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# Research Justification Report



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## Management Summary

The following report describes the issues that Medisol B.V. is currently facing regarding their maintenance practices. It shows to which extent may the company increase the total turnover received from the maintenance contracts, while at the same time, reducing the amount of time and money that they are currently investing in the maintenance department. Four information gaps have been identified at the beginning of the research:

- To what extent are consumers looking for a maintenance service;
- To what extent is a monitoring device matching Medisol's products profile;
- To what extent is the company willing to change their maintenance system;
- The extent to which Medisol is willing to take risks and invest larger sums of money for the long-term improvement of the maintenance department.

In order to provide an answer to the above mentioned questions, both literature and field research have been performed. The field research took the form of structured interviews with six people from Medisol, more specifically the members of the maintenance decision-making unit, and eight people from outside the company, more specifically, its customers. The number of the interviews were based on the number of countries where maintenance contracts are being profitable, thus ensuring reliable results. Of course, those results have their limitations, as countries with less favorable figures and people within the company that are not relevant in the decision process were not take into account.

The results demonstrated that AED's purchasers are not entirely aware of the importance that maintenance has for such a major device. Additionally, when they seem to be understanding the value brought by a maintenance contract, the pricing issue is being encountered. There are definitely aspects, such as sharing best practices and insecurities that come along with a fast growing, successful company and sharing success, which can be improved within the structure of Medisol. However, Medisol has proven itself to be able to continue expanding and modernize its maintenance systems, but in order to do this, there are four relevant issues that need to be taken care of. Those four elements are taken the form of recommendations which can be found in a more detailed version at the end of this research paper and those are:

- Change the internal communication within the company;
- Change the structure of the maintenance department and organize monthly meetings focused on helping the sales consultants with their maintenance tasks;
- Start looking for a maintenance technician which can be hired and owned by Medisol, thus giving the company the control it demands;
- Purchase the online monitoring devices and create attractive offers in order to push the product in the market.

Depending on the period of time that the company wants to have the return on investment on the decisions made, the recommendations can be implemented in a time frame of 1 to 7 years. As a result of the implementation of the heretofore mentioned suggestions, the company will be able to reduce the maintenance costs in the long-term and increase the number of maintenance contracts.

As a professional product, the company will be presented with a management address where I will provide them with a plan to successfully increase the number of maintenance contracts, re-structure the internal communication between the people involved in the maintenance

process and optimize costs. The aim is to finish this management address until the 1<sup>st</sup> of June and presented to the company by the 10<sup>th</sup> of June.

## 1. Preliminary research

In this chapter, a short introduction about the company and its products will be provided. Afterwards, the problem analysis will be described, followed by a short paragraph regarding the information gaps which need to be answered. Finally, the project aim will be introduced.

### 1.1 Company and product analysis

Medisol B.V. is an independent supplier of AEDs<sup>1</sup> and other equipment necessary for the successful delivery of CPR. Their products are divided into the following categories: i) AED defibrillator; ii) AED accessories; iii) maintenance contracts; iv) training AEDs and accessories; v) training manikins and vi) first aid kits, life support and ventilation accessories. Regarding their maintenance services, they are currently providing two contracts: i) AED Safeguard Plan and ii) AED Service Contract. A more detailed overview of the maintenance contracts will be provided in the problem analysis section.

Their office and warehouse are located in Vlissingen, The Netherlands. The company was founded by two former paramedics in 2001: Pieter Joziase and Edwin Roelse. Medisol provides a wide range of defibrillators at competitive prices. Besides that, their product specialists are always ready to provide their customers with specialized advice, full guidance and support for the lifetime of their devices (Medisol, 2019).

Medisol has a clear and powerful mission: Saving lives. They are passionate about increasing the accessibility of AEDs, by removing boundaries that restrain availability in public areas. All their actions have at base the core values of the company and those values are: i) innovation and dynamics, as they are continuously challenging themselves to provide the best service and maintain their competitive place in the market; ii) passion, as their work makes them proud of the positive input that they bring into the world; iii) expertise, as for the company it is more to be able to give expert advice to their clients, than making lots of sales; and iv) equality, since everyone at Medisol is equally important and they understand that only by working together and behaving like a sole entity, they will be able to maintain and increase the success of their company. Medisol's vision is to maintain its position as an independent supplier of AEDs and save as many lives as possible.

The company's goals for the upcoming year are to increase their margin by 28%, increase the turnover by 28%, amount of paid contracts by 28%, the number of AED's sold by 25%, reduce the average payment time from 20 days to 17 days and finally, but equally important, increase their rating on Trustpilot to 4.8 (Medisol, 2020). Their target for 2025, as shown in the leaflet, that can be found in Appendix in figure 1 (Joziase, 2020), is that everyone across Europe will have access to a defibrillator within 6 minutes.

Medisol is registered as Medisol B.V.<sup>2</sup>, thus a private limited company, meaning that it is liable for any debts that might occur in time and its equity is owned by shareholders through shares (Netherlands Chamber of Commerce, KVK, 2020). As Medisol is a small B.V. it only

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<sup>1</sup> Automated External Defibrillator

<sup>2</sup> Besloten Vennootschap

has 2 shareholders. One is the director and founder, Pieter Joziassse, owning 95% and the second one is Anne-Marieke Wieman, owning the remaining 5%.

The company operates in the healthcare industry and the target market consists of dealers and end-users. Therefore, Medisol is operating in both B2B<sup>3</sup> and B2C<sup>4</sup> businesses.

During the last five years, the company's profits have increased significantly from a revenue of €5.38 million in 2016 to €12.31 million in 2019. Currently, the company grows annually by 30% and has recently become a European leader in the AED market. With such great performance, it has already received 10 years in a row the FD<sup>5</sup> Gazelle Award – an award given to the fastest growing companies in the Netherlands. Furthermore, it has received four times the prestigious Golden Gazelle as the fastest growing company in Zeeland as well as three nominations for the High Growth Awards (Medisol, 2019). Medisol has a network of 20 web shops in 16 different European countries, shown in the leaflet which can also be found in the Appendix in figure 2 (Joziassse, 2020) and expert native speaking customer service teams.

In regards to the staffing and company structure, as described in Appendix 1 figure 3 (Hollaers, 2020), within a few years they have grown from 5 to 45 employees of 13 different nationalities, working in 9 distinct departments: i) sales; ii) management; iii) finance; iv) human resources; v) IT; vi) purchasing; vii) logistics; viii) marketing communications and ix) maintenance. 75% of the workers are currently contracted as part-time workers and the remaining 25% are contracted as full-time employees. Additionally, there are 4 interns completing their final internships within Medisol (Boutens-Cevaal, 2020)

The management team, consists of the CEO, the director of operations, two territory managers and the business development manager. The last two, are the ones responsible for the sales consultants.

## 1.2 Problem analysis

The healthcare industry uses a wide variety of equipment in order to serve patients in the best possible way. Companies belonging to this industry are required to maintain facilities, supplies, and equipment in order to provide a certain level of safety and quality for patients, whilst meeting the necessary industry standards for inspection (Med Trainer, 2018). To ensure the equipment stays in good condition, regular maintenance needs to be carried out.

The main product that Medisol are selling are AEDs. As explained on the Red Cross webpage, an AED is used to help those experiencing sudden cardiac arrest. ‘‘It is a sophisticated, yet easy-to-use, medical device that can analyze the heart's rhythm and, if necessary, deliver an electrical shock, or defibrillation, to help the heart re-establish an effective rhythm’’ (Red Cross, 2020). Thus, it is crucial that a defibrillator works at all times and maintenance is carried out regularly.

To prevent any dangerous outcomes arising from the fact that batteries of defibrillators have stopped working or the gel on the electrodes has dried and in order to maintain their continuity

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<sup>3</sup> Business to Business

<sup>4</sup> Business to Consumer

<sup>5</sup> Financieele Dagblad

in the long-term, Medisol has created two maintenance contracts, aiming to assist customers whenever they encounter a problem. These are:

- a) AED Standard Contract – this is the cheapest plan, costing €89/year, excluding VAT<sup>6</sup>., If an AED has been deployed, has a malfunction or has been stolen, a loan AED will be supplied within 72 working hours. The defective AED will be collected by Medisol and repairs will be done. Also, before the expiry date of the electrodes and batteries, the company will send an invoice with a 10% discount. The customer will be informed of any available manufacturer updates for the AED and technical support will be available for 24 hours a day, 365 days a year. If a medical professional requests a reading from the AED, Medisol will provide it for free.
- b) AED Extra Contract– the more expensive version of the maintenance activities, sold for €139 euro/year. In addition to all of the above-mentioned items, it includes an annual call-out to the location of one customer by a qualified service engineer. He will carry out a full service of the AED and issue a certificate of approval, confirming that the AED is being maintained, while also placing a sticker on the AED with this information. The maintenance is carried out according to the standards of the European Defibrillator Certification Institute (Medisol, 2020).

Due to current legislation, it is only possible to certify an AED that is less than 10 years of age, after this time they can be serviced if still working, but not certified. Also, if an AED is out of warranty, but less than 10 years old, any repairs are not free and would be charged to the customer.

There are 4 main problems that Medisol is currently encountering related to maintenance: 1) the quality of maintenance contracts decreased leading to a decrease in sales; 2) the current maintenance partner does not fit the company's future plans anymore; 3) it is expensive to conduct maintenance in all their operating countries. Due to the high transportation costs and the time lost travelling, the company decided to cancel the extra service in certain countries such as: Italy ( due to the large amount of highway taxes), Scandinavian countries ( where due to the large surface of the country, it is costly both money and time wise to go from point A to point B) , France (highway taxes and tunnels); 4) the rise of the online monitoring systems for certain brands, as Medisol is not yet part of this innovative process.

Even though maintenance already had some issues in the last couple of years, the company tried to maintain a balanced working level. However, during the past months, some sales consultants remarked that the number of contracts sold decreased. When they contacted their clients, the most common answer was that the quality is deficient and they are not willing to pay such a price for the service.

For now, maintenance has a huge impact on sales and customer relationship, and in the long-run this might have a negative impact on the overall performance of the company. They recognized a need to invest in their maintenance contracts. Furthermore, for the upcoming year, Medisol aims to expand and a lot of work will be required to increase the number of customers

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<sup>6</sup> Value Added Tax



and repair the negative reputation that has resulted from the poor and inadequate maintenance service provided during the past few years. Moreover, Medisol would like to give equal chances to all its customers. Therefore, changes are needed within the maintenance department, aimed at reducing the costs and increasing profits.

### 1.3 Information gaps

To have a clear vision of what needed to be done in order to increase its profits in the long-run and provide the same services in all its operating countries, several information gaps were addressed: 1) to what extent are consumers looking for a maintenance service; 2) to what extent is a monitoring device matching Medisol's products profile; 3) to what extent is the company willing to change their maintenance system and 4) the extent to which Medisol is willing to take risks and invest larger sums of money for the long-term improvement of the maintenance department.

### 1.4 Project aim

The purpose of this research was to find an efficient and affordable method for the company to reduce the maintenance costs in the long-term and increase the number of maintenance contracts, while answering the previously mentioned information gaps. The research provided an insight into the existing solutions in the market, which Medisol can take advantage of and how choosing either one of the solutions exerted influence on the budget and current operational system within the company. The research was based on literature research and field research by conducting interviews with the maintenance decision-team of Medisol and some of its customers. The research led to the creation of a list of recommendations, which will be presented under the form of a management address. Through that, I will advise them on what are Medisol's opportunities regarding the increase in the number of maintenance contracts sold, the improvement of the internal communication and the usage of their budget in a more efficient way. The management summary will be finished by June 5<sup>th</sup>.

## 2. Research Approach

In this chapter, the research design will be explained, followed by a detailed explanation of how the data has been collected. Afterwards, I will provide some insight into how the data has been analyzed and the chapter will conclude with some information regarding operationalization.

### 2.1 Approach per information gap

The information gaps have been answered through a mix between literature and field research. The literature research has been used to answer the first two information gaps, by giving insight as to how popular maintenance is and if there are any legislations that make it mandatory (first information gap) and what monitoring devices are already available to the market and if they match with the products sold by Medisol (second information gap). Furthermore, it has also been partially used for the fourth information gap regarding some budgeting maintenance matters, in order to provide a more tailored solution for Medisol.

The field research has taken the form of structured interviews showing how the members of the maintenance team feel about the current situation and what they think would be the best step to take (third information gap), but also how will the consumers feel if the outcome resulted in Medisol turning to an online monitoring device: will they still be interested in a maintenance contract? Will they think it is too expensive? (first information gap). Since it is more a matter of understanding the feelings and opinions of a determined number of people, interviews seemed to be the best approach for this field research.

### 2.2 Data Collection

The sample of the field research was composed of the 6 members of Medisol's maintenance decision-making team and 8 out-of-the-company members coming from the following countries: France, Netherlands, Germany and United Kingdom. The countries were chosen based on profitability and number of maintenance contracts. A representation of the amount of contracts sold in each country in 2019 and 2020 can be found in Appendix 1 fig. 6. In each country, between 15-20 contacts were randomly chosen. Initially 8 replies were received, and a 9<sup>th</sup> reply was added later on.

All interviews were structured, meaning that all the questions were prepared beforehand and were asked in the same order to all participants (Research methodology, 2019). This is because information that needed to be collected was very clear and on point.

For the members of the maintenance decision making team, I conducted individual video chat interviews and for the 8 members outside the company, the interviews were sent via email, due to time/location difference. Furthermore, a time slot was scheduled for all the interviewees. What I wanted to find out by interviewing Medisol's staff was: what is their opinion with regards to maintenance?; what they think would be best for the future of the company?; why is that so?; and how do they think they can reach their target as fast as possible? By interviewing the clients of Medisol, I wanted to find out: how they felt about the current maintenance system?; do they think that they pay for nothing or there is a valuable result?; would they be in agreement to the introduction of an online monitoring device?; would they still buy from us if the contracts became a bit more expensive?

### 2.3 Data Analysis

The first step in the data analysis process was to transcribe all the recordings from the interviews. The transcriptions can be found in the section titled Appendix 4. This means that what has been discussed during the interview was later written down on paper. Afterwards, with the aim to facilitate the interpretation process, the discovered information has been coded. Coding means grouping the data in order to find different relationships between them (Research methodology, 2019). Subsequently, after the relationships have been identified, all the data was summarized in order to link the research findings to the research aim.

### 2.4 Operationalization

The literature research provided insight into what people expect when they hear the word maintenance and what does the concept of online monitoring actually mean for AEDs. Those two concepts were then converted into measurable indicators, leading to the formulation of the open and close-ended questions. If you look in Appendix 1, Figure 7 you can see categorized by color, the questions used for both groups of participants.

### 2.5 Reliability and Validity

The first group (within Medisol) was relatively small. Nevertheless, given their position within the company and the key role that they play in the decision-making process, their answer indubitably brought reliable results. For the second group, I have a reliable picture because the answers came from 4 different countries and all of them went in the same direction. Even though the first 8 interviews were found to be reliable, the 9<sup>th</sup> was taken into consideration to ensure the reliability of the results. Thus, the right level of saturation has been achieved and I find my results to be reliable and worth taking into consideration. Furthermore, it was important to assure the internal validity, meaning that the data shows exactly what you desire to measure (Stephanie, 2016). Therefore, randomization was used and all the interviews were conducted on Medisol premises, during a time frame of a week and the emails for the customers were sent during the first day of the interviews, with a deadline for two weeks. The questions were prepared beforehand and were asked in the same order to all participants, while making sure that all of them precepted the questions in the same manner and no doubts appeared during the process (Research methodology, 2019).

### 2.6 Limitations

It is important to mention that this research encountered a limitation, namely the COVID-19 virus. Due to this, people were obliged to work from home for a longer period of time and the initial idea of conducting face to face interviews was cancelled. Therefore, video-chat interviews were the substitutes.

### 3. Results

Firstly, by conducting literature research, allowed me to have an insight into what customers expect when they choose to pay for maintenance, what gives them the feeling that the process was carried out properly and what they expected when they hear about online devices and their trustworthiness. Secondly, by operationalizing the above-mentioned concepts, maintenance and online, the questions needed for the interviews were created. And lastly, by conducting the field research, the judgements of both the internal and external members of Medisol were able to be concluded and analyzed, in order to provide the company with the most suitable recommendations.

#### 3.1 Literature research

Before starting this research, the territory manager, Mr. Bernard Hollaers, offered me a small introduction to Medisol's maintenance processes, issues and future ideas. What they were trying to find out was not what solutions there were, but which of the three ideas they had was the most feasible and profitable for them. The first proposal was to procure an online monitoring device which would be then implemented in the first maintenance service contract. The second idea was either to start looking for another team that could perform the maintenance services in all countries or start looking for teams to subcontract in each country where Medisol sells its products. The final option was keeping the current maintenance provider, but including a third maintenance contract with the online monitoring device. So, the first will remain the basic one, the second will remain the extra one and the third one will focus on the online monitoring.

##### 3.1.1 Maintenance

Unforeseen cardiac death remains one of the most important cause of premature death in the adult population (Cobb, Fahrenbruch, & Olsufka, 2002). ‘‘Sudden cardiac arrest occurs suddenly and often without warning. It is triggered by an electrical malfunction in the heart that causes an irregular heartbeat. With its pumping action disrupted, the heart cannot pump blood to the brain, lungs and other organs. Seconds later, a person loses consciousness and has no pulse. Death occurs within minutes if the victim does not receive treatment’’ (Heart, 2015).

According to a study on the cases of cardiac arrests which occurred outside the hospital premises in the Maastricht area in the Netherlands, each year, one in a thousand persons is having a cardiac arrest. 21% of all men deaths and 14.5% of women deaths were sudden ones and 15% of all the cardiac arrests occurred in public spaces (DeVreede-Swagemakers JJM, 1997). Therefore, implementing public AEDs became a long-time known necessity.

With time, the number of AED in the market increased substantially. According to a study conducted by the Global Info research, the worldwide market for AEDs is expected to grow with approximately 5.4% over the next five years, reaching € 830 million in 2024, from € 580 million in 2019 (More, 2019). In some European countries, such as Italy(2001) and France(2007), new legislations allowing everyone, whether CPR<sup>7</sup> trained or not, to use an AED

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<sup>7</sup> Cardiopulmonary resuscitation

were implemented (Michael, 2019). As a result, a great number of external defibrillators have been placed in public spaces.

As those medical devices play an important role in modern healthcare, the maintenance of an AED slowly become a priority. An effective maintenance performed on medical devices determines the quality of care addressed to patients. Since a layperson can easily use an AED, they will be fully responsible for their device. But in many cases, people do not think of maintenance; the life-span of batteries and electrodes. They just buy it and forget about it, resulting in a failure of the saving process if the above-mentioned elements have reached their expiration date. Furthermore, due to the fact that there is no clear legislation in the majority of the European countries regarding maintenance (Hoven, 2020) and EENA<sup>8</sup>'s statement implying that it is the responsibility of the person in custody of the AED to make sure at any time that the device is ready for use in case of an emergency (Kette, Lumbreras, Hines, & Pyrros, 2018), maintenance goes even further away from people's minds. Maintaining an AED can be a real challenge for companies and taking a person from within the company and making him/her do the extra job of inspecting the device, might imply an increasement in the time and money spent on this issue (Sentinel, 2020).

However, some AEDs do not need this constant care. They are designed with a set of visual lights which inform weekly the owner of any malfunction there might be. Whenever a problem is detected, an indicator light will start blinking. An example of such a device is the Defisign AED (Appendix 1, figure 8). Problems such as a low/expired battery or failed internal circuitry require immediate action. Other problems may require further examination (Schiller, 2015).

As there are no clear specifications of who can conduct a maintenance process, customers can opt to either carry out the maintenance themselves, therefore choosing the standard service contract, or they can have someone sent to them to do a physical check of the device. Therefore, it can be difficult to say what people expect when they hear maintenance. If we take the case of the defibrillator that includes visual light, in order to make sure maintenance has been conducted properly, the lights should not be visible and a sticker should be placed at the back of the AED, assuring the people that the device works properly. With other AEDs, most customers buy the extra contract, so that they can take one worry away. Nevertheless, there are also cases when they still decide to do the check-up themselves. In such cases, all AED batteries, electrodes and pads have a "use by" or "install by" date that buyers can use as a guide for replacement (OhsOnline, 2014). Germany is one of the European countries which has finally implemented a strict legislation regarding AEDs (Graph, 2020). After the purchase of an AED, a certified person needs to go to the purchaser and install the device, explain how it works and do all the check-ups. Also, it is mandatory for AED owners to be ensured of the functionality of such device, thus a maintenance contract is mandatory (Bundesministerium der Justiz und für Verbraucherschutz, 2020). For this country, Medisol is working with the dealers in Germany, paying for each such visit €150 (Graph, 2020).

Furthermore, as there is no standard checklist for the maintenance of an AED, Medisol has created one together with the third party maintenance company. Both teams, Jose van den

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<sup>8</sup> European Emergency Number Association

Haven, the person carrying out maintenance on Medisol's premises, and Francis, the technician in charge of carrying out maintenance on location are therefore using the same checklist, which is available in Appendix 2. For the customers that prefer to do the process themselves, there is a list of steps that they can follow (West Bend, 2020), also available in Appendix 2.

### 3.1.2 Online monitoring devices

In the past years, there has been a great shift towards connectivity, thus offering people new opportunities. Travelling, working, cooking or even sleeping, people are always connected to a device. Being connected to something or being online means "being connected to a network of computers or other devices" (Tech target, 2007). And for marketers, this has become a valuable tool to interact with customers and sell their products (Gewelber, 2013).

Being online does not only provide marketers with increased profits, but it also helps them to become more time and money efficient. This is something that Medisol wishes to acquire in the near future. Online monitoring refers to "the process of utilizing permanently mounted sensors to regularly check the condition of a machine" (Howard, 2018).

As mentioned in the previous sub-chapter, customers tend to buy an AED just to comply to the rules or make sure that they are covered in case of an incident, but then they forget about it. In order to help clients with this, some companies decided to create online platforms and online monitoring devices that could connect to the AEDs and notify the purchaser when a malfunction is happening. A visual representation of such devices can be found in Appendix 3. After closely analyzing the market, a list of six such devices exists:

- a) **AEDMAP monitoring** – a device that uses sensors to non-stop monitor the defibrillator. It lists all defibrillators and their serial numbers and monitors it through IoT network. Does not require a wire connection. Additionally, it has a low energy consumption (AED Map, 2016)
- b) **AED Alert** – a monitoring device that allows the AED to self-test. It requires a 4G connection and is in line with GDPR<sup>9</sup> compliance. It provides notifications when the pads are close to expire and it gives notifications when the AED is being used or moved outside the predetermined location, while also mapping the locations of the AEDs (Mindray, 2020)
- c) **Aivia M** – it provides information about the status of the defibrillator and can be part of the AED or remain on its own. It is adapted to most AED brands and uses a radio frequency technology to transmit the data. The devices is combined with an online platform where data can be analyzed and everything is being stored in the AivianetCloud service, allowing multiple devices included under avia monitoring system, to be displayed (Sigfox, 2020).
- d) **Aivia GO** – it is equipped with an emergency phone and a spade for a SIM card. Additionally, it contains a tracking system and every 30 seconds a signal is sent to the AiviaNet server via its 4G connection. Also, if there was any movement and the movement stopped, a SMS is sent to the server with the new GPS coordinates (Aivia, 2018).

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<sup>9</sup> General Data Protection Regulation



- e) **AED Sentinel** – it checks the AED multiple times a day and it notifies the owner every time the door of the cabinet is open, if the defibrillator is ready for use, if the AED is being used or if the batteries, pads or electrodes are expired (Facility Executive, 2019). It uses cameras which are connected to the internet, together with a software platform, AED Sentinel Manager software, that will monitor the condition of the AED. It is compatible with all AEDs installed in a wall cabinet (Cardiac Solutions, 2020).
- f) **Smartlink** – the device is only compatible with the Philips OnSite and FRx AEDs and is placed directly in their case. All the information received is transmitted in the cloud server (Altra Medical, 2020). The Smartlink option implies a subscription of €13 a month, paid to Altra Medical, who will monitor the device. (Altra Medical, 2020).

After the research was done and Jose Van Den Hoven tested a few monitoring devices in connection to our products, the one which ended up being the most compatible, most efficient due to its strong wireless internet connection and was also offered at a good price was the AIVIA GO monitoring system. Implementing such a device would require some adjustments from Medisol. The company already sells some online AEDs such as the Zoll online, the CR2 from Physio Control and most recently the Defisign Online, but unfortunately the online characteristic has not been activated. Therefore, the maintenance team will have to start being available or easily reached over the phone 24/7.

### 3.1.3 Costs of maintenance

Looking at the online monitoring devices, there were three ideas at the beginning of this research that could have been taken into consideration: I) Adding the device as a separate item on Medisol's web shop and then linking it to the first contract; II) Subcontracting several technicians/companies to carry out maintenance for us in different countries; III) Creating a third contract only focusing on the online part.

After the research was conducted and the figures were analyzed, the first option did not seem feasible. Aivia Go costs €269 plus a mandatory subscription for the online server of €24/year (all other prices related to Aivia Go can be found in Appendix 1, figure 9). What this would mean for option 1 was that a Dutch client for example, had to pay at least €300 for the Aivia GO package, plus the rest of €59 for the standard package (all other maintenance prices charged by Medisol can be seen in Appendix 1, figure 10).

Additionally, if an online device is being implemented, the monitoring issue arises. Someone will need to monitor the device 24/7. If the members of the maintenance team agreed to be in charge of this, then their salaries need to be increased, based on the hours they work during the weekends and nights. Figure 11 in Appendix 1 can provide you with more information.

Regarding the idea of changing the team that carries out the on location checks of the AEDs, we had three options: I) the company can look for another team in the Netherlands willing to do the check-ups; II) Medisol can subcontract local teams in each country; III) Medisol can hire a person especially for the position of maintenance technician, and this one person will travel in all countries and do the check-ups. After literature research has been carried out, a separate document has been created with the possible companies that Medisol could try to create a

partnership with and the prices and packages they offer. Also, fig. 12 in Appendix 1 will provide you with a table containing the estimative figures of what would mean for Medisol to hire its own maintenance technician and having full control over that person.

Finally, analyzing the last option the Medisol had, meaning creating a third contract, in order to have an estimation for the future and how long it will take to Medisol to complete the return on the investment for the online monitoring devices, a new table (Appendix 1, fig. 13) has been created. Risk with this option is that customers might end up not investing in the previous contracts anymore. Therefore, a new solution will be described in the recommendation section.

## 3.2 Interviews

The majority of questions used focused on the ideas brainstormed by the maintenance decision-making team and then, based on the operationalizations process, new questions have been generated.

### 3.2.1 With Medisol members

Within Medisol members, the views regarding the current situation of the maintenance department or the decrease in the sales of the maintenance contracts are contrasting. Some people believe that it might be the cause of the reluctance of the sales consultants to sell the contracts and make them appealing to the customer (interviewee 2,4 and 5), others believe that it is due to the different legislations and different media coverage on the topic (interviewee 1, 3 and 4).

Regarding the customer's interest towards maintenance, the main factor was that customers do not find it necessary (interviewee 1, 2, 4 and 6), with a second factor being the price (interviewee 3,4 and 5), as customers might see it as an amount of money "on top of the investment already made"(interviewee 3).

Moving on to the third question, almost all of the interviewees agree that they are up for the challenge, as long as they can see improvement in the ROI<sup>10</sup>. Respondent 4 stated that, even though she knows that maintenance represents "the future of the company and connecting even further with our customer", she is not expecting a big money/time investment since "mostly maintenance is often forgotten in the big picture".

When it comes to which path should the company follow the opinions differ again. Some employees believe that the best option would be to go with the online monitoring device (interviewee 1,2,3 and 6) as "online monitoring is the future"(interviewee 6) and some believe that control needs to be taken back within the company (participant 4 while changing internally as it is seen as the key to success (interviewee 5).

As for the future, all employees agreed that the changes will be an improvement, leading to a better organized department. However, interviewee 6 said that she believes the new implementations will cause the already existing contracts to be less appealing to the customers, resulting into a new difficulty to sell them.

Moving on to the effect that the changes will bring along, all the interviewees agreed that it will increase the number of maintenance contracts sold and it "will boost the market share of Medisol" (interviewee 1).

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<sup>10</sup> Return on Investment



Regarding customer loyalty, Medisol believes that they already built a relatively strong market and the improvement of their systems will not change the loyalty of the customers (participant 1 and 3). Maintaining contact with customers is also an element that is seen as being very important as they say that “every contact moment is an opportunity to gain loyalty” (interviewee 2). Respondent 4 gave a clear answer stating that: “Happy customers, are loyal customers”. Two participants, 5 and 6, they said that they do not necessarily believe in customer loyalty as it is recognizable that buyers always go to the company that is offering the cheapest price.

Furthermore, considering the equality issue and trying to offer the same services in all operating countries, all respondents took into consideration the online device, mentioning that a physical visit will still be difficult due to the high taxes or large distances. Respondents 5 and 6 were of the opinion that going to certain countries will be still impossible due to the unchangeable high taxes.

Finally, when asked about the implementation of the online device and the reaction of their customers, respondents 1 and 6 believed that it will not be something easily accepted especially by the bigger groups. Respondents 2 and 4 were certain that the online device will be welcomed by the customers, but only if explained in a manner that attracts the buyers. Respondent 3 and 5 were somewhere in the middle, believing that it “depends on the generation”.

### 3.2.2 With Medisol’s customers

After identifying the opinions of Medisol’s employees, the focus shifted towards its consumers. Most of the respondents were entitled to a Standard contract, thus not including a visit (interviewee 7, 8, 11, 12 and 14) and others were entitled to the Extra contract (participant 9, 10, 13 and 15). When the owners of the standard contract were asked if they were willing to change their subscription, some of them stated that they were happy with the current contract (interviewee 7 and 14) and some stated that they might be willing to make the transition (interviewee 8 and 12).

Regarding their expectations with frequency of the maintenance or quality, all of them find it important to have their AED serviced at least once a year. Additionally, when asked about the most important element for them, one of the most common answers was the on-location visit (participant 8, 10, 12, 14 and 15), which was a bit surprising considering the fact that some of them did not choose this option (respondents 8, 11 and 14). Some find the functionality test at the end as the most important element (interviewee 7 and 10). Respondent 8 chose the quickly delivery of the replacement device and respondent 13 stated that the authentic replacement parts played a crucial role for him.

Looking at the score that the consumers would give to Medisol for the delivery of its services, interviewees 7 and 15 were the most satisfied giving it a 10, respondent 8 was abstaining himself, respondent 11 and 14 opted for a 9 emphasizing the fact that the personnel is friendly and helpful, respondents 9, 12 and 13 were of opinion that an 8 would be more appropriate since they did not have much contact yet with us, and finally respondent 10 was the least satisfied, giving a 1 to Medisol’s services. He stated that his company is entitled to an Extra contract, but so far no one went there to do the job and the invoice has been paid. The overall score received for the services is 7.87.

When asked what they would change in the current system, the most recurring answer was noting (participant 7,8,9,12 and 15), followed by changes in the structure (interviewee 13 and 14). Respondent 11 stated that the replacement parts should be included in the contract. Respondent 10 would change everything in the current system.

Furthermore, when asked if they would still be interested in Medisol's services if some changes are applied, most of the participants said yes (interviewee 8,9,10,11,12,13,15) with some mentioning the pricing factor (respondents 8 and 14). Participant 7 claimed that he would not be interested in anything new. And finally respondent 10 claimed that: "why would I pay even more for something that I might never get?"

Most of the respondents were not aware of online monitoring devices (respondents 7,8, 9,10,13, 14, 15) with only two respondents having heard of them (interviewee 11 and 12). Respondents 8,9,10,11, 14 and 15 expressed their desire in knowing more about the devices. Respondent 7 asserted that he does not see the need for such a device, respondent 12 said that he is not aware of such device but did not show his interest in knowing more and participant 10 declared that they already have a lot to do.

When asked would they rather have someone connecting the online monitoring device for them but monitoring the AED themselves or connecting the device themselves and Medisol monitoring the defibrillator, the majority of the respondent declared that they have no problem in connecting the online monitoring device themselves, but they would want to give the extra work of monitoring to Medisol (participant 10,11,12 and 14).

Finally, when asked about the price that they were willing to pay, respondent 14 gave an answer involving an actual price, stating that: "no more than the extra contract". Interviewee 13 declared that the price should not be "more than the cost of the maintenance contract or a % of that agreement" and interviewee 15 settled a maximal price of €50.

## 4. Conclusion

Saving lives will always be a top priority. Medisol B.V. is a fast growing company, wishing to deliver its best practices and facilitate the process of saving as many people as possible from a cardiac arrest. Therefore, to help the company succeed, the maintenance services have been analyzed with the aim to increase the maintenance turnover while improving the internal communication between the people involved and limiting investment.

Looking at the first information gap which is : to what extent are customers looking for a maintenance service, the results show that, even though some countries started taking measures towards the development of new guidelines concerning the AED and their use, people still seem to not understand the importance of such device. Most people expect to have everything done for their devices with the lowest possible cost. Many customers wished to improve the maintenance services by having someone physically checking the device, when they would be the ones purchasing the service without a visit. Therefore it has been observed that for Medisol's customers it all comes down to money.

Moving on to the second gap: to what extent is a monitoring device matching Medisol's products, it has been discovered that multiple monitoring devices already exist on the market. Some of them only fit certain AEDs, but others, such as the AIVIA mark, are compatible with a wider range of products. Out of the two monitoring devices produced by AIVIA, the GO product proved to be more beneficial for Medisol as it operates with a 4G connection, thus allowing the signal to still be strong in covered areas (by forests or mountains), such as Norway and Ireland. Additionally, even though customers are not aware of the existence of such devices, they showed an increased interest in finding more. Although the purchasing price seemed to be a challenge at first, after analyzing the existent opportunities, it has been concluded that such device will be a valuable asset for Medisol in the future.

Looking at the third information gap "to what extent is the company willing to change their maintenance system", the results were positive as the company understood the current situation as it has a strong vision for the future. The quality of the current maintenance services was given an overall score of 7.87, thus showing that people are rather content with what they are receiving so far. The company is still trying to find a working balance, but is aware that in order to implement other innovative products, they will need to strengthen their internal communication. After closely analyzing the competitors and the market, there is the chance that Medisol can start having partnership with dealers in different countries, but then they will need to substantially increase their investment. Thus, it was concluded that insourcing a maintenance technician is a must, since the relationship between Frans and Medisol is slowly deteriorating.

Lastly, after evaluating the extent to which Medisol is willing to take risks and invest larger sums of money for the long-term improvement of the maintenance department, there was a small hesitation regarding this topic when Corona virus started. But, as the company was managing the issue, they soon changed their opinions and showed a strong will to continue with the maintenance changes. The company is willing to make the investment required if these changes will increase their profits and customer base.

In conclusion, a crucial element regarding maintenance is the on-location visit and the online devices are seen as a positive improvement, as Medisol's clients already showed some interest

in them. For a successful integration of the improvements, the company will first have to make some internal changes, in order to have a solid base, and only after this, they will be able to further grow.

Due to some limitations, such as the uncertainty, mostly regarding tasks division in the maintenance department which led to communication issues between the sales consultants and other departments and the COVID-19 which made it hard to get hold of an employee, even though multiple attempts have been made, the research was limited. Nevertheless, the recommendations given create a good basis for the company to change and improve one of its important departments, while also creating secondary positive effects regarding the communication and relations within the company.

## 5. Recommendations

This chapter will provide you with my opinion as for the measures that Medisol can implement to develop their maintenance department and increase its maintenance contracts turnover in the long run. The stakeholders will accept the proposed recommendations, as no big risk can be seen and the outcome will increase the turnover and boost Medisol's position in the market. Furthermore, it is feasible to implement the advices since the company has the necessary skills and means to develop its maintenance department. Those recommendations represent the base of the management address.

### 5.1 Internal communication

Improved internal communication is crucial in order for any future developments to be fully effective. At this stage, as the company is still growing and people are trying to find their way around tasks, it is impossible to work together as a single body. I recommend that daily meetings are more structured. Medisol could continue with the schedule that they have made during the Corona crisis and each day selected teams share any news about their own market. It is important that everyone attends so that the other sales consultants get to know the struggles of their companions. This way the sales consultants might be more inclined to ask for support when needed.

### 5.2 Maintenance department

As previously mentioned, the maintenance department deals with the administrative work, but it seemed that they were more focused on the Dutch market than other markets. There appeared to be a discrepancy between the knowledge of the maintenance department and some markets that did their own administration for the maintenance in their countries. I suggest that a common system is created, so that everyone uses the same tools and the same credentials in order to archive the information from the maintenance customers. Furthermore, a monthly maintenance meeting should be established. Everyone should be involved, in order to share all the information and tasks that need to be covered within maintenance. The meeting should not surpass 30 minutes, unless urgent matters are to be discussed. If a sales consultant needs help selling a contract or feels that his/her market is stagnating, they can feel free to ask, being assured that someone is listening to them and willing to help.

### 5.3 On-location maintenance team

After analyzing the market and what maintenance local teams exist, I would recommend Medisol to continue working with Frans for a year, until they recover from the economic situation brought by COVID-19, and meanwhile look for a maintenance technician to hire. In the long run, this will be the most efficient solution for the company. They will have total control over the administrative work, which they are missing with Frans. At firsts it might involve more work, as the new employee will have to learn everything in a short period of time, but if everything is organized properly, and my estimations turn out to be close to reality, then the company might end up spending with almost € 14,000 less than they do currently.

### 5.4 Online monitoring device

Based on the interviews, the customers seem enthusiastic about the online monitoring devices. Therefore, my recommendation is that Medisol buys the AIVIA GO tracker, but only 100 units to start with. Since the buying price rounds up to € 300, in order for the company to make a profit, the selling price should be at least € 350. My recommendation is to introduce the product to customers in a package deal, something such as: Buy an AED and a cabinet, you receive the online monitoring device for half the price, (e.g. € 175). The initial offer should be valid only for a month. For monitoring, a third party contract should not be created, but instead add an option for an extension to the current contracts. For only € 4.99/month, you can benefit from our monitoring services. This way, the company does not change its contracts, they give the option to the people and they do not risk it affecting the sales of other contracts. The monthly fee would be paid by direct debit. Then the finance department would have to process everything manually each month and this takes time and can be quite frustrating. The solution for this would be that Medisol upgrades its MultiSafe Pay contract, by adding the extension of SEPA Direct Debit. A detailed overview can be seen in Appendix 1, figure 14 (MultiSafePay, 2020).

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## Appendix

### 1. Figures



Figure 1 Medisol's story timeline retrieved from leaflet "Medisol matters. It's all about.....Saving lives"



Figure 2 Medisol's network of workshops retrieved from leaflet "Medisol matters. It's all about.....Saving lives"

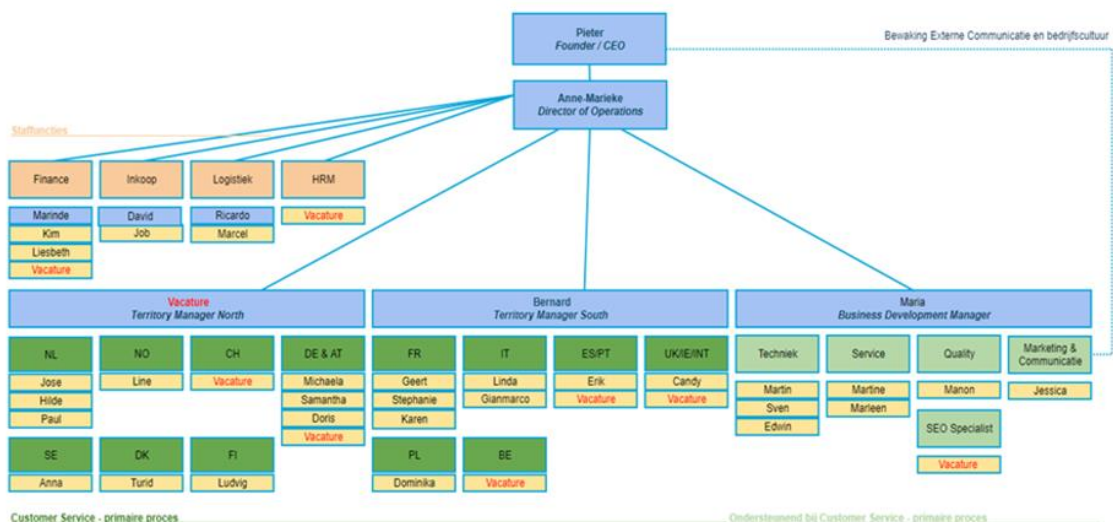


Figure 3 Organizational structure within Medisol retrieved from Mr. Bernard Hollaers



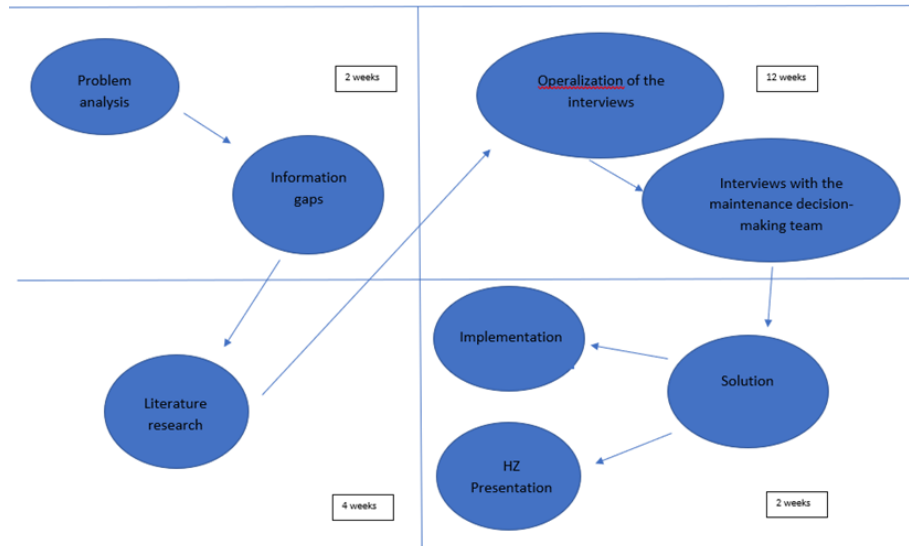


Figure 4 Planning

Week 1	(03/02)	Beginning of Internship	
Week 2	(10/02)	Onboarding Gathering information at Medisol + Identify Information gaps	<ul style="list-style-type: none"> <li>Gather proof for each PLO</li> <li>Set up Start Document when PLO can't be proven based on physical evidence.</li> <li>Watch the process within the company that could potentially aid professional product.</li> </ul>
Week 3	(17/02)	Hand-in Plan of Approach	
Week 4	(24/02)	Receive Feedback on PoA	
Week 5	(02/03)	Improve Plan of Approach	
Week 6	(09/03)	Conduct Literature Research	
Week 7	(16/03)	Conduct Literature research	
Week 8	(23/03)	Conduct Literature research	
Week 9	(30/03)	Conduct Literature Research and Prepare interviews	
Week 10	(06/04)	Conduct interviews	
Week 11	(13/04)	Conduct interviews	
Week 12	(20/04)	Evaluate interviews	
Week 13	(27/04)	Write research Justification	
Week 14	(04/05)	Write research Justification	
Week 15	(11/05)	Write research Justification	
Week 16	(18/05)	Write research Justification + Professional Product	
Week 17	(25/05)	Write Professional Product	
Week 18	(01/06)	Write Professional Product	
Week 19	(08/06)	Finish Research Justification + Professional Product	
Week 20	(15/06)	Hand-in Research Justification	
Week 21	(22/06)	Ensure conformity between research justification and professional product., final check, layout	
Week 22	(29/06)	Defense/Introduction Professional Product at Medisol	
Week 23	(03/07)	End of Internship	

Figure 5 Research Planning

Count of ID	Column Labels		
Row Labels	Extra Service	Standaard Service	Grand Total
<b>Austria</b>			
2019	17	5	22
2020	6	1	7
<b>Belgium</b>			
2019	25	60	85
2020	15	12	27
<b>Danmark</b>			
2019	42	46	88
2020	9	8	17
<b>France</b>			
2019	117	68	185
2020	8	10	18
<b>Germany</b>			
2019	257	29	286
2020	39	6	45
<b>Ireland</b>			
2019	4	8	12
2020		2	2
<b>Italy</b>			
2019	7	39	46
2020		7	7
<b>Netherlands</b>			
2019	255	465	720
2020	52	73	125
<b>Norway</b>			
2019		78	78
2020		4	4
<b>Poland</b>			
2019	2		2
<b>Spain</b>			
2019	3	3	6
2020		1	1
<b>Sweden</b>			
2019	4	37	41
2020		8	8
<b>Switzerland</b>			
2019	28	21	49
2020	3		3
<b>United Kingdom (Great Britain)</b>			
2019	85	157	242
2020	8	44	52
<b>Grand Total</b>	<b>986</b>	<b>1192</b>	<b>2178</b>

Figure 6. Number of maintenancecontracts sold/country 2019/20 retrieved from Maria Van der Vliet

CONCEPT	DIMENSION	INDICATOR	POSSIBLE INTERVIEW QUESTIONS
<b>Maintenance</b>	Expectations	<ul style="list-style-type: none"> <li>What do customers expect from maintenance in terms of quality and regularity ?</li> <li>What aspect in terms of quality and regularity have a greater priority to Medisol's customers?</li> <li>The extent to which Medisol's current services are fulfilling customer's needs.</li> </ul>	<ul style="list-style-type: none"> <li>Since when are you subscribed to one of our maintenance contracts?</li> <li>What type of contract are you currently entitled to?</li> <li>What are your expectations of a maintenance service in terms of regularity and quality? What would be the most important element for you?</li> <li>On a scale from 1 to 10, 1 being the least satisfied and 10 being the most, how would you rate the quality of service received from our maintenance team?</li> <li>What would you improve within our current maintenance system?</li> </ul>
	Importance	<ul style="list-style-type: none"> <li>The extent to which Medisol acknowledges the current status of maintenance and the situation per country;</li> <li>The extent to which maintenance contracts are considered an important matter for the customer;</li> <li>The extent to which Medisol plans on focusing more on the maintenance department, both time and money wise;</li> <li>What are the impediments that push the customers away from the Extra contract?</li> </ul>	<ul style="list-style-type: none"> <li>Are you aware of the current status of the maintenance contracts? Why do you think in some countries, the selling of those contracts is less than in others?</li> <li>How much time and money do you think is the company willing to invest in maintenance?</li> <li>What do you think are the impediments of buying the extra contract?</li> <li>If you are entitled to the basic contract, are you thinking of switching to the extra contract? If not, why is that?</li> </ul>
	Current & future status	<ul style="list-style-type: none"> <li>How do Medisol's employees feel about the future of maintenance department?;</li> <li>The extent to which future Medisol's maintenance processes will differ from the current ones;</li> <li>The extent to which, customer loyalty will be affected by the changes;</li> <li>The extent to which changing the maintenance services will have an impact on the future expansion and future profits of the company;</li> <li>what is the client's view on the fact that if Medisol changes their maintenance</li> </ul>	<ul style="list-style-type: none"> <li>There were some discussion on what Medisol's options are: buying an online monitoring system, changing the structure of the current contracts, subcontracting another company to carry out maintenance. Which one do you think is the most efficient one? Why is that?</li> <li>What do you think about the impact of the chosen solution can have on the current maintenance process when opted for?</li> <li>What effect, in your view, will changing the current maintenance process have on customer loyalty? Why do you think so?</li> <li>What do you think will be the effect on the number of service contracts sold when these new changes are implemented?</li> <li>Do you think that in the future, Medisol will be able to offer the same maintenance opportunities to all countries in which it sells AEDs? Why is that?</li> </ul>

		processes now, will they still be interested in Medisol's contracts?	<ul style="list-style-type: none"> <li>If we change our current maintenance system, aiming for a better one, would you still be interested in contracting maintenance with us?</li> </ul>
Monitoring devices	Idea of being online	<ul style="list-style-type: none"> <li>The extent to which the customers will welcome a monitoring device;</li> <li>What are customers ready to pay for the features that come with a monitoring device;</li> <li>The extent to which customers with a monitoring device would either have someone check their devices or only stick to a remote device.</li> </ul>	<ul style="list-style-type: none"> <li>Do you think our clients will welcome the idea of being online/connected to a device?</li> <li>Does it pose you any difficulties having to communicate with our maintenance technician in English?</li> <li>If you would prefer an online monitoring device, would you rather buy it separately, attach it yourself and monitor it yourself? Or would you prefer someone else to do it for you, in exchange for a sum of money? Why is that?</li> <li>Would you mind paying a greater price for the option of receiving an alert on your smartphone when your AED is encountering a malfunction? If yes, how much?</li> </ul>
	Awareness	<ul style="list-style-type: none"> <li>The extent to which people are aware of the current technologies</li> </ul>	<ul style="list-style-type: none"> <li>Are you aware of the existence of online monitoring devices for your AEDs such as Aivia M or AED Sentinel? If yes, would you be interested in an online monitoring device? If not, why is that?</li> </ul>

- - Questions for Medisol's members
- - Questions for Medisol's customers

Figure. 7 Operationalization table

## DefiSign

vrijdag 23 november 2018 13:45



Figure 8. Defisign AED with self-check lights retrieved from <https://cprmanual.com/>

Aivia Model and Option	Product Overview	Distributor Unit Prices 1 Qty : 1 to 49 units	Distributor Unit Prices 2 Qty : > 50 units
Aivia GO	<ul style="list-style-type: none"> <li>Remote monitoring solution + GPS tracking and Emergency Phone calls</li> </ul>	€289,00	€269,00
	<ul style="list-style-type: none"> <li>Battery-operated, http communications for software management and two-way voice communication via 4G</li> </ul>		
Aivia Net subscription	<ul style="list-style-type: none"> <li>Access Rights to the Monitoring Software : AIVIANet</li> </ul>	€30,00	€24,00
	<ul style="list-style-type: none"> <li>Compulsory Subscription per year, per AIVIA GO</li> </ul>		

Figure 9. Aivia Go related prices

Country	Standard 1 <sup>st</sup> year	Standard	Extra 1 <sup>st</sup> year	Extra	Once at location	Once at Medisol
NL	GRATIS	€59,00	€80,00	€139,00	€159,00	€79,00
BE	GRATIS	€59,00	€80,00	€139,00	€159,00	€79,00
DE	GRATIS	€83,00	€79,00	€142,00		
AU	GRATIS	€83,00	€79,00	€142,00		€159,00
FR	GRATIS	€89,00	€80,00	€139,00		€159,00
IE	GRATIS	€89,00				€159,00
IT	GRATIS	€89,00				€159,00
ES	GRATIS	€89,00				€179,00
CH	GRATIS	€83,00	€79,00	€138,00		€159,00
UK	GRATIS	€79,00	€80,00	€136,00		€159,00
PL	GRATIS	€92,00				€159,00
DK	GRATIS	€107,00	€107,00	€167,00		€187,00
SE	GRATIS	€93,00				€187,00
NO	GRATIS	€103,00				€205,00

■ - It is not feasible

Figure 10. Medisol's maintenance prices per country

Position	Price
Maintenance Consultant at Medisol	<b>€3350</b>
% of salary for working during weekend	200%
Amount of money per hour for Weekend	€42
a)Assumption of working 4 hours a weekend	<b>€168</b>
b)Assumption of working 1 hour a weekend	<b>€42</b>
% of salary for working during the night	130%
Amount of money per hour in the evening	€27.3
a)Assumption of working 10 evening hours/week	<b>€273</b>
b)Assumption of working 1 evening hour/week	<b>€27.3</b>
<b>TOTAL A: €5114</b>	
<b>TOTAL B: €3628</b>	

Figure 11. Estimated salary of the maintenance consultant with monitoring hours

Company	Name	Price per visit (2019)	Annual Price (2019)	Extra Costs/year	Total
Medisol	Frans	€ 71 in the Netherlands	€ 497		€ 63,422
		€ 75 abroad	€ 62,925		
Media Markt	Maintenance technician	€ 2,023	€ 24,276	€ 20,000	€ 44,276
KLM	Maintenance technician	€ 1,870	€ 22,440	€ 20,000	€ 42,440
Mapper	Maintenance technician	€ 2,593	€ 31,116	€ 20,000	€ 51,116
Estimation Medisol	Maintenance technician	€ 2,200	€ 26,400	€ 20,000	€ 46,400
	First Year training			€ 3,000	€ 49,400
Difference					€ 17,022
					€ 14,022 – 1 <sup>st</sup> year

Fig. 12 Estimation of prices if Medisol hires its own maintenance technician + price comparison with Frans

	Actual price	Prospective estimations
Number of units bought	> 50 units	100 units
Online monitoring device purchase	€ 269	€ 26,900
Access to online platform	€ 24/year	€ 6,456
<b>TOTAL:</b>	€ 33,356	
Online contract	€ 156/year (€ 13/month)	€ 15,600
	€ 120/year (€ 10/month)	€ 12,000
	€ 84/year (€ 7/month)	€ 8,400
3 years € 13/month	€ 46,800	
3 years €10/month	€ 36,000	
5 years € 7/month	€ 42,000	
6 year €4.99/month	€ 35,928	
50 units package deal	€ 175/unit	€ 8,750
50 units full price	€ 350	€ 17,500
<b>TOTAL:</b>	€ 26,250	

Fig. 13 Estimation on return on investment with the online monitoring device

## SEPA Direct Debit integration for your webshop

Integrating SEPA Direct Debit into your webshop is easy. At MultiSafepay you can directly link the payment method to your webshop. To serve you as well as possible, you can use our free e-commerce plug-ins that perfectly match your webshop. During the check-out process in your webshop, the customer selects the Direct Debit payment method. After completing the payment account, your customer gives permission to collect the amount from his account. The payment is then debited from the customer's account within a few days. After the payment has been received by MultiSafepay, the transaction will be converted live to "completed" (processed). You can process the order.

If you would like to receive a notification of the successful payment, this is of course also possible.

### The benefits of Direct Debit

- ✓ Collecting payments for bank accounts with European IBAN (3,500 Banks)
- ✓ Complete, manage and collect all digital Direct Debit authorizations
- ✓ All Direct Debit payments in an overview on your MultiSafepay Control
- ✓ Used for one-off and recurring payments
- ✓ iDEAL and Bancontact can both be used for first transaction and authorization
- ✓ Well-known and easy to use payment method for online consumers
- ✓ Maintain digital authorizations via service provider Twikey

Fig. 14 SEPA Direct Debit add-ons through MultiSafe Pay retrieved from <https://www.multisafepay.com/solutions/payment-methods/direct-debit/>

2. Maintenance checklists
  - a) Medisol's Service checklist



## Inspection Report (AED / Defibrillator)

Defibrillator Information			
Make and Model			
Serial Number			
Contract number			
Organisation	Contact person		
Telephone	E-mail		

Inspection Assignment	
<input type="checkbox"/> Periodic inspection	<input type="checkbox"/> On behalf of customer
<input type="checkbox"/> Post-deployment inspection	<input type="checkbox"/> On behalf of third party
<input type="checkbox"/> Malfunction inspection	<input type="checkbox"/>

AED data and ECG read-out			
	YES	NO	N/A
AED-data and ECG data read-out after deployment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AED-data and ECG data added	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AED-data and ECG data sent to			
Date sent			

Inspection			
	YES	NO	N/A
<b>General Inspection</b>			
Visible signs of damage or contamination	<input type="checkbox"/>	<input type="checkbox"/>	
AED indicator displays "green or OK"	<input type="checkbox"/>	<input type="checkbox"/>	
AED starts after opening and/or switching on	<input type="checkbox"/>	<input type="checkbox"/>	
AED displays error message	<input type="checkbox"/>	<input type="checkbox"/>	
AED starts according to protocol	<input type="checkbox"/>	<input type="checkbox"/>	
Software guidelines up-to-date	<input type="checkbox"/>	<input type="checkbox"/>	
AED older than 10 years	<input type="checkbox"/>	<input type="checkbox"/>	
AED in protective bag	<input type="checkbox"/>	<input type="checkbox"/>	
<b>AED test Inspection</b>			
AED connected for testing	<input type="checkbox"/>	<input type="checkbox"/>	
Shock advice for simulated ventricular fibrillation (VF)	<input type="checkbox"/>	<input type="checkbox"/>	
Test shock button "OK"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Energy value of shock emitted			Joules
Start CPR instructions after shock	<input type="checkbox"/>	<input type="checkbox"/>	
AED indicator displays "OK" 10 secs after closing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Accessibility and protection</b>			
AED is placed in a dust and moisture free environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Location and AED temperature are satisfactory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Inspection accessories and wall cabinet			
	YES	NO	N/A
Inspection CPR kit and respiratory masks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respiratory mask present	<input type="checkbox"/>	<input type="checkbox"/>	
CPR kit present	<input type="checkbox"/>	<input type="checkbox"/>	
Items replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In case of malfunction or usage of AED call + 31 (0) 85 487 3033





Inspection accessories and wall cabinet			
	YES	NO	N/A
Inspection battery			
Battery unit correctly installed	<input type="checkbox"/>	<input type="checkbox"/>	
Battery unit replaced	<input type="checkbox"/>	<input type="checkbox"/>	
Battery power read out (Cardiac Science G3/G5)			% <input type="checkbox"/>
Installation date read out (Cardiac Science G3/G5)			<input type="checkbox"/>
Secondary battery (9V) installed (Defibtech Lifeline)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Secondary battery (9V) replaced (Defibtech Lifeline)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional battery unit present	<input type="checkbox"/>	<input type="checkbox"/>	
Additional battery unit replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspection electrodes			
Correctly connected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Packaging is undamaged	<input type="checkbox"/>	<input type="checkbox"/>	
Electrodes replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional electrodes present	<input type="checkbox"/>	<input type="checkbox"/>	
Additional electrodes replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(New) expiry date additional electrodes			<input type="checkbox"/>
Paediatric electrodes/key present	<input type="checkbox"/>	<input type="checkbox"/>	
Paediatric electrodes replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(New) Expiry date paediatric electrodes			<input type="checkbox"/>

#### Notes


#### Inspection Results

	YES	NO	
AED indicator displays "Green or OK"	<input type="checkbox"/>	<input type="checkbox"/>	Electrode expiry date
AED starts according to protocol	<input type="checkbox"/>	<input type="checkbox"/>	Battery expiry date
AED approved	<input type="checkbox"/>	<input type="checkbox"/>	Approved until
			Inspection date

Signature client:

Signature inspector:

Name client

Name inspector

**In case of malfunction or usage of AED call + 31 (0) 85 487 3033**

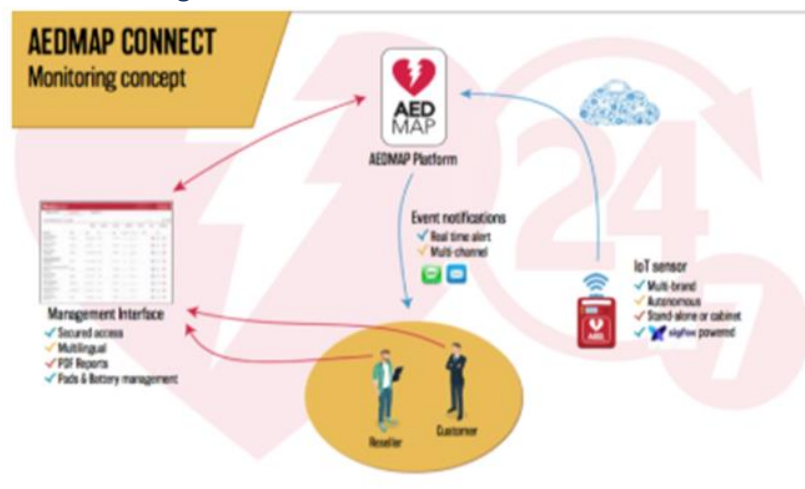
Figure retrieved from RMA department

#### b) Example 2 Service Checklist

- “Check the AED’s power by powering up the device and making sure it turns on without a problem. Also, after shutting off the AED make sure the status indicator light shows the AED is ready to be used. If the device does not power back on or shows an error return the AED to the manufacturer
- Verify that the additional rescue supplies are available with the AED, including gloves, razor, and breathing mask.
- Inspect the device itself for cracks, wear, and other signs of damage.
- AED pads have an expiration date. Check the pads and make sure they are not expired.
- Check the batteries to make sure they are also not expired”

### 3. Online monitoring devices

#### 3.1 AEDMAP monitoring



Source: <https://aedmap.org/remote-monitoring/>

#### 3.2 AED Alert



### AED-Alert™ 2.0

Remote AED Management Solution  
Stay Connected, Stay Confident

Source: [https://www.mindray.com/en/aed/AED-Alert\\_2.0\\_System.html](https://www.mindray.com/en/aed/AED-Alert_2.0_System.html)

### 3.3 AIVIA M



Source: <https://aivia.pyres.com/en/product/aivia-iot-2>

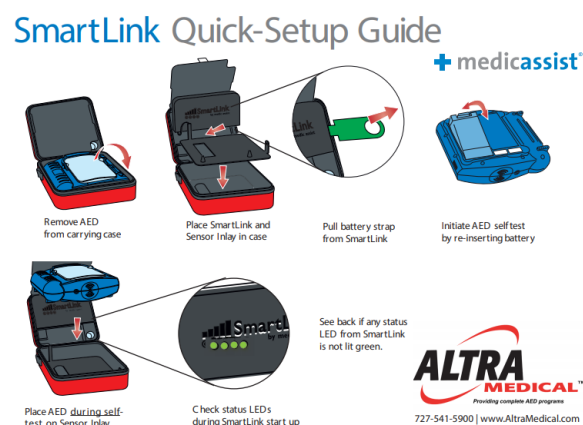
### 3.4 Aivia Go



- 1– Call button.
- 2– Status indicators.
- 3– RJ12 connector on the AED sensor / Maintenance.

Source: <https://aivia.pyres.com/wp-content/uploads/Brochure-AIVIA-GO-EN.pdf>

### 3.5 SmartLink



Source: <https://www.altrammedical.com/smartlink-aed-monitoring-for-onsite-frx-aeds/>

### 3.6 AED Sentinel



Source: <https://aedsentinel.com/>

## 4. Transcription of recordings

### 4.1 Pieter Joziassse

**Alex:** Are you aware of the current status of the maintenance contracts? Why do you think in some countries, the selling of those contracts is less than in others?

**Pieter:** Yes, I am aware of this. We'll have to dive into this why there are quite huge differences between the adaptation of service contracts between countries. One of them is possible the different cultures in these countries, but there must be more explanations for this...

**Alex:** What do you think are the impediments of buying the extra contract?

**Pieter:** Customers are still not convinced about the necessity of such a contract. It's a difficult market because the AED is in fact all the time working and stand-by for the case that someone gets a cardiac arrest. Unfortunately, as a result, a service contract is also not top of mind.

**Alex:** How much time and money do you think is the company willing to invest in maintenance?

**Pieter:** We don't have budgets to decide this. It's more a question of Return of Investment. If we all knew that these kind of contracts were very high in margins and every € we put in, we would get multiple times out of it, in fact it would be without restrictions...

**Alex:** There were some discussion on what Medisol's options are: buying an online monitoring system, changing the structure of the current contracts, subcontracting another company to carry out maintenance. Which one do you think is the most efficient one? Why is that?

**Pieter:** I don't know at this moment, more research is necessary. In longer period, I think that an online variant is the future in combination with a kind of subscription fee per period is the best for future developments. Question is how we fill in the transition period to this and how long this would take.

**Alex:** What do you think about the impact of the chosen solution can have on the current maintenance process when opted for?

**Pieter:** Not decided yet. I would suggest a transition period that is long enough for everyone to adapt.

**Alex:** What do you think will be the effect on the number of service contracts sold when these new changes are implemented?

**Pieter:** If properly implemented, I think this will boost the market share of Medisol and will have a huge effect on the total number of contracts.

**Alex:** What effect, in your view, will changing the current maintenance process have on customer loyalty? Why do you think so?

**Pieter:** If done in the best way, and if we can explain our customers why we change this system, I think that this would not have a negative impact on most existing customers.

**Alex:** Do you think that in the future, Medisol will be able to offer the same maintenance opportunities to all countries in which it sells AEDs? Why is that?

**Pieter:** That depends of the chosen system at the end. If that would be online, then I think that it should be possible to implement this in all the countries. In case of continuation of our current system, this is much more difficult and even the reason why we don't offer the extra service in all the countries already.

**Alex:** Do you think our clients will welcome the idea of being online/connected to a device?

**Pieter:** Not within short time. It's a new development and it takes time for customers to adapt. It all depends on how it is introduced. It would be nice for the early adaptors, but not for the biggest group. As time progresses, I think that also the main part of our customers will adapt the online idea.

#### 4.2 Anne Marieke

**Alex:** Are you aware of the current status of the maintenance contracts? Why do you think in some countries, the selling of those contracts is less than in others?

**Anne:** Yes. I think it's a combination of factors: competition, chasing leads, active/non-active selling.

**Alex:** What do you think are the impediments of buying the extra contract?

**Anne:** Not convinced of the necessity, costs, rare visits, competition

**Alex:** How much time and money do you think is the company willing to invest in maintenance?

**Anne:** In times of corona difficult to say. Under normal circumstances time and money can be invested when we know what exposure, service level and long-term profit it would bring. If we calculate cost and benefit it is possible to invest in more employees to do the work, internal systems to be able to process and in materials (loaner units, boxes for shipment, etc...)

**Alex:** There were some discussion on what Medisol's options are: buying an online monitoring system, changing the structure of the current contracts, subcontracting another company to carry out maintenance. Which one do you think is the most efficient one? Why is that?

**Anne:** In my ideal world, we would offer the online service and let maintenance guys from our dealers do the work if the customer prefers service on location. Then, we have the perfect solution that fits the Medisol model: cooperation with dealers and sharing the market. This

way, we can make good profit from direct contracts and keep our dealers close to us because they benefit as well. And the customer had choice in the type of service they prefer.

**Alex:** What do you think about the impact of the chosen solution can have on the current maintenance process when opted for?

**Anne:** Controlled movement from our current type of contracts toward the online service and new service level agreements to our new maintenance crew on the road. Our internal service department would have to take on more planning and quality-check work. For the administration, planning and invoicing I hope we can be less time consuming by that time because of the improvement of the internal systems.

**Alex:** What do you think will be the effect on the number of service contracts sold when these new changes are implemented?

**Anne:** I think it has potential for renewing our existing contracts, but I also expect new markets.

**Alex:** What effect, in your view, will changing the current maintenance process have on customer loyalty? Why do you think so?

**Anne:** I think, if sold and explained well, loyalty is hardly influenced despite less ‘real life’ visits from Frans to the customer. Every contact moment is an opportunity to gain loyalty. This is a tool we hardly use on our maintenance customers. So, if we start making better contact with this new maintenance plan, I think there are great things ahead of us in terms of winning customer loyalty.

**Alex:** Do you think that in the future, Medisol will be able to offer the same maintenance opportunities to all countries in which it sells AEDs? Why is that?

**Anne:** Yes. Because of the online solution and our dense network of dealers. In particular when we make it to get our dealers on board for the re-selling and maintenance in the streets. For countries we currently can’t serve, online is a great solution. We don’t serve them now because it is too expensive to go there. With online we don’t need to go there anymore. So we can sell it anywhere.

**Alex:** Do you think our clients will welcome the idea of being online/connected to a device?

**Anne:** Yes. If explained well.

#### 4.3 Bernard Hollaers

**Alex:** Are you aware of the current status of the maintenance contracts? Why do you think in some countries, the selling of those contracts is less than in others?

**Bernard:** Well, a lot depends on the actual awareness and legislation in the various countries. In Germany for instance, maintenance is mandatory, which creates a different mindset. Furthermore, there is culture. Cultural differences exist for instance in attitude towards risk avoidance.

**Alex:** What do you think are the impediments of buying the extra contract?



**Bernard:** The price, though this is actually not a serious amount. However, customers might see the amount as something ‘on top’ of the investment they already made, but then on ‘insurance’. We can however refute this in various ways. Also, I guess customers prefer to have the service ‘under one roof’, whereas installation, but also maintenance and training are concerned.

**Alex:** How much time and money do you think is the company willing to invest in maintenance?

**Bernard:** Well, there is a tough question! To invest time is of the essence, because of the importance of maintenance in keeping our customers in the long run, but also because of our social responsibility. Money to invest...? This is not easily specified. It will amount all to a solid ROI.

**Alex:** There were some discussion on what Medisol’s options are: buying an online monitoring system, changing the structure of the current contracts, subcontracting another company to carry out maintenance. Which one do you think is the most efficient one? Why is that?

**Bernard:** The most urgent or the most efficient one??? As our markets are demanding our response with regard to online systems, we should go for this one first. And we are implementing Defisign online, so step one is taken. On the other hand, we can win on efficiency in my opinion, if we change the structure of the current contracts. After years of working with Frans, problems are still not solved, but keep coming back in various forms. Operation clean sweep is needed, which means making a new start, building up a new structure, with or without Frans. But then with very clear conditions for both.

**Alex:** What do you think about the impact of the chosen solution can have on the current maintenance process when opted for?

**Bernard:** A huge impact. And we should make it huge... which also means that we should go to the root of a mishap and negative sentiment among sales consultants. Talk it through and agree to start it all up again, bearing in mind its huge value for the company, in such a way that we can all create a positive new attitude towards maintenance and all possibilities. Then the only thing left to do is focus more on the actual sale process.

**Alex:** What do you think will be the effect on the number of service contracts sold when these new changes are implemented?

**Bernard:** Well, if we can really make a new start with all involved.... It will make a difference.

**Alex:** What effect, in your view, will changing the current maintenance process have on customer loyalty? Why do you think so?

**Bernard:** Yes, it will contribute a lot to customer loyalty! With a solid maintenance plan which really works well in practice and brings enthusiasm to our sales consultants, we can create partnerships with our dealers for the long run.

**Alex:** Do you think that in the future, Medisol will be able to offer the same maintenance opportunities to all countries in which it sells AEDs? Why is that?

**Bernard:** I guess so, but then we will have to start our cooperation with local dealers as well. That may take some time though. Online is not enough.

**Alex:** Do you think our clients will welcome the idea of being online/connected to a device?

**Bernard:** I am not sure. Some do and some don't. Perhaps depending on the generation (and local culture). That's why I proclaimed that we need both: online AND personal assistance.

#### 4.4 Maria van der Vliet

**Alex:** Are you aware of the current status of the maintenance contracts? Why do you think in some countries, the selling of those contracts is less than in others?

**Maria:** Yes I am aware of the current status of the maintenance contracts. I think that the focus (in the media etc) is larger in some countries than in others. However I also think that it has to do with the Sales Consultants capabilities of knowing how and wanting to sell contracts.

**Alex:** What do you think are the impediments of buying the extra contract?

**Maria:** The price could be an obstacle if the customer doesn't understand the benefits. Besides of that I think that a barrier could be that the customer assumes never to use the AED, and therefore don't understand the importance of knowing that the AED works.

**Alex:** How much time and money do you think is the company willing to invest in maintenance?

**Maria:** Quite a bit, but probably not enough, we see this is as the future of the company, and connecting even further with our customers. However mostly maintenance is often forgotten in the big picture.

**Alex:** There were some discussion on what Medisol's options are: buying an online monitoring system, changing the structure of the current contracts, subcontracting another company to carry out maintenance. Which one do you think is the most efficient one? Why is that?

**Maria:** I think we first of all have to take the control back. At the moment the planning is done by a subcontracted company (Frans). This is not working well. We have no control, and it becomes messy. Once that is under control I believe that it would be very good to change the structure of our contracts and adding online versions.

**Alex:** What do you think about the impact of the chosen solution can have on the current maintenance process when opted for?

**Maria:** Better overview, less mess, streamlined and less mistakes and frustrations. Better customer experience, and better structure.

**Alex:** What do you think will be the effect on the number of service contracts sold when these new changes are implemented?

**Maria:** Happy clients generate more revenue and more contracts. Also structure will help us be able to do more, and be more efficient. My goal is 40% growth of the service contracts.

**Alex:** What effect, in your view, will changing the current maintenance process have on customer loyalty? Why do you think so?

**Maria:** I think I explained that in previous questions. Happy customers, are loyal customers.



**Alex:** Do you think that in the future, Medisol will be able to offer the same maintenance opportunities to all countries in which it sells AEDs? Why is that?

**Maria:** Yes and no.. I think with the online solutions this will be possible. A real onsite visit will not be an option.

**Alex:** Do you think our clients will welcome the idea of being online/connected to a device?

**Maria:** Yes I do think so. It makes it even easier to be an owner of an AED. All concerns are taking out of your hands. A lot of customers struggle with this part, because they don't have enough knowledge of how an AED works. With the new Medical Regulations in 2021 (postponed for a year due to Corona) will also demand more control. The online/connected devices apply to these rules (to more extent than normal AEDs, not fully).

#### 4.5 Marleen Crucq

**Alex:** Are you aware of the current status of the maintenance contracts? Why do you think in some countries, the selling of those contracts is less than in others?

**Marleen:** Yes, I can check in the system how many contracts we have per country. For some countries, and I refer to Germany, it is more or less obligated to have a service contract. But another issue that I am seeing or maybe just believing it myself is that the sales consultants are afraid to call the customer. Normally we offer the first year for free for the standard contract and after this year is done, the sales consultants need to pick up the phone and call the customer and sell the contract in an attractive manner. But I think the sales consultants don't find the contracts that interesting and of course than when you don't like something, you don't do it with pleasure.

**Alex:** What do you think are the impediments of buying the extra contract?

**Marleen:** Hmm, honestly I am pretty sure it is the price of the contract. When someone buys an AED they hope they might not need to ever use it. It is not a pleasure to do it. So, if everything goes as it should, then you do not need to use the AED, so the importance of a contract is not as high as it should be.

**Alex:** How much time and money do you think is the company willing to invest in maintenance?

**Marleen:** We are still a growing company and we still try to adapt to certain changes and find our way. So I would say as little as possible.

**Alex:** There were some discussion on what Medisol's options are: buying an online monitoring system, changing the structure of the current contracts, subcontracting another company to carry out maintenance. Which one do you think is the most efficient one? Why is that?

**Marleen:** From my experience in the past few years, I believe that what we need is not something modern or something to add to what we already do, but what we need to do is change the whole maintenance structure within Medisol. All the other options will be a lot more expensive.

**Alex:** What do you think about the impact of the chosen solution can have on the current maintenance process when opted for?

**Marleen:** Definitely our department will be more organized, there will be a better view on the contracts and we will have an optimal administrative processing.

**Alex:** What do you think will be the effect on the number of service contracts sold when these new changes are implemented?

**Marleen:** We will for sure be able to sell a lot more contracts, but the sales consultants need to know how to make it “attractive” for the customer.

**Alex:** What effect, in your view, will changing the current maintenance process have on customer loyalty? Why do you think so?

**Marleen:** I do not believe in customer loyalty. In the end, all customers ,most of the time, they go for the lowest price. And it is understandable. I do it myself too.

**Alex:** Do you think that in the future, Medisol will be able to offer the same maintenance opportunities to all countries in which it sells AEDs? Why is that?

**Marleen:** No, I think that the costs will be too high, especially in countries such as Italy where the highway taxes will not change.

**Alex:** Do you think our clients will welcome the idea of being online/connected to a device?

**Marleen:** Only the modern companies like marketing offices, IT companies etc., but not for a townhall, or a school or the local football association...

#### 4.6 Jose van den Hoven

**Alex:** Are you aware of the current status of the maintenance contracts? Why do you think in some countries, the selling of those contracts is less than in others?

**Jose:** I am not aware of this, because my focus is on the RMA

**Alex:** What do you think are the impediments of buying the extra contract?

**Jose:** Customers are not fully aware of the necessity of a service contract

**Alex:** How much time and money do you think is the company willing to invest in maintenance?

**Jose:** It is important to keep the cost price as low as possible so we can sell the contract for a good price. We do not want to have contract that cost more than the contract from our competitors.

**Alex:** There were some discussion on what Medisol’s options are: buying an online monitoring system, changing the structure of the current contracts, subcontracting another company to carry out maintenance. Which one do you think is the most efficient one? Why is that?

**Jose:** Subcontracting is always a risk for the company. Online monitoring is the future and can be maintained within the company.

**Alex:** What do you think about the impact of the chosen solution can have on the current maintenance process when opted for?

**Jose:** It will be harder to sell Standard contracts to customers with a new AED; as the online contract would be more interesting.

**Alex:** What do you think will be the effect on the number of service contracts sold when these new changes are implemented?

**Jose:** I hope that there will be more contracts sold (online contracts)

**Alex:** What effect, in your view, will changing the current maintenance process have on customer loyalty? Why do you think so?

**Jose:** I do not think there will be a big effect, because customer mainly focus on the cheapest supplier.

**Alex:** Do you think that in the future, Medisol will be able to offer the same maintenance opportunities to all countries in which it sells AEDs? Why is that?

**Jose:** I do not think so. The biggest reason why not is that the costs of visiting each country are too high.

**Alex:** Do you think our clients will welcome the idea of being online/connected to a device?

**Jose:** Not all of our customers will welcome this, but this group will grow through time.

#### 4.7 Germany 1

**Alex:** How long have you subscribed to one of our maintenance contracts?

**Interviewee:** I think we are entitled to the maintenance contract since the year we bought it since 2017.

**Alex:** What type of contract are you currently entitled to? (Standard or extra contract including STK)

**Interviewee:** I believe we purchased from you the standard contract.

**Alex:** If you currently have a standard service contract, are you considering an extra service contract to upgrade? If not, please explain why.

**Interviewee:** No, we don't find it necessary to buy the extra one as we are capable of doing the maintenance ourselves and having your support over the phone is sufficient.

**Alex:** What do you expect from a maintenance service in terms of regularity (frequency) and quality? What would be the most important element for you?

**Interviewee:** I am expecting the maintenance to happen annually and contain a functionality test, the element that I find the most relevant.

**Alex:** On a scale of 1 to 10, with 1 least satisfied and 10 most satisfied, how would you rate the quality of service you have received from the maintenance team so far?

**Interviewee:** 10th

**Alex:** Is there anything you would like to have improved / changed in our maintenance service?

**Interviewee:** No, as far as I am concerned, we are happy with what you offer.

**Alex:** If we changed our current maintenance system to establish a better version of it, would you still be interested?

**Interviewee:** No, as we are satisfied with what we get now.

**Alex:** Are you aware of the existence of online monitoring devices for defibrillators such as Aivia M or AED Sentinel known? If so, would you be interested in such an online monitoring device? If not, could you explain this?

**Interviewee:** No I am not aware, but also I don't think it is necessary. I find it that the contact with the service technician is more important once a year.

**Alex:** If you are interested in an online monitoring device, would you prefer to buy it separately, connect it yourself and monitor yourself? Or would you prefer to hand over monitoring for remuneration? What are the reasons for this?

**Interviewee:** As I answered in the previous question, no.

**Alex:** Would you mind paying a greater price for the option of having an alert when your AED is encountering a malfunction? If yes, how much?

**Interviewee:** Again, since it does not interest me, I would not opt for this option.

#### 4.8 Germany 2

**Alex:** Since when have you subscribed to one of our maintenance contracts?

**Interviewee:** Since May 2018

**Alex:** What type of contract are you currently entitled to? (Standard or Extra contract incl.)

**Interviewee:** We are entitled to the Standard contract.

**Alex:** If you currently have a standard service contract, think about it on an extra service contract to increase? If not, please explain why.

**Interviewee:** I just looked at the extra contract again. Through the integrated STK it seems more interesting.

**Alex:** What do you expect from a maintenance service in terms of regularity (frequency) and quality? What would be the most important element for you?

**Interviewee:** I would expect the maintenance to happen annually. The most important elements for me are: to have a replacement device quickly and an on-site maintenance once a year.

**Alex:** On a scale of 1 to 10, with 1 least satisfied and 10 most satisfied, how would you rate the quality of service you have received from the maintenance team so far?

**Interviewee:** So far, we made no use of the contract yet, therefore I don't want to submit a rating.

**Alex:** Is there anything you would like to have improved / changed in our maintenance service?

**Interviewee:** Currently, no.

**Alex:** If we changed our current maintenance system to establish a better version of it, would you still be interested?

**Interviewee:** It really depends on the price and the quality or what it has to offer. If an offer will be presented I will gladly take a look at it.

**Alex:** Are you aware of the existence of online monitoring devices for defibrillators such as Aivia M or AED Sentinel known? If so, would you be interested in such an online monitoring device? If not, could you explain this?

**Interviewee:** I don't know and also I could not find any information on the homepage price/performance.

**Alex:** If you are interested in an online monitoring device, would you prefer to buy it separately, connect it yourself and monitor yourself? Or would you prefer to hand over monitoring for remuneration? What are the reasons for this?

**Interviewee:** It depends on the effort I must put in, the price and the quality of the service if you were to offer it for me or if I have to do it myself.

**Alex:** Would you mind paying a greater price for the option of having an alert when your AED is encountering a malfunction? If yes, how much?

**Interviewee:** Does this then replace the online monitoring devices? If not and the SMS (or whatever) would be just ONE kind of notification, then it should be included.

**Alex:** No, it does not replace it, it is part of it.

**Interviewee:** Well then, as I don't know much about those monitoring devices, I cannot make a clear estimation. But again, if you have an offer, I will gladly take a look at it.

#### 4.9 United Kingdom 1

**Alex:** Since when are you subscribed to one of our maintenance contracts?

**Interviewee:** At Lakeside North Harbour we joined the Medisol service contract last year (2019) and have received one annual visit so far in March 2019. Currently waiting for this year's visit to be scheduled.

**Alex:** What type of contract are you currently entitled to?

**Interviewee:** The contract is I believe on an annual invoice basis for the machine to be serviced each year with battery check.

**Alex:** If you are entitled to the AED Safeguard Plan, are you thinking of switching to the AED Service Contract? If not, why is that?

**Interviewee:** How do we know if we are entitled to this?

**Alex:** if you do have an on location visit, then you are entitled to the AED Service Contract.

**Interviewee:** Oh I see, then this is the one we are entitled to.

**Alex:** What are your expectations of a maintenance service in terms of regularity how often) and quality? What would be the most important element for you?

**Interviewee:** That it is carried out at the recommended intervals and timely basis so that we have an audit record to satisfy our compliance system.

**Alex:** On a scale from 1 to 10, 1 being the least satisfied and 10 being the most, how would you rate the quality of service received from our maintenance team?

**Interviewee:** We only started this contract last year, with the first service. Have not needed to use any service since then. But we are currently waiting for the service this year to happen. This has I believe been paid for by I think the current national situation is delaying the service taking place. However, we have not had any communication so this is still unclear. Therefore for this reason 8.

**Alex:** What would you improve within our current maintenance system?

**Interviewee:** It serves our purposes, so nothing so far.

**Alex:** If we change our current maintenance system, aiming for a better one, would you still be interested in contracting maintenance with us?

**Interviewee:** Obviously we would be interested to hear of any improvements that are being made.

**Alex:** Are you aware of the existence of online monitoring devices for your AEDs such as Aivia M or AED Sentinel? If yes, would you be interested in an online monitoring device? If not, why is that?

**Interviewee:** We are not aware, can you provide details and I will pass on to the relevant teams on site.

**Alex:** If you would prefer an online monitoring device, would you rather buy it separately, attach it yourself and monitor it yourself? Or would you prefer someone else to do it for you, in exchange for a sum of money? Why is that?

**Interviewee:** It would depend on the skill level needed to do this. We would consider it if information was made available to pass along to the site Management Team.

**Alex:** Would you mind paying a greater price for the option of having an alert when your AED is encountering a malfunction? If yes, how much?

**Interviewee:** Was not aware that the machine had this capacity or that it could be added. But if you could provide us with more information, it would be great and we could have a better idea of the whole system.



#### 4.10 United Kingdom 2

**Alex:** Since when are you subscribed to one of our maintenance contracts?

**Interviewee:** Since the year of 2018.

**Alex:** What type of contract are you currently entitled to?

**Interviewee:** If I am not mistaken myself, we purchased the Service Contract.

**Alex:** What are your expectations of a maintenance service in terms of regularity (how often) and quality? What would be the most important element for you?

**Interviewee:** Well, taking the how often part, then I would like to have my AED serviced at least a year and of course have the best quality. The most important element would be the functioning test at the end, basically the assurance at the end that it works. Also, I like to be next to the maintenance technician to see that everything goes smoothly.

**Alex:** On a scale from 1 to 10, 1 being the least satisfied and 10 being the most, how would you rate the quality of service received from our maintenance team?

**Interviewee:** Right now it is a 1. This is because I have paid for service but our AED has never been serviced.

**Alex:** What would you improve within our current maintenance system?

**Interviewee:** Everything, our AED has never been serviced and we have not been informed about any changes.

**Alex:** If we change our current maintenance system, aiming for a better one, would you still be interested in contracting maintenance with us?

**Interviewee:** We have already paid for this one and it is not the cheapest, so why would I pay even more for something that I might never get?

**Alex:** Are you aware of the existence of online monitoring devices for your AEDs such as Aivia M or AED Sentinel? If yes, would you be interested in an online monitoring device? If not, why is that?

**Interviewee:** No I am not. We have enough work to do already.

**Alex:** If you would opt for an online monitoring device, would you rather buy it separately, attach it yourself and monitor it yourself? Or would you prefer someone else to do it for you, in exchange for a sum of money? Why is that?

**Interviewee:** In the case that I would decide to invest in such a thing, as I mentioned earlier, we already have a lot of things to do, so we would definitely prefer someone to do it for us.

**Alex:** Would you mind paying a greater price for the option of having an alert when your AED is encountering a malfunction? If yes, how much?

**Interviewee:** To be honest, I do not know how much such a device costs, but I am guessing it is pretty expensive. And adding a larger sum of money to the amount we already pay, might not be in the best interest for us. But how would I know it is having a malfunction?

**Alex:** You will be receiving a notification or a SMS/email from us.

**Interviewee:** Then if it is an affordable price, might be interesting. But if people pay for this, then they do need to receive something in exchange.

#### 4.11 Netherlands 1

**Alex:** Since when are you subscribed to one of our maintenance contracts?

**Interviewee:** I believe since 2012

**Alex:** What type of contract are you currently entitled to?

**Interviewee:** It is the Standard AED service contracts

**Alex:** If you are entitled to the basic contract, are you thinking of switching to the extra contract? If not, why is that?

**Interviewee:** As a base, we opt for the standard contracts, but further on, I leave the choice to my customers and I explain both types of contracts.

**Alex:** What are your expectations of a maintenance service in terms of regularity how often) and quality? What would be the most important element for you?

**Interviewee:** I expect all maintenance-sensitive parts to be monitored and replaced on time. In the event of a malfunction or update, maintenance is offered free of charge. With the guarantee that the customer has a well-functioning and reliable AED.

**Alex:** On a scale from 1 to 10, 1 being the least satisfied and 10 being the most, how would you rate the quality of service received from our maintenance team?

**Interviewee:** I rate it with a 9 so far.

**Alex:** What would you improve within our current maintenance system?

**Interviewee:** I would include the choice to make replacement parts included in the contract.

**Alex:** If we change our current maintenance system, aiming for a better one, would you still be interested in contracting maintenance with us?

**Interviewee:** If it is an improvement and it suits the individual customer better, I will still be interested.

**Alex:** Are you aware of the existence of online monitoring devices for your AEDs such as Aivia M or AED Sentinel? If yes, would you be interested in an online monitoring device? If not, why is that?

**Interviewee:** I am aware of the existence of remote monitoring. Would like to know more about this and help promote it.

**Alex:** If you would prefer an online monitoring device, would you rather buy it separately, attach it yourself and monitor it yourself? Or would you prefer someone else to do it for you, in exchange for a sum of money? Why is that?

**Interviewee:** Would like Medisol to install the monitoring equipment. I want to be able to see the online monitoring of AEDs and AED cabinets from my own customers. This is possible, for example, in collaboration with Medisol.

**Alex:** Would you mind paying a greater price for the option of receiving an alert on your smartphone when your AED is encountering a malfunction? If yes, how much?

**Interviewee:** It makes sense to pay a higher price for online surveillance. Have no idea what the price should be for this. My advice is not to make the price too high, otherwise it will not be used as much.

#### 4.12 Netherlands 2

**Alex:** Since when are you subscribed to one of our maintenance contracts?

**Interviewee:** We purchased the contract in 2016

**Alex:** What type of contract are you currently entitled to?

**Interviewee:** The standard one.

**Alex:** If you are entitled to the basic contract, are you thinking of switching to the extra contract? If not, why is that?

**Interviewee:** We are actually thinking of making the transition. We would like for someone to come and check our AED from time to time. We have other matters to take care of and we cannot be always thinking of the AED.

**Alex:** What are your expectations of a maintenance service in terms of regularity (how often) and quality? What would be the most important element for you?

**Interviewee:** I guess to be serviced once a year. I find availability to be the most relevant matter. Having someone available whenever there is a malfunction with the device.

**Alex:** On a scale from 1 to 10, 1 being the least satisfied and 10 being the most, how would you rate the quality of service received from our maintenance team?

**Interviewee:** It would be an 8. Friendly personnel, but sometimes they were not sure of their answers and they had to check and this took a bit longer over the phone.

**Alex:** What would you improve within our current maintenance system?

**Interviewee:** Nothing substantial.

**Alex:** If we change our current maintenance system, aiming for a better one, would you still be interested in contracting maintenance with us?

**Interviewee:** We already have a contract with you for a few years now, so if it is only a change for the better, I do not see a reason for not continuing.

**Alex:** Are you aware of the existence of online monitoring devices for your AEDs such as Aivia M or AED Sentinel? If yes, would you be interested in an online monitoring device? If not, why is that?

**Interviewee:** I did hear about such devices, but I am not totally aware of what they can do or how do they work

**Alex:** If you would opt for an online monitoring device, would you rather buy it separately, attach it yourself and monitor it yourself? Or would you prefer someone else to do it for you, in exchange for a sum of money? Why is that?

**Interviewee:** An easy way is to attach the device ourselves and let you do the monitoring. I see no need in someone coming here if it is an easy process.

**Alex:** Would you mind paying a greater price for the option of having an alert when your AED is encountering a malfunction? If yes, how much?

**Interviewee:** If the device does a great job and if it is actually need it, then I don't see why I would not pay a fair price for it. But if you have any information or offers regarding this online device, I will like to receive them and analyze the offer.

#### 4.13 France 1

**Alex:** Since when are you subscribed to one of our maintenance contracts?

**Interviewee:** Since February 2018.

**Alex:** What type of contract are you currently entitled to?

**Interviewee:** We are entitled to the AED Extra Contract.

**Alex:** What are your expectations of a maintenance service in terms of regularity how often) and quality? What would be the most important element for you?

**Interviewee:** We would expect it to happen at least every year as it is recommended for our product. The authentic products replacements is the most important element of the service for me.

**Alex:** On a scale from 1 to 10, 1 being the least satisfied and 10 being the most, how would you rate the quality of service received from our maintenance team?

**Interviewee:** It would be an 8/9 as we have only had one service so far – but the product was in good condition upon return to us.

**Alex:** What would you improve within our current maintenance system?

**Interviewee:** Possibly slightly more information in terms of the engineer's arrival times/dates.

**Alex:** If we change our current maintenance system, aiming for a better one, would you still be interested in contracting maintenance with us?

**Interviewee:** I am still happy to continue with the current maintenance program.

**Alex:** Does it pose a problem for you to communicate with our maintenance technician in English?

**Interviewee:** No. We are an international company and English is one of the necessary skills.

**Alex:** Are you aware of the existence of online monitoring devices for your AEDs such as Aivia M or AED Sentinel? If yes, would you be interested in an online monitoring device? If not, why is that?

**Interviewee:** No I am not aware, but yes, would be interested in knowing more.

**Alex:** If you would prefer an online monitoring device, would you rather buy it separately, attach it yourself and monitor it yourself? Or would you prefer someone else to do it for you, in exchange for a sum of money? Why is that?

**Interviewee:** I would only be able to comment after knowing more about the product. But would be open to carry out the monitoring internally (within our team).

**Alex:** Would you mind paying a greater price for the option of having an alert when your AED is encountering a malfunction? If yes, how much?

**Interviewee:** Yes possibly; unsure of how to value this alert, although a reasonable price point would be no more than the cost of the maintenance contract or a % of that agreement

#### 4.14 France 2

**Alex:** Since when are you subscribed to one of our maintenance contracts?

**Interviewee:** We are subscribed since 2017

**Alex:** What type of contract are you currently entitled to?

**Interviewee:** We opted for the Standard contract.

**Alex:** If you are entitled to the basic contract, are you thinking of switching to the extra contract? If not, why is that?

**Interviewee:** No because the current one covers our needs.

**Alex:** What are your expectations of a maintenance service in terms of regularity (how often) and quality? What would be the most important element for you?

**Interviewee:** I am not the expert, but I think it should be at least once a year and the most important element would be to have someone physically coming here and checking it.

**Alex:** On a scale from 1 to 10, 1 being the least satisfied and 10 being the most, how would you rate the quality of service received from our maintenance team?

**Interviewee:** In my opinion it would be a 9. I mean we never had any issues with your service and when we called for help, your assistant was nice and explained things clearly for us. It is not a 10 because even though the explanations were rather clear, until we got the hand on someone over there, it took us quite some days.

**Alex:** What would you improve within our current maintenance system?

**Interviewee:** Maybe a better organizing? I mean, sometimes if we use the urgent telephone number and it is a Friday evening, someone would only contact us on Monday. What if someone would have actually needed the AED?

**Alex:** If we change our current maintenance system, aiming for a better one, would you still be interested in contracting maintenance with us?

**Interviewee:** Depends what a better one means. What would be the add-ons to this contracts and how much it would cost?

**Alex:** Does it pose a problem for you to communicate with our maintenance technician in English?

**Interviewee:** Of course not.

**Alex:** Are you aware of the existence of online monitoring devices for your AEDs such as Aivia M or AED Sentinel? If yes, would you be interested in an online monitoring device? If not, why is that?

**Interviewee:** No I am not. But I would definitely like to know more.

**Alex:** If you would opt for an online monitoring device, would you rather buy it separately, attach it yourself and monitor it yourself? Or would you prefer someone else to do it for you, in exchange for a sum of money? Why is that?

**Interviewee:** I think I would prefer someone to monitor it for us. I don't think that I need someone to install it for me, I think I can do this without a problem, but non-stop monitoring, I would rather have someone else do it.

**Alex:** Would you mind paying a greater price for the option of having an alert when your AED is encountering a malfunction? If yes, how much?

**Interviewee:** If this feature proves itself to be useful, then I would not mind paying more, but I would be interested to know how much more this would be. If it is a monthly fee, I would definitely not pay more than € 10. If it is early, I think I would not pay more than the extra contract.

#### 4.15 France 3

**Alex:** How long have you subscribed to one of our maintenance contracts?

**Interviewee:** Since 2016.

**Alex:** What type of contract are you currently entitled to?

**Interviewee:** We have the Extra service.

**Alex:** What do you expect from a maintenance service in terms of regularity (frequency) and quality? What would be the most important element for you?

**Interviewee:** I am expecting the maintenance to take place once a year and this is the most important element for me. Having someone to come and check the device is also something that we see as very important.

**Alex:** On a scale of 1 to 10, with 1 least satisfied and 10 most satisfied, how would you rate the quality of service you have received from the maintenance team so far?

**Interviewee:** 10.



**Alex:** Is there anything you would like to have improved / changed in our maintenance service?

**Interviewee:** No.

**Alex:** If we changed our current maintenance system to establish a better version of it, would you still be interested?

**Interviewee:** Yes, we do not see any reason in not continuing with Medisol.

**Alex:** Does it pose a problem for you to communicate with our maintenance technician in English?

**Interviewee:** Not at all.

**Alex:** Are you aware of the existence of online monitoring devices for defibrillators such as Aivia M or AED Sentinel known? If so, would you be interested in such an online monitoring device? If not, could you explain this?

**Interviewee:** No I am not aware, but this can be interesting for our company. We would be willing to know more about such devices.

**Alex:** If you are interested in an online monitoring device, would you prefer to buy it separately, connect it yourself and monitor yourself? Or would you prefer to hand over monitoring for remuneration? What are the reasons for this?

**Interviewee:** I would like that someone who knows how to install such a device to come and do it for me.

**Alex:** Would you mind paying a greater price for the option of having an alert when your AED is encountering a malfunction? If yes, how much?

**Interviewee:** Yes, I am ready to pay an extra €50/year, but this would be the maximum.