the current division of the roles between the firm and their channel partner, it will be portrayed how the firm is currently organized. This will be done based on the recommended organizational approach for providing solutions (Pawar, Beltagui, & Riedel, 2009).

According to Pawar et al. (2009), an organization which wants to provide solutions has to set up a “back-end” and a “front-end”(see figure 4). The back-end is responsible for the manufacturing operations. In other words, this side makes the products for direct sales to customers. The front-end is created in order to be more customer-oriented and builds customized solutions around the manufactured products.

In order to get the inputs for the back-end, the organization can rely on external suppliers. For Tech Solutions, these external suppliers consist of technology partners and suppliers (Appendix 6). The technology partners are responsible for the delivery of the core technology for the access control systems. The suppliers are also responsible for the delivery of hardware, just like the technology partners, but there is no partnership with these organizations. Contrary to technology partners, they also deliver software. In order to get the inputs for the front-end, the organization can also rely on external suppliers. These external suppliers consist of supplier consist of channel partners and installers. First, the channel partners are responsible for finding/approaching potential customers for the solutions and for the transmission of feedback from these customers. The channel partners are also product customers. They sell the access control systems to the end-user, which will be installed by the installers. Second, the installers install the access control systems for the end-users. In the case of Tech Solutions, the end-users are the solutions customers. In this research, installers will be subjected to channel partners.

In short, the external suppliers for the “back-end” are the technology partners and the suppliers. The external suppliers for the “front-end” are the channel partners and the installers. The channel partners are the product owners and the end-users are the solution customers.

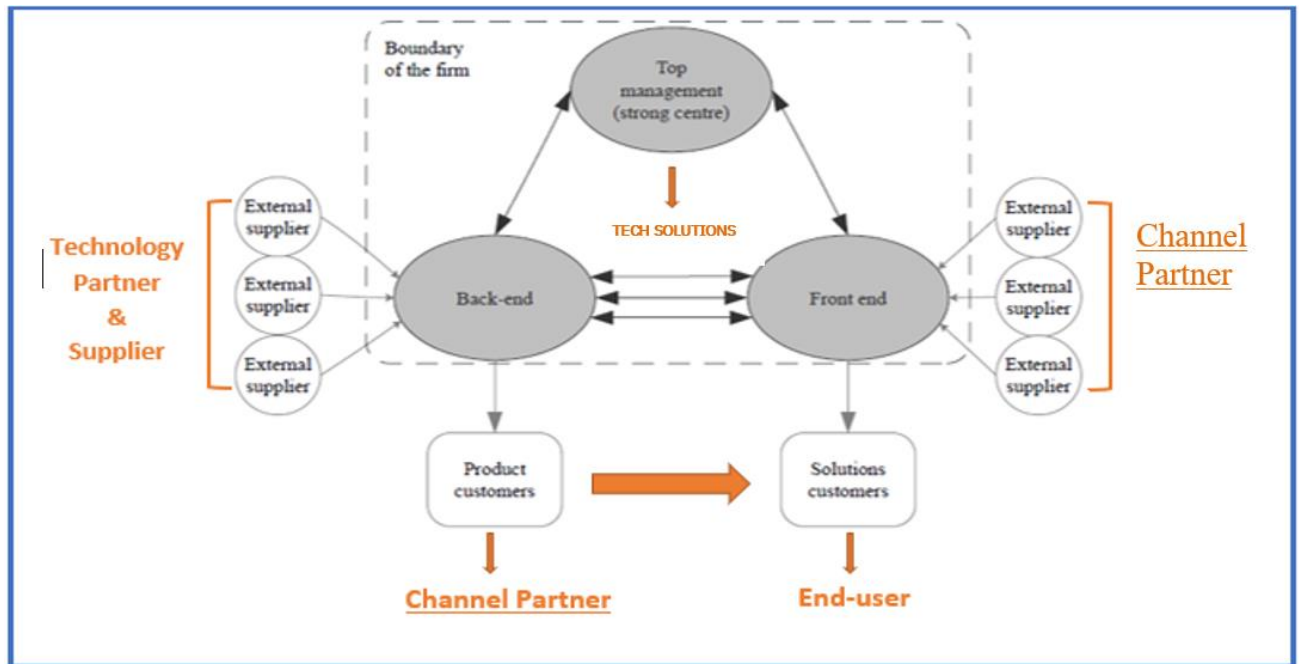


Figure 4 - Recommended organizational approach for providing solutions, based on the organization design of Tech Solutions (derived from: Pawar, Beltagui, & Riedel 2009)

4.3. Core competences of the different types of channel partners

The current role of the channel partners will be determined by dividing the channel partners in the way the company does. The company distinguishes five types of channel partners. By analyzing the business structure and the core competences of these different types of channel partners, the current role of the channel partners will be determined. It has been decided to place the market orientation, requirements, tender, and selection activities all under the same heading, which is called 'sales'. So, the sales phase will consist of activities regarding sales and pre-design and installation. This has been done, because the employees within the firm (and the channel partners) see the activities with regard to market orientation, requirements, tendering and selection as sales activities.

4.3.1. Constructor

A constructor can be designated as a construction company. The classic function of a constructor is constructing buildings. A classic construction company tells a company which is interested in renting the building which has to be built that the company will be helped with window frames, doors, walls, radiators, etc., but that the company will be responsible for the systems yourself (Appendix 3). So, in this case, the interested company has to look for companies which can deliver, install, implement and maintain the access control systems.

The role of construction companies is changing. In the market, it is becoming increasingly common that construction companies deliver a building in its entirety (Appendix 3). This means that construction companies fully equip the building and rent it to companies. These construction companies deliver PPP (Public Private

Partnership) constructions. PPP constructions can be described as a partnership where the public and private sectors collaborate for some mutual benefit (“Public-private partnerships PPP - Designing Buildings Wiki,” n.d.).

For example: a construction company builds an office for Google and then immediately delivers everything around it. A delivery in which everything is delivered and managed can be described as a Turn-Key delivery (Appendix 3). So, a construction company delivers/manages/installs air conditioning, tv screens, wifi, and also access control. In this way, the construction company gives Google the opportunity to rent an office for 30 years, for instance, and everything is managed for Google with regard to the building (facilities). The primary choice of what kind of systems will be installed is in the hands of the construction company.

So, initially, the core business of a constructor is building a building, but there is a trend in which it is becoming increasingly common that constructors deliver a building in its entirety. These construction companies fully equip the building. This means that these construction companies also place access control systems. In order to manage the access control within the building for a company, the constructor has to take care of the installation and commissioning of the access control systems, among other things. That is why such a construction company has become an interesting customer for Tech Solutions; these construction companies are responsible for a Turn-Key delivery. It can be stated that the core businesses of a constructor are still ‘building buildings’ and eventually renting buildings, but in order to provide a turn-key delivery, they have to take their responsibility for the whole process of delivering access control. So, these constructors are responsible for the whole process, from the end-user request for the access control systems until the aftercare regarding access control systems.

Given the fact that the primary choice about what kind of access control systems will be installed is in the hands of constructors, they can be relevant in the sales phase of the access control systems for Tech Solutions. The construction company has to buy access control systems, which consist of hardware and software, and they will be placed in the building of the tenant, which will be the end-user. So, the strength of the constructor is sales. In addition, the pre-design and calculation can be seen as a core competence of a constructor, because a constructor is always concerned with calculation and planning, originally (Appendix 10). Therefore, it can be noted that planning and logistics is also a core competence of a constructor. The constructors are not familiar with the configuration of the system, the setup of the server, and programming of the system (Appendix 10). So, it can be argued that they cannot manage the commissioning stage. Besides, they have to install hardware and cabling. That is not their strength and they cannot do it their selves. Therefore, they often hire another company for (a part of) the installation of hardware and cabling. They have little know-how regarding the system test, because they know where and how the hardware is placed. They are not able to provide training, because they do not know enough about (the functioning of) the systems (Appendix 10).

In conclusion, it can be stated that the sales, pre-design and calculation, planning and logistics are the core competences of the constructors. The visualization of the above-mentioned information regarding the constructors is shown in Matrix 1. For the legend corresponding with this matrix, see page 37.

4.3.2. Man Guarding

Man guarding organizations are organizations which employ security guards in order to ensure corporate security. Initially, these organizations target manpower to provide companies with corporate security.

These days, companies want to focus on their core business instead of support services such as IT infrastructure management, software maintenance, and access control. This means that organizations want to outsource their security regarding access controls, among other things (Godse & Mulik, 2009). Therefore, it is becoming increasingly common that these man guarding organizations have the role of a full-service party. In other words, they have to ensure that the whole property of companies is safe. In order to ensure this, these man guarding organizations need to have cameras, access control systems, etc. That is quite a shift from their original offer because in the past they only employed security guards they simply earned cash for the number of worked hours.

Man guarding organizations find it interesting to have the role as a full-service provider because this makes it possible to be connected to the customers for a longer period of time. It is still possible to offer their security guards and next to that they can expand their portfolio, because they can offer more, with regard to 'security' to the customers. So, for these reasons man guarding organizations want to take over the entire service 'security' for companies (Appendix 3). It can be noted that the core business of the man guarding organizations is to completely relieve them of the 'security' aspect. So, they do offer a fully equipped building like the constructors, but they 'only' manage the security aspect for a company. It is relevant to know that these man guarding organizations actually do not want to install and commission the access control systems. These companies would welcome a reduction of anything that puts them at greater risk in providing the entire service 'security'. If the tasks which put them at greater risk in provide the entire service 'security' will be reduced, the man guarding organizations can really focus on what they are good at. The main strength of the man guarding organizations are the sales. Man guarding organizations have a strong proposition in the sales because they can offer a complete service for the end customer with regard to 'security'. It is impossible for Tech Solutions to compete with these man guarding organizations in the sales phase because Tech Solutions 'only' offers access control as a proposition. So, customers who are looking for an opportunity to outsource the full 'security' aspect, will choose for a man guarding organization. It can be ensured that man guarding organizations are not able to execute the pre-design and calculation, final system design and installation. The same applies to all the activities within the commissioning phase (Appendix 10). That is not their core competence. If these activities are not required anymore in order to offer access control systems, they will be very happy with that (Appendix 10). They are quite good at planning and logistics. Originally that was their core competence. They had to make schedules for their guards (Appendix 10). Where the constructor does not do (all) the installation of the cabling and hardware by himself, the man guarding organizations cannot and do not want to this at all. Originally, they were accustomed to setting up human surveillance. In principle, it was originally a temporary employment agency. So, it can be noted that testing the system is something which the man guarding organization cannot and do want to do. This also applies to the provision of training courses (Appendix 10).

When Tech Solutions has the opportunity to work together with man guarding organizations, it can take advantage of the propositions of these organizations in the sales phase and it can provide the end-users of man guarding organizations with access control systems by selling these systems to man guarding organizations. In short, it can be remarked that the sales and planning and logistics are the core competences of the man guarding organizations. The visualization of the above-mentioned information regarding the man guarding organizations is shown in Matrix 1. For the legend corresponding with this matrix, see page 37.

4.3.3. Integrator

Integrators are actually the classic channel partners of Tech Solutions. Traditionally, the integrator makes sure that many different systems are linked together. Linking these different systems is very complicated. For example, the integrators make sure that the video surveillance system works together with access control. They also install a database, which meets certain requirements. They fully integrate the server in the building(s) of the end-customer. This is also difficult, but the integrators have employers who are specialized in this field. So they take away the problems/issues for the end-customers who want to have an integrated access control system, but are not able to integrate the systems, because of the complexity. The integrator often hires an installer to do the installation work.

The integrator is very good at sales because they have a unique proposition in sales. They offer customized systems to the end-user. The pre-design and calculation is also a great strength of the integrator. The final system design is an activity which they can manage at a reasonable to a good level. It can be ensured that they are able to execute the planning and logistics. Most often, the integrators outsource the installation of hardware and cabling. Their network with regard to installers enables them to hire the right installers to do the installation. The integrators benefit from the customer-specific configuration options because this enables the integrators to apply their primary knowledge, the configuration and integration of systems and the setting up the servers, to the specific wishes of the end customer. So they really provide customization. The integrators have become the main channel partners of Tech Solutions, because TS Access Control, the product which is offered by Tech Solutions, lends itself perfectly to making customizations. TS Access Control lends itself perfectly for cooperation with other systems. The development of the product TS Access Control is really attuned for configuration and integration of the systems and setting up the servers because this is an increasing need of the end-customers.

In short, it can be stated that the core competences are the sales, the pre-design and calculation, and the activities within the commissioning phase. So, programming and the configuration of the system and the setup of the server are also core competences. This is possible because the configuration and server integration are very complex and the integrators have the employees who are specialized in this field. The visualization of the above-mentioned information regarding the integrators is shown in Matrix 1. For the legend corresponding with this matrix, see page 37.

4.3.4. Installer

In the past, installers were only responsible for the installation work. So, they simply earn cash for the number of worked hours. They are in frequent contact with the end-user because they do not only install the TS Access Control Systems, but they also do the cabling of the lighting, the fire systems, etc. In short, all the installation work within such a building. An end-user often has a home installer, a standardized installer. When these kinds of end-users need a new access control system, they will contact their home installer. So, the constructor, the man guarding organizations and the integrators constructor are not in the scope of the end-user. So, the end-user asks his installer if they are in contact with good suppliers of access control systems. In that case, the installer then referred the end customer to one of the specialized integrators they work with. This integrator, in turn, took his responsibility for the configuration and integration of the different systems and the setup of the server in such a building and the installer was then hired by the integrator to do the installation work.

These days, it is becoming increasingly common that the installers, especially for large projects, want to offer the whole system themselves. Therefore, they acquire integrators, which makes it possible to grow in the supply chain. In this case, installers do not have to hire integrators every time, which makes it possible to keep the project within their own portfolio. Installers are strong in sales because they have broad customer contact. It can be ensured that the installer has the capabilities to execute the pre-design and calculation. They do this often and they do this well. The planning and logistics also consist of activities which can be executed well by installers. They are strong in the installation and through acquisition, they also have the knowledge with regard to the configuration and integration of different systems and the setup of the server. Therefore, the installation can be seen as a core competence of an installer and the configuration and integration of the systems and the setting up of the servers cannot be seen as a core competence of the installer. Despite the fact that they have some knowledge about how the systems can work together, they really have to hire (or take over) an integrator to be able to execute the activities within the commissioning phase. The activities regarding the commissioning need to be done, so these activities can be seen 'a necessary evil' to deliver entire projects. The installer knows how the hardware is physically connected to each other. Therefore it can be remarked that the installer knows more about system testing and training than a man guarding organization.

In short, it can be remarked the sales, the pre-design and calculation, the planning and logistics and the installation of the hardware and cabling are core competences of the installer. The visualization of the above-mentioned information regarding the installers is shown in Matrix 1. For the legend corresponding with this matrix, see page 37.

4.3.5. Value Added Distributor

Value Added distributor support small installers, who work very sporadically with access control systems. These installers are mainly concerned with wiring and electricity. Once or twice a year they are asked for access control systems by end-users. In this case, these installers have two options. On the one hand, they can ask

an integrator to provide this for them. On the other hand, they can ask a Value-Added-Distributor to supply them with an off-the-shelf system that they can install immediately, without me having to think about it. A common distributor, a box-mover, is not able to do this. A Value-Added-Distributor is able to do this. The installers pay a certain amount for the off-the-shelf system which can be installed immediately. The installer does not need to have the knowledge regarding the system, only just the user knowledge, because the configuration and pre-installation will be executed by the Value Added Distributor. It is possible that an prefers to work with a Value Added Distributor because an integrator also wants to sell other products to the end-user. A Value Added Distributor has a very large customer network. They have a lot of installers in their network. Despite the fact that these installers only request for access control systems once or twice a year, a Value Added Distributor is able to generate sufficient revenues, because they have sufficient installers in their network.

For example, VAD company A sells to numerous installers. If an installer orders something from VAD company A once a year, then numerous systems are sold each year. The small installer takes on a project regarding the installation of access control once a year, sometimes even less. Because VAD company has numerous small installers within their network, this will mean that they have to (pre-)configure several systems per day.

For Tech Solutions, it is not possible to remain in contact with all those numerous small installers, who are annually responsible for one small project with regard to access control systems. Therefore, sales is a great strength of the Value Added Distributor. The Value Added Distributor is 'adds value' for Tech Solutions because they are able to constitute activities regarding the pre-design and calculation, final system design, system programming, TS Access Control configuration, and server integration. This channel partner benefits from a complicated set-up of the IT. This means that setting up the servers and the database is difficult. This requires a comprehensive knowledge of IT. Certain types of installers do not have the necessary IT knowledge to set up TS Access Control. Therefore, the Value Added Distributor pre-configures the server and is also responsible for the configuration of the access control systems. This enables the installers to install access control systems without certain IT knowledge. So, the installation has to be managed by the installer with whom they work together. So the VAD does not take responsibility for the installation.

In short, it can be noted that the core competences of the Value Added Distributor are the sales, the pre-design and calculation, final system design, programming of the system, configuration and integration of the system and setting up the server in the building of the end-user. The visualization of the above-mentioned information regarding the Value Added Distributor is shown in Matrix 1. For the legend corresponding with this matrix, see page 37.

4.4. Current demand of Tech Solutions with respect to its channel partners

Currently, Tech Solutions needs its channel partners in every phase within the process from the end-user request for access control systems until the aftercare regarding access control systems. So every task within the process has been graded with a '++', except the sales, which has been graded with a '+'. This choice has been

made because Tech Solutions established the Global Client Programme. This programme is only concerned with direct sales (with multinationals). The Global Client Programme is responsible for a relatively small share of the total sales of Tech Solutions regarding TS Access Control Systems. For the 'grades' given for the current demand of Tech Solutions with regard to its channel partners, see Matrix 1. For the legend corresponding with this matrix, see page 37.

When Tech Solutions wants to offer ACaaS, which can be seen as servitization, this can have affected the demand of Tech Solutions with respect to its channel partners. It is possible that some activities become more important and other activities become less important. If this is the case, it is possible that a better/worse fit arises between the core competences of some types of channel partners and the demand of Tech Solutions with respect to its channel partners.

4.5. The core competences of the different types of channel partners vs. current demand of Tech Solutions with respect to its channel partners

The core competences of the five different are described in detail in paragraph 4.3. and visualized in Matrix 1. The current demand of Tech Solutions with respect to its channel partners is analyzed in paragraph 4.4. and visualized in Matrix 1.

In order to determine which core competences of the five different types of channel partners match the current demand of Tech Solutions with respect to its channel partners, the current demand of Tech Solutions with respect to its channel partners and the core competences of the different types of channel partners will be compared. The visualization of this comparison is shown in Matrix 1. For the legend corresponding with this matrix, see page 37. In addition, it can be stated that Matrix 1 shows why the integrator is/was attractive to a high extent as a channel partner for Tech Solutions. They nearly execute all activities from the sales phase until the delivery phase themselves. They only outsource the installation of hardware and cabling to installers, which they know very well.

Recently, constructors and man guarding organizations acquire other companies, most often integrators, in order to 'complete the puzzle'. These acquisitions show that channel partners want to take the final responsibility for the entire process (from the end-user request for access control systems until the aftercare regarding access control systems). So, these types of channel partners take over other types of channel partners, because they want to compensate for what the activities in which they are less good. This does not mean that these activities become the primary offer or core competence of the company. The acquisitions are more focused on completing their offerings. In short, it can be argued that these acquisitions confirm the way in which the matrix has been filled in. For example, a constructor cannot execute the installation of hardware and cabling. Therefore, they acquire installers to be able to execute the installation of hardware and cabling themselves.

Examples of acquisitions in the market, which confirm the way in which the matrix has been filled in, are:

- *Unica (an installer) acquired NSecure (an integrator).*
- *G4S (a man guarding organization) acquired SAIT Belgium (an integrator).*
- *Heijmans (a constructor) acquired BurgersErgon (an integrator)*
- *Trigion (a man guarding organization) acquired both an installer and an integrator.*

START	TS ACCESS CONTROL CHOSEN		SYSTEM DESIGN AND IMPLEMENTATION PLAN READY		HARDWARE INSTALLATION READY			GO LIVE		
	Sales phase		Engineering phase		Installation phase	Commissioning phase			Delivery	
End-user request	Sales	Pre-design & Calculation	Final system design	Planning & logistics	Installation of the cabling and hardware	Programming the system	Configuration of TS Access Control	Setting up the server	System test	Trainin g
Tech Solution s	-	- -	- -	- -	- -	- -	- -	- -	- -	- -
Constructo r	++	++	+	++	0	- -	- -	- -	0	0
Man guarding	++	- -	- -	++	- -	- -	- -	- -	- -	- -
Integrator	++	++	++	++	+	++	++	++	++	++
Installer	++	++	++	++	++	0	0	0	0	0
Value Added Distributor	++	++	++	+	- -	+	++	++	+	+

Matrix 1 – Visualization of the comparison between the core competences of the different types of channel partners and the current demand of Tech Solutions with respect to its channel partners

Legend of Matrix 1/2/3/4/5/6

The definitions of the 'grades' given for the channel partners in matrix 1/2/3/4/5/6

- '++' = This is an absolute core competence of the channel partner.
This is the core business of the channel partner. The channel partners want to execute this task, because it is their strength.
- '+' = This is also a competence of the channel partner, but it is not their core business.
- '0' = This is a task which is not a competence of the channel partners. Often, this task is executed by other firms on behalf of the channel partner.
- '-' = The channel partner does not prefer to execute this task. However, this task is necessary in order to deliver the 'product' they want to deliver.
- '--' = The channel partner does not want to execute this task at all. It does not want to outsource this task to another company either. However, this task is absolutely necessary to deliver what they want to deliver.

The definitions of the 'grades' given for the current demand of Tech Solutions with regard to its channel partners in matrix 1/2/3/4/5/6

- '++' = Tech Solutions can/want to do this itself or this activities/process is completely unimportant in providing access control to the end-user.
- '+' = Tech Solutions can/will do this itself or this activity/this process are relative unimportant in providing access control to the end-user
- '0' = This is a task which is not necessary for providing access control to the end-user
- '-' = Tech Solutions cannot/does not want to do this itself and relatively important that this task is executed by channel partners or at least the responsibility has to be taken by the channel partner.
- '--' = Tech Solutions cannot/does not want to do this itself and it is very important that this task is executed by channel partners or at least the responsibility has to be taken by the channel partner.

4.6. Activities offered to the end-user in the aftercare phase

As stated in paragraph 4.3, the process from an end-user request for access control systems until the aftercare regarding these access control systems consists of the sales phase, the engineering phase, the installation phase, the commissioning phase, the delivery phase and the aftercare phase. The agreements regarding the aftercare are stipulated in a Service Level Agreement (SLA). An SLA is a written agreement between an IT service provider and the customer, which defines the key service targets and responsibilities of both parties (Goo, Kishore, Rao, & Nam, 2009). So, an SLA can be seen as a contract which defines all the activities which need to be executed for the end-user in the aftercare phase. Tech Solutions, the channel partners, and the end-users are all involved in the SLA. The end-user is the receiving party. Tech Solutions and the channel partners both execute certain activities in order to offer the aftercare to the end-user. These activities can be broadly divided into maintenance services, (key) account management and second-line support.

4.6.1. Maintenance Services

The maintenance services in the current situation are focused on the value proposition product efficacy. These services are relationship-based and aimed at keeping the product working for the end-user (Oliva & Kallenberg, 2003). Maintenance services can mainly be divided into corrective-, preventive- and predictive maintenance services (Stremersch, Wuyts, & Frambach, 2001).

Maintenance services in literature

In literature, it is argued that maintenance services can be executed in three different types. These types consist of corrective-, preventive- and predictive maintenance.

Corrective maintenance

Corrective maintenance (CM) can be described as a process or activity that is required to overcome a failure that has occurred or is in the process of occurring. This type of maintenance can include repair, restoration or replacement of components, or other things to restore the system to its original state as it was in new condition (Prajapati, Bechtel, & Ganesan, 2012).

Preventive maintenance

After the recognition of the need to prevent failure, in the 1950s, preventive maintenance (PM) was introduced (Murthy, Atrons, & Eccleston, 2002). Basri, Abdul Razak, Ab-Samat and Kamaruddin (2017) discussed that PM is an alternative to CM. These researchers argue that PM has been adopted for emerging technologies since such systems are generally more complex than those based on the use of hand tools. The basic principle of a PM is that it involves predetermined maintenance tasks. These tasks are planned to change components before they fail and are scheduled during machine or system stoppages or shutdowns (Basri et al., 2017). In addition,

Prajapati et al. (2012) state that this type of maintenance is based on predefined intervals. So, the condition of the system or subsystem does not matter. For example, oil change in a car is periodic either based on mileage or time interval, even though a significant portion of oil's life is still remaining (Prajapati et al., 2012).

Predictive maintenance

Basri et al. (2017) state that predictive maintenance (PdM) is an advancement on PM. In PdM, historical data detailing occurrences of operational failures of a product are used in order to study repetitive or high-risk failures. Subsequently, maintenance is conducted during the operation of the product, based on the condition of the monitored component.

Susto, Schirru, Pampuri, Mcloone, and Beghi (2015) state that predictive Maintenance (PdM) is “a prominent strategy for dealing with maintenance issues given the increasing need to minimize downtime and associated costs” (p. 812). In addition, they argue that “PdM is a maintenance method which is performed based on an estimate of the health status of a piece of equipment” (p. 812). This maintenance method uses prediction tools based on historical data, ad hoc defined health factors, statistical inference methods, and engineering approaches in order to allow advanced detection of pending failures and to enable timely pre-failure interventions (Susto et al., 2015). So, the predictive maintenance method has the capability to adaptively react to changing component deterioration patterns which are implicitly caused by the maintenance quality (Van Hoorenbeek & Pintelon, 2013).

In short, as argued by Prajapati et al. (2012), predictive maintenance can be described “as the process of predicting the future failure of any system by analyzing the current and previous history of the operating conditions of the system or monitoring the deviation rate of the operation from the normal conditions” (p. 388).

Maintenance services in the current situation

It seems relevant to point out that offering the access control systems, consists of the offering of hardware and software. An example of the hardware which is delivered in order to manage the access control is the controller. This controller does need maintenance to a limited extent. Once in a while, the controllers are maintained. So, it can be noted that maintenance of hardware is executed on a preventive basis. So, the maintenance is predetermined and planned in order to change components before they fail (Appendix 11). For the software, preventive maintenance is also operated. Update patches are continuously executed. In order to avoid problems regarding software, update patches are executed after a certain period of time (Appendix 11).

4.6.2. Customer support

First, it will be explained for which tasks and activities the customer support is responsible. Subsequently, it will be explained in what way the customer support is arranged within the business model(s) of Tech Solutions.

Customer support in literature

Support, software upgrades, and a helpdesk are required to help the end-user. These services are focused on the value proposition product efficacy. So, these services are, as mentioned above, relationship-based and aimed at keeping the product working for the end-user (Oliva & Kallenberg, 2003). These services can be seen as second-line support.

Davenport and Klahr (1998) state that “the customer support area is increasingly important for firms, particularly those offering high-technology products and services” (p. 207). With the influx of new, more complex, and highly technical products customer support is required in order to support end-users who may know very little about the products and their underlying technology (Davenport & Klahr, 1998). In the current situation where customer support is focused on the value proposition product efficacy, there is a great pressure to keep the costs of customer support down, because customer support is a support rather than a profit-making function. So, organizations want to keep the costs of customer support down while acquiring sufficient support capabilities to satisfy customers (Davenport & Klahr, 1998). The customer support services include solving customer problems, answering customer inquiries and answering customer product questions. The customer support is an integral part of many organizations, which supports products and/or services. Within the helpdesk for customer support, analysts with varying skill levels rely on their expertise as well as systems and tools to answer a range of problems that end-users phone in (Delic & Hoellmer, 2000). In addition, Göker and Roth-Berghofer (1999) state that customer support services support “end-users of complex technical equipment by providing information about the usage of the equipment and keep the systems working by performing necessary maintenance tasks” (p. 134). These necessary maintenance tasks are described in paragraph 4.6.1. Davenport and Klahr (1998) remark that the design of and the knowledge within the customer support changes rapidly. They state that “every day a new product or model is introduced, a new problem is encountered and a new piece of documentation written” (p. 200).

Support in the current situation

The end-user wants to have a good working product. Two reasons can be distinguished why a product does not work. The first problem can be covered by the term ‘functional’. These problems are related to the functioning of the system. For example, the end-user does not know the function of the system or the system is not properly designed. The product itself functions well, but the system is wrongly designed. Another problem which falls under the heading of ‘functional problems’ is the situation in which the end-user does not know how he/she can add a new employee into the system (Appendix 11). So, the end-user does not understand how

to use the system. The second problem can be covered by the term 'technical'. These problems are related to technical problems. For example, the end-user does know how the new employee can be added into the system, but the button 'add new employee' does not work (Appendix 11). In short, no matter how well they understand the functioning of the system, the system just does not work.

Functional problems and technical problems are two completely different problems. From the perspective of the end-user, there is no difference. They just notice that the system does not work.

Support model

Underneath it will be explained how the support is divided between the end-user, the channel partner and Tech Solutions. The way the support is divided between the end-user, the channel partner and Tech Solutions, depends on who sells the product to the end-user and the type of contract that has been drawn up. The explanation underneath is related to the Channel Partner Programme. This is the classical business model for Tech Solutions. In this business model, the channel partner sells the TS Access Control Systems to the end-users. In this case, the channel partner provides second-line support. If Tech Solutions sells the TS Access Control Systems directly to the end-user (Global Client Programme), Tech Solutions provides the second-line support and the channel partner will not be involved in the support model. It is also possible that a framework agreement will be drawn up. In this agreement, it will be determined who is responsible for the second-line support and who is responsible for the third-line support (Appendix 2; Appendix 8; Appendix 11).

In short, the support is divided in different ways, depending on the business model or the framework agreement. These different ways are visualized in Appendix 12. Underneath, the role division regarding customer support is explained related to the Channel Partner Programme. The decision has been made to focus on the way of providing support to the end-user within the Channel Partner Programme because the research is aimed at the current and future role of the channel partner.

First-line support

The support within the Channel Partner Programme is provided in the following way. If there is a problem, the end-user first contact its own support desk (first-line support). This support desk only solves the functional problems which are quite straightforward. If the support desk of the end-user cannot solve the problem, because it is too complicated or it is a technical problem which cannot be solved, the second-line support comes into play. Within the Channel Partner Programme, the channel partner provides second-line support.

Second-line support

In the Channel Partner Programme, the channel partner provides second-line support. This line of support solves both functional and technical problems. It solves functional problems which cannot be solved by the first-line support. For example problems regarding the settings of the system; the end-user wants to enter the BSN-

number of a new employee, but it does not work. In order to solve this problem, the second-line support tells the end-user to make a change in the settings. This problem could not be solved by the first-line, because this support line does not have the know-how. The problem is a bit 'deeper' in the application.

The second-line support also solves technical problems. An example of a technical problem is the cabling which is not connected properly. Or the hardware component has been burned out. These are technical problems which are quite straightforward. If the second-line support is not able to solve a technical problem, because it is too complicated, the third-line support comes into play.

Third-line support

Within the Channel Partner Programme, Tech Solutions provides third-line support. This line of support solves the more complicated technical problems. Examples of the more complicated technical problems are problems with the database. Next to that, they have to solve specific problems within the software programme. In that case, third-line support solves certain bugs which have to be solved. Tech Solutions first attempts to solve the problem remotely. If that is not possible, Tech Solutions solves the problem on-site with its technical support team.

4.6.3. (Key) Account management

First, it will be explained what is argued in theory about Key Account Management. Subsequently, it will be explained in what way the key account management is arranged within the business model(s) of Tech Solutions.

Key account management in literature

In order to sell the TS Access Control Systems to end-user, (Key) Account Management is of great importance. Tech Solutions, its channel partners, and the end-users are situated in the business-to-business market.

Ojasalo (2001) states that "although paying customers in the business-to-business market are organizations, they are always represented by individuals" (p. 199). Therefore, appropriate handling at both the organizational and the individual levels are required in a business-to-business market (Ojasalo, 2001). Key account management has the aim to achieve long-lasting customer relationships, includes both organizational and selling strategies and is a natural development of customer focus in business-to-business markets (Diller, 1992; McDonald, Millman, & Rogers, 1997). In any kind of business relationship, Key Account Management has potential (Ojasola, 2001). Grönroos (1990) states that most business relationships include both tangible and service elements. This can also be called system selling. According to Millman (1996), system selling can be described as "offering and delivering a comprehensive 'package' or 'bundle' of products of product/service attributes and benefits to selected customers" (p. 632). Key Account Management can play an important role in this context. Therefore, an understanding of the logic of both product and service management is required in order to enable successful Key Account Management.

In the end, Ojasalo (2001) states that the primary goal of (Key) account management is “associated with business-to-business context and its primary goal is typically to increase profitability and shareholder value” (p. 212).

Key account management in the current situation

Key accounts are end-users that Tech Solutions absolutely does not want to lose as an end-user. With normal accounts, this is not as disastrous as with key accounts. Normal accounts get a standard ‘treatment’. So to speak, these normal accounts only receive an invitation for the annual customer day of Tech Solutions.

Key accounts are far more relevant. It is important that Tech Solutions does not lose these end-users. Key accounts are major end-user and/or end-user which are of strategic importance. These key accounts get another treatment as normal accounts. They receive personal support in order to solve all their problems regarding access control. These key accounts have regular contact with the Single Point of Contact (SPOC) of Tech Solutions. The key accounts are large companies or companies which are mission-critical. The selling of TS Access Control Systems to mission-critical companies can deliver great reference projects. Tech Solutions wants to avoid that the competition wins.

Who is responsible for key account management, depends on the party which sells the TS Access Control Systems to the end-user. If the channel partner sells the TS Access Control Systems to the end-user, which is the case in the Channel Partner Programme, the channel partner is responsible for key account management. If Tech Solutions sells the TS Access Control Systems to the end-user, which is the case in the Global Client Programme, Tech Solutions is responsible for key account management. If both Tech Solutions and channel partner are involved in the contract with a certain end-user, both parties have their tasks/activities with regard to the key account management with this certain end-user.

In conclusion, key accounts are end-users which Tech Solutions absolutely does not want to lose as an end-user. Who is responsible for key account management depends on who sells the TS Access Control Systems to the end-user for what is arranged in the contract with the end-user.

4.7. Current demand of Tech Solutions with respect to its channel partners in the aftercare phase

In this paragraph, it will be determined for which tasks/activities in the aftercare phase, Tech Solutions needs its channel partners. This will be determined by analyzing which tasks/activities in the aftercare phase is usually executed by Tech Solutions and which are not. Therefore, it will be analyzed whether Tech Solutions (partially) executes the preventive maintenance, the support and the key account management itself or whether they outsource it.

4.7.1. Preventive maintenance

Within the Channel Partner Programme, in the current situation, the preventive maintenance is completely outsourced to channel partner of Tech Solutions.

4.7.2. Customer support

As posed in paragraph 4.6.2., the way the support is divided between the end-user, the channel partner and Tech Solutions, depends on who sells the product to the end-user and the type of contract that has been drawn up. For the visualization, see Appendix 12. In the classic support model, which is applied within the Channel Partner Programme, the first-line support is managed by the support desk of the end-user, the second-line support is managed by the channel partner and the third-line support is managed by Tech Solutions. So, the simple functional problems are solved by the support desk of the end-user. The more complicated functional problems and the 'simple' technical problems are solved by the channel partner. The more complicated technical problems are solved by Tech Solutions. So, solving the more complicated functional problems and the 'simple' technical problems (second-line support) has been outsourced to the channel partner by Tech Solutions.

4.7.3. (Key) Account Management

Within the Channel Partner Programme, especially the channel partner is responsible for the key account management. In that case, the activities regarding key account management executed by Tech Solutions are limited. These activities are outsourced to the channel partner. Within the Global Client Programme, Tech Solutions is responsible for the key account management with regard to the end-user. In this research, the focus is on the services which are offered in the Channel Partner Programme, so it can be noted that the key account management activities are outsourced to the channel partner.

4.8. Core competences of the different types of channel partners in the aftercare phase

The current role of the channel partners in the aftercare phase will be determined by dividing the channel partners in the way the company does. The company distinguishes five types of channel partners. By analyzing the business structure and the core competences of these different types of channel partners, the current role of the channel partners in the aftercare phase will be determined. The parts which activities which will be analyzed are the preventive maintenance, second-line support and the activities with regard to key account management.

4.8.1. Maintenance services

The willingness of channel partners to execute maintenance is great. For these channel partners, it is an easy and attractive source of income. These incomes can be seen as recurring revenues. An important advantage of these recurring revenues is that it is a guaranteed income.

In general, there are two types of contracts concluded by constructors. It is possible that a constructor only builds a building and ensures that the access control systems are available in the building. After the delivery of the building, there is no contact between the tenant and the constructor. In this case, the preventive maintenance services are not a core competence of the constructor. Another company will be responsible for preventive maintenance services. It is also possible that construction companies deliver a building in its entirety (Appendix 3; Appendix 11). This means that construction companies fully equip the building and rent it to companies. These construction companies deliver PPP (Public Private Partnership) constructions. PPP constructions can be described as a partnership where the public and private sectors collaborate for some mutual benefit ("Public-private partnerships PPP - Designing Buildings Wiki," n.d.). In case of a PPP construction, the constructor will be connected to the end-user for a certain period of time. This means that the constructor also has to manage the preventive maintenance services. In that case, the constructor has to be able to offer preventive maintenance services. Therefore, preventive maintenance services can be seen as a core competence of constructors which deliver PPP constructions.

Man guarding organizations are always willing and able to execute preventive maintenance services. It can be argued that the core business of the man guarding organizations is to completely relieve them of the 'security' aspect. They find it interesting to have the role as a full-service provider for 'security' because this makes it possible to be connected to the customers for a longer period of time (Appendix 3). So, in order to be connected to the end-users, they also execute maintenance services. So, the preventive maintenance services can be seen as a core competence of the man guarding organization.

The integrator is always willing and able to execute preventive maintenance services. In this way, they can deliver 'added value' to the end-user. They can earn money with it. So, preventive maintenance services can be seen as a core competence of the integrator.

For the installer, the same applies as for the integrator. The installer also wants to increase their 'added value' for the end-user. For the installer, the preventive maintenance services are also a core competence.

A Value-Added-Distributor supplies installers with an off-the-shelf system that installers can install immediately, without them having to think about it. So, the installer is responsible for the installations of the cabling and hardware of the access control systems. This means that this installer is also responsible for preventive maintenance services. So, preventive maintenance services are not a core competence of the Value Added Distributor.

4.8.2. Customer Support

As stated in paragraph 4.7.2., the second-line support is managed by channel partners within the Channel Partner Programme (Appendix 11). Actually, all channel partners should be able to provide second-line support. The channel partners have the required know-how to provide second-line support. Otherwise, they cannot sell access control systems. In practice, all the types of channel partners provide second-line support, except the Value Added Distributor.

The constructor provides second-line support, only when it delivers a building in its entirety, also called PPP constructions. So, second-line support can be seen as a core competence of constructors who deliver PPP constructions. If they just 'build a building', they do not provide second-line support.

The man guarding organizations, the integrators, and the installers are all able and willing to provide second-line support. These channel partners have the required knowledge in order to provide second-line support.

The Value Added Distributor supplies installers with an off-the-shelf system that installers can install immediately, without them having to think about it. The installer is responsible for the installation of the cabling and hardware. The installer also provides second-line support, because the installer is in contact with the end-user. As mentioned in paragraph 4.3.5., the Value Added Distributor has a very large customer network. This large customer network consists of installers. Despite the fact that these installers only request for access control systems once or twice a year, a Value Added Distributor is able to generate sufficient revenues, because they have sufficient installers in their network. So, the Value Added Distributor has no direct contact with the end-user. The installer, who receives the off-the-shelf-system from the Value Added Distributor and installs this system, is responsible for the second-line support.

4.8.3. (Key) Account Management

Within the Channel Partner Programme, all types of channel partners, within this research, are able to take their responsibility for key account management. Only the Value Added Distributor is an odd one. Within the Channel Partner Programme, they are in direct contact with the installer. Most often these installers are in direct contact with the end-user. As discussed in paragraph 4.3.5., the installers, who receives the off-the-shelf-system from the Value Added Distributor and installs this system, work very sporadically with access control systems. These installers are mainly concerned with wiring and electricity. These installers can provide preventive maintenance and second-line support, but key account management can be outsourced to the Value Added Distributor. That depends on the situation.

4.9. Core competences of the different types of channel partners versus current demand of Tech Solutions with respect to its channel partners in the aftercare phase

The core competences of the five different types of channel partners in the aftercare phase are described in detail in paragraph 4.8. and visualized in Matrix 2. The current demand of Tech Solutions in the aftercare phase with respect to its channel partners is analyzed in paragraph 4.7. and visualized in Matrix 2.

In order to determine which core competences of the five different types of channel partners match the current demand of Tech Solutions with respect to its channel partners in the aftercare phase, the current demand of Tech Solutions with respect to its channel partners in the aftercare phase and the core competences of the different types of channel partners in the aftercare phase will be compared. The

visualization of this comparison is shown in Matrix 2. For the legend corresponding with this matrix, see page 37.

GO LIVE

	Aftercare			
	Preventive maintenance		2nd Line Support	(Key) Account management
Tech Solutions	- -		- -	- -
Constructor	PPP-construction ++	No PPP-construction - -	++	++
Man guarding	++		++	++
Integrator	++		++	++
Installer	++		++	++
Value Added Distributor	- -		- -	0

Matrix 2 – Activities in the aftercare in the current situation, within the Channel Partner Programme

5. Scenario

The scenario describes what will change in the demand of Tech Solutions with regard to its channel partners as a result of servitization. In other words, it will be analyzed what are the possible changes in the demand of Tech Solutions with regard to its channel partners, from the commissioning phase until the aftercare regarding access control systems, when Tech Solutions wants to offer ACaaS. The scenario consists of five changes in two different phases. These changes are found by organizing a workshop and additional interviews. Subsequently, the changes, especially in the aftercare phase, will be supported by theoretical evidence.

5.1. Change one: On-premise -> cloud-based server

The first change concerns a change within the commissioning phase. This change is about the transition from on-premise solutions towards cloud-based server solutions. Underneath, this change will be explained in detail. Subsequently, it will be analyzed what will change in the demand of Tech Solutions with regard to its channel partners as a result of this change.

Tech Solutions wants to provide ACaaS to the end-user. It is not known whether the company wants to offer this by using a direct model (Global Client Programme) or an indirect model (Channel Partner Programme). The choice has been made to suppose that Tech Solutions continues with the Channel Partner Programme when ACaaS will be offered. This choice has been made because the 'Channel Partner Programme' is responsible for a substantial part of the sales and servitization does not necessarily have to result in a change of the business model (Appendix 3).

Tech Solutions wants to offer ACaaS by using cloud-based servers. This means that the transition will be made from on-premise solutions to cloud-based server solutions. On-premise solutions are access control systems which are installed at the site of the customer. An on-premise solution requires a lot of hardware, such as servers and multiple PCs with the necessary software. With cloud-based access control, the server with the access control software is no longer at the customer's location (beveiliging.nl, 2019). So, the server will not be placed in the building of the end-user, but the server will be placed in the 'cloud' (Appendix 3). In order to take over all the security management activities for the end-user, Tech Solutions or its channel partner need to have access to the data regarding access control systems. In the workshop, it was argued that the transition towards a cloud-based server is not the 'only option' to make ACaaS possible (see Appendix 13). In fact, it is also possible to deliver ACaaS by offering on-premise solutions. In the eyes of the company, cloud-based servers make it easier to get access to hardware and software of the end-user. This is supported by Yu, Wang, Ren, and Lou (2010). They explain why the firm needs to deliver "cloud-based solutions" when it wants to deliver ACaaS. They state that cloud computing can be a solution for providers when users want to outsource their sensitive data (and hardware) regarding access control. In other words, cloud servers can be a solution to get access to hardware and software which are not within the same trusted domain as data owners.

For the end-user itself, the transition from on-premise solutions towards cloud-based server solutions will not change much. However, the regulations have to be taken into account.

For example: a company from Germany (EU) prefers not to have its cloud-based server provided by an American cloud provider, because the regulations in Germany are different from those in the United States.

For the channel partner, the change from on-premise solutions towards cloud-based server solution is of far greater importance. The IT-environment is normally set up by the channel partner. In other words, the channel partner is responsible for setting up the server in the building of the end-user. When the transition towards cloud-based servers will be made, the IT-environment will no longer need to be set up for (and in the building of) the end-user, because the cloud provider has already done so. This means that the channel partner does not need IT knowledge to a great extent, because the activities involved in setting up the server will not have to be executed anymore. In short, when a cloud-based server solution will be implemented, the server and the database will not have to be set up, because it is already done by the cloud provider.

For the channel partners with little IT knowledge, this change would be very nice, but the channel partners whose core competence it is to set up the server are dissatisfied with the transition towards cloud-based servers. To conclude, it can be stated that channel partners with little IT-knowledge can focus on other activities that are more in line with their strengths.

5.2. Change two: Flexible configuration -> auto-configuration

The second change also concerns a change within the commissioning phase. This change is about the transition from flexible configuration towards auto-configuration, which results in a configuration that can be more simple. Underneath, this change will be explained in detail. Subsequently, it will be analyzed what will change in the demand of Tech Solutions with regard to its channel partners as a result of this change. The second change is about the configuration within the commissioning phase. For the phases before the commissioning phase, like the installation phase, this change will not have significant consequences. Tech Solutions wants to make a transition in the configuration part (Appendix 3). The company wants to make the configuration more simple. That is another change than the transition towards cloud-based server solutions. The move in the configuration part can be made with both offering on-premise solutions and cloud-based solutions. The configuration, which will be more simple, does not change much for the end-user. The access control system will still work in the same way for them (Appendix 3).

For a channel partner, this change will have substantial consequences. The activities/tasks regarding the configuration will be reduced (Appendix 13). On the one hand, this change can be disadvantageous for the channel partner whose core competence it is to configure the access control system (Appendix 3) and logically this change can be advantageous for the channel partners which are less capable to configure the access control (Appendix 3). On the other hand, the fact that the activities/tasks regarding the configuration will be reduced can also be advantageous

for channel partners whose core competence it is to configure the access control systems. At the moment, the configuration of TS Access Control is very complex. This means that it takes substantial time to configure TS Access Control and the complexity also increases the risk of errors. This ensures that the probability of project risks is high. Channel partners, also channel partners whose core competence it is to configure the access control systems, want to be involved in as many projects as possible. As the configuration becomes 'easier', these channel partners will be able to take on more projects. In this situation, these channel partners can still deliver added value. The systems within the building of the end-user still need to be configured. Considering that it becomes easier to configure the access control system does not mean that IT-knowledge is not required to configure the access control systems (Appendix 16).

In conclusion, it can be remarked that it does not necessarily have to be a disadvantage for the channel partners, whose core competence it is to configure the access control systems when the configuration becomes easier. The project risks will be reduced, enabling channel partners to take on more projects. As a result of this transition, these channel partners can still add value.

5.3. Changes within the aftercare phase

The third change concerns changes within the aftercare phase. These changes relate to maintenance services, customer support, and account management within the aftercare phase (Appendix 11). Underneath, these changes will be explained in detail. Subsequently, it will be analyzed what will change in the demand of Tech Solutions with regard to its channel partners as a result of these changes.

5.3.1. Maintenance services towards operational services

In paragraph 4.6.1, it was noted that the maintenance services in the current situation are focused on the value proposition product efficacy. It was remarked that the offering access control systems, consists of the offering of hardware and software. So, maintenance with regard to both hardware and software needs to be executed. It was mentioned that the maintenance of hardware and software is predetermined and planned in order to change components before they fail (Appendix 11). So, the maintenance on both software and hardware, in the current situation, can be described as preventive maintenance.

When Tech Solutions wants to offer ACaaS, maintenance services need to change. Oliva and Kallenberg (2003) state that a transition from maintenance services towards operational services must take place. Operational services are also relationship-based, just like preventive maintenance services. Oliva and Kallenberg (2003) argue that the transition from maintenance services towards operational services "changes the focus of the value proposition to the end-user from product efficacy – whether the product works – to the product's efficiency and effectiveness within the end-user's process" (p. 169). So, these services are not only aimed at making the product function, but they are aimed at the product's efficiency and effectiveness within the end-user's process.

The shift towards operational services means that the product becomes part of the offering as opposed to being the center of the value proposition. Centering the

offering on the end-user's process is equivalent to developing services in order to support and improve continuously the utilization and effectiveness of the installed TS Access Control Systems. The transition towards operational services includes taking over an end-user's maintenance or operating organization (Oliva & Kallenberg, 2003).

5.3.2. Customer support towards customer success management

In the current situation, support services are focused to solve problems. So, support services are only executed when there are problems. This kind of support services can be described as reactive (Appendix 3). When access control will be offered as a service, which can be seen as servitization, the support services have always the intention to help the end-user make better use of the system. As mentioned in paragraph 5.3.1., the maintenance services will be more focused on the product's efficiency and effectiveness within the end-user's process. This also applies to the support services. The focus of support services will change from reactive support services to proactive support services. In addition, Miller, Hope, Eisenstat, Foote, and Galbraith (2002) state that servitized organizations provide solutions through product-service combinations. These servitized organizations tend to be client-centric. They provide customized, desirable client outcomes organized around particular capabilities competences and client requirements. Support services of servitized organizations are not aimed at keeping the end-user satisfied, but they are more focused on helping the end-user to make better use of the system. So, customer support of servitized organizations makes recommendations to the end-user for possible improvements with regard to the access control system.

In the current situation, the classic support model, i.e. the support model that is used in the Channel Partner Programme, will be presumed. The transition from reactive support services towards proactive support services means that customer support has to perform a new role. It does not matter whether it is a second-line (in the classic support model provided by the channel partner) or third-line support (in the classic support model provided by Tech Solutions), both support lines will have to provide proactive support services.

The role which has to be performed by both support lines is the role of Success Manager. A Success Manager needs to take the end-user by the hand. Bell (2012) states that a Success Manager is responsible for helping organizations to get the most out of the opportunities that are delivered by the product or service. Performing this role has the aim to help the end-user to make better use of the system. In addition, a Success Manager looks for possible improvements to make the system function even better, i.e. he looks at how the system can be used more optimally. This can be done by offering better, more extensive modules which can make the system function even better or enables the end-user to get more out of the system. So, the aim is to make recommendations to the end-user for additional functions/facets with regard to access control systems in order to enable end-users to make better use of the access control systems. Obtaining additional functions/facets costs money, but the end-user is willing to pay for it if it is worth it.

It can be argued that the change in the role of the customer support forms the basis for the renewed role of the key account manager. The key account manager will especially be concerned with up-selling when ACaaS will be offered. This will be explained in detail in paragraph 5.3.3.

5.3.3. Account management focused on up-selling

As argued in paragraph 5.3.2., the change in the role of the customer support forms the basis for the renewed role of the key account manager. Where the role of the customer support will face the transition from reactive support to proactive support, which is described as the role of Success Manager, the key account manager will especially be concerned with up-selling, which will arise as a result of the changing role of the customer support.

Normally, when selling a product, the principle 'sell and forget' is often used. According to McDonald, Millman, and Rogers (1997), it is more likely that relationships will be "transactional" if both product and process are simple. In the case of Tech Solutions, sell and forget does not work for the full 100%, because support is also included in the offering of 'access control systems'.

When Tech Solutions wants to deliver ACaaS, the sales process starts again after the sale. After the sale, an attempt will be made to sell more functions/modules to the end-user. So, the aim is to get in touch with the end-user again. The key account management after servitization will differ substantially in comparison with key account management before servitization. In the situation before servitization, a key account manager is focused on keeping the end-user, while key account management after servitization would be more focused on making it possible for the end-user to use the system better. The latter will be done by selling more functions/modules to the end-user. This is in line with the new role of customer support. As mentioned before, the Success Manager ensures that the system can be used optimally by the end-user. The Success Manager, therefore, ensures that the current use of the system is a success by providing proactive customer support. The Success Manager also indicates that new modules, new functions are needed to make the system work even better. The key account manager can respond to this by focusing on 'up-selling'. In order to ensure the system functions better, new modules and functions can be purchased by the end-user. The key account manager, therefore, attempts to generate more turnover with existing end-users, by stimulating up-selling. So, the aim is that the end-user will purchase more additional products or services, for which they logically have to pay extra. An example of an extra function is the provision of reporting models.

In conclusion, contrary to the situation before servitization, up-selling is a very important earning component in the servitized situation.

6. Future situation

In this chapter, it will be analyzed whether the core competences of the different types of channel partners match the changing demand of Tech Solutions with regard to its channel partners as a result of servitization. So, it will be determined whether the core competences of the different types of channel partners are still usable when ACaaS will be offered.

In the scenario, it was described what will possibly change when the transition towards ACaaS will be offered. Eventually, different changes were described in the scenario. In order to visualize the consequences of these changes, Matrix 3, 4, 5 and 6 will be created. In Matrix 3 the consequences of change one are described. In Matrix 4 the consequences of change two are described. The consequences of change one and two together are visualized in Matrix 5 and in Matrix 6 the consequences of changes within the aftercare phase are shown. In these matrixes, possible value conflicts will be marked in red. If, for example, a core competence of a certain type of channel partner has become completely unimportant for the provision of access control and this core competence is therefore no longer requested by Tech Solutions from its channel partners, this may result in a value conflict. If a core competence of a certain type of channel partner matches the changed demand of Tech Solutions with respect to its channel partners better, this activity/service/task will be marked in green. If it is doubtful whether the changed demand of Tech Solutions with regard to its channel partner matches the core competence of a certain type of channel partner, this activity/service/task will be marked in orange.

6.1. Consequences of changes in commissioning phase (change one and two) for the different types of channel partners

In this paragraph, it will be analyzed what the consequences are of the changes one and two described in the scenario in chapter 5. These consequences are visualized in Matrix 3, 4 and 5. The legend regarding Matrix 3, 4 and 5 can be found on page 37.

6.1.1. Constructors

If the work involved in setting up the server will be reduced (change one) and the work regarding the configuration will be simplified and reduced (change two), the project risk will also be reduced for such a constructor. This makes it more interesting for them. This makes it easier for them and allows them to focus more on their core business. In this way, you reduce the project risks, the risks that can lead to delays. Of course, this also applies to Asset Managers. They can then fully focus on renting out their premises.

6.1.2. Man Guarding

If the transition will be made towards a cloud server, the server no longer needs to be set up in the building of the company, so the work in the commissioning phase decreases (change one). If you make the configuration simpler (change two),

they will be happy with it. Then they can really focus on what they are good at, which are the sales. Where Tech Solutions offers access control as a proposition, man guarding organizations not the complete care for the end customer with regard to 'security',

In conclusion, there is a mismatch between the proposition of Tech Solutions and the demand of the customers of the man guarding organizations. These customers are looking for this complete relief with regard to 'security'. So, man guarding organizations serve another customer demand than Tech Solutions.

6.1.3. Integrator

The core of the sales of the integrator was always aimed at the complexity of the configuration and integration of all systems. In addition, setting up the server was also a core competence of the integrator. If the switch towards a cloud server will be made (change one) then it will be no longer complex to set up the server (IT). If the configuration will also be simplified, the number of hours to configure the access control systems will be reduced. As stated in paragraph 5.2., the transition from flexible configuration towards auto-configuration does not necessarily have to be disadvantageous for the channel partners whose core competence it is to configure the access control systems. So, this transition (change two) does not necessarily have to be disadvantageous for the integrators (Appendix 16).

In conclusion, the integrators will not be satisfied with change one. Change two does not necessarily have to be disadvantageous for the integrators. Where change one could lead to a value conflict, it is doubtful for change two whether it would be positive or negative for the integrator.

6.1.4. Installer

As soon as the activities regarding the setup of the server (change one) and the configuration of the TS Access Control system (change two) are simplified, the installation partner would not mind. As a result, they can focus even more on what they are good at, namely customer relations, sales, aftercare, installation work, taking on projects (including project planning and its implementation), but not so much commissioning. The installer takes over the project planning for the end customer. This is nice for the end-user. The end-user does not have to decide how many doors they need, etc. The installer is often already familiar with the company and orders from us what they need, such as licenses, controllers, etc. Tech Solutions has little to do with consultancy services. Commissioning is a necessary evil to be able to deliver projects. Installers take over Integrators, so they do not have to hire them every time. They can then keep the project within their own portfolio.

6.1.5. Value Added Distributor

If the server becomes a cloud solution (change one), then part of the value they add, setting up the IT environment, is no longer needed. Moreover, the configuration becomes a lot easier (change two), which will result in a substantial reduction in the work to be executed by the Value Added Distributor. However, the transition from flexible configuration towards auto-configuration does not

necessarily have to be disadvantageous for the channel partners whose core competence it is to configure the access control systems. So, this transition (change 2) does not necessarily have to be disadvantageous for the Value Added Distributor (Appendix 16). In conclusion, it can be argued that change one could lead to a value conflict with the Value Added Distributor and it is doubtful for change two whether it would be positive or negative for the Value Added Distributor.

6.1.6. Matrix 3, 4, 5

In order to visualize the consequences of change one and change two, Matrix 3, 4, and 5 are created. These matrixes are based on Matrix 1. In Matrix 1, the core competences of the five different types of channel partners have been compared to the current demand of Tech Solutions with respect to its channel partners.

In Matrix 3, the possibly changed demand of Tech Solutions with respect to its channel partners, due to change one, will be compared with the core competences of the different types of channel partners. In Matrix 4, the possibly changed demand of Tech Solutions with respect to its channel partners, due to change two, will be compared with the core competences of the different types of channel partners. In Matrix 5, the possibly changed demand of Tech Solutions with respect to its channel partners, due to the combination of change one and two, will be compared with the core competences of the different types of channel partners. The legend regarding Matrix 3, 4 and 5 can be found on page 37.

START	TS Access Control system is chosen		SYSTEM DESIGN AND IMPLEMENTATION PLAN READY		HARDWARE INSTALLATION READY			GO LIVE		
	Sales phase		Engineering phase		Installation phase	Commissioning phase			Delivery	
End-user request	Sales	Pre-design & Calculation	Final system design	Planning & logistics	Installation of the cabling and hardware	Programming the system	Configuration of TS Access Control system	Setting up the server	System test	Training
Tech Solutions	-	- -	- -	- -	- -	- -	- -	0	- -	- -
Constructor	++	++	+	++	0	- -	- -	- -	0	0
Man guarding	++	- -	- -	++	- -	- -	- -	- -	- -	- -
Integrator	++	++	++	++	+	++	++	++	++	++
Installer	++	++	++	++	++	0	0	0	0	0
Value Added Distributor	++	++	++	+	- -	+	++	++	+	+

Matrix 3 – Future Situation after change one

START		TS Access Control system is chosen		SYSTEM DESIGN AND IMPLEMENTATION PLAN READY		HARDWARE INSTALLATION READY		GO LIVE		
	Sales phase		Engineering phase		Installation phase	Commissioning phase			Delivery	
End-user request	Sales	Pre-design & Calculation	Final system design	Planning & logistics	Installation of the cabling and hardware	Programming the system	Configuration of TS Access Control system	Setting up the server	System test	Training
Tech Solutions	-	--	--	--	--	--	0	--	--	--
Constructor	++	++	+	++	0	--	--	--	0	0
Man guarding	++	--	--	++	--	--	--	--	--	--
Integrator	++	++	++	++	+	++	++	++	++	++
Installer	++	++	++	++	++	0	0	0	0	0
Value Added Distributor	++	++	++	+	--	+	++	++	+	+

Matrix 4 – Future Situation after change two

START TS Access Control system is chosen SYSTEM DESIGN AND IMPLEMENTATION PLAN READY HARDWARE INSTALLATION READY GO LIVE

	Sales phase		Engineering phase		Installation phase	Commissioning phase			Delivery	
End-user request	Sales	Pre-design & Calculation	Final system design	Planning & logistics	Installation of the cabling and hardware	Programming the system	Configuration of TS Access Control system	Setting up the server	System test	Training
Tech Solutions	-	--	--	--	--	--	0	0	--	--
Constructor	++	++	+	++	0	--	--	--	0	0
Man guarding	++	--	--	++	--	--	--	--	--	--
Integrator	++	++	++	++	+	++	++	++	++	++
Installer	++	++	++	++	++	0	0	0	0	0
Value Added Distributor	++	++	++	+	--	+	++	++	+	+

Matrix 5 – Future Situation after changes 1 and 2

6.2. Consequences of changes in the aftercare phase (change 3) for the different types of channel partners

In this paragraph, it will be analyzed what the consequences are of change three in the scenario in chapter 5. These consequences are visualized in Matrix 6. The legend regarding Matrix 6 can be found on page 37. In case one wonders if the plus signs, minus signs and zeros have been forgotten in Matrix 6, the answer is no. It has been a conscious choice to fill these spaces with dots. This will be explained in detail in the following paragraphs.

In order to visualize the consequences of the changes within the aftercare phase, Matrix 6 is created. This matrix is based on Matrix 2. In Matrix 2, the core competences of the five different types of channel partners within the aftercare phase have been compared to the current demand of Tech Solutions with respect to its channel partners within the aftercare phase. In Matrix 6, the possibly changed demand of Tech Solutions with respect to its channel partners within the aftercare phase, because of the changes within the aftercare phase, will be compared with the core competences of the different types of channel partners within the aftercare phase. The legend regarding Matrix 6 can be found on page 37.

GO LIVE

	Aftercare								
	Maintenance services			Customer Support			Key Account Management		
	Preventive Maintenance	 Servitization	Operational Services	Customer Support	 Servitization	Customer Success Manager	Old type of Key Account Management	 Servitization	New type of Key Account Management (Up-selling)
Tech Solutions	- -		.....	-		.....	- -		.....
Constructor	PPP-construction + +	No PPP-construction - -		.....	.....		.....		.....
Man guarding	+ +		.....	.....		.....	.....		.....
Integrator	+ +		.....	.....		.....	.....		.....
Installer	+ +		.....	.....		.....	.....		.....
Value Added Distributor	- -		.....	.....		.....	.....		.....

Matrix 6 – Future situation after change 3

6.2.1. From maintenance services towards operational services

According to Oliva and Kallenberg (2003), establishing process-centered services, i.e. operational services, presents two important challenges. The first challenge concerns the development of a professional service infrastructure and the development of required HR and knowledge management capabilities for the service network. The second challenge can be seen as a marketing challenge; in order to work with a new distribution channel and a different set of contacts within the end-user organization, new networks need to be developed.

When analyzing table 3, it can be remarked that the services which are provided to the end-users are relationship-based and product-oriented. These services are focused on the value proposition product efficacy. The shift towards operational services, which are relationship-based and end-user's process-oriented, means that the product becomes part of the offering as opposed to being the center of the value proposition. The transition towards operational services includes taking over an end-user's maintenance or operating organization. Therefore, these services will be focused on the efficiency and effectiveness of the TS Access Control Systems. Oliva and Kallenberg (2003) state that advancing to operational services results in the establishment of a "pure service organization". This means that Tech Solutions will, in cooperation with the channel partners, assume operating risk and takes entire responsibility of process of the end-user.

	Product-oriented services	End-user's process-oriented services
Transaction-based services	<i>Basic installed base services</i> Examples: Documentation Transport to client Installation/commissioning Product-oriented training Hot line/help desk Inspection/diagnosis Repairs/spare parts Product updates/upgrades Refurbishing Recycling/machine brokering	<i>Professional services</i> Examples: Process-oriented engineering (tests, optimization, simulation) Process-oriented R&D Spare parts management Process-oriented training Business-oriented training Process-oriented consulting Business-oriented consulting
Relationship-based services	<i>Maintenance services</i> Examples: Preventive maintenance Condition monitoring Spare parts management Full maintenance contracts	<i>Operational services</i> Examples: Managing maintenance function Managing operations

Table 3 – Transition from Maintenance services towards operational services (derived from: Oliva, R., & Kallenberg, R. (2003). Managing the transition from products to services. *International Journal of Service Industry Management*, 14(2), 160–172.)

With regard to the transition from product-oriented services towards end-user's process-oriented services, Oliva and Kallenberg (2003) remark that: "From a capability perspective, a firm should take this step only after its service organization has established itself firmly in the maintenance and professional services market" (p. 170). Oliva and Kallenberg (2003) suggest that firms which do not have developed the capabilities and proficiency in basic product-oriented services are not able to become a service organization which provides operational services. In paragraph 1.2.2., the servitization process of Ducq et al. (2012) was discussed. This servitization process is portrayed again in figure 5. As mentioned in paragraph 1.2.2., the firm seems to be in-between stage two and three of this servitization process. In the second stage, supporting services are added, i.e. maintenance and repair. So these services support the product, which is equivalent to the maintenance services, shown in table 3. The third stage is an evolution of stage two. It is more elaborated and by individualization of the extended product, it increases the differentiation (Wiesner et al., 2012). Training is an example of a differentiation service. Training could be provided to the users of the product in order to increase the efficiency of the usage. It can be noted that these types of services are merely focused on supporting the customer rather than focused on maintaining the product. This stage is more or less equivalent to the professional services, shown in table 3. As remarked in paragraph 5.3.1., the maintenance services are focused on product efficacy and not yet focused on the efficiency and effectiveness of the TS Access Control Systems. As an extension, the firm provides process-oriented training, but maintenance services are more focused on product efficacy. It can be remarked that the firm seems to be in-between stage two and three because maintenance services and professional services are more or less equivalent to stage two and three. Therefore it can be noted that Tech Solutions provides, in cooperation with its channel partners, services which are in between maintenance services and professional services. Therefore, it can be stated that Tech Solutions, through cooperation, has the developed capability and proficiency in basic product-oriented services which should make it possible to become a service organization which provides operational services.

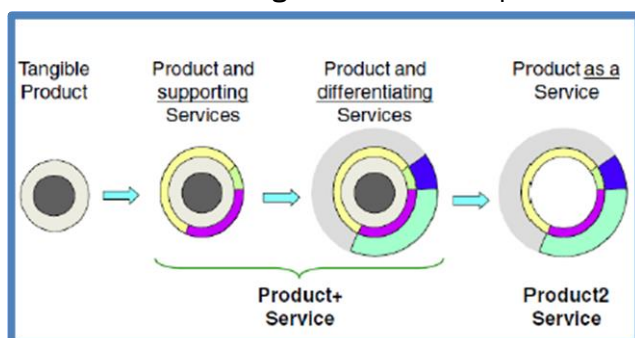


Figure 5 – The Servitization Process (Ducq, Chen, & Alix, 2012)

Oliva and Kallenberg (2003) found little evidence of vertically integrated models to provide services. Instead, they found that firms may have to adopt horizontal service delivery structures when moving into operational services. In these structures, a service integrator would be orchestrating the delivery of operational services by a network of service players including manufacturers, maintenance and logistics specialists and professional service firms. As mentioned in paragraph 2.1.1. the channel partners have both horizontal and vertical relationships with Tech Solutions

in the current situation. The channel partner can be a Key Partner, but it can also belong to the Customer Segment, which means that they are a reseller. So, Tech Solutions will collaborate with partners in order to deliver operational services. This means that Tech Solutions needs to maintain or establish horizontal relationships with partners in order to provide operational services. These horizontal partners, which are needed in order to provide operational services, can still function as a channel partner because some of these partners still sell the TS Access Control systems to end-users.

Provision of operational services

As operational services are aimed at product efficiency and product effectivity, the operational services can be seen as a part of proactive customer support. In paragraph 6.2.2. it will be described in what way the proactive customer support, of which operational services are a part, can be delivered.

6.2.2. – Customer support towards customer success management

In paragraph 5.3.2 was remarked that customer support will be proactive, instead of reactive, when ACaaS will be provided to the end-user. This means that customer support will not only be focused on solving problems, but also on the optimization of the system. This transition can be seen as the transition towards Customer Success Management (CSM). CSM can be defined as taking the responsibility to help organizations to get the most out of the opportunities that are delivered by the product or service (Miller et al., 2002).

In paragraph 5.3.1. it was noted that operational services are focused on product efficiency and effectivity. This means that by executing operational services, the end-user can be helped to get the most out of the access control system. So, operational services can be seen as part the proactive customer support within CSM. CSM is about providing a solution to the core issues of technology customer portfolio development, retention, and expansion. In addition, it can be stated that CSM is focused on making the customer profitable and productive as much as possible (Customer Success Association, n.d.).

Reactive customer support towards proactive customer support

Formerly, customer support was dedicated only to reacting to churn threats. This means that this department spends substantial time in trying to persuade “Code Red” customers not to leave (Customer Success Association, n.d.). In addition, customer support was only focused on solving problems of end-users. So, end-users are only supported when end-users seem to have the intention to switch to a competitor or the end-users already experienced problems with regard to the access control system. This kind of customer support can be described as reactive.

Over time, after solving many problems of end-users, firms realized that the earlier the customer support team can address the issue of maintaining sustainable customer relations, the more effective they can be and the less it will cost (Customer Success Association, n.d.). So, the customer support will have the aim to encompass the greater goal of value management, which means that the point of engagement for

the team needs to be moved up and their activities expand. In short, it can be remarked that a transition will take place from 'reactive customer support' towards 'proactive customer support'. The proactive customer support role includes participation in technology product design to create the tools that your customers need (Customer Success Association, n.d.). Through onboarding and training, the customer support team wants to fully engage all the end-users and want to ensure that these end-users get the value which is expected (Customer Success Association, n.d.). The customer support team attempts to do this by collecting, analyzing and then using data (Jha, 2008; Customer Success Association, n.d.). Reactive customer support will still be provided to the end-user because the experienced problems of end-users regarding access control systems still need to be solved.

Successful customer success management

Successful customer success management has to meet three conditions. First, in order to retain customer loyalty, the firm needs to have balanced deals. Because unbalanced deals do not tend to stay together over the long term. Customers will not remain loyal if they perceive that they are paying too much for what they receive. So, deals need to be in balance, in order to make customer success management successful.

Second, it can be argued that it is not enough to merely assure a customer or the company, which provides customer success management, receives benefit from the relationship. The key is to get the customer to acknowledge and confirm that their desired value was in fact received to their satisfaction — and then to set the next measurable, achievable objective to be accomplished.

Third, the value which needs to be delivered has to be found out by the firm that provides CSM. There may be several layers to the buying decisions over time, and while not all of them may be immediately declared or acknowledged - all are very important and must be discovered, analyzed and documented (Customer Success Association, n.d.). So, it is the task for the customer success team to find out what value needs to be delivered to the end-user.

Definition of Customer Success Management

The purpose of CSM is organizations to get the most out of the opportunities that are delivered by the product or service (Bell, 2012). In other words, helping the end-user to make better use of the system. In addition, a Success Manager looks for possible improvements to make the system function even better, i.e. he looks at how the system can be used more optimally. In addition, it is still important to keep the product working for the end-user, also called "product efficacy" (Oliva & Kallenberg, 2013). So, both reactive- and proactive customer support is included in CSM. In order to determine how CSM can be provided, the distinction will be made between reactive customer support and proactive customer support. What applies for the provision of operational services, also applies to the provision of proactive customer support of CSM. It also hard to determine which types of channel partners will be capable to provide proactive customer support. So, unfortunately, one cannot state if a certain type of channel partner is willing to develop their organization in such a way that it is

able to provide proactive customer support, but it is not possible either to state this certain type of channel partner is not willing to do this.

The way customer support is offered to the end-user can be described as the customer support distribution channel (Goffin, 1999). According to Mathieu (2001), a service strategy can be implemented through internalizing, partnering or outsourcing. He used internalizing and outsourcing as the two extremes and partnering as a hybrid organizational arrangement.

Internalizing means keeping all service operations in-house. In an internal organizational arrangement, the core activities associated with service provision are performed in-house. Outsourcing means that the responsibility for all service provision is placed on the service partners. Contrary to internalizing, outsourcing means that external firms perform the core service provision activities in an external organizational arrangement. In a hybrid configuration – partnering – the responsibility for services are shared. Many manufacturers favor hybrid arrangements that combine service-focused organizational structures and customer-focused organizational structures. Service-focused organizational structures have a distinct business unit for services, including selling and delivery. In customer-focused ones, customers form the basis for structuring the firm (Gebauer & Kowalkowski, 2012).

So, a hybrid configuration can be described as an organizational arrangement in which core service activities are performed both in-house and externally. A hybrid configuration can take various forms. For example, a manufacturer can perform service provision in-house in one geographical region and externally in another or sell services that are delivered later by a service partner (Kowalski, Kindström, & Witell, 2011).

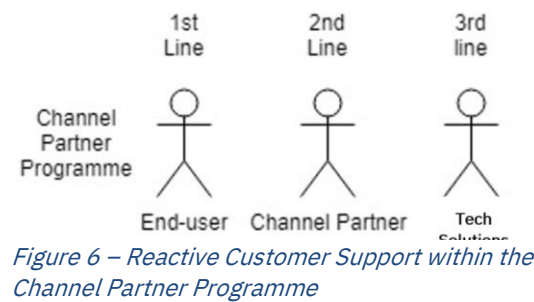
Separation between reactive customer support regarding hardware and software

In order to provide customer success management, both reactive and proactive customer support will be provided. The reactive customer support will be divided into reactive customer support with regard to hardware and reactive customer support with regard to software. This separation is possible on one condition. When ACaaS will be offered, good diagnostic tools must be developed. In the current situation, several people, with a high degree of specific knowledge, are required to assess if the problem is hardware- or software-related. In the future situation, when ACaaS will be offered, it has to be possible to measure everything. So, with this/these diagnostic tool(s) it is possible to assess if the problem is hardware- or software-related.

Briefly, to make the channel partners responsible for reactive customer support with regard to hardware support and Tech Solutions for reactive customer support with regard to software, one needs to be equipped for it. The future diagnostic tool is a prerequisite for being able to separate software and hardware support.

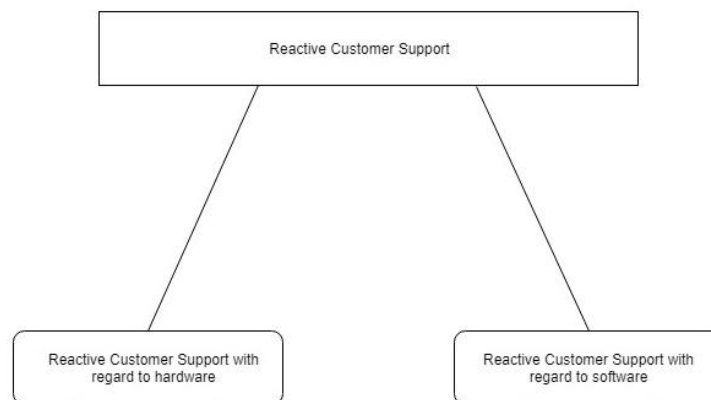
Reactive customer support

Reactive customer support is aimed at product efficacy. So, the purpose of reactive customer support is to keep the product working for the end-user. This type of customer support is also used in the current situation. The distribution of the reactive customer support, in the current situation, is visualized in figure 6.



Support Line:	Solves:
First-line support	-Functional problems
Second-line support	-Functional problems, which cannot be solved by the first line support
	- Technical Problems
Third-line support	- Technical Problems

When ACaaS will be offered, reactive customer support will be distributed in another way. Reactive customer support with regard to hardware and reactive customer support with regard to software will be separated in the future situation (Appendix 15). The new distribution is visualized in figure 7.



Underneath it will be analyzed whether Tech Solutions needs to internalize, outsource or use a hybrid approach to provide reactive customer support with regard to hardware and software. This will be done, based on the five factors which influence the choice of the customer support distribution channel (Goffin, 1999).

Determinants

Goffin (1999) argues that the choice of customer support distribution channel is influenced by existing sales channels and specialty of services. In addition, he remarks that there are three other factors which influence the above-mentioned choices.

First, the desire of the focal company to earn revenues directly from selling services as an important factor affecting the way the distribution channel will be shaped. Second, Goffin (1999) states that the required degree of control over the quality of customer support can influence the decision for the distribution channel. Finally, he remarked that the high costs of creating direct customer support distribution channels, especially in remote geographical locations, are crucial to the choice for the customer support distribution channel. These high costs can form an argument for not choosing the internal service strategy (Goffin 1999; Kumar, Markeset, & Kumar, 2004). Kumar et al. (2004) state that “if the manufacturer and the customers are located in different parts of the world or in remote areas, extra resources are necessary to achieve the same level of support as compared to those located closer to the provider” (p. 406). In short, the above-mentioned factors can raise the question whether manufacturers should rely only on their own resources or rather on subcontracting companies to shape an adequate delivery channel (Bikfalvi, Lay, Maloca, & Waser, 2012).

Baines et al. (2007) note that subcontracting companies may be required to shape customer support distribution channel because competitive product-service solutions can rarely be provided by a single company. Therefore, alliances and networks must be assessed in different countries or regions in order to create an efficient customer support distribution channel (Kumar & Kumar, 2004). These so-called ‘multisite service networks’ can create the ability to coordinate service activities of many independent suppliers in networks, which can be seen as can develop an important strategic weapon (Quinn, Doorley, & Paquette, 1989).

Provision of reactive customer support with regard to hardware

In paragraph 4.7.2., it was stated that the channel partner is the second-line support within the Channel Partner Programme. So, the channel partner solves the more complicated functional problems and the ‘simple’ technical problems. An example of a functional problem is settings which are not set correctly. Examples of technical problems are the cabling which is not connected properly or hardware components which have been burned out. So, we can state that in the current situation, within the Channel Partner Programme, the channel partners are responsible for the reactive customer support with regard to hardware, among other things (Appendix 2; 11; 15). This means that the service strategy in this field can be seen as outsourcing.

Based on the five factors which influence the choice of the customer support distribution channel (Goffin, 1999), it will be analyzed whether the choice of outsourcing the reactive customer support with regard to hardware can continue in the future situation.

The first factor which can influence the choice of customer support distribution channel is the existing sales channel. In this research, the choice has been made to suppose that Tech Solutions continues with the Channel Partner Programme when ACaaS will be offered. Within the Channel Partner Programme, the channel partner sells the TS Access Control products to the end-user. So, based on the existing sales channel, the channel partners will be responsible for the reactive customer support with regard to hardware.

Second, the specialty of services is also important in the choice of the customer support distribution channel. Reactive customer support with regard to hardware contains the maintenance/replacement/adjustment of hardware components in order to solve hardware problems of the end-user. As long as integrations will be made regarding hardware, added value can be delivered with the maintenance of hardware. When ACaaS will be offered, these integrations will still be made. So, channel partners can still be of added value with the maintenance of hardware.

The fact that channel partners are responsible for the installation of the hardware, within the Channel Partner Programme, raises an argument to let the channel partner be responsible for the reactive customer support with regard to the hardware. These channel partners, which install the hardware, are familiar with the regulations (regarding access control) in the country where the hardware needs to be installed.

The desire to earn revenues from selling services can be seen as another factor which can influence the choice of the customer support distribution channel. It was remarked that in the current situation, a substantial amount of channel partners, most often installers, generate a great part of their revenue through maintenance contracts (Appendix 8). These channel partners often have installed the hardware. The channel partner will be responsible for maintenance/replacement/adjustment of the hardware. If something cannot be solved remotely, these channel partners can provide reactive customer support with regard to hardware on location.

The fourth factor can be described as the required degree of control over the quality of customer support. When Tech Solutions outsources the reactive customer support with regard to hardware, Tech Solutions loses some control over the quality of customer support. When end-users need support with regard to hardware, the channel partner will support the end-user, without the intervention of Tech Solutions. If this is not executed properly, this can tarnish the reputation of the products of Tech Solutions. So, in terms of required control over the quality of customer support, outsourcing is not advantageous.

The high costs of creating direct customer support distribution channels, especially in distant geographical locations, are considered as crucial to the choice for the customer support distribution channel. Tech Solutions has end-users across the world. These different countries have different regulations (regarding access control) (Appendix 1). If the problems with regard to hardware cannot be solved remotely, it needs to be solved on location. When Tech Solutions wants to do this itself, the costs will be very high. Tech Solutions does not have the capability to provide reactive customer support with regard to hardware on location. In order to obtain this capability, tremendous investments need to be made, e.g. in physical resources (offices in every country) and human resources (know-how, experience, etc.). Therefore, it seems wise to outsource the reactive customer support with regard to hardware to the channel partners. Especially to channel partners which are established in the country of the end-user or at least channel partners which are familiar with the regulations (regarding access control) in the country where the hardware is installed. Most often, installers comply with these requirements. So, the installers, the company which installed the access control systems in the building of

the end-user, will ordinarily be responsible for the reactive customer support with regard to hardware.

In conclusion, it can be noted that, based on five factors which influence the choice of customer support distribution channel, derived from Goffin (1999), it seems wise to outsource the reactive customer support with regard to hardware to the channel partners. Channel partners should be able to provide reactive customer support with regard to hardware, because in the current situation these channel partners solve 'simple' technical problems, such as hardware components which have been burned out. So, the channel partners which are able to solve 'simple' technical problems in the current situation, will be able to solve problems with regard to hardware in the future situation. This is visualized in figure 8.

Provision of reactive customer support with regard to software

As remarked in paragraph 4.7.2., the channel partner is the second-line support and Tech Solutions is the third-line support within the Channel Partner Programme. This means that the channel partner is responsible for solving 'simple' technical problems and Tech Solutions is responsible for solving the more 'complicated' technical problems of the end-user. Examples of the more complicated technical problems are problems with the database or specific problems within the software programme. In that case, third-line support solves certain bugs which have to be solved. Tech Solutions first attempts to solve the problem remotely. If that is not possible, Tech Solutions solves the problem on-site with its technical support team. In short, it can be remarked that the channel partner is responsible for solving problems functional problems and 'simple' technical problems. The more complicated technical problems are solved by Tech Solutions. So, we can state that in the current situation, within the Channel Partner Programme, the channel partner and Tech Solutions are responsible for the reactive customer support with regard to software (Appendix 11; Appendix 15). This means that the service strategy in this field can be seen as a hybrid strategy.

Based on the five factors which influence the choice of the customer support distribution channel (Goffin, 1999), it will be analyzed whether the choice of a hybrid strategy can be continued for the reactive customer support with regard to software in the future situation.

Tech Solutions sells the software directly to the end-user, so based on this fact it can be argued that the choice to provide reactive support with regard to the software itself, will make more sense. So, based on this factor, it seems logical to internalize this kind of support.

Reactive customer support to solve complicated technical problems for the end-user requires specialty of services to a high extent. Therefore, Tech Solutions is the third-line support within the Channel Partner Programme. This line of support provides reactive customer support with regard to complicated technical problems. The reactive customer support for the complicated functional problems and the less complicated technical problems is provided by the channel partner. Reactive support with regard to software problems will contain all software problems. It does not matter how complicated the software problem is. So, in order to solve software problems, a specialty of services are required to a high extent. Therefore, it seems

wise that Tech Solutions provides reactive customer support with regard to software problems; Tech Solutions seems to have sufficient know-how.

In the current situation, channel partners are responsible for solving the complicated functional problems and the 'simple' technical problems for the end-users. Tech Solutions is responsible for solving the more complicated problems with regard to software. In what way the revenues with regard to software support are divided between Tech Solutions and its channel partners depends on the agreements between the end-user, Tech Solutions and its channel partner(s). So, based on the desire to earn revenues from selling services, it cannot be stated whether which choice (internalizing, outsourcing, hybrid) seems better.

In the current situation, the channel partner provides reactive customer support with regard to complicated functional problems and 'simple' technical problems and Tech Solutions provides reactive customer support with regard to complicated technical problems. This means that Tech Solutions does not have full control over the quality of this kind of customer support. If the end-user and the channel partner cannot solve the problem, then Tech Solutions comes into play. So, in the end, Tech Solutions has to solve the complicated technical problems if the end-user and channel partner are not able to do this. When end-users are not supported in a proper way, this can tarnish the reputation of Tech Solutions and its software. In order to obtain full control over the quality of reactive customer support with regard to software, Tech Solutions needs to solve all kinds of software problems. This means that Tech Solutions needs to internalize the reactive customer support with regard to software, in order to obtain full control over the quality of it.

The high costs of creating direct customer support distribution channels, especially in distant geographical locations, are considered as crucial to the choice for the customer support distribution channel. Tech Solutions has end-users across the world. These different countries have different regulations (regarding access control) (Appendix 1). In the current situation, channel partners are responsible for solving the complicated functional problems and the 'simple' technical problems for the end-users and Tech Solutions is responsible for solving the more complicated technical problems. In the future situation, in which the transition from on-premise solutions towards cloud-based server solutions will be made, it seems to become easier to solve software problems remotely. This is in contrast to solving the problems with regard to hardware, which is mostly done on location. As early noted, Tech Solutions seems to have sufficient knowhow to solve the problems with regard to software. Considering the fact that Tech Solutions can obtain access to the server of the end-user because they have access to the cloud server, it may increase the number of software problems which can be solved remotely. It is important to note, however, that the cloud-based server is provided by a cloud provider which meet the regulations of the (country of) end-user.

For example: a company from Germany (EU) prefers not to have its cloud-based server provided by an American cloud provider, because the regulations in Germany are different from those in the United States.

So, it can be remarked that, based on the geographical factor, it seems wise to internalize the reactive customer support with regard to software.

In conclusion, it can be argued that, based on five factors which influence the choice of customer support distribution channel, derived from Goffin (1999), it seems wise to internalize the reactive customer support with regard to software. This is visualized in figure 8.

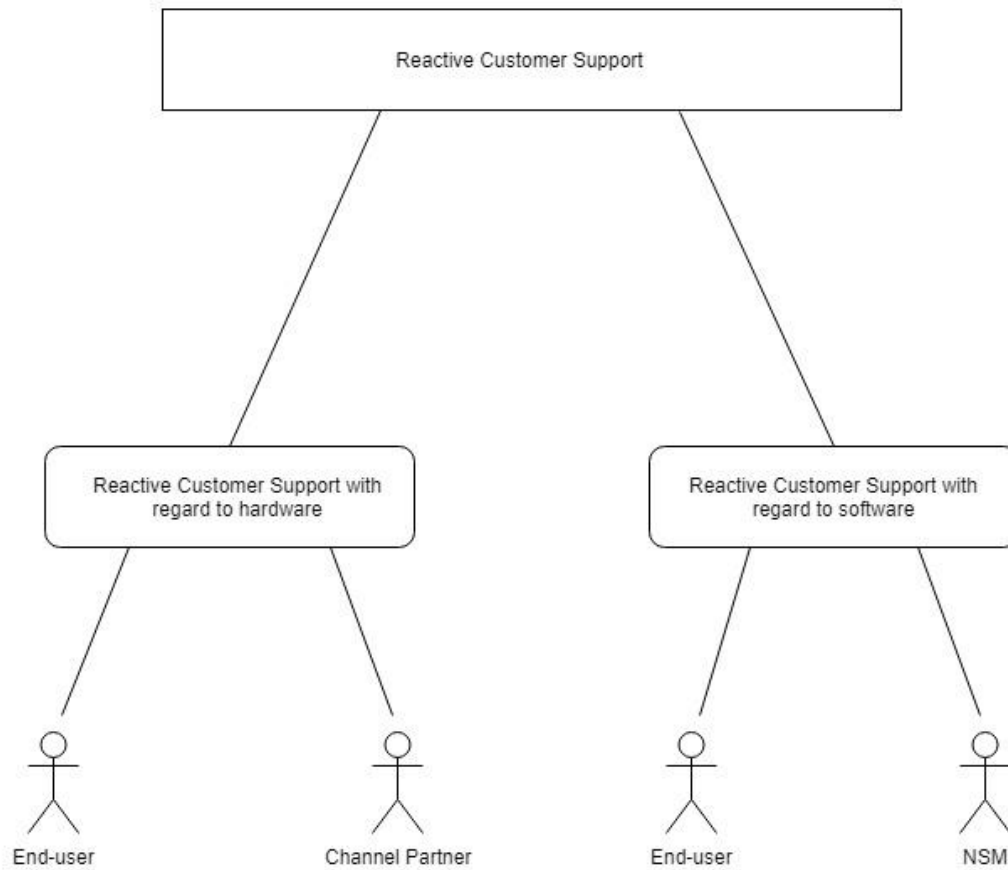


Figure 8 – Reactive Customer Support when ACaaS will be offered to the end-user

Proactive customer support

As discussed in the previous paragraph, reactive customer support will still be delivered in the future situation. This will be done because the problems of end-users still have to be solved. In the future situation, proactive customer support will also be delivered. Proactive customer support is aimed at optimizing the access control systems, which can be described as the rearmament/retrofit/upgrading, adaptation of the product or service to specific customer needs (Homburg, 2003). As mentioned earlier, operational services are a part of proactive customer support because operational services are aimed at product efficiency and product effectivity. Proactive customer support will be conceptualized further underneath. After giving a short definition of proactive customer support, it will be determined in what way proactive customer support can be provided. So, it will become clear which service strategy will be used in order to provide proactive support.

Definition of proactive customer support

Proactive customer support is about optimizing a product or service for an end-user. Jha (2008) states that a firm needs the ability to observe and to talk to customers, analyze and interpret customer data, and use the output in order to make decisions about the resource allocations and software features which need to be offered to the end-user. So, direct contact with customers and customer data are essential when a firm wants to satisfy customer needs and offer additional required software features (Jha, 2008).

To find out what it takes to satisfy customer needs and which additional required software features should be offered, information on the installed equipment is needed (Chakkol, 2004 ; Ala-Risku, 2007). This information can be used as an input for the performance measurement and development of user operations (Ala-Risku, 2007). In addition, Ala-Risku (2007) states that the quality of information on the equipment in use is of great importance. To satisfy customer needs, capability and usability are essential. Capability can be described as the functionality of the products in terms of the key features offered (Kekre, Krishnan, & Srinivasan, 1995). Capability is considered important, since customers may use the same systems or software products for a variety of application. Usability is about user behavior in system acceptance (Kekre et al., 1995). This user behavior in systems acceptance can be explained by the initial and recurring effort to learn how to use the product (Davis, Bagozzi, & Warshaw, 1989). Features such as online help, training, demo examples and toll-free helplines are provided to facilitate the use of certain software (Kekre et al., 1995). As early discussed, information on the installed equipment is needed as input for the performance measurement. An example of a critical attribute with regard to the performance of a system is the response time for an operation (Kekre et al., 1995). Improved performance of certain systems can be achieved through optimal use of various system resources. Efficient and effective usage of hardware resources such as central processors, communication units, and storage capacity may result in a better performance of a system. So, operational services, which are aimed at product efficiency and product effectivity, will be executed in order to obtain better performance of a system. Briefly, it can be noted that better

performance can be ensured by cooperating very closely with the end-user by being proactive and flexible (Datta & Roy, 2011).

Chakkol, Johnson, Raja, and Raffoni (2014) state that solutions offerings offer an opportunity to move beyond providing products and services and towards offering operational counseling. Operational counseling refers to the extent to which an end-user provides information and guidance about its operations to a solution provider (Tuli, Kohli, & Bharadwaj, 2007). This information refers to information about the technical systems, business processes, and company policies in a customer firm (Tuli et al., 2007). So, the solution supplier gains access to the operations of its end-user in order to analyze what is going on inside the process of the end-user (Tuli et al., 2007). This information will be used by the solutions provider to provide customized feedback reports to improve (business) performance (Chakkol et al., 2014). So, the solution provider uses this information to learn about the unique elements of the operating environment of the end-user. In this way, the solution provider is able to analyze the (changes in the) requirements of the end-user more completely and accurately (Tuli et al., 2007). When the (changes in the) requirements of the end-user are defined, the solutions provider can anticipate the changes that will be required in its existing products and to identify new products or features that may be needed. So, the end-user will be provided with effective post-deployment support. Tuli et al. (2007) found out that the greater the operational counseling of the end-user, the greater the solution effectiveness. In short, solution providers can devise more appropriate strategies in order to tailor offerings to the needs of customers, when the end-user provides information and guidance about its operations to a solution provider (Chakkol et al., 2014). In other words, a solution provider is able to provide an effective solution when the end-user provides information and guidance about its operations (Tuli et al., 2007).

Provision of proactive customer support

Now the concept of proactive customer support is known, it seems important to determine how proactive customer support can be provided. This will be done by determining which service strategy (internalizing, outsourcing or a hybrid approach) can be used to provide proactive customer support. So, in fact, it will be investigated how the service supply chain should look like. The service supply chain can be described as “the network of suppliers, service providers, consumers and other supporting units that performs the functions of transaction of resources required to produce services; transformation of these resources into supporting and core services; and the delivery of these services to customers” (Baltacioglu, Ada Kaplan, Yurt And, & Cem Kaplan, 2007, p. 112).

A particular firm can choose to outsource proactive customer support because outside specialists have specific skills related to collecting and analyzing customer data which this particular firm has not at his disposal (Jha, 2008). So, outside specialists can provide the data warehousing, statistical analysis, and interpretation skills that a particular firm may lack or not yet want (or be able) to invest in (Jha, 2008). The disadvantage of outsourcing proactive customer support is that the firm does not take ownership of it. Therefore, the employees within the firm may fail to learn or acquire the skills necessary to measure and manage customer data on their own (Jha, 2008). In addition, it can be remarked that continued reliance

on external specialists becomes costly over time. As a result of outsourcing, the firm fails to develop proactive customer support as a core competency (Jha, 2008). Despite the above-mentioned disadvantages of outsourcing, it can be argued that not all parts of the proactive customer support should be brought in-house in all cases. Even when the firm is customer-oriented to the highest extent, it may be wise to outsource certain parts of proactive customer support (Jha, 2008). This is not as simple as it might seem. For many servitized firms, it is a big challenge to develop capabilities to integrate different pieces of a system by an external network of specialized subcontractors and service providers (Davies, 2004). In addition, Walter, Auer, and Ritter (2006) note that when a firm wants to outsource (some certain parts of) the proactive customer, it needs “the ability to develop and utilize inter-organizational relationships” (p. 541).

Service strategy to provide proactive customer support

As posed in paragraph 6.2.2., there are three service strategies. These strategies consist of internalizing, outsourcing and a hybrid approach. In order to determine which strategy is preferred to provide proactive customer support, the advantages and disadvantages of internalizing and outsourcing will be assessed. This will be done by determining in what way operational services can be provided because operational services are a part of proactive customer support. Subsequently, the five factors of Goffin (1999) will be analyzed. Afterwards, it will be briefly described in what way the service strategy can be implemented.

Provision of operational services

Logically, Tech Solutions will cooperate with the channel partners that are capable of providing operational services. It is hard to determine which types of channel partners will be capable to provide operational services. For example, some constructors may be capable to provide operational services and some may not. This mainly depends on the willingness and ability of the channel partner to develop its organization in such a way that it is able to provide operational services. Whether a channel partner is willing to develop its capabilities and therefore wants to adapt its organization, depends on which vision the channel partner has on the future, among other things. If a certain channel partner does not expect operational services to become important in the future, then this channel partner will not adapt its organization to the provision of operational services. Unfortunately, one cannot state that all constructors are willing to develop their organization in such a way that it is able to provide operational service, but it is not possible either to state that all constructors are not willing to do this. Therefore, we filled the spaces regarding the provision of the operational services with dots.

In short, it can be remarked that Tech Solutions still needs its channel partner if it wants to provide operational services. Subsequently, it cannot be stated whether a certain type of channel partner will be capable to provide operational services or not. In the next paragraph, the provision of operational services will be discussed further. This will be done because executing operational services is focused on efficiency and effectiveness of the access control systems. So, operational services

can be seen as part of the proactive customer support of Customer Success Management.

Five factors of Goffin (1999)

To provide operational services, it can be argued that Tech Solutions needs its channel partners, who, in this case, acts as horizontal partners. Keeping this in mind, it will be analyzed, based on the five factors of Goffin (1999) what the advantages and disadvantages are of internalizing and outsourcing.

Goffin (1999) argues that the choice of customer support distribution channel by five different factors. The proactive customer support can be distributed by internalizing, outsourcing or using a hybrid approach (Mathieu, 2001). Internalizing and outsourcing are used as the two extremes. So, in order to determine which choice has to be made in providing proactive customer support, the advantages and disadvantages of internalizing and outsourcing will be assessed.

As early argued, the choice has been made to suppose that Tech Solutions continues with the Channel Partner Programme when ACaaS will be offered. This means that the channel partner sells the hardware to the end-user. Considering the fact Tech Solutions sells the software directly to the end-user in the current situation, which will be continued in the future situation, it seems logical to internalize proactive customer support. Because this is proactive customer support is more software related than hardware related. So, based on this factor, it can be noted that it seems wise to internalize proactive customer support.

In the current situation, proactive customer support was not provided to the end-user. The services with regard to proactive customer support consist of direct contact with the customer and analyzing and interpreting customer data in order to satisfy customer needs and offer additional required software features. These services require a specialty of services to a high extent. As early mentioned, Tech Solutions provides reactive customer support with regard to complicated technical problems and the channel partner provides reactive customer support for the complicated functional problems and the less complicated technical problem. Therefore, it can be noted that Tech Solutions has more knowledge of the software of the access control systems. This would mean that Tech Solutions would have to make less effort to develop the capabilities to provide proactive customer support. However, the channel partner may also be able to develop these capabilities. It seems that the channel partner has to make more effort to develop these capabilities. For both Tech Solutions and the channel partner, the willingness must be present to develop these capabilities. This depends on whether they expect the demand for proactive customer support to increase in the future. This will be explained in detail underneath. So, it is hard to determine which service strategy will be most advantageous with regard to the required specialty of services.

The desire to earn revenues directly from selling services is another important factor which can affect the way proactive customer support will be provided. Based on this factor, it is hard to determine which service strategy will be preferred. Given the fact that up to 50% of the revenue in product firms may be derived from services (Gebauer, Edvardsson, Gustafsson, & Witell, 2010), Tech Solutions will most likely desire to earn revenues directly from proactive support. In addition, it was found out that firms can expand their revenue base by offering their end-users more

comprehensive services to support, maintain, operate, and upgrade the equipment already in use (Wise & Baumgartner, 1999; Davies, 2004; Baines et al., 2007). So, nothing suggests that the channel partner would not have the desire to earn revenues directly from selling services. In proactive customer support, customer data, resulting from the software provided by Tech Solutions, will be analyzed and interpreted. So, in this respect, it can be argued that Tech Solutions is in charge. This would mean that Tech Solutions chooses, based on the desire to earn revenues from selling services directly, to internalize the proactive support.

The required degree of control over the quality of proactive customer support can influence the way proactive support will be divided. Tech Solutions absolutely wants proactive customer support to be delivered properly. The customer can be satisfied with this and through performance measurement, i.e. the analysis and interpretation of customer data, recommendations can be made for additional software features. These, in turn, can be sold by the key account management by means of up-selling. This will be explained in detail in paragraph 6.2.3. So, in terms of the required degree of control over the quality of proactive customer support, it can be remarked that internalizing proactive customer support is preferred.

The high costs of creating direct customer support distribution channels, especially in distant geographical locations, are considered as crucial to the choice for the customer support distribution channel. Tech Solutions has end-users across the world. These different countries have different regulations (regarding access control) (Appendix 1). In the future situation, in which the transition from on-premise solutions towards cloud-based server solutions will be made, it seems to become easier to provide proactive customer support remotely. So, proactive customer support does not have to be provided on location, but it can usually be provided remotely. This will lead to a reduction in costs to provide proactive customer support. For example, employees do not have to travel to the location of the end-user. A certain system must be set up in order to retrieve the customer data from the cloud server. Subsequently, the customer data will be processed into a report. The regulations regarding customer data will have to be taken into account. Considering the fact that Tech Solutions has end-users across the world, one will have to deal with many different regulations regarding customer data. It is hard to determine whether a channel partner or Tech Solutions has to provide proactive support, based on the costs. The costs and effort to develop the capabilities to provide proactive customer support will also play a role in this.

It can be noted that operational services need to be delivered in cooperation with channel partners. For proactive customer support in its entirety, it is doubtful whether internalizing or a hybrid approach is preferred to provide proactive customer support. In any case, outsourcing is not an option to provide proactive customer support. This has been decided to exclude fully outsourcing as a way of providing proactive support. This is a substantiated choice. Tech Solutions wants to take ownership of proactive customer support. When Tech Solutions outsources proactive support, this is not possible. As a result, the employees of Tech Solutions may fail to learn or acquire the skills necessary to measure and manage customer data on their own (Jha, 2008). Next to that, continued reliance on external specialists becomes costly over time.

The main reason why proactive customer support will not be outsourced is that it inhibits the innovation regarding access control systems. In the current

situation, access control systems are offered to the end-user, using the Channel Partner Programme. This has brought substantial advantages to Tech Solutions. By offering access control systems to the end-user, using the Channel Partner Programme, made it possible to increase the scalability (Appendix 16). Next to the advantages, the use of the Channel Partner Programme also entails disadvantages. Tech Solutions does not know how its access control systems are used by the end-users. In the future situation, when ACaaS will be offered to the end-user, it is important that Tech Solutions knows how the end-users use the access control systems. When Tech Solutions has access to the customer data and gains insight into the customer data, it knows how the end-users use the access control systems. This gives Tech Solutions a strategic advantage. In that case, the 'innovation agenda' can be based on this customer data and not on what is noticed from the market, the outside world (Appendix 16). In the future situation, when cloud servers will be used, Tech Solutions has the chance to get in closer contact with the end-user and the data of the end-user (Appendix 16). This was no longer possible with the on-premise solution. This is supported by Kotabe (1992), who suggests that increased reliance on outsourcing may lead to reduced innovation and reductions in control of the task in question.

Concisely, operational services need to be provided in cooperation with channel partners and cannot be internalized. Besides, fully outsourcing of the proactive customer in its entirety is not an option. Therefore, it will briefly be described how proactive customer support can be provided using a hybrid approach.

Hybrid approach to provide proactive customer support

Providing proactive customer support is about optimizing a product or service for an end-user. This means that Tech Solutions needs the ability to observe and to talk to customers, analyze and interpret customer data, and use the output in order to improve the performance of the access control systems and to make recommendations for additional software features to increase the performance of the access control systems (Chakkol, 2004 ; Jha, 2008).

When a hybrid approach will be used to provide proactive customer support, (channel) partners will get access to data from their customers. In that case, it is a possibility to supply the (channel) partners with data tools, which allow them to analyze customer data of their end-user. So, the (channel) partners get access to a piece of the cloud server of the end-user within their customer portfolio. This makes it possible for these (channel) partners allowing them to perform certain actions. When these (channel) partners are supplied with certain data tools, they can create analysis reports from the data of their end-users within their customer portfolio. Eventually, Tech Solutions will have a complete overview of the (analysis reports regarding) customer data of all the end-users. So, Tech Solutions knows how all their end-users use access control systems. As early mentioned, the 'innovation agenda' can be based on the (analysis reports regarding) customer data of all the end-users; when Tech Solutions knows how the end-users use the access control, it can innovate its product(s) in such a way that it meets the (future) demand of these end-users.

Succinctly, using a hybrid approach ensures that the channel partner also has added value in providing proactive support and Tech Solutions will have the complete

overview of the customer data, which ensures that Tech Solutions knows how the end-users use the access control systems.

Options to provide proactive support using a hybrid approach

Providing proactive customer support by using a hybrid approach can be executed in two ways. These two ways are visualized in figure 9. The first option concerns a triadic collaboration. A triadic collaboration involves three actors (Chakkol, 2014). In this case, it will mean that three actors are involved in providing Customer Success Management. In practice, this will mean that the channel partner who provides reactive customer support with regard to hardware also provides proactive customer support, in cooperation with Tech Solutions. Customer data reports will be discussed with Tech Solutions and provided to the end-user by this channel partner. This will be done in order to improve performance and meet business needs (Chakkol, 2014). Recommendations can be made to end-users to purchase additional features to improve performance and/or better meet the demand of the end-user. Within a triadic collaboration, the channel partner needs to develop capabilities to analyze and interpret customer data of the end-users within their customer portfolio. So, these channel partners provide reactive customer support with regard to hardware and in addition, they provide proactive customer support. This is visualized in figure 9. These channel partners need to be trained by data analysts/specialists of a company which has the knowledge and capabilities to analyze and interpret customer data (regarding access control). These data analysts/specialists need to be hired by Tech Solutions in order to develop the capabilities of the channel partners to analyze and interpret customer data regarding access control systems. In addition, the willingness to develop the required capabilities is decisive whether a triadic- or a tetradic collaboration will be used to provide proactive customer support. This will be explained in detail underneath.

The second option concerns a tetradic collaboration. Chakkol (2014) argues that if a firm implements a tetradic collaboration, this results in a role as the main resource integrator for this particular firm. So, if Tech Solutions implements a tetradic collaboration with regard to Customer Success Management, Tech Solutions becomes the main resource integrator in Customer Success Management. As Chakkol (2014) states, a particular channel partner will perform repair and maintenance of the hardware and another partner (second partner) analyzes the customer data. Subsequently, this second partner discusses these customer data reports with Tech Solutions and provides it to the end-user. This is visualized in figure 9. Subsequently, these reports will be discussed with the end-user to provide to improve performance and meet business needs (Chakkol, 2014). Recommendations can be made to end-users to purchase additional features to improve performance and/or better meet the demand of the end-user. So, if Tech Solutions implements a tetradic collaboration to provide Customer Success Management, this will mean that it works together with multiple partners. The channel partner will be responsible for the maintenance and repair of the hardware of the TS Access Control products. This can be seen as the reactive customer support with regard to hardware. The reactive support with regard to software will be executed by Tech Solutions itself. For the analysis of the customer data with regard to the access control systems, another partner will be deployed. A definition of this second partner has consciously not been given. The role of a second

partner can be fulfilled by different types of companies. It may be a consultancy company which is specialized in analyzing and interpreting customer data, but it can also be an integrator, which is not responsible for the reactive customer support with regard to hardware, who has a lot of IT-knowledge but does not have the capabilities (yet) to analyze and interpret customer data. So, if this second partner needs to develop the required capabilities to provide proactive customer support and to execute key account management focused on upselling depends on which type of company fulfills this role. Some of these types will have these capabilities and some may have to develop these capabilities. The latter must be willing to develop these required capabilities.

Willingness to provide proactive customer support

The willingness to develop the required capabilities to provide proactive customer support is decisive in the choice of the service strategy. This willingness is also called adaptiveness, which can be described as the willingness to adjust to changed circumstances. Tuli (2007) states that this adaptiveness refers to the extent to which a customer is willing to modify its routines and processes to accommodate a supplier's products. So, in this case, the willingness to develop the required capabilities to provide proactive customer support is decisive. This means that Tech Solutions or the (channel) partner must be willing to modify its routines and processes to provide proactive customer support. In order to modify these routines and processes to provide proactive customer support, Tech Solutions or the (channel) partner needs to develop the capabilities which are required to provide proactive customer support.

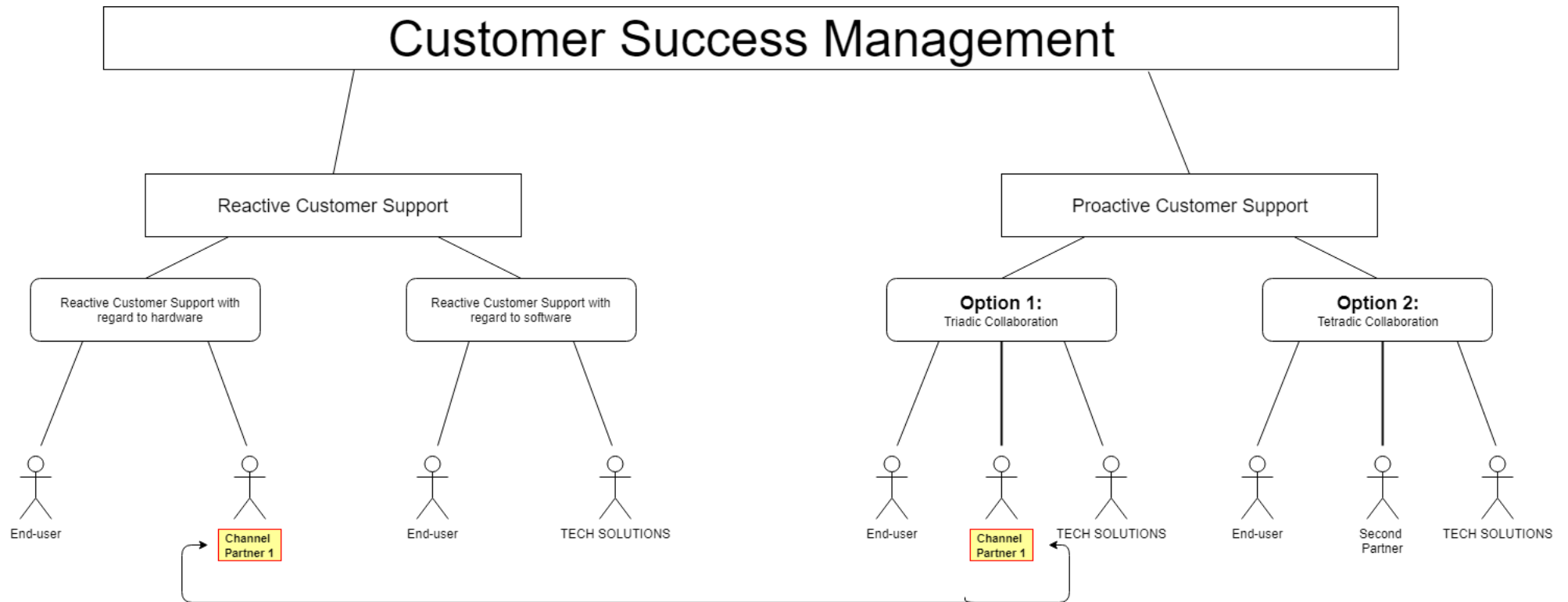


Figure 9 – Visualization of the provision of Customer Success Management (in the future situation)

6.2.3. - Key Account Management focused on up-selling

As noted in paragraph 5.3.3. the key account manager will especially be concerned with up-selling. This is a result of the changing role of customer support. In the future situation, not only reactive customer support is provided, but also proactive customer support is provided. Proactive support is, as early mentioned, aimed at optimizing a product or service for an end-user. It was also remarked that within proactive customer support, recommendations to end-users can be made to purchase additional software features to improve performance and/or better meet the demand of the end-user. Key account management should draw on this. So, key account management must be aimed at selling additional software features to improve the performance of the access control systems and to meet the demand of the end-user. This principle can be described as upselling.

Definition of upselling

Upselling is aimed at upgrading or improving the conditions of previously acquired products or services to keep customer consuming (Kamakura, Wedel, de Rosa, & Mazzon, 2003 ; Sun, Pan, Wu, & Kuo, 2014). So, upselling is aimed at reinforcing the attachment between the company and its customers through their continued consumption (Salazar, Harrison, & Ansell, 2007). Aydin (2008), who approaches the practice of upselling only from a product-centric point of view, defines upselling as “offering an additional product to a customer who just made a purchase” (p. 360). Well-known examples that use upselling are Amazon and Buy.com. These organizations use upselling by recommending additional products to customers who just purchased an item (Aydin, 2008). They try to sell an additional product related to the one the customer just bought, e.g., offering a carrying case to a customer who just ordered a cell phone (Aydin, 2008). These organizations attempt to increase revenue per customer (visit). This is, as mentioned above, also possible for services. An example of upselling services is an extension of a package of TV channels of a certain TV provider.

Executing Key Account management focused on upselling in theory

Researchers conducted research on how to create a good base for upselling. Aydin (2008) argues that it is one value piece of information for upselling when a firm knows that the customer has just bought a particular product or service at a particular price. This valuable piece of information allows the firm to make a better-informed decision on which product has to be offered to the customer, which makes them able to offer the right product or service at the right time (Salazar, Harrison, & Ansell, 2007 ; Aydin, 2008). So, in order to offer customers products and services that tap into their needs, an information infrastructure is required (Kamakura et al., 2003). Subsequently, Aydin (2008) remarks that the practice of upselling is closely related to bundling. Bundling can be described as selling two or more products as one package.

Next to the fact that upselling aims to improve performance and meet customer demand, upselling also has other purposes. McNally (2007) argues that selling additional products to existing customers through upselling supports

retention and profitability goals, by enabling additional customer information collection, and increasing customer revenue. Another advantage of upselling products and services to current customers are the lower associated costs. The cost of acquiring new customers will be higher than upselling products or services to existing customers (Kamakura et al., 2003).

Executing Key Account management focused on upselling in practice

Considering the way of executing Key Account management focused on upselling in theory, it can be examined how this should be done with regard to the access control systems of Tech Solutions. As noted in paragraph 6.2.2., proactive support is aimed at analyzing and interpreting customer data regarding access control systems. So, the access to this customer data offers the opportunity to make a better-informed decision on which additional product or service has been offered to the end-user (Alazar et al., 2007). To put in differently, the access to the customer data and the possibility to analyze and interpret this data makes upselling easier. In this case, the customer data and the analysis and interpretation of it constitute the required information structure (Kamakura et al., 2003).

Software features suitable for upselling

As noted in the definition of upselling, the practice of upselling can be used for both products and services. In this case, Key Account management focused on upselling will be executed after the end-user has purchased the access control systems and a corresponding basic software package. In order to improve the performance of the access control systems and to meet the (changed) demands of the end-user, the principle of upselling will be applied. This principle of upselling can be applied with regard to software features.

In the current situation, end-users are provided with a software package which contains all possible features when an end-user purchases an access control system. In this case, upselling related to software is not possible (Appendix 14 ; Appendix 16). The software package which includes all features is in line with the traditional model of providing embedded software features for Motor Vehicles, described by Baecker, Weppner, and Strube (2009). This traditional model is visualized in figure 10.

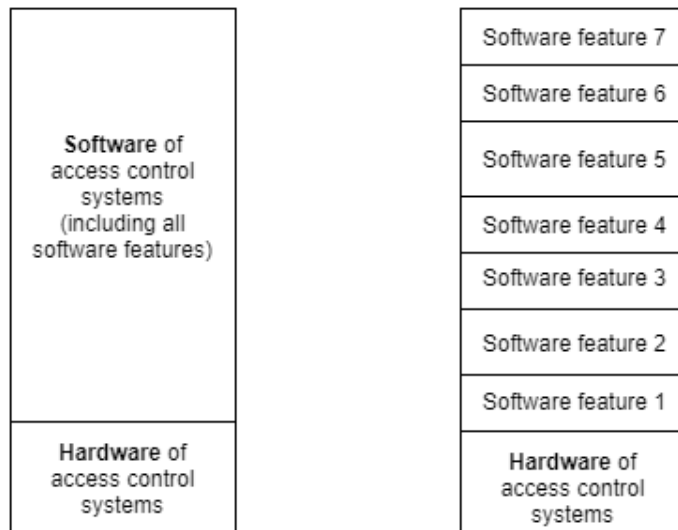


Figure 10 – Traditional model of providing software features regarding access control systems (based on figure 1: providing embedded software features for Motor Vehicles, derived from: Baecker, Weppner & Strube, 2009)

So, in this case, the end-user purchases the hardware together with a software package which includes all features. In this situation, the upselling of features related to software is not possible.

In order to enable upselling of features related to software, the total functional capabilities of embedded software deployed on a motor vehicle, in this research access control systems, need to be logically separated into separate modules or ‘features’ (Baecker et al., 2009); based on this logical separation into distinct “features”, it becomes possible to sell selected features at a later point in time. This process is also described as “feature upselling”. The features need to be separated in features which are delivered in the basic software package when an end-user purchases an access control system and features which are suitable for upselling, the so-called ‘feature upselling candidates’ (Baecker et al., 2009). This separation is visualized in figure 11.

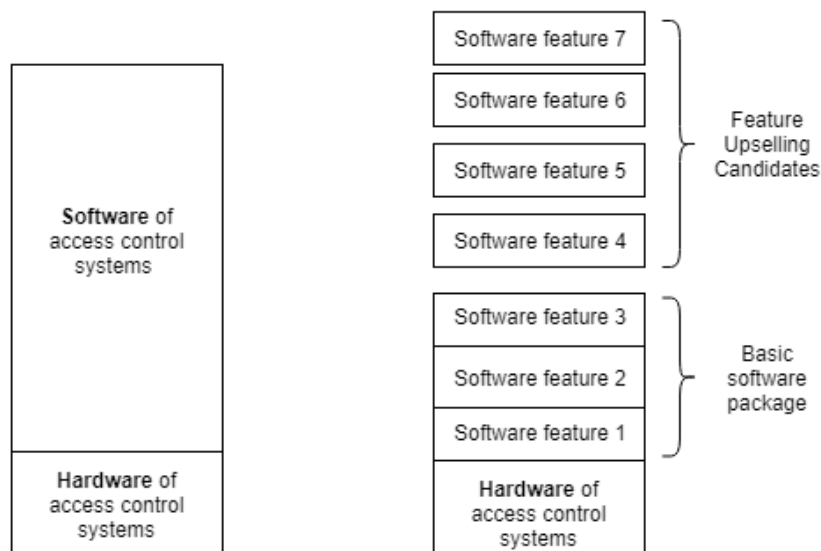


Figure 11 – Separating software features regarding access control systems (based on figure 2: Partitioning of in-car Embedded software, derived from: Baecker et al., 2009)

In order to separate software features, some features need to be bundled in the basic software package (Aydin 2008 ; Baecker et al., 2009). The challenge of bundling software features is to decide which software features should be delivered in the basic software package and which features should be sold separately as part of a feature upselling (Baecker et al., 2009). So, it needs to be decided which features are included in the basic software package and which are kept back. Each feature that is not included in this basic version is a candidate for a feature upselling. This extends the functional range of the access control system and in the end, it can generate additional value (Baecker et al., 2009).

In order to logically separate the features into features which will be included in the basic software package and 'feature upselling candidates', system engineers have to decide which functionality is required for the correct operation of the access control system and therefore needs to be included in the basic software package. In addition, they need to cooperate with sales experts to design distinct features and define their functional range. This multi-perspective approach is necessary, because a feature needs to interface with the rest of the embedded system from a technical point of view, but also needs to be appealing to customers from a sales perspective. From a customer perspective, functionality that is considered as commodity should not be offered as a separate feature. As an example, a car manufacturer can hardly sell on-board diagnostics like oil level readings or fuel range as separate features, since customers expect these functionalities and their willingness to pay for it is low. Summarily, the challenge is to decide, which features are rolled out right away and which are envisioned to be sold later on.

Provision of Key Account Management focused on upselling

As argued in paragraph 6.2.2., proactive customer support is provided through a hybrid approach. So, Tech Solutions and its (channel) partner(s) should together be able to observe and to talk to customers, analyze and interpret customer data, and use the output in order to make decisions about the resource allocations and features which need to be offered to the end-user. This can be done through a triadic collaboration or a tetradic collaboration.

Triadic collaboration

A triadic collaboration involves three actors (Chakkol, 2014). When a triadic collaboration will be implemented to provide proactive customer support, this will mean that the channel partner who provides reactive customer support with regard to hardware also provides proactive customer support, in cooperation with Tech Solutions. Customer data reports will be provided to the end-user by this channel partner. Subsequently, Tech Solutions and this channel partner will discuss these reports, in order to recommend additional features to the end-user. These recommendations are made in order to improve performance and/or better meet the demand of the end-user. It seems logical that the channel partner, who is responsible for reactive customer support with regard to hardware and provides customer data reports to the end-user, will also be responsible for the key account management which is focused on upselling. This channel partner is in direct contact with the end-user because it provides reactive customer support with regard to hardware on

location. In most cases, this channel partner is also the reseller of the hardware. So, this channel partner is more familiar with the end-user and its specific data than Tech Solutions. Together with Tech Solutions, this channel partner makes recommendations for additional features. Afterwards, this channel partner will have conversations with the end-user in order to explain these recommendations and as a result to sell the additional features.

In this research, the choice has been made to suppose that Tech Solutions continues with the Channel Partner Programme when ACaaS will be offered. So, the end-users are not the large multinationals, which is the case in the Global Client Programme. It is not possible to deploy key account managers for all (relatively small) customers within the Channel Partner Programme. As early stated, these channel partners must be willing to develop the required capabilities to provide proactive customer support. In addition, they need to develop capabilities to execute key account management focused on upselling.

Tetradic collaboration

In a tetradic collaboration, a particular channel partner will perform repair and maintenance of the hardware and another partner (second partner) analyzes the customer data. In addition, Tech Solutions will – in collaboration with this second partner – provide customer data reports to the end-user. Subsequently, Tech Solutions and this second partner will discuss these reports, in order to recommend additional features to the end-user. These recommendations are made in order to improve performance and/or better meet the demand of the end-user. If this type of collaboration will be implemented, It seems logical that the second partner, who provides customer data reports to the end-user, will also be responsible for the key account management which is focused on upselling. So, this second partner is more familiar with the specific data of the end-user than Tech Solutions. Together with Tech Solutions, this second partner makes recommendations for additional features. Afterwards, this second partner will have conversations with the end-user in order to explain these recommendations and in the end to sell the additional features.

In this research, the choice has been made to suppose that Tech Solutions continues with the Channel Partner Programme when ACaaS will be offered. So, the end-users are not the large multinationals, which is the case in the Global Client Programme. It is not possible to deploy key account managers for all (relatively small) customers within the Channel Partner Programme. A definition of this second partner has consciously not been given. The role of a second partner can be fulfilled by different types of companies. So, whether this second partner needs to develop the required capabilities to provide proactive customer support and to execute key account management focused on upselling depends on which type of company fulfills this role. Some of these types will have these capabilities and some may have to develop these capabilities. The latter must be willing and able to develop these required capabilities.

7. Engagement of the channel partners in the servitization strategy

As stated in the introduction, Tech Solutions wants to reach stage 4 (Figure 12). So, the firm wants to offer Access Control as a Service, because it wants to respond to the needs of the customer. The end-user wants to be unburdened. So, Tech Solutions has to ensure that it takes care of all the security management activities regarding access control systems for the end-user. As a result, end-users can focus on their core business.

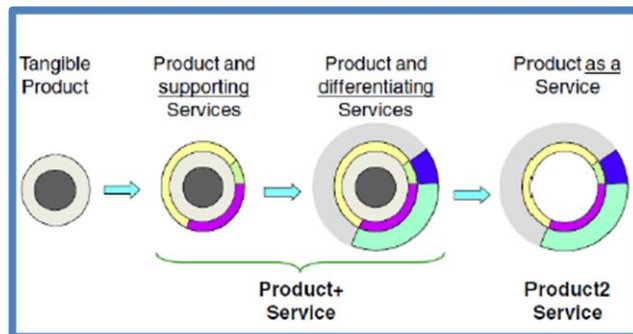


Figure 12 – Servitization Process (Ducq, Chen, & Alix, 2012)

In paragraph 6.2.3. it was decided what is offered to the end-user and how it is offered. It was remarked that the hardware of the access control systems will be sold to the end-user by a channel partner. A basic software package will be provided by Tech Solutions (see figure 13). Only the software features which are required for the correct operation of the access control system are included in this basic software package.

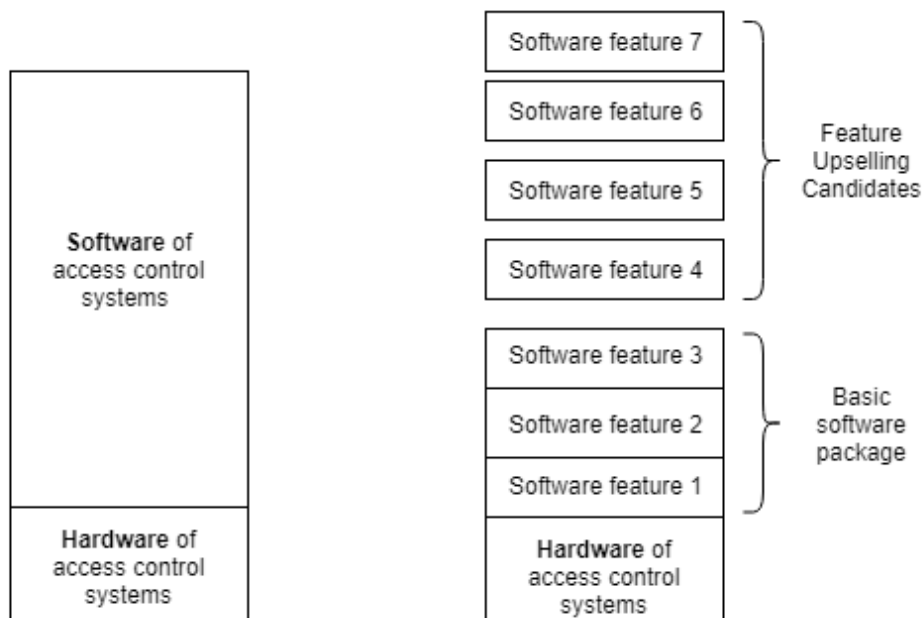


Figure 13 – Separating software features regarding access control systems (based on figure 2: Partitioning of in-car Embedded software, derived from: Baecker et al., 2009)

In this research, a conscious decision has been made to not elaborate on the payment model that will be used, because it extends the scope of the research to an excessive extent. In addition, it does not seem to have a direct impact on the role of the channel partner.

In order to find an answer on the question how Tech Solutions can engage its channel partners in its servitization strategy, within the process from the commissioning phase until the aftercare regarding access control systems, the consequences of servitization for the existing channel partners within the commissioning and aftercare phase will be summarized. In addition, it will be determined in what way the existing can generate revenue within these phases. It should be taken into account that the adaptations to the changes, which occur as a result of servitization, cannot be made easily. The decision to servitize and to adapt to this new strategy can be made after careful deliberation of both the existing channel partners and Tech Solutions.

7.1 Consequences within the commissioning phase

Within the commissioning phase, two types of activities will change. First, the activities regarding setting up the server, the IT-environment, will not be needed anymore. Second, the activities regarding the configuration of the access control system will be reduced. The consequences for the channel partners will be summarized and it will also be explained in what way the channel partners can generate revenue within these phases.

7.1.1. Setting up the server

When the transition towards cloud-based servers will be made, the IT-environment no longer needs to be set up for (and in the building of) the end-user, because the cloud provider has already done this. For the channel partners with little IT knowledge, this change would be very nice, but the channel partners whose core competence it is to set up the server will probably be dissatisfied with the transition towards cloud-based servers. To conclude, it can be remarked that the shift will enable channel partners with little IT-knowledge to focus on other activities that are more in line with their strengths. The integrator and the Value Added Distributor are the types of channel partners whose core competence it is to set up the server (IT-environment) for the end-user. These types of channel partners have IT-knowledge to a great extent.

Integrator

The integrator benefited from the complexity of setting up a server and the configuration. Setting up the server and the configuration are core competences of the integrator. If the switch towards a cloud server will be made, the IT-environment no longer needs to be set up for (and in the building of) the end-user, because the cloud provider has already done this. This means that the activities regarding setting up a server are no longer needed. So, integrators cannot generate revenue by setting up the servers anymore. This can be described as a value conflict.

Value Added Distributor (VAD)

Setting up the server and the (pre-)configuration are core competences of the VAD. When the server becomes a cloud solution, setting up the IT environment, is no longer needed. Setting up the IT environment is a part of the value a VAD adds. So, for the VAD this means that there are fewer possibilities to add value. If a VAD cannot add value at all, it becomes a normal distributor. Then, of course, the margin will be lower for them, because they will no longer be able to add value in the process and they have to compete with the normal distributors, the so-called 'box-movers'. The fact that the activities regarding setting up a server are no longer needed and the VAD cannot generate revenue with this, can be described as a value conflict.

Financial

It was mentioned that the server, also called the IT-environment, no longer needs to be set up for (and in the building of) the end-user when the transition towards cloud-based servers will be made. This activity has been taken over by the cloud provider, which sets up the cloud server for the end-user. The consequence of this change is that the integrator and the Value Added Distributor, who have IT-knowledge to a great extent and whose core competence it is to set up the server for the end-user, can no longer generate revenue with setting up the server.

7.1.2. Configuration

This change is about the transition from flexible configuration towards auto-configuration, which results in a configuration that can be more simple. For a channel partner, this change will have substantial consequences. The activities/tasks regarding the configuration will be reduced (Appendix 13). In paragraph 5.2., it was mentioned that it is doubtful whether this change will be disadvantageous or advantageous for the channel partner whose core competence it is to configure the access control system (Appendix 3).

Integrator

The configuration of the access control system is a core competence of the integrator. On the one hand, the fact that the activities/tasks regarding the configuration will be reduced will be disadvantageous for integrators, because it seems to reduce the revenue which can be generated by the integrator. On the other hand, the fact that the activities/tasks regarding the configuration will be reduced can also be advantageous for integrators. At the moment, the configuration of TS Access Control is very complex. This means that it takes substantial time to configure TS Access Control and the complexity also increases project risk. Integrators want to be involved in as many projects as possible. As the configuration becomes 'easier', in the future situation, these channel partners will be able to take on more projects.

In short, it can be remarked it does not necessarily have to be a disadvantage for the channel partners, whose core competence it is to configure the access control systems, when the configuration becomes easier.

Value Added Distributor (VAD)

The (pre-)configuration of the access control systems is a critical core competence of the VAD. When the configuration becomes a lot easier (step 2), this will result in a substantial reduction of the work to be executed by the Value Added Distributor. The fact that the activities regarding the configuration are reduced means that the revenue which the VAD can generate, with executing these activities, will be reduced. For the VAD this means that there are fewer possibilities to add value.

What applies to the integrator also applies to the VAD; the reduction of the required activities regarding configuration can be seen as an advantage. Where the number of worked hours to (pre-)configure the access control systems may reduce and the added value of this activity seems to decrease, the VAD will be able to take on more projects. When the VAD wants to take on more projects it is dependent on the small installers within their network. In the current situation, the VAD sells off-the-shelf-systems, which are pre-configured, to small installers (Appendix 3). These small installers take on one or two projects regarding the installation of the access control systems. This may not seem sufficient, but since a VAD has numerous small installers within its network, the VAD still sells enough off-the-shelf systems to these small installers. When the configuration becomes easier, a great part of the configuration can be executed by the small installer himself.

It seems possible for the VAD to still generate (sufficient) revenue regarding configuration by expanding their network of small installers. These small installers may become interested in taking on more projects regarding the installation of access control systems because they can execute more activities in the commissioning phase. These small installers will still need help with the activities in the commissioning phase they cannot manage. So, these activities can still be executed by the VAD. The fact that the small installer may take on more projects regarding the installation of access control systems enables the VAD to help these small installers in more projects. Expanding the network of these small installers will further increase the projects regarding the installation of access control systems, with which the VAD can help in the commissioning phase.

In conclusion, the reduction of the required activities regarding the configuration means that the revenue which can be generated by the VAD by (pre-)configuring the access control systems, will be reduced. So the added value of the VAD will decrease regarding the configuration of access control systems. However, the VAD can still generate substantial revenue regarding the configuration by expanding their network of small installers and thus taking on more projects.

Financial

Despite the reduction of the required activities regarding the configuration, the integrator and the VAD can still deliver added value, because the systems within the building of the end-user still need to be configured. For the integrator, the future situation seems clear. The integrator may even generate more revenue with the configuration of the access control systems because it can take on more projects.

The future situation of the VAD requires more explanation. The small installers within the network of the VAD will be able to execute some tasks of the configuration,

but some tasks will still be executed by the integrator or Value Added Distributor. Because it becomes easier to configure the access control systems, the small installers, within the network of the VAD, seem to be able to execute some tasks regarding the configuration themselves. The remaining tasks regarding the configuration will then be executed by the VAD. So, it seems that the tasks regarding configuration will reduce, but the capabilities and IT-knowledge of the VAD are still needed to configure the access control systems.

The fact that the number of worked hours to (pre-)configure the access control systems will reduce, does not necessarily mean that the VAD will generate less revenue with the configuration of the systems. For the VAD it seems also possible to generate the same revenue (or even more) with the configuration of the access control systems because the VAD seems to be able to take on more projects regarding access control systems. By taking on more projects, the VAD can logically generate revenue by (pre-)configuring access control systems. The VAD can take on more projects by expanding their network of small installers that need help with the configuration of the access control systems. As noted before, in the current situation the small installers take on a project regarding the installation of access control once or twice a year and sometimes even less. These small installers may become interested in taking on more projects regarding the installation of access control systems because they can execute more activities in the commissioning phase. For this reason, the VAD will also be able to take on more projects.

7.2. Engagement of the different channel partners in the aftercare phase

In chapter 5 and 6, it was mentioned that there will be changes in the aftercare phase when Tech Solutions wants to offer ACaaS. These can be roughly divided into the transition towards Customer Success Management, which consists of reactive customer support and proactive customer support, and Key Account Management focused on upselling.

7.2.1. Reactive customer support

Customer Success Management consists of reactive customer support and proactive customer support. Reactive customer support consists of reactive customer support with regard to hardware and reactive customer support with regard to software. The reactive customer support with regard to software will be executed by Tech Solutions (with the end-user as first-line support). The reactive customer support with regard to hardware will be executed by the channel partner (with the end-user as first-line support). This means that the channel partner will be responsible for the maintenance/ replacement/adjustment of hardware components in order to solve hardware problems of the end-user. Especially the channel partners which are established in the country of the end-user or at least channel partners which are familiar with the regulations (regarding access control) in the country where the hardware is installed, will provide reactive customer support with regard to hardware. Most often, installers comply with these requirements. So, the installers, the company which installed the access control systems in the building of the end-

user, will ordinarily be responsible for the reactive customer support with regard to hardware.

Financial

The way in which the channel partner, mostly the installer, can generate revenue with reactive customer support with regard to hardware, is documented in the maintenance contract. Three ways of generating revenue by executing reactive customer support with regard to hardware are distinguished.

First, an Service Level Agreement (SLA) can be chosen. This means that the end-user can always call the channel partner (mostly the installer); it does not matter how many breakdowns occur, the channel partner replaces/adjusts the hardware. In this SLA it will also be documented how many maintenances will be executed in a given period. The end-user pays a fixed amount per month for this. The maintenance/ /replacement adjustment of materials and the hours spent on these activities are all included in this fixed price per month.

Second, it is also possible that the end-user pays a certain amount each time the channel partner (mostly the installer) visits this end-user. This means that the installer is called and maintains/replaces/adjusts the products and then sends an invoice to the end customer. The amount paid by the end-user will increase as more hours are worked and more materials are replaced or adjusted.

Third, it is also possible to combine the above-mentioned ways of generating revenue by executing reactive customer support with regard to hardware. In an SLA it can be agreed that the end-user pays the channel partner (mostly the installer) for having employees 24/7 available to solve hardware-related problems. The call-out charge and the cost of materials will then be charged separately.

7.2.2. Proactive customer support

Proactive customer support is about optimizing a product or service for an end-user. Observing and talking to end-users, analyze and interpret customer data are activities which are required in order to provide proactive customer support. The output of the analysis and interpretation of the customer data are used to make decisions about the resource allocations and features which need to be offered to the end-user. As operational services are aimed at product efficiency and product effectivity, the operational services can be seen as a part of proactive customer support. So in this paragraph, it will be determined in what way the channel partner is engaged in the provision of proactive customer support. So, the way proactive support will be provided also describes how the channel partner is engaged in providing proactive support.

In chapter 6, it was determined that proactive customer support will be offered using a hybrid approach. The hybrid approach to provide proactive customer support can be implemented in two ways. First, Tech Solutions can use a triadic collaboration to provide Customer Success Management. This will mean that three actors are involved in providing Customer Success Management. In practice, this will mean that the channel partner who provides reactive customer support with regard to hardware also provides proactive customer support, in cooperation with Tech Solutions.

Second, Tech Solutions can use a tetradic collaboration to provide Customer Success Management. This will mean that a particular channel partner of Tech Solutions will perform repair and maintenance of the hardware and another partner (second partner) analyzes the customer data. So, a particular channel partner is responsible for the reactive customer support with regard to hardware and another partner will be responsible for proactive customer support. So, if Tech Solutions implements a tetradic collaboration to provide Customer Success Management, this will mean the channel partner is only responsible for the reactive customer support with regard to hardware and not for the proactive customer support.

Financial

Whether the channel partner can generate revenue with proactive customer support depends on the hybrid approach which is used to provide Customer Success Management. If a triadic collaboration is used to provide Customer Success Management, the channel partner can certainly generate revenue with the provision of proactive customer support. If a tetradic collaboration is used to provide Customer Success Management, the channel partner cannot generate revenue with the provision of proactive customer support.

If it is decided to suppose that a triadic collaboration is used, the channel partner can generate revenue based on agreements documented in an SLA. In this SLA, the fixed amount which the end-user has to pay in a certain period of time must be determined. For example, the end-user pays a fixed amount for proactive support every month. The amount which has to be paid is determined by the frequency and level of the analysis and interpretation. To put in differently, the price depends on how many times reports are delivered to the end-user and what the level of these reports are. The level and frequency of the analysis and interpretation of the customer data will be aligned with the need of the end-user.

7.2.3. Key Account management focused on upselling

As argued above, within the provision of proactive customer support, recommendations will be made to end-users to purchase additional features. This will be done in order to improve performance and/or better meet the demand of the end-user. Key account management anticipates this. So, key account management must be aimed at selling additional services or features to improve the performance of the access control systems and to meet the demand of the end-user. This principle can be described as upselling. Whether the channel partner will be engaged in executing key account management depends on the hybrid approach which is used to provide Customer Success Management. If a triadic collaboration is implemented, this will mean that the channel partner who provides reactive customer support with regard to hardware also provides proactive customer support, in cooperation with Tech Solutions. When this type of collaboration will be used for proactive customer support, it seems logical that the channel partner, who is responsible for reactive customer support with regard to hardware and provides customer data reports to the end-user, will also be responsible for the key account management which is focused on upselling.

If a tetradic collaboration is implemented to provide Customer Success Management, this will mean that a particular channel partner of Tech Solutions will perform repair and maintenance of the hardware and another partner (second partner) analyzes the customer data. So, the channel partner who is responsible for the reactive customer support with regard to hardware, will not be responsible for the key account management which is focused on upselling.

Financial

If it is decided to suppose that a triadic collaboration is used and thus involves the channel partner within the provision of proactive customer support, the channel partner can generate revenue by executing Key Account management focused on upselling.

The financial reward for performing key account management focused on upselling can be arranged by a kickback fee. The first option is earning revenue based on a fixed kickback fee. This means that the channel partner will receive a fixed amount every time they sell an additional software feature. The second option is that the channel partner receives a kickback fee based on a certain percentage of the amount the end-user pays for the additional software feature.

8. Conclusion and Discussion

In this chapter, an overview will be given of the conducted research. This overview consists of a conclusion, discussion, theoretical contribution, practical contribution, limitations of the research and recommendations for future research.

8.1. Conclusion

This study used design research and interviews to gain more insight in the consequences for the role of the channel partner, within the process from the commissioning phase until the aftercare regarding access controls, when Tech Solutions implements a servitization strategy. In addition, it was also investigated in what way the channel partner can be engaged within this servitization strategy.

As remarked in the introduction, Tech Solutions wants to achieve the fourth stage of the servitization process, which can be described as offering the product as a service. It has been a conscious choice to not elaborate on the payment model that will be used. This was decided because it would extend the scope of the research to an excessive extent. In the introduction, it was also noted that it was not determined yet whether the ownership of the product, the access control hardware, stays at Tech Solutions or still transfers to the end-users. In this research, this decision has not been made, because it would also extend the scope of the research to an excessive extent. In addition, these choices regarding the payment model and the ownership of the product do not seem to have a direct impact on the role of the channel partner. This research was mainly aimed at investigating how the last stage of the servitization process could be achieved and the consequences of this transition for the channel partners. In this research, a scenario was created to identify the possible changes when the product (access control) will be offered as a service. These changes consist of:

- the activities regarding setting up the server which are no longer needed;
- the configuration which becomes easier (transition from flexible configuration towards auto-configuration);
- the transition from maintenance services towards operation services;
- the implementation of Customer Success Management;
- Key Account management which will be more focused on upselling.

The changes in the commissioning phase, the activities regarding setting up the server which are no longer needed and the configuration which becomes easier, especially influenced the integrator and the Value Added Distributor. The former will create a value conflict because the activities, thus the revenue which can be generated, regarding setting up a server, will no longer exist. The latter can be advantageous for the integrator and the Value Added Distributor because these types of channel partners can take on more projects. It needs to be taken in account that the Value Added Distributor will depend on its network of small installers when it wants to take on more project because the Value Added Distributor helps small installers with the configuration of the access control systems.

The remaining three changes occur in the aftercare phase. These changes can be advantageous for channel partners. If a triadic collaboration is chosen to provide

Customer Success Management, the channel partner can be engaged in the provision of reactive customer support with regard to hardware and the provision of proactive customer support. The channel partner will then independently execute reactive support with regard to hardware. Most often this reactive support will be provided by an installer. Proactive customer support will be provided in cooperation with Tech Solutions. If the triadic collaboration will be used to provide Customer Success Management, the channel partner will also execute key account management focused on upselling. This key account management is logically aimed at the end-users of a certain channel partner. It has been a deliberate choice to not describe which type of channel partners can provide proactive customer support and the key account management focused on upselling. The reason for this is that, for example, installers can be very different from each other. Unica (installer) has acquired NSecure (an integrator). Therefore Unica may have the willingness and the ability to develop the capabilities to provide the above-mentioned activities, but a small installer will not have this willingness and ability. Therefore, it has been noted that the channel partner must have the willingness and ability to develop the necessary capabilities to provide proactive customer support and key account management focused on upselling.

In short, it can be stated that the consequences of offering ACaaS, in other words, servitization, for the role of the channel partner are identified. The channel partner can still be engaged in the process from the commissioning phase until the aftercare regarding access control systems. Within the commission phase, the integrator and the Value Added Distributor can still be engaged. In the aftercare phase, all types of channel partners can generate revenue, on condition that they have the willingness and ability to develop the capabilities for this. The development of these capabilities can be realized by training offered by data analysts/specialists of a company, hired by Tech Solutions, which has the knowledge and capabilities to analyze and interpret customer data (regarding access control).

8.2. Discussion

In the discussion, a reflection will be given on the results of this research. These results will be compared with existing literature from chapter 2, theoretical background. In the chapter “future situation” the consequences of the changes within the commissioning phase and aftercare regarding access control systems were described. These consequences confirmed what has been described in the literature.

8.2.1. Horizontal and vertical relationships

As discussed in the theoretical background, cooperative relationships between vertical actors are easy to grasp as they are usually visible and built on a distribution of activities and resources among actors in a supply chain (Bengtsson, 2000). In the future situation, these vertical relationships will also be present. A part of the channel partners will still sell the access control systems of Tech Solutions to the end-user.

Horizontal relationships will also be present in the future situation. There will be a mutual dependence between Tech Solutions and the (channel) partners, which

is, according to Ring and Van de Ven (1992), a characteristic of a horizontal relationship. So, Tech Solutions and its (channel) partners will cooperate and coordinate their efforts in order to provide maximum value to the external customer. Especially the Customer Success Management, which will be provided by Tech Solutions and its (channel) partner, is aimed at providing maximum value to the external customer. Within the provision of Customer Success Management, Tech Solutions and its (channel) partner will share information, facilities or resources with each other with the goal of improving service.

8.2.2. Impact of servitization on business relationships

In the theoretical background, it became clear that servitization has an impact on business relationships. Servitization will colour and shape the strategies and relationships of companies and requires companies to be engaged in multi-organizational collaborations in order to facilitate greater levels of information and knowledge exchange, and increased interdependency (Vandermerwe & Rada, 1988 ; Johnson & Mena, 2008). A substantial amount of researchers remark that the external work, i.e. closely integrated partners or third partners, is of great importance to offer services (Ahvenniemie, Nenonen, & Martinsuo, 2013 ; Baines, Lightfoot, Peppard, Johnson, Tiwari, & Shehab, 2009b ; Binder & Clegg, 2007 ; Cohen, Agrawal, & Agrawal, 2006 ; Windahl & Lakemond, 2006). This is also the case in the future situation. In this situation, when a servitization strategy is implemented, Tech Solutions still needs its partners in order to configure the access control systems, provide customer success management and key account management focused on upselling.

The aim of working together with a third party is to create an effective service delivery. Firms within a servitized environment can work together with third parties in order to acquire a high degree of knowledge about a particular product and the business environments and organizations targeted (Lockett, Johnson, Evans, & Bastl, 2011; Sacconi, 2014). In addition, Oliva and Kallenberg (2003) stated that the info exchanges between these firms and third parties should be intense and bidirectional in order to provide greater knowledge of the end customers. It has been found that in the provision of Customer Success Management, especially within the provision of proactive customer support, a high degree of knowledge about the analysis and interpretation of data regarding the access control systems is required. For Tech Solutions, there are two ways of ensuring that this knowledge will be present. First, a (channel) partner can be trained by data analysts/specialists of a company which has the knowledge and capabilities to analyze and interpret customer data (regarding access control). These data analysts/specialists need to be hired by Tech Solutions. Second, Tech Solutions can work together with a consultancy company which is specialized in analyzing and interpreting customer data.

8.2.3. Frictions and deformation in relationships with channel partners

In the theoretical background, it was stated that there will be frictions and some type of deformation in the relationship between supplier, existing types of channel partners and end-users when new paths are created.

As discussed in the introduction, current and future actions or decisions depend on the path of previous actions or decisions (Page, 2006). This can be described as path dependency. So, it is not possible to just ignore the existing channel partners and put these channel partners aside (Håkansson & Waluszewski, 2011). These researchers also argue that there will be friction, whenever there is movement of a resource in relations to another resource. The results of this research confirm the results of Page (2006) and Håkansson and Waluszewski (2011). It has been found that frictions may occur in the relationships with existing channel partners occur in the commissioning phase. The activities regarding setting up the server will no longer be needed. This may cause value conflicts between Tech Solutions and the integrator and Tech Solutions and the Value Added Distributor, which is visualized in Matrix 3. These value conflicts can be seen as frictions.

In the theoretical background, it was also discussed that frictions may arise in the relationship between supplier, channel partners, and end-users when new paths are created in order to offer ACaaS (Håkansson & Waluszewski, 2011). "New paths" is a generic term for all situations in which a company is moving in a new direction. Taking into account the principle of 'path dependency' it seems important to engage its existing types of channel partners in the servitization strategy. As mentioned earlier, servitization will colour and shape the strategies and relationships of companies. So there will be some type of deformation in the relationship between the firm and its partners (Håkansson & Waluszewski, 2011). In this research, it can be concluded that activities regarding the configuration of the access control systems, within the commissioning phase, will be reduced. This can be advantageous for the integrator, which is visualized in Matrix 4, but will create some type of deformation in the relationship between the integrator and Tech Solutions. To anticipate this deformation, integrators must develop their company in order to be able to take on more projects. For the Value Added Distributor, this can also be advantageous, but the change also creates some type of deformation in the relationship between the Value Added Distributor and Tech Solutions. These Value Added Distributors can also anticipate this deformation by developing their company in such a way that they will be able to take on more projects. The number of projects they can take on will depend on how many projects the small installers, within the network of the Value Added Distributor, will take on. It was also found that the changes within the aftercare phase will create some type of deformation between channel partners and Tech Solutions. So, this will also necessitate these channel partners to anticipate this deformation in order to be engaged in the servitization strategy which will be implemented by Tech Solutions. Especially for the provision of proactive customer support and the associated key account management focused on upselling, channel partners need to anticipate. To provide proactive customer support the channel partner gets access to customer data. To provide this proactive support, Tech Solutions needs to enter into collaborative relationships where partners engage in collective activities with common enterprise goals (Binder & Clegg, 2007). When the channel partners have the willingness and the ability to develop the required capabilities to provide proactive customer support and to execute key account management focused on upselling, they can generate revenue with these activities. So, the results of this research supported the theory which remarks that there will be frictions and some type of deformation in the relationship between supplier and its existing types of channel partners when new paths are created.

In this study, specific research has been done into the changes in the role of the existing channel partners when changes occur as a result of servitization. So, the “new paths” in this research, can be described as moving in a new direction on a strategic level. However, it has been decided to limit the investigation to the commissioning- and aftercare phase regarding access control systems. For this reason, it is possible to examine the consequences for certain services within these phases, when access control will be offered as a service, in detail. In addition, it is not only found in what way deformation will take place in the relationship with existing channel partners with regard to aftercare, but it is also indicated, at a detailed level, how the existing channel partner will need to adapt in order to be engaged in the newly emerged activities in the aftercare phase as well.

8.3. Theoretical Contribution

This contextually driven design research is purely focused on the consequences regarding the relationship between a supplier (Tech Solutions) and its existing channel partners when new paths are created to enable offering Access Control as a Service. This research confirmed what has been discussed in literature about the impact of servitization on business relationships, which was described in the introduction and the theoretical background. In addition, this research also made its contribution to this literature.

This research confirmed that servitization has an impact on business relationships. It was found that friction and some type of deformation in the relationship between supplier and existing types of channel partners will occur when new paths, in this research the implementation of a servitization strategy, are created (Håkansson & Waluszewski, 2011). In addition, it was also concluded that ‘path dependency’ must be taken into account. It is not possible to just ignore the existing channel partners and to put these channel partners aside (Håkansson & Waluszewski, 2011).

The contribution of this study consists of different parts. First, this case study determines what the consequences are for the role of channel partners when changes occur in the commissioning and aftercare phase regarding access control systems to enable offering Access Control as a Service. So, this research contributed to the literature focused on the impact of servitization on business relationships, because it analyzes the impact of servitization on business relationships for specific activities within a delivery process of a certain firm. In addition, this study investigates in what way the different types of existing channel partners can be engaged within the commissioning and aftercare phase regarding access control systems. So, this research contributed to the literature focused on the impact of servitization on business relationships, by creating a design to engage existing channel partners in a servitization strategy. In other words, this research makes recommendations how to handle frictions and deformation in the relationships between a supplier (Tech Solutions) and its existing channel partners, which occur when a servitization strategy will be implemented. In short, it can be remarked that this research contributed to the research agenda which is interested in the change of the role of existing channel partners as a result of servitization.

It has been found that the “new paths”, which need to be created when Tech Solutions will offer ACaaS, can cause frictions and need some type of deformation in

the relationship between Tech Solutions and its existing channel partners (Page, 2006 ; Håkansson & Waluszewski, 2011). In addition, this research investigated, in detail, in what way these frictions and deformations can occur and in what way channel partner can anticipate these deformations in order to be engaged in the new servitization strategy.

8.4. Practical Contribution

The empirical findings in this contextually driven design research provide a new understanding of the consequences of servitization for existing channel partners and the engagement of these existing channel partner within a servitization strategy. Since the scope of the research is aimed at the commissioning- and aftercare phase regarding access control systems, this research only provides this new understanding for these phases.

The outcome of the study will help the company and other firms to better understand what are the consequences of servitization, within certain phases in the product-service delivery process, for the role channel partners. In this case the delivery process of access control systems. The study also portrayed in what way existing channel partners can be engaged in certain phases in the product-service delivery when a servitization strategy will be implemented.

This research also provided some recommendations. Integrators and Value Added Distributors are recommended to take on more projects because the activities regarding setting up the server will no longer be needed and the activities regarding the configuration of the access control system will become easier and will be needed to a lower extent. The reactive customer support with regard to hardware does not seem to require adaptations of the existing channel partners. The channel partner (mostly installers) also provide maintenance and customer support with regard to hardware in the current situation.

To engage existing channel partners in the provision of proactive customer support, these existing need to adapt to these newly emerged activities. These existing channel partners need to develop capabilities to analyze and interpret the data of end-users who use the access control systems. These capabilities can be developed by training provided by data analysts/specialists of a company which has the knowledge and capabilities to analyze and interpret customer data (regarding access control). This company should be hired by Tech Solutions. When a channel partner develops the capability to analyze and interpret the data of end-user who use the access control systems, this channel partner should also be able to execute Key account management focused on upselling. The channel partner must be willing and able to adjust to the changed circumstances which occur due to the transition towards offering Access Control as a Service.

As stated in chapter 7, the way to handle the frictions within relationships between Tech Solutions and its existing channel partner, which occur as a result of servitization, requires adaptations of Tech Solutions and especially the existing channel partners. Changes are requested from the existing channel partners to provide proactive customer support and key account management focused on upselling. These changes can only be made after careful deliberation of the existing channel partners.

8.5. Limitations

Every research has its limitations. This research also has its limitations:

Scope of the research

This research was aimed at the commissioning- and aftercare phase regarding access control systems. The possible changes in the preceding phases were not investigated. It would have been better to investigate possible changes in the preceding phases in order to get a clear picture of the consequences of servitization in the whole process; the process from end-user request until the aftercare regarding access control systems. The choice has been made to narrow the scope of the research by only examining the changes in the commissioning and aftercare phase because otherwise, the scope of the research would extend to an excessive extent

Number of participants in the workshop

There were four participants who participated in the validation workshop. When more employees of the firm participated, it may resulted in more and different insights. With more participants, there are more opinions, and therefore more discussion, which could have led to a better and more comprehensive description of the scenario, which describes what Tech Solutions requires from its existing types of channel partners when ACaaS will be offered.

Qualitative interviews

The qualitative interviews were only conducted with employees of Tech Solutions. A company which is not servitized yet. However, a number of the people interviewed already had experience with this transition because they have been working for another company which made this transition. So, some of the interviewees seem to have enough knowledge about servitization to deliver valuable input for this research. It has been decided to not conduct interviews with existing channel partners because these channel partners are not yet aware of the transition towards ACaaS, which could harm the current relationship with these existing channel partners.

Case Study

This research is based on a single case study, which is a limitation of the research. Hence, the possibility to generalize is restricted. It would probably be better to perform a multiple-case study when the aim of the research is generalization.

8.6. Future Research

This research brings some questions in need for further investigation. To achieve a good implementation of the new servitization strategy it is important to identify all consequences of servitization in all phases within the process of delivering a product-service system. So, in this research, all consequences of servitization need to be identified for all phases, from end-user request until the aftercare regarding access control systems. By doing this, it can be determined what the consequences are for the whole role of the existing channel partner. It can be decided which

activities can or must be executed by channel partners in order to deliver a product as a service. With executing these activities, channel partners can generate revenue.

In this research, it was remarked that the channel partner must have the willingness to develop capabilities to analyze and interpret the data of end-users using access control systems. It needs to be determined which (types of) existing channel partners are willing to develop these capabilities. This can be done by having conversations with existing channel partners, but it needs to be taken into account that this could harm the current relationship with these existing channel partners.

Two recommendations for future research derive from chapter 6. First, it was remarked that two hybrid approaches can be used to provide customer support, because operational services, which is part of proactive customer support, need to be provided in cooperation with the channel partner according to a specific theory. In practice, it also seems possible to internalize the proactive customer support. If this is the case, Tech Solutions needs to develop the capabilities to analyze and interpret customer data. So, future research can be aimed at investigating the option to internalize proactive customer support; it should be researched, supported by literature, in what way the proactive customer support can be internalized by Tech Solutions.

Second, it has been noted that software features are 'feature upselling candidates'. So, software features are suitable for upselling. It seems that more products and services in the aftercare phase are suitable for upselling. For example, the training of the end-user in order to improve the performance of the access control systems and to meet the (changed) demands of the end-user. This type of training can be provided to the end-user. These end-users will be trained on how to use the system better. For example, this type of training can be suitable for upselling, based on the level and frequency of the training. Another service which can be suitable for upselling is the service of analyzing and interpreting the data of the end-user who uses the access control systems. This service can also be suitable for upselling based on the level and frequency of this service.

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