Value-in-use creation from a multi-actor perspective in the primary care and in POCT's.

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Preface

My name is Ernst-Joost van Holten and this research is written in order to obtain my Masters degree International Business Administration at the University of Twente. I followed the track Innovation & Entrepreneurship. This research concerns the concept of value-in-use, using a multi-actor perspective in a value-creating network when regarding several POCT methods.

As a child of a General Practitioner and little brother of a resident clinical chemistry I was raised with medical insights. This research shows a combination of personal interests, health care, and my study, business administration. My father always said that health care doesn't need managerial insights and that it should be focussed on getting people better. Of course I agree that health care should be focussed on getting people better, but in this fast changing environment neglecting managerial insights can be devastating for health care organizations.

This research can provide the medical world an example that there is lots of room for managerial insights and that it can be really helpful to use these insights. And for me personally I'm the one connecting my dad, the GP, with my brother, the clinical chemist. You can imagine that I was really enjoying carrying out this research. I hope you enjoy reading this paper as much as I enjoyed writing it.

List of abbreviations.

DVU= Diagnostiekvooru.

DZ= Deventer Hospital.

DZL = Deventer Hospital Laboratory.

JBZ= Jeroen Bosch Hospital.

JBZL= Jeroen Bosch Hospital Laboratory.

GP= General-Practitioner.

POC= Point-of-care.

POCT= Point-of-care Testing

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2.1 Introduction.

The health-care sector is subject to multiple changes within the Netherlands. First of all, market forces are implemented within the Netherlands in the health-care sector. This enables competition[1] and means that healthcare organizations need to be more efficient and effective. Besides the shift towards a more competitive environment within the health care sector, the aging society is increasing as well. In 1991, 12, 8% of the Dutch population could be categorized as aging while in 2011 this percentage had grown to 15,6. Since elderly are consuming more health-care related services, and thereby increasing workload of hospitals, this increases the need for quick results and faster diagnosing, to be able to provide the health care needed for the changing society.[2]

Although both of these trends are more a concern of the Dutch society there is a global trend as well, which is related to the POCT service concepts. Almost fourty countries are bundling forces to reduce antibiotic usage.[3]

Point-of-care-testing (POCT) can contribute to be more efficient and effective and in the same time create a better patient experience by providing better and quicker healthcare.[4] POCT is performing laboratory diagnostics in the presence of a patient and enables immediate results Vermeer (2010) beliefs that implementing a POCT service concept successfully enables hospitals to perform laboratory diagnostics without their own laboratory. Everything will happen next to the bed; fast, reliable and cheap.[5]

This research examines POCT methods in primary care and its value creation for its actors. Using cases of the Jeroen Bosch Ziekenhuis (JBZ), Deventer Ziekenhuis (DZ) and DiagnostiekVoorU (DVU). POCT is not new; nevertheless POCT is currently being re-designed. Where the current way of POCT is mostly focussed on easy, quick

[1] See Volkskrant (2012)
[2] See CBS (2014)
[3] See Nu.nl (2014)
[4] Volkskrant (2012)
[5] See Vermeer et al. (2010), p. 37.

diagnostic tools laboratories are currently re-designing this system towards a more reliable, accurate and integrative version of POCT. Creating such a system requires a network of actors. Besides, knowledge is needed for the different value-in-uses for the different actors. In other words, what aspects of a market offering do actors value most when using this market offering?

The research of Hofland et al. showed that most GP's value high accuracy and high reliability. This shows a positive relation. When accuracy and reliability increases value increases as well (+).[6] However, this research seems to be insufficient for creating and sustaining value-in-use among several actors within a POCT network of actors. The variables of value seem to be insufficient for considering value-in-use for POCT. Besides, this research was performed from a single-actor perspective, since there were only GP's examined in this research.

Yet, value-in-use is largely unexplored. Customer preferences, and the characteristics of a product matching those preferences, were traditionally considered to be valuable for a buyer. Kothadaraman et al. said that formally, "*…firms must create better value than their competitors…"* No longer the focus is on creating valuable market offerings for buyers but *"…to create better value, managers must fully integrate the resources to use the core capabilities of the firm to deliver a product that fully satisfies the needs at a competitive price, which means creating superior value for the customer."*[7] But how can this concept of value be seen nowadays? Value used to be considered as created by the suppliers. Then it shifted into the service-dominant logic, which considers value as being co-created by user and supplier.[8] Lately there is a shift more towards the difference between market value and value-in-use. Market value is focused on a search for additional features of products, which increases price. For instance, more attention for different colors, styles and/or upgrades in order to increase sales prices. Nowadays, not the preferences of customers is considered to be the value of a market offering, but the value-in-use is considered to be much more important. A lot of organizations are struggling with this idea of value-in-use because the buyer is not only the consumer but is also the judge of a specific product.[9] This means that colors, styles and upgrades are no longer decisive but simply the fact that every increase in

[6] See Hofland et al., p. 3.
[7] Kothandaraman (2001), p. 380.
[8] See Vargo, S.L. & Lusch p. 2.
[9] See MacDonald et al. (2010), p. 671.

price, results in an increase in functional usage of a market offering.[10] In case of POCT, every spend euro should increase the value-in-use of the GP, laboratory or other actors.

Anderson & Narus (2004) consider value as: *"The worth in monetary terms of the economical, technical, service and social benefits for a consumer company receives in exchange of the price it pays for the market offering."* [11] This definition indicates that Anderson & Narus (2004) mention different determining factors, which influence value. These *value-boosters* are economical, technical, service and social aspects of value. For instance the POCT method's value-in-use for a GP could be increased when it shows social benefits like decreasing usage of antibiotic. Value is not the same for everyone and therefore it is good to consider value as interactive, in our example someone could fancy the POCT method because of its social benefits or perhaps because it is more reliable or is easier to use while for others these characteristics of a POCT method is not valuable at all because they might want a method, which decreases costs for them.

As value is not created solely, the network of actors should be considered as well. The focus on value-creating network derives from increasing complexity in the world. The analytical tasks of managers show growing complexity due to the increasing importance of value-in-use from a multi-actor perspective.[12] Therefore more attention in literature went to creating a clear understanding of these concepts. This research will contribute to that.

2.2 Problem statement.

Nowadays, customer value is not determined solely by a producer of a market offering. Value depends on how the different actors, which use this market offering, consider the added value of a market offering. Pinch & Bijker (1987) conducted a research concerning the different interpretations of technological artefacts. They observed several social groups (e.g. consumers and users), in this research called actors, in order to determine these different interpretations of a technological

[10] See MacDonald et al. (2010), p. 677.
[11] Anderson & Narus Ch.1. (2005), p. 6.
[12] See Kothandaraman et al. (2001), p. 379.

artefact.[13] When considering businesses again, these different actors can be producers, suppliers, users etc. In perspective of this research these actors can be clinical chemists, GP's or intermediaries. For all of these actors the market offering could have different value boosters. As mentioned before POCT will be used to examine the principle of value-in-use from a multi-actor perspective. POCT needs a solid integration of appliances, networks and collaboration between actors.

To create a solid, sustainable and competitive way of creating value it is important for companies to realize the different value judgements of actors surrounding their market offering. In literature the urge of a multi-actor perspective is considered to be more and more important to create a competitive advantage.

Besides the need for a multi-actor perspective, a closer look at value itself is needed. Value is not within a technology it self, but is created by the use of the technology. Value-in-use is a concept, which focuses on the fact that every euro spend on a product should improve the use of the product.[14] In literature there is an increasing focus on value-in-use. As Ostrom et al. (2010) stated there is a need for …*"creating and enhancing tools for capturing value in use for services and communicating value to customers"*[15] There is a need for additional for theory for the concept of value-in-use and how it interacts within its actors. Does this concept still stands when considering primary care? Therefore, this research examines several POCT service concepts, within the primary care, from a multi-actor perspective using a multiple-case study research design. To combine the concepts of a multi-actor perspective and value-in-use the question raises how to create and sustain a network in which value-in-use for the different actors is created. This is the research question of this research:

"How can value-in-use be created and sustained from a clustered multi-actor perspective in the medical sector, concerning the POCT concept?"

Before it is possible to investigate this research question there is a need for a more comprehensive understanding of the concepts. The first two sub-questions contribute to that.

1. *What is value, value-in-use and what drives value?*
2. *What is a multi-actor perspective and can there be difference in the value-in-use of actors?*

[13] See Pinch & Bijker (1987), p. 18.
[14] See MacDonald et al. (2010), p. 671-673.
[15] Ostrom et al. (2010), p. 26.

Besides the theoretical sub-questions there are two empirical questions, which need to be answered before the main research questions can be answered.

3. *What is value-in-use generated by POCT and what are the main value-boosters within the network of POCT?*
4. *How does the relationship between POCT provider and actors look like and how can these contribute in a value-creating network?*

In order to answer these questions a comprehensive literature review is done using the most important and up-to-date articles available when considering value, value-in-use and value-creating networks. This comprehensive literature review provides answers to the first two theoretical questions.

After the literature review a multiple-case study design is used to view this concept in a primary care perspective concerning POCT. This research followed the example of Brown & Eisenhardt (1997) whereby first every POCT method will be considered as a single-case study and later on will be cross-case analyzed. This multiple-case study answers the last two questions of this research.

There are a few contributions to be made. First, further knowledge is created on value creation from a network/multi actor perspective in the primary care industry, which so far is largely unexplored. Second, the POCT service concept will benefit from the knowledge created, which helps the JBZ to establish a proper value creation strategy based on the previous concepts.

3. Theoretical framework for examining the POCT service concepts.

3.1 Introduction.

This chapter can be seen as a journey through the concepts of value, value-in-use and the multi-actor perspective. It first describes what value is, how it was seen and how it is seen nowadays. Besides, it gives clear insights what drives value. After creating a clear understanding of value, value-in-use is explained. What is value-in-use? The third topic of this chapter is the multi-actor perspective. What is a multi-actor perspective? Do these actors perceive value differently? These two topics will answer the first two sub-questions mentioned in chapter 2.2. The last topic is more focussed on the case study. What is POCT? What actors are concerned with POCT? These insights provide an answer to the third sub-question.

3.2 Value

A lot of attention in literature went to the concept of value. Value is used to express, in monetary terms, the functionality and/or performance of a certain market offering in a certain perspective.[16] Ulaga (2001) stated that it is becoming more and more relevant for companies since its becoming part of businesses' strategies.[17] According to Thomas & Wilson it is essential for a company to fully understand customers' perspective on value in order to have success as a company.[18] As Anderson & Narus (2005) said value is the cornerstone of business market management. They define value as *"...the worth in monetary terms of the economic, technical, service and social benefits a customer firm receives in exchange of the price it pays for the market offering"*[19] This definition of value is shared Gummesson (2003).[20]

[16] See Anderson & Narus Ch.1. (2005), p. 5.
[17] See Ulaga (2001), p. 315.
[18] See Thomas & Wilson, p. 2.
[19] Anderson & Narus Ch.1. (2005), p. 6.
[20] See Gummesson (2003), p. 483.

All of the articles concerning value show a common thread. Value is considered as the amount of benefits versus the expenses made by the customers.[21] In this research the following aspects of value are taken into account.

1. The benefits for the consumer by using knowledge, feel for the market and possibility to get access.
2. The worth in monetary terms, keeping in mind that value differs for different users although the market offering might have multiple qualities. Distinction should be made between *use* value and *exchange* value.
3. The price it pays for the market offering. A good trade-off between benefits and sacrifices for the consumer company.

A company needs to recognize that value needs to be *real* and not only assumed.[22] When functionality and performance are lowered it does not mean that it does not meet customers' needs anymore. Meeting this *real* value is the main topic of the service dominant logic. This service-dominant logic (SDL) is considered as the contrary of the goods-dominant logic (GDL).

Ballantyne & Varey (2006) add knowledge renewal, communication interaction and relationship-development to the basis of fundamental exchange.[23] These concepts all reflect to the definition of Anderson & Narus (2001), which said that value consists of economical, technical, service and social benefits in regard with the price paid for the market offering.[24] In this research these five factors or value-boosters are used to understand value.

In addition, Kotri (2006) mentions five sources of benefits for customers. These five are product quality, quality of customer service processes; quality of customer service personnel, brand image and emotions based quality.[25] These five actually contribute to the five factors mentioned by Anderson & Narus (2005). The product quality is possible due to the economical and technical aspects mentioned by Anderson & Narus (2005) while quality of customer service processes and quality of customer service personnel contributes to the service factor mentioned by Anderson

[21] Zeithaml (1988), p. 14., as well as Rintamäki et al (2007), p. 623
[22] See Aaker (2008), p. 139-140.
[23] See Ballantyne & Varey (2006), p. 343.
[24] See Anderson & Narus (2005), p. 1.
[25] See Kotri (2006), p. 7.

& Narus (2005). Brand image and emotions based quality contributes to the social aspects of value mentioned by Anderson & Narus (2005). Therefore the two concepts of value of Anderson & Narus (2005) en Kotri (2006) are combined in value boosters as shown in table 1. This table can be used in order to understand value considering a market offering.

Value-Boosters.	The way it works.
Economical	Creating value by, for instance improving accuracy to reduce errors.
Technical	Superior technology providing superior value. For example a middle-ware to connect GP information systems (HIS) with Laboratory information systems (LIS).
Service	Creating superior customer value by providing for instance after sales support like trainings or quality controls.
Social	Characteristics of market offering increasing social benefits. For instance reduction of antibiotic usage.
Price	Creating value for consumers by decreasing price.

Table 3.2.1. Value-boosters.

These value boosters contribute to the thought of value-in-use. Value can be different for the different actors when using a market offering. This makes it hard to predict according to Cantu (2012).[26] This value perception depends on the value boosters mentioned in table 1. These boosters contribute to the thought of value-in-use. What do users of market offering perceive as being valuable?

3.3 Value-in-use.

Something can only carry value when it fulfills some need. These needs can be based on several value boosters as shown in the previous chapter. For instance a designer table could look very good but we should be able to sit next to it, lay something on top but still it has to look good. Not many organizations are able to gather knowledge and capabilities to assess value in practice. Most organizations are focused on reducing costs while there are many other opportunities for them to increase value.[27] The

[26] See Cantu (2012), p. 141.
[27] See Anderson & Narus (2005), p. 6.

value in use of a specific market offering is the value of that market offering under a specific use.

Goods are not bought because they are goods. They are bought to fulfil some need. Products are used to get some service done. In addition, brand image plays a role as well as social responsibility. Besides we don't actually own goods in exchange of others. The applied knowledge and skills is what we own, our own services. Nowadays not longer should the understanding of economics and marketing be focussed on tangibles like efficiencies in the production but should be on intangibles such as skills, information, and knowledge, and towards an interactive and connective, ongoing relationship.[28]

According to Vargo & Lusch (2004) value should not longer be regarded as a ratio between services, quality, and cost but value should be regarded as being created when this service is used. Service is the fundamental basis of exchange. In this sense there should be a clear distinction between services and service. Services are intangible products while service is the process of using one's knowledge and/or competences for the benefits of another one. The service-centred view of marketing implies that value is not created by an individual company or supplier but that it is established through co-creation with the customers. Holbrook (1994) and Vargo & Lusch (2008) confirm this.[29] In short a company is not able to create value solely. Value is created in use and/or collaboration and therefore a company is only able to make value propositions instead of the actual value.[30]

A good example of value-in-use is the SUV. This type of car looks like it can drive through almost everything but most SUV's do not have enough ground clearance or even 4 x 4 drive trains. This is because most users of SUV's do not value the off-road capacities of their vehicles but they value the looks, the height, and the status of driving a SUV. Smith & Nagle (2005) mention that without a clear understanding and estimation of value in use pricing and marketing is really difficult.[31] Christensen et al. (2005) explains it quite clear by stating that: "*If a marketer can understand the job, design a product and associated experiences in purchase and use to do that job, and*

[28] See Vargo & Lusch (2004), p. 14-15
[29] See Vargo & Lusch (2008), p. 28., as wel as Holbrook (1994), p. 27
[30] Vargo & Lusch (2004), p. 11.
[31] See Smith & Nagle (2005), p. 39.

deliver it in a way that reinforces its intended use, then when customers find themselves needing to get that job done, they will hire that product"[32] This idea of products being hired to do a job is shared by Briones (2009), organizations should first think of the job, which the market offering is supposed to do and the benefits the customers has using this market offering. In addition he states that price is less relevant since the focus should be on value-in-use instead of cost-in-use.[33]

Value-in-use is the value of a market offering, used in a particular setting, which should be enhanced in order to create success for the market offering. The usage of the market offering in a particular setting depends on which value boosters are considered to be important for the user. In this research the POCT service concept will be examined to which extent the different users (e.q. GP's, labs and intermediaries) value the different value-boosters. The next chapter will dig a little bit deeper in this difference of value-in-use among actors.

3.4 The multi-actor perspective.

Previous chapters emphasized the need to understand value thoroughly. This chapter is more about the different value-in-use propositions of different actors and why actors can perceive value differently. Pinch & Bijker (1987) are mentioned earlier in this research for their findings concerning different interpretations of an artefact. In that research they created a model, which describes the flexibility of how actors think or interpret certain artefacts. Besides, they mentioned that there is flexibility as well in how these artefacts are designed. *'There is not just one possible way or one best way of designing an artifact."*[34] The research of Pinch & Bijker is often used as foundation for other researches. One of these researches is from Rosa et al. (1999). In this research they used the concept of Pinch & Bijker to further explore the different perceived value propositions by different actors. They discovered that consumers and producers determine the exchangeability or substitutability of a market offering based on context driven demands.[35] On the one side consumer demands are focused on the use of a market offering and on the other side the value of producers derives from the need for a better competitive positioning within the market.

[32] Christensen et al., (2005), p. 76.
[33] See Briones (2009)
[34] See Pinch & Bijker (1987), p. 40.
[35] See Rosa et al. (1999), p. 75.

They claim that producers and consumers respond to changes in environment, for instance product designs, consumptions, habits, and thereby enact markets. This makes producers and consumers both market makers as it makes them takers. This means that their reactions both shape the market. The market cannot be shaped by one of them, it is an interaction of both which creates value. Ulaga (2001) mentions two perspectives of value, the seller's perspective, which emphasizes that customers are a key asset of a firm in order to create value[36] and secondly from the buyers' perspective, which emphasizes the superior value of a market offering in perspective of the competition.

Rosa et al. (1999) consider consumers and producers as network actors, which depend on each other in ambiguous transactions.[37] Rosa et al. (1999) use the word ambiguous on purpose since producers and consumers are not aware of the preferences and competences of the other party, which obviously leads to misunderstandings and corrections. This is emphasized by Håkansson et al. (2009), which say that there are interdependencies between activities of actors and thereby emphasizing the importance of understanding where the bottlenecks are in a network.[38] MacDonald (2010) shows that provider processes, which include service quality, and costumer processes, which include usage process quality and value-in-use, are influenced by the relationship quality.[39] Since organizations are located within a web of producers and costumers this can be quite complex. This brings us to the next topic of this research: value-creating networks.

3.5 Value-creating networks.

How can the concepts of value and value-in-use survive in a network? Firms can create value jointly through relationships, partnering and alliances in these networks.[40] Wilson (1999) states that a value-creating network can only work when there is some degree of interdependence. This interdependence can be created through mutual investments.[41] *"Are we prepared to invest in this other firm? Even though the investment is not likely to lead to an actual ownership position."*[42] In

[36] See Ulaga (2001), p. 316.
[37] Rosa et al. (1999), p. 76.
[38] See Håkansson et al. (2009)
[39] See MacDonald (2010), p. 673.
[40] See Ulaga (2001), p. 316
[41] See Wilson (1999), p. 7.
[42] Wilson (1999), p. 7.

addition Kothandaraman et al. (2001) suggests that there are three aspects for companies, which are very important for creating value jointly, namely superior customer value, core competencies and relationships. Superior customer value should be the outcome of the jointly created value using ones' competencies within a solid relationship. [43] The relationship in a value-creating network depends on two variables: value added to partner and operating risk. These two variables create the four relationship types showed in figure 3.1. On the x-axis value added to partner is shown from low value added at the left part of the figure and to high value added on the right side of the figure. The y-axis shows operating risk with a lot of risk on the bottom of the figure and little risk on top of the figure.

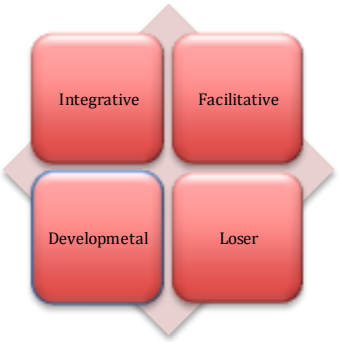

Figure 3.5.1 Relationship types in a value-creating network.

The integrative relationship type is the most desirable relationship type. These relationships do not only provide key components for current products but for future products as well. The *facilitative* relationships show a low operating risk but also add low value to the partner and usually do not concern core competences although they are important. Both relationships need deeply involved relationships. The *loser* relationships show a high operating risk and a low degree of added value to the partner. These relationships should be avoided. The last relationship type, the *developmental* relationships, shows a high degree of added value to the partner but also a high operating risk.

[43] See Kothandaraman et al. (2001), p. 384.

4. Methodology for examining the POCT service concepts.

4.1 Introduction.

The methodology part of this research functions as a bridge between what is known and what is about to be known. The first step is formulating the problem. This is done in Chapter 2. Secondly, the conceptualization and operationalization is done in Chapter 3. A case study examines the characteristics of a phenomenon, in this case value, value-in-use its value boosters, value-creating networks and how it interacts in a multi-actor perspective. In this multiple-case study the units of analysis are the different POCT service concepts. Each POCT service concept will be regarded as a single-case study. After finishing the single-case studies, the cases are cross case examined. This workproces, of combining single-case studies into a multiple-case study, is suggested by Brown & Eisenhardt (1997).[44] However, Brown & Eisenhardt use it for grounded theories while this research is not focused on building grounded theories but has a deductive character.

4.2 The POCT environment.

The term POCT came up a few times earlier in this research. But still we have no clear view of what it actually is. Why is POCT relevant? What is there to be expected of POCT in relation to value creation?

Currently, blood results are obtained by referring patients to a laboratory. These results come in a few days later. Based upon these results the GP can adjust his or her diagnosis and thereby adjust the desired treatment. For example, if a patient comes to the GP's practice with a sore throat, which could indicate an infection, the GP had to send the patient to the laboratory to determine the CRP level of the patient, which shows the level of infection. Based upon the result of this CRP test the GP can determine if the patient needs antibiotic. Patients have to go to a blood sample post to give some blood, which has to go to the laboratory to be examined and eventually the GP is informed. After getting the results the GP calls the patient to inform him or her results are and how the treatment should look like.

[44] See Brown & Eisenhardt (1997), p. 3.

However, there is an upcoming trend in POCT. POCT is performing tests. In this case patients won't have to go to a blood sample post anymore, the blood does not have to travel from blood sample post to laboratory and it won't take days for the GP to know the results of the test. For determining the results of a test, an appliance is needed and several precautions are necessary. These precautions are related to reliability, accuracy and the level of quality of the results. In other words, the pre-analytical part of getting blood results is an issue, repeatability which reflects precision and bias which reflects the level of "truth" of blood results.

The speed in which these appliances provide the GP with the results of a test, makes POCT extremely patient friendly. Because of the speed and the patient friendliness POCT is gaining interest rapidly. Not only in the Netherlands but globally as well. In fact POCT has grown up to 10% annually worldwide.[45] The trend of growing POCT follows another trend when considering the Netherlands. People are getting older and thereby more health-care consuming.

POCT is done for years using all kind of small tests, for instance a urine stick or a finger prick to determine one's glucose level. Performing POCT can be done without any primary education of laboratory testing and therefore POCT can be implemented in almost every health related organization.[46] Of course this requires precise instructions to ensure quality and reliability.

However, POCT service concepts received some more attention since there are a growing number of reports showing that POCT is not reliable and accurate at all. Users of POCT are often not familiar with laboratory related concepts as "accuracy", "precision" or "pre-analytical errors." Insufficient practical skills can lead to incorrect results and thereby incorrect determinations by the GP.[47] As Rosa et al. already mentioned consumers and producers are network actors, which depend on each other in ambiguous transactions.[48] Earlier research made clear that not many GP's recognize the importance of operator training and quality control, which are important factors for ensuring patients safety and quality of care.[49]

[45] See Vermeer et al. (2010), p. 33.
[46] See Vermeer et al. (2010), p. 36.
[47] See Hooijberg et al. (2011), p. 32.
[48] Rosa et al. (1999), p. 76.
[49] See Hofland et al., p. 3. as well as Hopstaken et al (2012)., p. 391.

Therefore the Dutch association RIVM requested organizations to come up with a clear set of guidelines to ensure patient safety and quality when performing POC.[50] Laboratories have noticed the growing attention of POCT services. Several laboratories are designing a system in which POCT can follow the same quality, reliability and accuracy standards as an accredited laboratory while maintaining the ability to provide the primary care with quick results.

4.3 Research design.

This research is designed and analyzed using techniques of Eisenhardt (1989) described in her article *"Building theories from case study research."*[51] This research has a deductive character while the article of Eisenhardt (1989) is focused on creating grounded theory. Nevertheless, the technique which Brown & Eisenhardt use shows a clear structure and therefore it will be used in this research as well. The first step according to this article is to formulate a research question, which is done in chapter 2. The second step is selecting a case study, which is described more thoroughly in the previous paragraph. The single-case studies, in this research the different POCT methods and its users, are performed first and later on these cases will be cross case examined. The third step is about the data collection methods, which is described after the cases. According to Eisenhardt (1989) there should be different ways of collecting data because this makes sure that the data is more reliable and complete. In this research data will be collected by face-to-face interviews, electronic interviews, using existing documents and observations. This is further described in chapter 4.6.

This research uses a multi-actor perspective and examines three different POCT service concepts; a multiple-case suits this study, one case study for every POCT service concept and its actors. Brown & Eisenhardt (1997) used a similar method in their article. In this article the research design is a multiple-case study, which is designed in such a way, that replication is easy.[52] Yin (1984) mentioned this as

[50] See RIVM (2013)
[51] See Eisenhardt,, (1989), p. 532.
[52] See Brown & Eisenhardt (1997), p. 3.

replication logic in which cases are considered as independent experiments either confirming or disconfirming the conceptual insights.[53]

Brown & Eisenhardt used a multiple-case study design; in which the cases are treated as a series of independent experiments that confirm or disconfirm emerging conceptual insights.[54] In their study they conducted interviews among several levels of management. In this research a similar method will be used. There are three actors within the value-creating network examined. First, the laboratories that provides the POCT method for the primary care. Secondly the GP's using the POCT method and performing laboratory diagnostics at site[55] and lastly KPN eZorg, which creates a solid IT environment in which it is possible to handle secured health related data.

After the data collection an analysis is made using MacDonald (2011) as an example for this research, the cases are examined using a cross-case analysis and using illustrative quotations.[56] In total nine interviews were conducted. Three of those interviews were face-to-face interviews used to gather data at the different POCT providers. These POCT providers were selected based on their dominance on the Internet. The other six interviews were conducted electronically. Five of the remaining six interviews were conducted with GP's. The last interview is conducted with the intermediary between POCT provider and GP within the JBZ POCT service concept.

As the POCT providers were examined a bit further it turned out that the POCT providers have different strategic focuses and are therefore more relevant. The three POCT providers are the Jeroen Bosch Hospital (JBZ), DiagnostiekVoorU (DVU) and the Deventer Hospital (DZ). An overview of all interviews is shown in table 4.2.1.

[53] See Yin (1984), p. 31.
[54] See Brown & Eisenhardt (1997), p. 3
[55] See Brown & Eisenhardt (1997), p. 4.
[56] See MacDonald (2011), p. 678.

Name	Strategic focus	Total	Laboratory	GP	KPN eZorg
JBZ	Solid IT integration.	4	1	3	0
DVU	Quality multiple of tests[57]	2	1	1	0
DZ	Ease of use of limited tests[58]	2	1	1	0
In general		1	0	0	1

Table 4.2.1. Overview of interviews among POCT method providers.

4.4 Data collection methods.

This chapter describes what methods are used to collect data and how they are performed. The first part describes the procedure while observing. The second part is concerned with the procedures for the electronic interview part.

Qualitative collection through observations.

One of the most important factors of making observation is gaining access, contacting potential research participants, being prepared and be able to capture all data at sight.[59] The providers of the various POCT service concepts are included in the observations. Personal contact is considered to be important to improve the (electronic) interviews, which are mentioned later on. Therefore it helps to phone and e-mail first, visit them for observations and then conduct (electronic) interviews. This is also done in this research. During those visits observations are made, which contribute to the question list in the (electronic) interviews. Instructions were given how to use the different appliances and what handlings were necessary for the different POCT service concepts. Another important aspect is the observer effect. The impact of the observer's participation on the setting or the participants being studied. [60] Therefore it is important to put aside assumptions and see phenomena through participants' perspective and to write down notes as soon as observations take place.[61] This is also done during this research. The goal for the observation part of

[57] See Diagnostiek voor u 1 (2014)
[58] See DZ 1 (2014)
[59] See Cassell & Symon (2004), p. 157.
[60] See Miles & Hubermann (1984), p. 350-353.
[61] See Casselll & Symon (2004), p. 158

this research is to get comprehensive insights to the different POCT methods. Besides it functions as a triangulation for the (electronic) interviews.

Qualitative data collection by using electronic interviews.

To gather information concerning the different POCT methods electronic interviews are used. These electronic interviews are sent to the GP's and intermediary to see whether there is a big difference in the value-in-use compared with the laboratories. Electronic interviews are interviews whereby electronic devices are used for communication between participants. Instead of using closed questions in surveys, the electronic interviews in this research consist of open questions. In electronic interviews, the researcher initially sends a relative small list of questions in order to give room to the respondent to share his ideas about a topic or opening up the discussion.[62] Electronic interviews have some important advantages. Its ease of use is a big advantage. Participants, and in this research GP's and intermediary, can respond whenever and wherever they want, which enables to reach busy people like GP's.[63] Because electronic interviews do not need to be transcript it saves time, money and errors due to transcription.[64] Electronic interviews also reduce the problem concerning interviewer effects. Since there is no non-verbal communication, participants won't see how the interviewer reacts to particular questions and it contributes to reducing the negative effect of shyness.[65]

"The 'mute evidence' of written data can offer the, sometimes necessary, convenience of both spatial and temporal distance between subject and researcher."[66] The follow-up questions can be formulated specific for one respondent, which makes them more motivated and connected to this research.[67]

However, simply emailing participants a question list is no guarantee for success. A lot of people won't feel connected to the list or think its spam. Therefore all participants were called by phone in order to ensure commitment and reduce the chance that it is seen as spam. In a face-to-face interview you are sitting in front of them, which makes it likely that the participants at least finish the interview. In

[62] See Cassell C. & Symon G. (2004), p. 23.
[63] See Cassell C. & Symon G. (2004), p. 24.
[64] See Selwyn N. & Robson K. (1998), p. 1.
[65] See Selwyn N. & Robson. K. (1998), p. 2.
[66] Selwyn N. & Robson K. (1998), p. 2.
[67] See Cassell C. & Symon G. (2004), p. 24.

electronic interviews they could just stop replying or forget to reply. In this research reminder emails were sent to the participants in order to obtain the data.

4.5 Making it measurable.

First measurement procedures are determined for value-in-use followed by measurements procedures for the value-creating network aspect. Both considered in a multi-actor perspective.

This research uses five value-boosters, which explain the value-in-use of an actor. These value-boosters are economical, technical, service, social and price related value-boosters. Table 4.5.1 shows how these are divided in smaller sub value-boosters. During the interviews other related factors showed up and these are added to the existing sub value-boosters. For instance customer retention is an important part of the economic value-booster for laboratories.

Value-boosters	Sub value-boosters
Economic	Administrative work, logistics, quality tasks, additional tests (GP's), customer retention (lab).
Technical	Accuracy, reliability, practical (GP's).
Service	Operator training, quality control
Social	Impact on patients' life, social costs.
Price	Costs for market offering.

Table 4.5.1. value boosters and their sub-ordinates.

After the face-to-face interviews with the laboratories, the electronic interviews with the GP's and the intermediary and the examination of the received documents all data is combined in a case for all individual POCT providers. These cases are made regarding several topics. The first one is an introduction to the case. The following five topics are the different value boosters combining data of GP's and related laboratory. Then the prerequisites of their POCT service concept are mentioned, followed by a topic about interaction with the GP and the GP's perspective. Using these two topics the relation type is determined as explained in the theoretical framework using the two variables *"operating risk"* and *"usage of superior core competences"* to examine the value-creating network. At the end of the case their next step is formulated.

4.6 Data analysis methods.

This part of the research will provide different insights to which extent the value-boosters are related to a specific POCT method. The following table shows the value boosters concerned with the POCT service concept. There are two different things to be examined. First how do the value-boosters relate to the different POCT service concepts? For measuring these value-boosters face-to-face interviews are used, as are electronic interviews. A few questions are already formulated on forehand but will be followed by more in depth questions. The answers will be used as illustrative quotations in order to scale the different POCT methods in table 4.6.1, following the example provided by MacDonald (2011).[68] The single case studies mentioned in chapter 4.5 are now combined into one table, which enables a cross-case examination.

Table 4.6.1 is used when considering value-in-use for GP's or laboratories regarding POCT service concepts. In this table first the value boosters, as mentioned in chapter 3.2, are listed with the translation to the POCT in the second column. The third column the specific actor is mentioned. The fourth column illustrates the value-booster with quotations and the last column combines the quotations for conclusions. This table will be used in order to conduct four different single case studies, which are cross case examined by referring to illustrative quotations.

[68] See MacDonald (2011), p. 678.

Value-booster	Translated to POCT	Actor	Illustrative quotations	Conclusions
Technical	Accuracy			
	Reliability			
Economical	Administrative work			
	Logistics			
	Quality tasks			
Service	Operator training			
	Quality control			
Social	Increased value patients.			
Price	Costs			

Table 4.6.1. Value-boosters POCT concerning GP's.

The following table is an overview of all actors mentioned in this research, which shows what value-boosters are most present at the different levels of this value-creating network. This is shown in table 4.6.3.

Value-boosters	POCT provider	GP	KPN eZorg
Economic			
Technical			
Service			
Social			
Price			

Table 4.6.3. Overview value-boosters according to actors.

As described in the theoretical framework in Chapter 3, there are two variables important in a value-creating network when considering co-creation of value. First the extent to which the actors use their superior core competences and the level of risk is used to determine the relationship type they have. Again a table is made for all

different POCT providers, which are filled in by using illustrative quotations.[69] All these tables are combined in the Appendices showing the cases of the different POCT providers.

Value-creating network	Actor	Illustrative quotations	Conclusions
Added value to partner.			
Operating risk			

Table 4.6.2. Measurement of relationship type POCT provider.

To sum things up the different POCT providers are approached as individual cases. Once these individual cases were completed, a cross case analysis is used as it is used by Brown & Eisenhardt (1997)[70] and the data collection methods suggested by Miles & Huberman (1984) for the observational data[71] together with Cassell & Symon (2004) for the electronic interviews[72] and Eisenhardt (1989) for the cross case examination are used to establish conceptual insights, which are used in order to determine the above tables.

This is an explorative research in which data is collected through semi-structured face-to-face interviews, electronic interviews, observations and usage of existing documents. The different individual cases are used to gather insights of the dilemma's or success stories by comparing them with each other.

[69] See MacDonald (2010), 675.
[70] See Brown & Eisenhardt (1997), p. 4-5
[71] See Miles & Hubermann (1984), p. 350-353.
[72] See Cassell & Symon (2004), p. 22-24 and 156-158

5. Analyzing the different POCT service concepts.

5.1 Introduction.

This chapter describes the value-in-use for actors within the different POCT service concepts. For this analysis interviews are used among all three different POCT providers and its users. Three interviews were held face-to-face, with the actor "laboratories" and 6 were conducted electronically with the actors GP's and KPN e-Zorg. First the value-boosters for the laboratories are mentioned. Followed by the value-boosters relevant for GP's. At the end the interview with KPN e-Zorg is examined and the relevant value-boosters are noted.

5.2 The POCT service concepts.

All POCT service concepts have been analysed and summaries of quotes of the different actors are used to determine the level of importance of the separated value-boosters within a specific POCT service concept. These summaries are made using attachment 1,2 and 3. After the level of importance of value-booster the relationship type is analysed using the variables presented in chapter 4. First the JBZ is examined, followed by the DZ and lastly DVU.

The JBZ POCT service concept and its relationship types.

Value-booster	JBZ	GP	KPN	Conclusion
Economic	Very important for the JBZ. Reduction of errors and reduction of time for using laboratory diagnostic tests are essential.	Very important for the GP's connected to the JBZ. Administrative work should be reduced to a minimum	Very important for KPN. Offering the POCT service concept improves their offer towards GP's.	Very important, confirmed by all actors.
Technical	Very important for the JBZ. Quality, reliability, accuracy and ease of use are very important.	Very important, automated system is important because of reduction of time. Quality, reliability and accuracy are prerequisites.	Very important. KPN has a solid network which can handle over 350.000 secured health-related messages	Very important, confirmed by all actors.
Service	Very important for the JBZ. The laboratory performs all trainings, logistics and quality tasks. E-learning's are regarded as a big opportunity.	Important, is regarded as a matter of course.	Less important, KPN's account managers could be used for out roll POCT in entire Netherlands.	The level of importance differs among actors.
Social	Less important for the JBZ, but is recognized.	Very important, reduction of antibiotic usage and one-stop visits.	Less important	The level of importance differs among actors.
Costs	Less important for the JBZ, it should cover all costs.	Important, not every GP is happy with the way invoices are taken care of but not that important to stop using the POCT concept.	Very important for KPN. Besides hosting earnings they get earnings per connected GP and connected laboratory	The level of importance differs among actors.

Table 5.2.1 Level of importance of the value-boosters within POCT service concept of JBZ

Variable	JBZ	GP's	KPN	Conclusion
Value added to partner.	Providing a qualitative POCT service concept to GP's.	Providing practical insights of using the POCT concept.	Solid integration between JBZ and GP.	Value added between all actors.
Operational risk.	Investment of the JBZ for the POCT service concept.	No operational risks. Everything is provided by the JBZ and KPN e-Zorg.	Investments of KPN in terms of network capabilities.	All actors have investments besides the GP's.

Table 5.2.2 The variables of relationship within the POCT service concept of JBZ.

Within the POCT service concept of the JBZ all actors add value to the partners. However literature stated that the relationship type is dependant of another variable, operational risks. When considering the relationship types within the POCT service concept an integrative relationship type between the laboratory and the GP's can be found as well as between the GP and KPN e-Zorg since the GP's do not suffer any operational risks. The relationship between the laboratory and KPN e-Zorg can be considered as a facilitative relationship since both actors add value to each other and both actors share operational risks.

The DZ POCT service concept and its relationship types.

Value-boosters	DZ	GP's.	Conclusion
Economic	Very important, DZ is developing their POCT service concept at the moment. Searching for a way to reduce administrative work and enhancing ease of use. Their POCT service concept is still in the early stages of development.	Very important for the GP's. Using the POCT service concepts saves the GP's time and reduces the usage of additional tests.	Very important, recognized by all actors.
Technical	Very important, DZ recognizes the proliferation of cheap unreliable test usage in the practices of many GP's and are willing to offer an alternative securing the quality, reliability and accuracy of an accredited laboratory.	Less important, the POCT service concept of DZ is still in its early stage and is less developed than the service concept of JBZ.	The level of importance differs among actors.
Service	Important, not yet developed, as it should be. Usage of e-learning's big opportunity. Quality tasks are performed by laboratory.	Is important, there is support from the DZ when errors or problems occur with the appliances.	Important, recognized by all actors.
Social	Very important, besides reduction of antibiotic usage also the possibility to confront diabetic young adults when not following their diet.	Very important for the GP's, using this POCT service concept helps reducing antibiotic usage and creates a better patient experience by offering all tests in one visit.	Very important, recognized by all actors.
Costs	Very important for DZ, invoicing at health insurance companies should be done by GP. DZ offers a different costs structure. GP's buy the reagents themselves and pay for a subscription at the laboratory.	Very important, appliances have to be bought by the GP practice and are expensive. But, joint purchasing reduces costs as well.	Very important, recognized by all actors.

Table 5.2.3 The level of importance of the value-boosters within the POCT service of DZ.

Variables	DZ	GP's	Conclusions
Value added to partner	Providing qualitative alternative to existing diagnostic tools.	Providing practical insights.	Both actors are adding value to each other.
Operational risks	Investments for creating the POCT service concepts.	Investment in appliances and reagents.	Actors share the operating risks.

Table 5.2.4 The variables of relationship within the POCT service concept of DZ.

Within the POCT service concept of the DZ both actors add value to each other. Besides, there is a different cost structure, which divides the operational risks among actors as well. Therefore the relationship type within this POCT service concept can be considered as facilitative.

The DVU POCT service concept and its relationship types.

Value-boosters	DVU	GP's	Conclusion
Economic	Very important, at the moment everything is manually entered in the various systems. They are looking for an automatic way. Besides, enhancing ease of use is very important. Logistic operations are covered by the laboratory	Important, logistic part is covered fine. All necessary resources are delivered on time.	The level of importance differs among actors.
Technical	Very important. Quality, reliability and accuracy are a matter of course.	Very important. Quality, reliability and accuracy are prerequisites.	Very important, recognized by all actors.
Service	Very important, E-learning's could be a great opportunity for enhancing training programs. Besides, quality controls could be done from a distance by getting a more integrated way of working.	Less important.	The level of importance differs among actors.
Social	Very important, more and more pressure on primary care. There is a need for looking for a more effective and efficient way of working. Besides, reducing antibiotic usage and confronting the patients with results is also a big benefit.	Very important, quick results make sure that patients are more satisfied than before.	Very important, recognized by all actors.
Costs	Important, invoices at health insurance companies are done by the laboratory. The GP's do not have financial benefits; they are using it to enhance patient experience.	Important, sometimes not clear who invoices what.	Important, recognized by all actors.

Table 5.2.5 The level of importance of the value-boosters within the POCT service of DVU.

Variables	DVU	GP's	Conclusions
Value added to partner	Helps improving patient experience. Patients want to know more and quicker.	Providing practical insights in a feedback loop.	Both actors are adding value to each other.
Operational risks	Investments for creating the POCT service concepts.	Very little investments, only obtained "zorgdomein".	Operation risks is carried by laboratory.

Table 5.2.6 The variables of relationship within the POCT service concept of DVU.

Within the POCT service concept of DVU both actors add value to each other. While the laboratory recognize some minor investments for the GP's regarding gaining access to "zorgdomein" this shows a sharp contrast to the investments made by DVU. Therefore the operational risk is considered as not shared within this POCT service concept and the relationship type within the POCT service concept of DVU can be considered as integrative.

5.3 Cross-case analysis.

Now that we have a clear overview of the value-in-use of the different actors within the separated POCT service concepts, these POCT service concepts can be cross case examined. Besides using the separated cases the interviews and attachment 1, 2 and 3 are used again.

Economic value-booster among actors.

The first value-booster, the economic value-booster, was initially divided in "*administrative work*", "*logistics*" and "*quality tasks*". "*Customer retention*" and preventing "*double diagnostics*" are added after the interviews among the actors. For the administrative part all laboratories agreed that the amount of administrative work should be reduced to a minimum. This is valued by all laboratories because the less administrative work the less errors occur. Besides the laboratories, the GP's consider this as very important as well. In case of DVU, in which the GP's have to manually input the data of a patient in three different systems, the chance of typing one digit wrong is a lot bigger than the service concept designed by the JBZ where the users only have to scan a barcode and therefore DVU and DZ are searching for a method to automatize the system. For the GP's this decreases the administrative work and in all cases this is considered as being important.

All POCT service concepts cover the logistic part. This has a few reasons. First of all when combining the needs for reagent or other resources necessary for POCT they are able to reduce costs by using power of scale. Besides, they consider this as a service towards the GP as well. GP's in all three POCT service concepts see this part of the "*economic*" value-booster as a matter of course.

For concerning the *"quality tasks",* the responsibility to maintain the appliances and al other quality related tasks are shared among actors. The GP's with more an identifying role and the laboratories in a more facilitating role.

The first additional economic value factor *"Customer Retention"* is an important factor for all three laboratories to engage in POCT activities. For the JBZ and the DZ it is because the more GP's connected to their service concept the more likely it is that the GP refers his/her patients to that specific hospital. For DVU it is related to be innovative and identifying customers needs. For the GP's this is not mentioned literally but creating one-stop-visits is related to customer retention as well. DVU does not think that POCT is a prerequisite for a good practice but that it can increase quality to a higher level than it already is and it provides patients in one-stop-visits.

Preventing *"double diagnostics"* is mentioned by one laboratory, the DZ, to save costs for laboratories and hospitals. This is also mentioned by the GP's connected to this POCT service concept. This is not mentioned in the other cases. They mentioned that they noticed that they performed less additional tests compared to when they were not connected to POCT service concept. One of them stated: *"When I formerly sent a patient to a laboratory it was tempted to test several values, which do not specifically contribute to the treatment of the patient at this moment but is more a monitor of the patients' overall health."* GP's connected to the JBZ's and DVU's POCT service concept request more analyzers for different tests. Examples of tests which they belief are missing are: a d-dimer test for excluding deep vein thrombosis and pulmonary embolism and potassium, and MDRD to establish a cardiovascular risk profile.

Within the POCT service concept of the JBZ there is an additional actor, KPN e-Zorg. KPN e-Zorg values the out roll of POCT throughout the Netherlands because in this way they are able to offer the GP's a wider scale of services within their existing e-Zorg (KPN ZorgCloud). In this way their market offering could become more relevant for the GP's and they might get more footage to the ground.

Technical value booster among actors.

This value booster was initially divided in two sub value boosters. The first part is *"accuracy"* and the second is *"reliability".* According to the interviews with the laboratories a third was necessary *"Quality".* In all three cases this is considered as fundamental before being able to design a POCT service concept. The DZ approach is to first select a few appliances based on quality and then use them in pilots to figure out what GP's prefer based on ease of use. Partly because most POCT service concept providers engaged in POCT activities to deliver a method, which is as good as an accredited laboratory. All laboratories value a high degree of quality, reliability, accuracy and ease of use. One of the GP's connected to the POCT service concept of DVU mentions: *"Sensitivity and ease-of-use is tested before implementing appliances. This is really good."* GP's of the POCT service concept provided by the JBZ say: *"No errors occur, reliable appliances."* Besides they all agree that the laboratory itself should do maintenance of these appliances to ensure the quality of the appliances and that GP's have an identifying role. All GP's among the different POCT service concepts recognize the importance of their identifying role and sustaining a qualitative, reliable and accurate POCT service concept. However, this is less recognized in the POCT service concept of DZ. Despite the fact that the JBZ has a fully automatic POCT service concept there is room for improvement according to one of the GP's. *"Now all appliances are connected through cables, one for power supply and one for the Internet. This should really be wireless."*

Lastly the third actor within the POCT service concept of the JBZ, KPN e-Zorg, is able to maintain a network in which they are able to process over 350.000 healthcare related messages daily. Besides, it is not only processing it's also about securing patient privacy.

Service value booster among actors.

The third value-booster is the service value-booster, which is divided in two sub value boosters. The first is *"Operator Training"* and the second is *"Quality Control"* The operator training is recognized by all laboratories within all three POCT service concepts. All laboratories train the users of the POCT service concept. DVU and JBZ do so for free. DZ is going to charge an amount for a subscription. The labs all agree that it is a prerequisite that all assistants follow the same guidelines to ensure quality, reliability and accuracy. It turned out that all laboratories are focussed on the same

next step: offering e-learning in the future. In this way they can be trained from a distance and performed more frequent. Besides, when someone finishes the E-learning they could receive their own barcode to log in automatically, in case of JBZ, and it could be automatically turned down when the follow up E-learning has not been made or is not sufficient made. The GP's among the different POCT service concept do not see this as a service of the providers of the POCT service concept. Besides the "*operator training"* there is another sub value booster: *"quality control".* Again all three laboratories agree that this is the responsibility of the laboratory as well. The appliances have to be regularly checked and maintained. However, JBZ and DVU recognize the importance of an identifying role as the responsibility of the GP's. When considering service KPN e-Zorg is able to contribute to a fast out roll of the POCT service concept of JBZ because they have a broad network of GP's, hospitals and pharmacists and therefore they could help in sustaining a smooth and solid integration between the laboratory and GP. Besides they have approximately 80 account managers, which can contribute to the out roll of this POCT service concept.

Social value-booster among actors.

This value booster is divided in two sub-value-boosters: *"impact on patients' life"* and *"Social costs".* One of the reasons laboratories jumped in to the POCT opportunity is the desire of the GP to offer the patient a so called one-stop-visit. In this case there is no need any more for patients to go to several addresses in order to get the results. For instance a CRP test, usually a patient has to go to a blood sample post, then go to the laboratory to get the results and eventually go back to the GP to get the diagnosis. When using a POCT service concept, all of those steps can be done at the practice of the GP. Besides, the CRP test reduces antibiotic usage and therefore contributing to reducing social damage as well. Especially the GP's among the different POCT service concept emphasized that reduction of antibiotic usage and creation of one stop visits as very important and one of the main reasons for them to engage in POCT activities. Another benefit of knowing the results immediately is that the GP can confront the patient with the result. For instance the HBA1C test shows the glucose level during several months and is therefore less influenced by daily behaviour. There are some mixed feelings however. The result does not change over a day and the procedure for the GP won't change over a day as well. DVU stated that: *"we should not offer all possible test only those tests which increase value by directly knowing the result".* How

to respond to this argument is hard according to DVU since they are offering the HBA1C as well, they are not encouraging it however. Therefore conclusions can be made that POCT adds value only when results are directly needed, for diagnosing or for confronting the patient, for instance when a diabetic patient did not follow his diet properly. DVU is the only laboratory to mention the D-dimer test. In this case they can offer the GP with a tool to exclude a heart attack or a stroke. Sometimes patients suffer heavy breathing or pain in the chest and the GP doubts whether the patient suffers from deep vein thrombosis or pulmonary embolism. In this case, immediate actions are necessary. Using this test could reduce the number of unnecessary patients to the First Aid and thereby reducing cost for society. However, the D-dimer test is mentioned by DVU only.

Price value booster among actors.

The JBZ and DVU POCT service concept invoice the cost at the health insurance companies. For the GP no direct costs are charged. The drawback for the GP is that he/she is not able to invoice the test anymore and thereby not having a financial benefit for diagnostic tests anymore. The DZ however, questions if this is the right why of doing business. DZ believes that it's not right to invoice handlings not performed by the laboratory. Therefore they have decided to charge the GP with the costs for the appliances and needed resources and in addition to charge them for a subscription. In return of this subscription the GP's will be provided with trainings, logistics, and they receive follow up on the results of the laboratory. Besides a laboratory test is included in the own risk part of the health insurance and sometimes the GP has to explain to the patient why the patient has to pay for a particular test. As DVU said: *"The GP's working with this system recognize the value of the quality delivered, they just tell the patient do you want good health care or bad health care?"*

Besides the laboratories there are some concerns within the POCT service concept of the JBZ and DVU. These are the POCT service concept providers who are invoicing the costs at the health insurance companies. The GP's connected to the DZ POCT service concept recognize that purchasing the equipment is a big investment but they seem to have little problems with the way the POCT service concept is financed.

All laboratories agree that POCT should be cost effective and not sincerely raising profit. They expect the same of the GP. The GP should engage in POCT activities for the patient, not for the money. KPN e-Zorg is charging 5 euro per connected GP and

100 euro per connected laboratory monthly, for being the intermediary within the POCT service concepts. This price value-booster is of big importance to KPN e-Zorg. They are engaging in POCT activities for making profit and sustaining their market relevance.

6. Conclusions concerning value-in-use from a multi-actor perspective.

6.1 Introduction

This research contributes to existing literature in multiple ways. First in the fast changing health care in the Netherlands it is proof that business administrative concepts contribute to the health care sector as well.

Besides, the concept of value-in-use from a multi-actor perspective is yet confirmed to be useful. The findings in this research show that there can be great advantages by understanding the value-in-use of the actors using a market offering using value-boosters to understand the value creation better. POCT is service in its fullest, the process of using one's knowledge and/or competences for the benefits of another one.[73]

However there are some tensions as well. For instance, all GP's show great interest in the social value-booster while all laboratories are more focussed on the economic value-booster. Besides, both GP's and laboratory within the JBZ's POCT service concept show little interest in the price value-booster while the commercial aspect of engaging in POCT activities drives KPN. On a more practical level, GP's within the service concept of the JBZ and DVU want extension of POCT analyzers while the laboratories within these POCT service concepts are sceptical of the added value of particular tests. HBA1C for instance is valued by the GP's within both POCT service concepts while DVU thinks that the added value is less because it doesn't matter if you know the result tomorrow or today. It is very important to understand where the gaps between value-in-use are in networks like these in order to establish a solid co-creation of market offerings, which suits the value proposition of the customers as it does for the providers and intermediaries.

[73] See Vargo & Lusch (2008), p. 28., as wel as Holbrook (1994), p. 27

The comprehensive literature study, in chapter 3, provided this research with the answers to the first sub-questions, which in their turn contribute to answering the research question:

"How can value-in-use be created and sustained from a clustered multi-actor perspective in the medical sector, concerning the POCT concept?"

This section will answer the research questions using the theoretic framework mentioned in Chapter 3.

6.2 Conclusions.

Value-in-use matches within POCT service concepts.

This research examined the different views on value-in-use for the different actors concerning the POCT service concepts. The way the value-boosters interact among the actors within the POCT service concept is examined using face-to-face interviews and electronic interview. These POCT service concepts are treated as single-case studies, which are cross case examined afterwards. Using the method of MacDonald as an example for the analysis and draw conclusions on the hand of illustrative quotations. [74] The following overview per POCT service concepts shows the number of "matches" in level of importance between the different actors. In other words, what value-boosters are recognized among actors within the different POCT service concepts.

Value-boosters	JBZ	DZ	DVU
Economic	Match.	Match.	No match.
Technical	Match.	No match.	Match.
Service	No match.	Match.	No match.
Social	No match.	Match.	Match.
Costs	No match.	Match.	Match.
Total:	2 matches.	4 matches.	3 matches.

Table 6.2.1 Overview of matches in level of importance of value-boosters among actors within the POCT service concepts.

When there is a match between the actors of a POCT service concept, it implies that all actors within that POCT service concept show the same level of importance regarding that specific value-booster. It is possible that GP's show a high level of

[74] See MacDonald (2010), p. 673.

importance for the social value-booster while the laboratories show a medium level of importance.
DZ is best in recognizing the value-in-use of its actors and outline them with their own value-in-use, partly because their POCT service concept is still under construction and is being designed by both actors. The JBZ has most problems with recognizing the value-in-use of its actors and outline them with their own value-in-use. DVU has 3 matches on the value-booster and is therefore in the middle.

Relationship type within value-creating networks.

An important factor for value-creating networks is the relationship type within a network. In this research the model of Kothadaroman et al. (2001)[75] in which the relationship type is dependent on two variables; operating risks and value added to partner.
The POCT service concept of the JBZ shows an integrative relationship type between the laboratory and the GP's. The relationship type between the laboratory and KPN e-Zorg is a facilitative relationship.
The relationship type within the POCT service concept of DZ can be considered as facilitative between the laboratory and GP's.
The POCT service concept shows an integrative relationship type between the laboratory and the GP's.
The optimal relationship type for value-creating networks is a facilitative relationship type in which all actors add value to their partners but also share the operational risk.

Cross-case examination learning's.

This part covers the learning's from the cross case examination done after the single case studies were completed.

- All three POCT service concept providers recognize the importance of an automatized system in which no manual input is entered at all. Most errors occur when input is entered manually and therefore quality and reliability is raised when this can be done automatically. There is one POCT service concept provider, which is already able to work like that, the JBZ.

[75] See Kothandaraman et al. (2001), p. 384.

- All three POCT service concept providers are searching for a way to implement E-learning's in their service concept in order to update the knowledge of the users of their POCT service concept as fast as possible.
- Providing in logistic needs is seen as a matter of course by all GP's throughout all POCT service concepts. GP's agree that they have an identifying role in the quality tasks and that laboratories are responsible for maintaining the appliances.
- Customer retention and preventing double diagnostics are both important factors for GP's and laboratories in all three POCT service concepts.
- Within the POCT service concept of JBZ and DVU GP's feel that there is room for more analyzers, which could be useful in their practices.
- Ensuring quality, reliability and accuracy is essential for the actors of the POCT service concept.
- Reduction of antibiotic usage and one-stop-visits are the main reasons for all GP's in all three POCT service concepts to engage in POCT activities.
- There is room for improvement in the way the POCT service concepts are financed. Only the POCT service concept of DZ shows a fit in the costs value-booster while the JBZ and DVU POCT service concepts show dissatisfaction in the way the diagnostic tests are invoiced.

6.3 Managerial and practical consequences and advices.

After examining what value means, what value-in-use means, what the value-boosters are and what value-creating networks are, a qualitative research has been done to examine three POCT service concepts and the value-in-use of its actors. Besides, the relationship types have been examined between the actors in those POCT service concepts. The gathered knowledge needs to be translated into managerial consequences and advices and in practical consequences and advices.

Managerial consequences and advices.

Market offerings, and the solutions these market offerings offer, emerge through interactions between users and producers.[76] Because of this co-creation it makes it hard to predict[77] and therefore organizations should see actors as co-creators. Getting

[76] See Cantu (2012), p. 140.
[77] See Cantu (2012), p. 141.

clear insights of the bottlenecks for actors within a network is crucial according to Håkansson, et al. (2009).[78] For organizations there is a need to understand that:

- It is necessary for organizations to understand they are part of a larger value-creating network.
- The actors within value-creating networks have a different view on value-in-use.
- The value-boosters in this research can be used to get a clear understanding of the different value-in-use of actors within an organization's value-creating network.
- When comparing market offerings within the same industry the value-boosters can be used to see whether there is a match between actors in level of importance.
- The relationship type is crucial to sustain current market offerings but also future market offerings. The facilitative relationship type enables more co-creation than the other relationship types within a value-creating network.

Practical consequences and advices.

Besides the managerial consequences given in the previous paragraph, there are some practical consequences related to the POCT service concepts as well. There are some trends, which are likely to grow in the future. The growing aging society, the shifts in the Dutch health care system and the focus on reducing antibiotic usage are the main trends influencing the POCT service concepts. Considering the theoretical concepts used in this research the following consequences or advice can be given to the POCT service concepts:

- Be aware of the trends in your market. Continuously follow up on these trends and see how other laboratories in other countries are engaging similar problems.
- Stay close on developments of actors and co-create. In this research laboratories, GP's and intermediaries are used but developers of appliances are actors too. For instance a finger scan could improve identification of POCT user and improves speed.

[78] See Håkansson et al. (2009)

- The technical value-booster is most important in the POCT service concepts. All actors recognize that this is a prerequisite. Make sure that it keeps the high-level of reliability, accuracy and quality but in perspective of the GP that also the right analyzers are implemented. For instance the HBA1C analyzer is valued by the GP's but not all laboratories recognize the importance of this tool.
- All POCT service concepts are searching for a way to make use of E-learning's. E-learning's are implemented in other industries as well. Therefore many organizations might have suffered the same problems as the laboratories are facing so make use of best practices.
- When considering the most effective relationship type for co-creation all actors within the POCT service concepts add value to their partners but there is a lack of shared operational risks in two of the three POCT service concepts.

6.4 Limitations and directions for future research.

A common problem of qualitative researches is the level of generalizability. The methods used however can be used in different settings as well. The value definition of Anderson & Narus is made in general and therefore using the derived value-boosters in different settings is possible. But further research is necessary to gather insights and proof for general value-boosters, which can be used in every setting. Using longitudinal design raises internal validity. The POCT service concept providers are selected based on their dominance in media. There could be better examples of POCT service concepts in the Netherlands or even Europe. When considering a broader scope different value-in-use are possible and different levels of importance could be shown by the actors within these value-creating networks. Besides, using a broader scope increases the generalizability.

Because of the limited time for this master's thesis not all actors could be included. Future research should take more actors into account since several value-boosters are related to other actors, which in this research are not taken into account. For instance, health insurance companies or equipment manufacturer should be taken into account as well. A finger scan could improve identification of POCT users but trying to combine all appliances in one appliance could enhance value for GP's as well. During the interviews cost related items occur in which it would have been good to

relate this to health insurance companies because insights of the value-in-use of health insurance companies could help in a clear cost structure satisfying GP's and laboratories.

The POCT service concepts are now examined in perspective of laboratories, GP's and one intermediary but this POCT service concept can be used in multiple settings as well for instance rehabilitation centres or senior housing. In this perspective particular value-boosters may be more or less important in perspective of the actors examined in this research.

The least developed POCT service concept showed the most matches in level of importance considering the value-boosters while the most developed POCT service concept showed the least matches in level of importance considering the value-boosters. Perhaps GP's within the POCT service concept of the JBZ did not mention the value-booster *"service"* because they consider it as a matter of course. But what happens if this is not on the same level as it currently is? Besides, the POCT service concept of JBZ includes three actors instead of two actors within the other two POCT service concepts, which could explain the number of matches.

Lastly, this research used one aspect of value-creating networks. Only relationships have been examined while partnership and alliances could be investigated more thoroughly to get a better understanding of the value-creating network.

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8. Appendices

Appendix A, questions laboratories

1. Waarom denk jij dat POCT waarde toevoegt in de dagelijkse werkzaamheden in het lab? En voor de huisarts denk je?
   - niet alleen gericht op deze methode maar ook POCT in het algemeen.
   - Doorvragen. Waarom bepaalde dingen bijdragen. Wat draagt niet bij in daily operations? Wat juist wel? Wat zijn de grootste ergernissen? Etc.
   - Uit welke trends is POCT geboren?
2. Hoe is deze POCT methode georganiseerd en ontworpen? M.a.w. hoe werkt het en op welke vereisten is het gebouwd? Wat waren de achterliggende concepten?
   - inzichten krijgen hoe verschillende POCT methoden werken.
   - Trainingen, accuracy and reliability hoe zijn deze gewaarborgd,
   - Logistieke gedeelte gedekt?, hoe zit het met administratief werk?
3. What kind of impacts did implementing this POCT method have in your daily operations?
4. Wat maakt deze POCT methode de beste methode? Wat zou er nog verbetert kunnen worden aan deze methode, m.a.w. wat ontbreekt er nog?
   - Stuur op value-boosters (economical, technical, service, social & price), achterhaal wat hij/zij belangrijk vindt aan de POCT methode.
   - Doorvragen, what aspects are good, what aspects are bad and why are those aspects good or bad etc.
5. Is implementatie van deze POCT methode soepel verlopen? Wat waren zaken waar het lab of de huisarts tegen aan liepen? Is aansluiting op deze POCT methode eenvoudig voor andere labs? En huisartsen??
   - Waarom wel of niet?
   - Doorvragen.
6. Hoe is het netwerk georganiseerd om deze POCT methode heen? Hoe is de relatie met de verschillende actoren?
   - relationship in gedachten houden. Interdependence, mutual investments, superior customer value, core competences.

- probeer service aspects te achterhalen. Wie doet de trainingen, wie zorgt voor kwaliteitseisen etc. Doorvragen dus.
- Wie is verantwoordelijk voor wat.

7. In hoeverre is de relatie met actoren essentieel voor jullie om invoer van deze POCT methode goed te kunnen waarborgen?
   - Hoe zit dit bij deze methode? Hoe is de relatie met de verschillende actoren?
   - Wat voor risico's zitten er aan vast voor POCT aanbieder en gebruikers (ook kosten zijn een risico)?
   - Wat is de toegevoegde waarde van gebruikers voor jullie als aanbieder? Wordt er gebruik gemaakt van elkaars core competences en best practices?
8. Do you feel the need to tell me something about POCT I haven't asked about?

Appendix B, questions GP's.

Uit de literatuur is gebleken dat er een aantal factoren zijn die waarde verhogen voor een bepaalde service of product. Deze factoren zijn:

Economische factoren, waarde verhogen door bijvoorbeeld verbruik van stroom van een apparaat te verlagen.

Technische factoren, waarde verhogen door een superieur product aan te bieden.

Sociale factoren, waarde creëren doordat product sociale voordelen biedt zoals bijvoorbeeld status, maatschappelijke

Service factoren, waarde creëren door hele goede service te bieden.

Prijs, waarde creëren door creatief te zijn met de prijs.

Met deze factoren in uw achterhoofd, in hoeverre ziet u deze factoren terug komen bij de POCT methode die u gebruikt? Kunt u dit toelichten met voorbeelden?

Met dezelfde factoren in uw achterhoofd, in hoeverre vindt u alle factoren relevant voor u als huisarts in de dagelijkse praktijk, m.a.w. wat creëert voor u waarde en wat minder? Kunt u dit toelichten met voorbeelden?

Wat mist u aan de POCT methode zoals deze nu bij u gehanteerd wordt?

Denk aan:

- *Soorten analyzers.*
- *Praktische aspecten.*

In hoeverre vindt u de samenwerking met het laboratorium goed? Waaruit blijkt dat?

Is er nog iets wat u zou willen toevoegen voor wat betreft POCT

Appendix C, questions KPN eZorg.

Vragen voor KPN eZorg aangesloten op POCT

Uit de literatuur is gebleken dat er een aantal factoren zijn die waarde verhogen voor een bepaalde service of product. Deze factoren zijn:

Economische factoren, waarde verhogen door bijvoorbeeld verbruik van stroom van een apparaat te verlagen.

Technische factoren, waarde verhogen door een superieur product aan te bieden.

Sociale factoren, waarde creëren doordat product sociale voordelen biedt zoals bijvoorbeeld status, maatschappelijke

Service factoren, waarde creëren door hele goede service te bieden.

Prijs, waarde creëren door creatief te zijn met de prijs.

Met deze factoren in uw achterhoofd, in hoeverre ziet u deze factoren terug komen in de samenwerking die jullie hebben met het JBZ voor wat betreft hun POCT methode? Kunt u dit toelichten met voorbeelden?

Met dezelfde factoren in uw achterhoofd, in hoeverre vindt u alle factoren relevant voor u als KPN, m.a.w. wat creëert voor u waarde en wat minder? Kunt u dit toelichten met voorbeelden?

Wat mist u aan de POCT methode zoals deze nu bij u gehanteerd wordt?

Denk aan:

- *Soorten analyzers.*
- *Praktische aspecten.*

In hoeverre vindt u de samenwerking met het laboratorium goed? Waaruit blijkt dat?

Wat zou voor dit onderzoek nog meer relevant zijn om te weten?

Appendix D, Case JBZ

Laboraty: Jeroen Bosch Ziekenhuis

Phase: Exploitation phase

Number of GPs:

Location: Den Bosch.

Status: connected to hospital.

Introduction:

The Jeroen Bosch Hospital is very ambitious with their POCT method. They have won several prices for the good intergration of POCT with the laboratory. The trend they are following is the trend that more and more actions are needed in the first line health care, the general practitioners. Because of a wild growth of several POCT methods the Jeroen Bosch Hospital decided that when general practitioners wish to adapt to this system the JBZ should develop a system in which this is made possible using those standards of a accrediated laboratory. Previously expiration dates were not checked and reliability and accuracy were at a poor level.

Economical:

For general practitioners its important to reduce administrative handlings. In this system there is no need of manual input and therefore its an efficient system with almost non administrative handlings. Besides the quality checks are performed by the laboratories, in this way this doesn't raise costs for the General Practitioners. For the JBZ customer retention is the reason why they engage in POCT.

Technical:

They started just by pioneering in the world of software integration and secured data lines. By making mistakes they were able to design a system which is reliable, solid and integrates the general practitioner with the laboratory in an efficient and effective way.

The JBZ uses a fast integration of a secured data line from KPN eZorg and an existing platform used by general practitioners. This existing platform is integrated with the laboratory using Zorgdomein. When a general practitioner is willing to take a test with a patient he turns on his computer and looks in his own system and opens the patient's profile. Then he clicks on Zorgdomein to get a "zorgdomein number". This number corresponds to the patient and the test taken. It also shows that in this case the test is a POC test. Before actually getting the data the general practitioner, or the assistent, scans his/her barcode to identify herself/hisself. After identifying the one taking the test, the patients number is scanned to identify the patient. No manual input is needed and therefore reduces the risk of entering wrong numbers. The testing device then needs some input, blood. When this is done the general practitioner immediately receives the output. This output is automatically send to the software program at the JBZ. When extreme data occur the analyser sends it to a

clinical chemist which takes a closer looks and eventually this increases safety. They are performing 300 tests a day. Approxemently 10 of those 300 need some further analysis in the lab. Not always by the clinical chemist.
Because the data is already updated in the hospital and laboraty software this reduces the number of same test within a short period of time on the same patient.
The JBZ offers four different tests. CRP, HBA1C, Glucose/HB and urine tests. The only problem they are facing right now is that if a General Practitioner wishes to do several tests he needs to order several ZD numbers instead of just one. This raises the amount of orders. Every order is charged with an amount of money. In this case the JBZ is charging just one order but this is done manually which is not good for efficiency. Its a software thing and they are busy at the moment to solve this problem.
All devices used for POCT have extensifely been tested in order to make sure that it meets the quality standards. Besides the ease of use is tested as well since this method should make it easier and not more complex.

Service:

The point-of-care anlysers monthly perform quality checks and make sure that the stock of usage products for testing is at a secure level. They also check expiration dates. Before general practitioners and its assistents can perform POCT in the system designed by the JBZ they need to be trained and schooled. This is done on-site with instructions but also by using tests. When they succesfully have fulfilled both they get access to the system. They need to do the E-test yearly. For these tests they follow the guidelines presented by BIG.
For the JBZ the high level of service is their unique selling point.

Social:

In this case you would have much more one-stop-visits where the GP's tries to increase value for his patients. One-stop-visits means that the GP can immediately measure a few values and adjust his diagnosis upon this. Especially the CRP test could provide in huge benefits. This type of test measures the infection rate in someone's body. If a GP is doubting to subscribe antibioticum for instance he could first test if its necessary. In this way not only the patient is benefiting but society as well since there is a need to decrease antibioticum use in order to stop resistent bacteries. Research showed that if everyone would adopt the CRP test that it could reduce usage of antibioticum to 80%.

Costs:

For the JBZ increasing profit is not their number one goal. It should, at least, cover all costs. From that point of view they have created this POC system. All devices are free for the general practitioner as is all the things needed to perform the tests. The JBZ earns money by the invoices at the health insurances. One of the implications with implementing this system was they way is a mind-set thing. When the General Practitioner for instance uses a urine stick to determine the value for a patient he gets 2,50 euro for the test. When he uses the device for determining the value of urine he does not receive the 2,50 anymore plus the patient has to pay 7 euro. But the test is much more reliable, accurate and efficient than a urine stick. When the output the GP receives is not accurate enough the chance for the patient to visit the laboratory for a second opinion increases as well which eventually increases costs for the patient but for society as well. Therefore the JBZ thinks that you should do it right or you should not do it.

Prerequisites:

Before a GP is able to get in the network of the JBZ concerning POCT they need to have at least 5 points. Without one of them its not possible to get in the network of the JBZ.

1. The GP needs room for the devices, approxemently 30cm per device.
2. They need to work with KPN eZorg
3. They need to work with Zorgdomein
4. They need a power plug
5. They need a data line.

Interaction with GP:

The JBZ really values the relationship with its GP's. Of course there are always GP's "shopping" for other solutions but most of the GP's are really engaged with this system. The JBZ feels that because of the POCT method the GP has more time to do where (s)he is good at, giving the right diagnosis. The JBZ only concern is that they wish that the GP's are more aware of the quality aspect, these ways of testing is really much better and reliable than the hand tests. The JBZ wishes to organize "user" days. These days should provide all users of POCT the possibility to exchange experiences and get the conversation started.

GP's perspective:

For the GP's its most important that this method is fast and reliable. In fact, one of the GP's quoted: *"Before I wanted to work with POCT I had to be convinced of the reliability of the system."* The fast diagnosis of blood can help the GP's adjust their treatment in a more secure way. The GP's really value that they consume less antibiotica for instance. Especially since there is a growing interest in reducing antibiotica usage. Besides technical and social related value boosters, GP's really value the service level provided by the JBZ. The fast delivery of resources, the solid maintance routines are often mentioned. There are however some critics. One of the GP's asked for a faster way of getting the right documents out of Zorgdomein while other GP's requested for additional tests like, determining Kalium and MDRD for determining a solid cardiovasculair riskmanagement profile or serum lipid profile and fundus photography.

Relationship type:

The relationship in a value-creating network depends on two variables: value added to partner and operating risk. JBZ adds value to the GP's practice but the GP has no risk at all because adoption of the system is entirely free of charge. Therefore this relation ship is facilitative

Next step:

The JBZ is searching for a way to outroll this concept across the Netherlands. They believe that this method could contribute to health care and it improves the quality of health care. They are willing to connect different laboratories in the Netherlands tot his system.

Appendix E, Case DZ

Laboraty: Deventer Ziekenhuis

Phase: Exploration phase

Number of GPs:

Location: Deventer.

Status: Connected to hospital.

Introduction:

The Deventer Ziekenhuis is exploring the possibility to engage in POCT activities. They have had some pilots with local General Practitioners and they are recognizing that there is a wildgrowth of testing devices in the first line health sector. Besides political decisions are moving more actions towards the first line. If they are not offering it soon somebody else will. Customer is king.

Economical:

The Deventer Ziekenhuis recognizes the urge of one-stop visits for the patients. They have not yet a system, which reduces administrative work to a minimum but they are searching for a way which integrates the general practitioners system into the laboratory's system. Their wish is to design a system in which no manual input is needed. They think that especially CRP testing could provide in macro-economic benefits, it could reduce usage of antibiotica. Besides it provides in customer retention.

Technical:

The DZ are not in the phase that they have designed a fully working POCT method. They have done some pilots though. In this pilot they were able to connect the General-Practitioners' practice to the lab and get results immidiately through Zorgdossier. The usage of devices is a critical point in their development. They have tested the devices thoroughly in order to make sure that it meets the quality standards and it is easy in use.

Social:

As noted earlier the benefits for the customers are the one-stop visits. Plus the decreasing usage of antibiotica, which they see as crucial in reducing the risk of resistant bacteria. When this happens the antibiotica will not work anymore.

Costs:

The costs part is not yet clear with the DZ for POCT. First they thought of a system in which they provide the GP with all necessary devices, reagentia, trainings and so on for free. They would earn their money by invoicing the tests at the health insurance companies. Because one of the directors thought it was weird to invoice something which someone else had done and that this is wrong they came up with a new payment method. The GP has to buy the devices and all reagentia. The reagentia can be centrally bought by the lab which would reduces costs for the GP. Besides the GP

should have a subscription with the lab paying a certain amount monthly to get access to the lab, the trainings, quality checks and so on.

Prerequisites:

They have yet no prerequisites for the GP to get involved in a POCT structure with the DZ. When a GP is considering usage of POCT in his/her practice it starts with getting the conversation started with the DZ. Together they will search for a way how it could work and eventually start a pilot.

Interaction with GP:

The DZ needs the GP very much. Not only for getting pilots started but to get POCT started as well. They need some first followers which could increase usage of their POCT. They need the GP's to develop the POCT method together to make sure it fullfills the needs of the GP.

Perspective of GP:

From the GP's perspective value is created from the fast interaction with the patient and quick results. These quick results can be used to confront patients but also by providing the patient in quick treatments. The decrease of usage of antibiotica is also from great importance. These social related factors are very important. Besides these social factors, technical factors are valued very much. The validation of equipment, the expertise of the lab are just two examples mentioned by the GP which raises value fort hem. Last but not least the GP's recognize that it actually saves them time. Not sincerly in one consult but when we consider the fact that formally the GP had to phone the patient when he had received the results and the possibility that they had to adjust the treatment is now gone, which saves time. This is an economic factor.

Relationship type:

The relationship in a value-creating network depends on two variables: value added to partner and operating risk. DZ is adding value to the GP's practices. But investments are not really high either. Therefore this relationship type is integrative.

Next step:

They are searching for several GP's to get things started again. After some trouble in their last pilots they want to take those trouble as a learning point and develop a better system to work around.

Appendix F, Case DVU

Laboraty: Diagnostiek voor u.

Status: Sollistic

Phase: Exploitation phase

Number of GPs: 100 locations, approxemently 200-300 gp's.

Location: Eindhoven.

Introduction:

DVU is a big player in the POCT market for GP's. They have managed to create a system in which they can provide a large amount of GP's solutions which meets the quality standards put up by the NRG. They have searched for a solution in order to fulfill the need for the rapid society for quicker results, more results, and the desire of the customer to know more. GP's started with small glucose meters and hb meters because then the GP could decide, based on those results, what to do next. Because of the quality issues of these small meters DVU decided that if a GP wants to have point-of-care tests that these should meet the quality standards of a accrediated laboratory.

Economical:

DVU emphasized the importance of decreasing costs for health insurance companies. For instance the CRP test could reduce costs of antibiotica research. They offer quality checks in order to make sure that the appliances work properly. Besides for DVU it is important to keep track with competition. Since they are a sollistic laboratory they are more focussed on making more money with the lab than it costs. For a laboratory connected to a hospital this is ofcourse als important but when this doesn't happen they won't get bankrupt. DVU will. Therefore they are more focussed on getting appliances to the POC market that really is used by the GP's.

Technical:

DVU's POCT method is working properly. A lot of GP's are included and they receive a lot of positive feedback. They think they could become more efficient and effective when implementing a middleware systems which connects the appliances to the HIS and to the LIS. In short their data loop, for in this case a CRP test, looks like this.

1. First the GP suspects an infection and doubts if he should subscribe for antibiotica
2. He sends the patient to his assistent to take some blood.
3. The assistents uses this blood in the CRP meter and waits for the result.
4. When the results is known the assistent is either instructed by the GP to subscribe something when a the result is higher than or lower than a given number or the assistent will communicate the result to the GP, this can be done in a written or oral form.
5. The GP adjusts his further diagnosis to the results and sends the patient home.
6. The assistent has to fill in the results manually in the HIS.
7. After filling in the results in the HIS the assistent has to do the same in Zorgdomein.
8. The results will be automatically send to the LIS.

It is possible to send a report back. But DVU has chosen not to do this because the results rely on the professionalism of the poc analist. If the assistents did not follow the rules and guidelines the results are influenced and DVU can not check this from a distance. If there is middleware which they could use in their system this would not be the case anymore, besides the assistent has to communicate the result three times at this moment. First to the GP, second to the HIS and third to Zorgdomein. In this way there is room for errors. They have had some conversations with suppliers of middleware but these systems were to expensife. A couple of hundred euro's per appliance per year is simply too much. There have been some shifts however and therefore their belief is that this will soon be possible. When a good middleware is implemented this provides them with the following benefits:

1. Less error by removing manually input.
2. Possibility to check lot-numbers and therefore be able to check expiration dates from a distance.
3. Better integration of e-learning.
4. Less handlings for the GP.
5. Excluding non-certified assistents from using appliances.
6. Centrally updating appliances.
7. Testing appliances by sending samples to GP's and ask them to measure those samples on a specific time and date.

Service:

DVU provides training sessions with the assistents and GP's which are willing to engage in POC activities. These trainings are on spot but will be by e-learning in the future. These trainings are obligated to follow before using the appliances. Besides they support the GP's with the logistic part as well. In this case the GP has to order it online and all necessary resources are delivered to his practice within a couple of days. Besides, the expiration days are checked with the quartilely visits of the accountmanagers. But this belongs to the responsibility of the GP as well. Besides trainings and logistic operations, DVU performs the quality checks as well. And lastly, every three months the appliances are checked if they are performing well.

Social:

DVU recognizes the social aspect of POCT. First they think that this fast-changing environment with the enhanced need for quick results is an important trend for DVU to jump in. They feel that if the GP wishes to have diagnostic tools in their practice that they should provide the GP's with accurate and tested appliances which meet the quality of an accrediated lab. This creates the one-stop-visits which patients value. It also decreases society costs because their is less unnecessary referals to the hospital. A decrease of the usage of antibiotica is also a major benefit of POCT for society. Besides they are looking for a good appliance which could determine D-dimineer. This can indicate whether someone is getting a heart-attack or a stroke. When a patient comes in on Friday with heavy breathing or some pain in the chest the GP might think that the patient is having a stroke or a heart attack. But when the GP thinks that its hardly not possible for the patient to have a stroke or heart attack he might send him home. When the GP finds out on monday that the same patient was hospitalized that weekend this creates enormous stress. By using the D-dimineer tool he could exclude if someone is having a heart attack or a stroke without creating more stress.

Costs:

DVU started by emphasizing that this POCT method of them is not created to make profit. It is designed to cover all costs. This means that to be cost covering some decisions had to be made. For instance when a GP does not use the appliances as much as they thought DVU has to take the appliances back, otherwise its too expensife for them. They are not pushing GP's to perform more tests because they

think that testing is not the goal, providing better healthcare is. DVU charges an order amount and a diagnostic amount. This is invoiced at the health insurance companies. Besides they look for solutions to decrease costs of society as well. In our example earlier a patient with heavy breathing or pain in the chest the GP could decide to refer the patient to the hospital. This referal to the hospital creates more expenses for society as well since the First Aid is a costly unit.

Prerequisites:

Before a GP is able to get in the network of the DVU concerning POCT they need to have a few prerequisites.

1. GP is willing to take responsibilities concerning lab diagnostics.
2. Need to work with Zorgdomein.
3. The number of tests should be sufficient to cover costs.

Interaction with GP:

DVU is interacting quite often with their GP's. Every three months someone, an accountmanager or an analist, is going to all practices connected tot heir POCT method to check all appliances and give the GP, or assistents, the possibility to get some questions answered. Besides they are willing to listen to the GP's needs and adjust their method for it. An example is the d-dimineer test which their are currently looking at.

Relationship type:

The relationship in a value-creating network depends on two variables: value added to partner and operating risk. DVU adds value to the GP's practice but the GP has no risk at all. Therefore this relation ship is facilitative.

Next step:

DVU's next step is implementing a middleware program so they can have a faster, more reliable loop with their GP's.

Appendix G, interview GP van Kruijsdijk (JBZ)

Vragen voor huisartsen aangesloten op POCT

Uit de literatuur is gebleken dat er een aantal factoren zijn die waarde verhogen voor een bepaalde service of product. Deze factoren zijn:

Economische factoren, waarde verhogen door bijvoorbeeld verbruik van stroom van een apparaat te verlagen.

Technische factoren, waarde verhogen door een superieur product aan te bieden.

Sociale factoren, waarde creëren doordat product sociale voordelen biedt zoals bijvoorbeeld status of maatschappelijke voordelen.

Service factoren, waarde creëren door hele goede service te bieden kan in de vorm van trainingen maar bijvoorbeeld ook door werk uit handen te nemen.

Prijs, waarde creëren door creatief te zijn met de prijs.

Met deze factoren in uw achterhoofd, in hoeverre ziet u deze factoren terug komen bij de POCT methode die u gebruikt? Kunt u dit toelichten met voorbeelden?

Het voordeel van POCT voor mijn werk als huisarts is de snelle beschikbaarheid van onderzoeksresultaat. Dit kan beleidsbepalend zijn. Wij hebben de POCT-apparatuur ter beschikking gekregen van het JBZ-laboratorium. Onze assistentes zijn geinstrueerd hoe dit te gebruiken. De huisartsen bepalen welk onderzoek verricht moet worden en geven dit (via de patient) aan de assistente door. Deze voert het onderzoek uit en scant de aanvraag zodat het onderzoek en de uitslag bij JBZ terecht komen.

Met dezelfde factoren in uw achterhoofd, in hoeverre vindt u alle factoren relevant voor u als huisarts in de dagelijkse praktijk, m.a.w. wat creëert voor u waarde en wat minder? Kunt u dit toelichten met voorbeelden?

Betrouwbaarheid van de meting. Gaat allemaal goed, ook in de uitvoering (ik heb het nog even gecheckt bij de assistentes die de testen uitvoeren).

In hoeverre vindt u de samenwerking met het laboratorium goed? Waaruit blijkt dat?

De relatie is prettig, zij komen regelmatig voor controle en hebben recent ook de tevredenheid en het gebruik geevalueerd.

Is er nog iets wat u wilt toevoegen wat ik ben vergeten te vragen over de POCT methode en de waarde creatie hiervan of de samenwerking met het lab?

Prettig dat de kosten iets zijn verminderd; hoewel ik nog nooit een opmerking hierover van een patient gehad heb.

Appendix H, interview GP Jenniskens (JBZ)

Vragen voor huisartsen aangesloten op POCT

Uit de literatuur is gebleken dat er een aantal factoren zijn die waarde verhogen voor een bepaalde service of product. Deze factoren zijn:

Economische factoren, waarde verhogen door bijvoorbeeld verbruik van stroom van een apparaat te verlagen.

Technische factoren, waarde verhogen door een superieur product aan te bieden.

Sociale factoren, waarde creëren doordat product sociale voordelen biedt zoals bijvoorbeeld status of maatschappelijke voordelen.

Service factoren, waarde creëren door hele goede service te bieden kan in de vorm van trainingen maar bijvoorbeeld ook door werk uit handen te nemen.

Prijs, waarde creëren door creatief te zijn met de prijs.

Met deze factoren in uw achterhoofd, in hoeverre ziet u deze factoren terug komen bij de POCT methode die u gebruikt? Kunt u dit toelichten met voorbeelden?

Met name de service-voordelen zijn belangrijk: snelle diagnostiek , dichtbij de patiënt, leidend tot snelle actie .

Bv een crp-meting om een ontsteking uit te sluiten of vast te stellen heeft direct invloed op het beleid.

Een Hba1c-meting geeft direct informatie over hoe de pt er voor staat..

Met dezelfde factoren in uw achterhoofd, in hoeverre vindt u alle factoren relevant voor u als huisarts in de dagelijkse praktijk, m.a.w. wat creëert voor u waarde en wat minder? Kunt u dit toelichten met voorbeelden?

Alleen de factor service creëert nu voor mij waarde.

Wat mist u aan de POCT methode zoals deze nu bij u gehanteerd wordt?

Denk aan*:*

- *Soorten analyzers.:lipidenspectrum analyzers ; fundusfotografie*
- *Praktische aspecten.: verbinding met stroom- en computerkabels. Zou echt op accu en wireless moeten zijn.*

In hoeverre vindt u de samenwerking met het laboratorium goed? Waaruit blijkt dat? *Aanvraag-routing via Zorgdomein is erg goed. Verder onderhoud en monitoring. Financieel-economische afwerking laat te wensen over.*

Is er nog iets wat u wilt toevoegen wat ik ben vergeten te vragen over de POCT methode en de waarde creatie hiervan of de samenwerking met het lab?*Nee*
Appendix I, interview GP Felix (JBZ)

Uit de literatuur is gebleken dat er een aantal factoren zijn die waarde verhogen voor een bepaalde service of product. Deze factoren zijn:

Economische factoren, waarde verhogen door bijvoorbeeld verbruik van stroom van een apparaat te verlagen.

Technische factoren, waarde verhogen door een superieur product aan te bieden.

Sociale factoren, waarde creëren doordat product sociale voordelen biedt zoals bijvoorbeeld status of maatschappelijke voordelen.

Service factoren, waarde creëren door hele goede service te bieden kan in de vorm van trainingen maar bijvoorbeeld ook door werk uit handen te nemen.

Prijs, waarde creëren door creatief te zijn met de prijs.

Met deze factoren in uw achterhoofd, in hoeverre ziet u deze factoren terug komen bij de POCT methode die u gebruikt? Kunt u dit toelichten met voorbeelden?

POCT geeft ons de mogelijkheid om in een paar minuten een uitslag van een test te krijgen en daarop direct te kunnen handelen. Dat heeft zich op meerdere manieren bv afgelopen winterzijn nut bewezen. Veel patiënten kwamen bv met de klacht hoesten en wilde graag een antibioticakuur om zo snel mogelijk beter te worden. Na lichamelijk onderzoek legden we hen uit dat de CRP test duidelijkheid kon geven of er sprake was van een bacteriële infectie. Namelijk alleen dan had het zin om antibiotica te geven. Dit heeft een groot aantal antibiotica kuren minder opgeleverd. Tegelijkertijd leken patiënten meer rust te hebben om het natuurlijke beloop af te wachten. Daarnaast gebeurde ook het om gekeerde. Bv patiënten die fors hoesten en ziek leken, hadden bij lichamelijk onderzoek geen afwijkingen. In de oude situatie zou dan een afwachtend beleid zijn gevoerd. Bij een deel van deze patiënten werd een fors hoog crp gevonden. Deze patiënten kregen antibiotica en genazen snel. Daarnaast heeft POCT voordelen voor de chronische patiënt. Bv diabeten hoeven niet steeds naar het lab om een Hba1c te alten bepalen. Het scheelt hun tijd en ze krijgen direct de uitslag. Er is een labblok ingericht in de behandelkamer. De assistente of de praktijkondersteuner prikt het bloed en geeft de uitslag aan de huisarts door. De

uitslagen komen vervolgens per edifact in het HIS van de patiënt terecht. ***Met dezelfde factoren in uw achterhoofd, in hoeverre vindt u alle factoren relevant voor u als huisarts in de dagelijkse praktijk, m.a.w. wat creëert voor u waarde en wat minder? Kunt u dit toelichten met voorbeelden?***

Minder antibiotica gebruik, betere patient behandeling en het kunnen uitleggen waarom wel of geen antibiotica.

Wat mist u aan de POCT methode zoals deze nu bij u gehanteerd wordt?

Denk aan*:*

Snel en efficiënt een formulier kunnen printen (dat gaat nu te traag in zorgdomein). Geen of weinig foutmeldingen (dat gaat goed), het goed aanvullen van voorraden testmateriaal en ijken van de apparatuur door het lab (dat gaat prima). Over het algemeen zijn we zeer tevreden. Ik zou graag een kalium en een MDRD kunnen bepalen. Dat zou ons meer armslag geven bij patiënten met diabetes en bij cardiovasculair risicomanagement.

In hoeverre vindt u de samenwerking met het laboratorium goed? Waaruit blijkt dat?

De contacten met de medewerkers van het lab is goed. De afhandelen van de zogenaamde huurpenningen is te traag verlopen.

Is er nog iets wat u wilt toevoegen wat ik ben vergeten te vragen over de POCT methode en de waarde creatie hiervan of de samenwerking met het lab? *Nee*

Nee eigenlijk op dit moment niet. Patiënten zijn erg enthousiast. Er is geen moment een situatie geweest, waarbij patiënten dachten dat lab prikken in het ziekenhuis nauwkeuriger is. We leggen het ook uit dat we apparatuur van het ziekenhuis hebben, om zo snel, efficiënt en nauwkeurig patiënten te kunnen helpen.

Appendix J, interview GP Sluimers (DZ)

Vragen voor huisartsen aangesloten op POCT

Uit de literatuur is gebleken dat er een aantal factoren zijn die waarde verhogen voor een bepaalde service of product. Deze factoren zijn:

Economische factoren, waarde verhogen door bijvoorbeeld verbruik van stroom van een apparaat te verlagen.

Technische factoren, waarde verhogen door een superieur product aan te bieden.

Sociale factoren, waarde creëren doordat product sociale voordelen biedt zoals bijvoorbeeld status of maatschappelijke voordelen.

Service factoren, waarde creëren door hele goede service te bieden kan in de vorm van trainingen maar bijvoorbeeld ook door werk uit handen te nemen. Prijs, waarde creëren door creatief te zijn met de prijs.

Met deze factoren in uw achterhoofd, in hoeverre ziet u deze factoren terug komen bij de POCT methode die u gebruikt? Kunt u dit toelichten met voorbeelden?

Ik beantwoord je vraag in relatie tot CRP-meter in huisartsenpraktijk.
(Ik kan ze niet direct indelen in jouw categoriën, dat laat ik aan jou over)
a. grootste factor is medisch-inhoudelijk: crp-meting zorgt er bij lage luchtweginfecties voor dat we beter onderscheid kunnen maken tussen infecties die wel en die geen antibiotica behoeven. De grootste winst zit dan (blijkend uit uitgebreid wetenschappelijk onderzoek) niet in patiënten die anders geen AB zouden hebben gekregen en nu wel, maar het juist in het voorkómen van het onnodig voorschrijven van AB bij virale of beperkte infecties. Voordeel hiervan is:

1. Minder bijwerkingen voor patiënt;
2. Minder ontwikkeling AB-resistentie;
3. Minder kosten

In studies is een Number Needed to Test gevonden van 2 tot 3, om 1 AB-recept te voorkomen. Dat is een onvoorstelbare effectiviteit.
Het juist bij de huisarts in de praktijk (POC) testen heeft als voordeel:

1. pt hoeft niet naar ziekenhuis te gaan (en evt. daarna weer terug naar apotheek), en heeft sneller duidelijkheid
2. huisarts heeft ook een tijdvoordeel: kan consult (weliswaar in 2 tempi) in kortere tijd afwerken (anders moet hij pt terugbellen nadat uitslag uit ziekenhuis naar praktijk is verstuurd)
3. huisarts kan bij negatieve crp-test direct en dus duidelijker uitleg aan pt geven over het waarom van geen AB
4. het niet bij de huisarts kunnen testen heeft in deel van de patiënten het gevolg dat er niet getest wordt
5. het in ziekenhuis testen met uitgebreidere lab-faciliteiten heeft soms het nadeel dat het verleidelijk is extra bepalingen aan te vragen (bv. leucocyten, bezinking) waarvoor bij lage luchtweginfecties geen wetenschappelijke

evidence is (uiteraard wel weer van belang bij diagnostiek van andere ziektebeelden)

Met dezelfde factoren in uw achterhoofd, in hoeverre vindt u alle factoren relevant voor u als huisarts in de dagelijkse praktijk, m.a.w. wat creëert voor u waarde en wat minder? Kunt u dit toelichten met voorbeelden?

Ik vind het voorkomen van antibiotica-resistentie op populatie-niveau de belangrijkste factor.

Een-na belangrijkste factor is dat je als huisarts een degelijker uitleg aan pt kan geven van het waarom van geen AB-recept.

Twee-na belangrijkste is comfort voor pt.

Wat mist u aan de POCT methode zoals deze nu bij u gehanteerd wordt?

Denk aan:

- ***Soorten analyzers.***
- ***Praktische aspecten.***

Meeste huisartspraktijken hebben nu geen CRP-meter in huis.

Afstemming met de klinisch chemici van het Dev. ZH heeft als voor deel dat:

1. testapparaat is gevalideerd (uit testen blijkt dat enkele apparaten of te wisselende resultaten gaven of gebruiksonvriendlijk waren)
2. resultaten test komen ook overeen met labtest in ZH (van belang bij pt die van 1ste naar 2e lijn gaan en in beide settings achetreenvolgens worden getest)
3. technische ondersteuning vanuit Dev ZH
4. inkoopvoordeel
5. we zo, in samenwerking tusen Dev ZH en de Huisartsen Coöperatie Deventer en omstreken, deze test in 1 keer kunnen uitrollen over 30-40 praktijken.

In hoeverre vindt u de samenwerking met het laboratorium goed? Waaruit blijkt dat?

Er is goed en laagdrempelig overleg tussen professionals die medisch-inhoudelijk goed op de hoogte zijn en daarnaast gemotiveerd om samen een kwaliteitsslag te maken.

Is er nog iets wat u wilt toevoegen wat ik ben vergeten te vragen over de POCT methode en de waarde creatie hiervan of de samenwerking met het lab?

Financiering van een CRP-meter: kost normaliter kleine 1300 euro. Dat is niet niks voor een praktijk. Naast inkoopvoordeel via het Dev. ZH hopen we ook door dit project een bijdrage van de preferente zorgverzekeraar te krijgen.

Appendix K, interview GP Coenen (DVU)

Vragen voor huisartsen aangesloten op POCT

Uit de literatuur is gebleken dat er een aantal factoren zijn die waarde verhogen voor een bepaalde service of product. Deze factoren zijn:

Economische factoren, waarde verhogen door bijvoorbeeld verbruik van stroom van een apparaat te verlagen.

Technische factoren, waarde verhogen door een superieur product aan te bieden.

Sociale factoren, waarde creëren doordat product sociale voordelen biedt zoals bijvoorbeeld status of maatschappelijke voordelen.

Service factoren, waarde creëren door hele goede service te bieden kan in de vorm van trainingen maar bijvoorbeeld ook door werk uit handen te nemen.

Prijs, waarde creëren door creatief te zijn met de prijs.

Met deze factoren in uw achterhoofd, in hoeverre ziet u deze factoren terug komen bij de POCT methode die u gebruikt? Kunt u dit toelichten met voorbeelden?

Economische factoren: voor mij minder relevant, ik werk in loondienst en merk dus niet direct iets in mijn eigen portemonnee. Vergoeding door de verzekeraar is wel een vereiste, aangezien de meeste patiënten weinig financiële middelen hebben

Sensitiviteit en specificiteit bepalen of ik een apparaat gebruik in de praktijk

Sociaal: geen invloed

Service: snelle uitslag bevordert patiënten tevredenheid. Wij zijn tevreden over de mogelijkheid om via D4U gebruik te kunnen maken van POCT. Het is voor ons een snelle en gemakkelijke manier om de dagdagelijkse praktijk te ondersteunen, beslissingen die daarin gemaakt moeten worden, te ondersteunen en kwalitatief beter te maken.

Prijs; zie economische factoren

Met dezelfde factoren in uw achterhoofd, in hoeverre vindt u alle factoren relevant voor u als huisarts in de dagelijkse praktijk, m.a.w. wat creëert voor u waarde en wat minder? Kunt u dit toelichten met voorbeelden?

Kwaliteit van meting is belangrijkste voorwaarde. Daarna komt praktische toepasbaarheid

Wat mist u aan de POCT methode zoals deze nu bij u gehanteerd wordt?

Denk aan:

- ***Soorten analyzers.***
- ***Praktische aspecten.***

Het enige nadeel is dat de uitslagen via Zorgdomein ingevoerd moeten worden, zoals ik al met je besprak. Als dit op de een of andere manier geautomatiseerd zou kunnen worden, zou dat het gebruik nog makkelijker maken.

In hoeverre vindt u de samenwerking met het laboratorium goed? Waaruit blijkt dat?

Onderhoud apparaat en levering benodigdheden is prima. Er is binnen onze organisatie nog onduidelijkheid over declaratie (DVU of wij). Maar dat wordt uitgezocht

Is er nog iets wat u wilt toevoegen wat ik ben vergeten te vragen over de POCT methode en de waarde creatie hiervan of de samenwerking met het lab?

Nee.

Appendix M, inteview eZorg (KPN)

Vragen voor KPN eZorg aangesloten op POCT

Uit de literatuur is gebleken dat er een aantal factoren zijn die waarde verhogen voor een bepaalde service of product. Deze factoren zijn:

Economische factoren, waarde verhogen door bijvoorbeeld verbruik van stroom van een apparaat te verlagen.

Technische factoren, waarde verhogen door een superieur product aan te bieden.

Sociale factoren, waarde creëren doordat product sociale voordelen biedt zoals bijvoorbeeld status, maatschappelijke

Service factoren, waarde creëren door hele goede service te bieden.

Prijs, waarde creëren door creatief te zijn met de prijs.

Met deze factoren in uw achterhoofd, in hoeverre ziet u deze factoren terug komen in de samenwerking die jullie hebben met het JBZ voor wat betreft hun POCT methode? Kunt u dit toelichten met voorbeelden?

Eigenlijk zijn vanuit KPN/E-Zorg alle factoren van toepassing:

1. De waarde van de connectiviteit met het E-Zorg netwerk (of KPN ZorgCloud) wordt voor de huisarts verhoogd doordat er extra diensten over worden aangeboden
2. Via 1 verbinding meerdere diensten mogelijk, technisch een mooiere en eenvoudigere oplossing
3. –
4. Zie 1
5. Zie 1

Met dezelfde factoren in uw achterhoofd, in hoeverre vindt u alle factoren relevant voor u als KPN, m.a.w. wat creëert voor u waarde en wat minder? Kunt u dit toelichten met voorbeelden?

Gezamenlijk waarde creëren zou kunnen in de vorm van een distributiemodel. POCT van JBZ maakt bijvoorbeeld standaard onderdeel uit van de KPN ZorgCloud, hierover kunnen voor beide partijen interessante afspraken gemaakt worden. Voordeel voor JBZ is landelijke dekking voor hun dienstverlening, voor KPN betekent dit toegevoegde waarde vanuit de KPN ZorgCloud.

Wat mist u aan de POCT methode zoals deze nu bij u gehanteerd wordt?

Denk aan:

- ***Soorten analyzers.***
- ***Praktische aspecten.***

Stap maken naar thuismetingen eventueel onder begeleiding (op afstand) door huisarts. Aantal analyzers is uit te breiden, maar afhankelijk van techniek wanneer dit financieel aantrekkelijk wordt.

In hoeverre vindt u de samenwerking met het laboratorium goed? Waaruit blijkt dat?

De samenwerking met JBZ is goed. Van beide kanten wordt er vanuit mogelijkheden gedacht en is er de wil om elkaar verder te helpen. Voorbeeld hiervan is het meewerken van JBZ aan een testimonial voor KPN (ik neem aan dat je die hebt/kent?), van andere kant de flexibiliteit vanuit KPN/E-Zorg bij installatie van POCT op locatie bij de huisarts.

Wat zou voor dit onderzoek nog meer relevant zijn om te weten?

Niks.

Appendix N, cross-case examination laboratories

See attachment 1.

Appendix O, cross-case examination GP's.

See attachment 2.