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**Designing the business model for VR products with
the purpose of relaxation therapy - Case VIEMR**



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ABSTRACT

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This thesis was commissioned by VIEMR, a creative industry company based in Groningen, the Netherlands. In the company's attempt to increase their visibility in the customer segment of mental health care solutions, they currently lack a well formulated strategy. Therefore, the objective of this study is to create a strong value proposition for the chosen customer segment and formulate a business model for VIEMR to lay out a strategy to become a VR specialist within the Mental Healthcare sector specifically in relaxation therapy.

This research is mainly based on entrepreneurial tools, namely the Business Model CANVAS and The Value Proposition Designer, SWOT analysis. In addition, the study reveals the basic concept of the business model and tells about its limitations.

This research utilizes the case study approach, as it is a relevant method providing an answer to the questions of "how" and "why". It also allows to combine different types of information sources. This study is based on primary sources – interviews, internal co-creation workshops, as well as secondary sources – desk research. The findings were processed using the chosen business tools and revised by the commissioning company in internal workshops.

The final business model proposal was formulated according to the findings and recommendations for future research were provided.

FOREWORD

This thesis was finalized in autumn 2016 and is fulfilling the requirements for the Bachelor's Degree in International Business at the Kajaani University of Applied Sciences. I owe a debt of gratitude to several individuals for support and help in writing the thesis. First and foremost, I would like to thank Stefan Vogelzang, the owner of VIEMR, for providing me an opportunity to become the first intern in the company and satisfy my personal interest by working with virtual reality.

Secondly, many thanks to my teachers, who have been providing me with valuable knowledge of the International Business environment for all years. A special gratitude goes to my beloved family for their support. In particular, I would like to thank to my supervisor Jan Mits for his contribution to my research. Jan provided moral support during my research and useful information related to the writing of the thesis. Besides, I would like to thank Erik Prins, teacher from Erasmus partner university – NHL hogeschool for teaching practical business tools, which this thesis is based on. Many thanks to Ben Kleber for proofreading this text.

This study provided me with a chance to put my learned skills into practice. Moreover, I gained valuable experience in writing academic papers, which I will use in my future career. Also, the research provided me with an opportunity to work in such a challenging industry such as mental healthcare.

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1. INTRODUCTION

This thesis was written for VIEMR which is a creative industry company based in Groningen, the Netherlands. VIEMR produces multiple commercial products for numerous customers including such high profile clients as Audi and Transavia. Over seven years the company has been operating in 360° and virtual reality production. At present commercial virtual reality is a vastly growing business, therefore it is becoming companies' focus area worldwide. Thus for instance, such giants as YouTube and Facebook are currently adopting their platform to make it more suitable for 360°. Taking this trend into account VIEMR has recently decided to change their vision and focus on the opportunities for 360° visualization in the semi-public sector segments such as Health, Safety and Education. For this reason, a competitive strategic analysis and a new business model design is required.

However, before moving to the actual research the author will give a definition of Virtual Reality and make an outline on the history of this technology and industry background.

1.1. History of VR and 360°

The concept of Virtual Reality (VR) has been of interest to humans for thousands of years already, however it was a far cry from what is now understood as virtual reality in the present day. The beginning of VR and 360° production is rooted to panorama paintings. One of the first panoramas dates back to the 12th century and many more were created before the age of cinema and photography were even in their infancy.

360° production began in the early 19th century. The first 360° degree video in history was made by Raoul Grimoin-Sanson using the "Cinéorama" technique in 1900. "Cinéorama" was filmed by fixing 10 cameras together around a central focal point creating a full 360° circle and attached to a balloon which could be

raised 400 meters up to the sky. The resulting 360° video was shown on 10 synchronized projector screens set up around the viewing platform. Unfortunately, Cinéorama was shut down on the fourth day of the exhibition where it was presented to the public for safety reasons, as the projector equipment simply could not handle the overheating. (British Film Institute 1996) That is an example of how technological shortcomings became an obstacle on the way to innovation.

In early 1920s the US Army began to develop the first flight simulators in order to train their pilots without risk for life. The technique became a basis to VR which we see nowadays. In 1930s the first goggles entitled "Pygmalion Spectacles" were launched. They were able to play holographic images and also imitate the sense of touch and smell for more realistic experience.

In the 1960s the "Sensorama" cabin became an important breakthrough in VR history as it imitated four of five human senses to imitate being in a different reality to the greatest possible extent. Later in the same decade, the first head-mounted display to experience VR was created by Ivan Southerland and Bob Sproull.

In the 1970s Andrew Lippman had created the Movie Map to Aspen in Colorado, which is now considered the first simulation of reality as it actually involved 360° footage of a real-world place.

Only in 1980s Virtual Reality became more technologically advanced. This technique was finally introduced into the game industry. In the mid 1990s Nintendo announce their VR oriented game system "Virtual Boy" but it did not establish its position in the market as many customers complained of dizziness and headaches.

What became the de-facto standard in Virtual Reality started with the introduction of Oculus Rift in 2012. In 2014 Oculus Rift got acquired by Facebook and the same year Google provided an easy VR access to wider audiences with their Google Cardboard where a single smartphone could be used as a VR display. (Capitola VR 2016)

The term Augmented Reality (AR) is often heard interchangeably with VR. However, it is very important to distinguish those two as they use different technologies and market opportunities. The Goldman Sachs Group, Inc (2016, p.4) in its industry report defines that “AR overlays digital imaginary onto the real world” as opposed to immersive VR. Examples of AR are Microsoft HoloLens and Google Glass.

1.2. Industry background

The GSG (2016, p.4) states that VR and AR have the potential to become the next big computing platform, and as we saw with the PC and smartphone, we expect new markets to be created and existing markets to be disrupted. VR/AR is still in the early stage of the development. It is impossible to predict their future but it is possible to estimate the scenarios of future development of the industry. According to the base scenario by 2025 the VR/AR world software market will be estimated to 35\$bn as compared to hardware market totaling 45\$bn (GSG 2016).

Among the top competitors in the VR/AR market there are such giants as Samsung (Displays), Canon, Nikon (3D Lenses) HTC (Positioning/Room tracking). These big names make it evident that major players from established tech industries (smartphone, photo camera) are pioneering in the new market as they see the potential of it.



Figure 1: VR ecosystem map (McCann, C 2015)

The VR market has without doubt a promising future. Thus, it is essential to understand the different players (presented in the Figure 1) in the ecosystem. Figure 1 is a map of that ecosystem which is broken down into different categories including hardware and software. While big brands mostly filled the VR hardware market, the software has still plenty of vacant space for more and more companies to enter the market. Since 2006 the number of companies involved in this business has increased by 15-fold (Ryzhonkov, S 2015, slide 22)

Exhibit 4: Our 2025 base case VR/AR software assumptions by use case

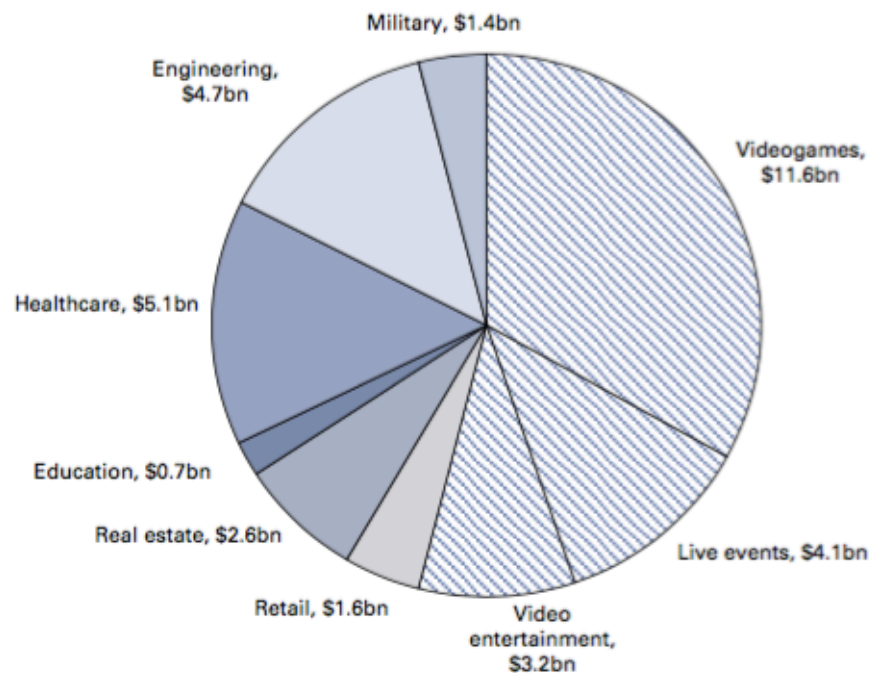


Figure 2: VR market share in different industries (GSG 2016, p.8)

Looking at the categories of VR software companies one can distinguish markets with bigger and smaller share. The figure 2 shows that VR implementation is forecasted to change the videogame, life event and video entertainment industry the most. At the present moment, the public sector industries also recognize the potential of the technology by putting their budget in order to adopt VR technology and improve their services whether it is healthcare, education or training. Specifically, the author of this research is interested in the healthcare industry which is estimated at \$5.1bn by 2025. According to the base scenario by 2025 VR/AR solutions in healthcare are disrupting a \$16bn market for patient monitoring devices according to Research and Markets. (GSG 2016)

The numbers above prove the fact that the healthcare sector is definitely important and it is one of the biggest niche of the global VR market, which is a solid argument for shifting the company's strategy to enter the healthcare market.

1.3. What are the necessary ingredients to create VR?

VR is a computer-generated environment in three-dimensional space with which the user can interact. Virtual reality can be perceived through different sensor inputs of the human body. It involves such senses as vision, hearing and sometimes touch and smell. In order to experience virtual reality special electronic equipment is required, commonly either a helmet or goggles with the stereo earphones. The user can navigate in virtual reality using additional motion tracking systems which can be attached to helmet, hands, feet etc. (Gregg & Tarrier 2007, p.348) For instance, the HTC Vive virtual reality system, which is used mostly for VR gaming, includes goggles, hand controllers and the Lighthouse tracking system contained in 2 base stations emitting infrared laser beams. Nowadays, the most popular and cheapest solution for the end user to experience virtual reality is Samsung Gear Vr and Google Cardboard which allows the transformation of smartphones into VR goggles.

When VR creates a virtual environment so real that the user gets the feeling of physically being there, a qualitative virtual experience is achieved. The perception of «being there» is called a sense of presence. The sensation is achieved by replacing the real world stimulus by a computer-generated stimulus.

First of all, it is important to point out that in the VR experience the sense of presence is reached by placing the character in the center of the computer-generated reality and it surrounds him/her 360°. In order to understand the VR experience from the point of the audience better an experiment was organized by Stanford's d.school Media Experiments in partnership with the National Film Board of Canada and independent filmmaker Paisley Smith.

The VR technology provides a completely different way of storytelling that any other existing method as it involves more of human body sensor inputs than was previously possible. No less important to point out is the fact that the experience

making storytelling so compelling is not limited by external distractions such as objects outside of the image.

It is necessary to mention that the experience is altered if the angle of observation is altered. Three situations were analyzed in the study by d.school Media Experiments and the summaries from each one of them are presented below. In the experiment the participants were placed in the center of the bedroom of a young man, Taro (playing video games in the image below). They had to watch the scene played out around them and listen to the sound in 360° with special headphones. In the first situation, the participants were limited to 90° observation. In the second situation – to 180° and finally in the third situation a full 360° immersion was allowed. (Newton, K & Soukup, K 2016)



Figure 3: 3 situations from the study by d.school Media Experiments (Newton, K & Soukup, K 2016)

90° restriction

The audience could remember nearly every detail of the story, whether it was presented by physical action in the room or delivered through the headphones. The participants' view was restricted to 90° and therefore objects placed in front of them were given higher importance and seen in greater context. The researchers say: "Each object seemed to be deliberately placed, therefore insignificant objects took on huge significance in the minds of the audience. This effect was

prevalent in the 90° view, but we wonder if, even in 360°, having limited visual information puts more weight on the information that's there, leading to a similar search for meaning." (Newton, K & Soukup, K 2016, no. 1). For example, in the 90° scene in Taro's bedroom, all of the participants paid attention to the plate full of cookies next to Taro and they were trying to figure out the role of the object in the storyline even though it was of little importance. Besides that, all of them were able to refer to Taro by his name which they heard from the audio. In conclusion, the audience were highly investigative and were able to memorize all the additional information from the audio recording.

180° restriction

The study has shown that in the 180° scene the participants could refer to Taro by name more successfully than they could in 360°, but in few cases they gave him a descriptive name ('young man').

360° full immersion

In contrast to the 90° and 180° scenes, in 360° full immersion participants could hardly remember Taro by his name, which can be traced back to the participants constantly looking around the room and absorbing a higher amount of information in order to connect all of the dots to form one single picture. "It is impossible for humans to see in 360°, thus they must actively choose what to look at and when." Thereby, it is impossible to make each individual participant experience VR storytelling in the exactly same manner or see the storytelling unfold in the same fashion. "The fact that participants in the 360° scene couldn't remember Taro's name (among other story details), suggests that they were focusing less on the audio in 360° than in the 180° or 90° scenes. Perhaps there was too much information in 360° for the audience to process. When telling a story in 360°, we need to consider how to combine audio and visual elements without overloading the audience." (Newton, K & Soukup, K 2016, para. 4)

1.4. VR in mental healthcare

As it was mentioned previously, VIEMR has recently decided to focus on the public sector segments, one of which is mental healthcare. The use of VR technology in mental health therapy is a relevantly new phenomenon. Since the first VR application in mental health therapy computers have become much faster and tools to create VR content have become more convenient. Besides that, the cost of technology has decreased significantly and therefore more applications have been developed. The interest of VIEMR in the mental healthcare sector is explained by their newly formed partnership with psychiatry department of University Medical Center Groningen (UMCG) which enables the company to create legitimate VR products to offer to mental healthcare. That partnership provides a major advantage such as access to clinical evidence that the products are suitable and an effective treatment supplement and thus build a trusting relationship with future customers.

For the first time VR saw implementation in psychotherapy with the purpose of exposure therapy. One of the first experiments was aimed at threatening patients with post-traumatic stress disorder (PTSD). The first known study about implementation of virtual reality in psychiatry was written in 1996 titled 'Virtual Reality Therapy, an Innovative Paradigm' by Max M. North, Sarah M. North, and Joseph R. Coble and was supported by U.S. Army Research Laboratory in order to help their soldiers to overcome PTSD. The laboratory had realized that VR can be helpful for patients to re-experience situations that could not be repeated in real life such as combat situations.

This method of provoking a fear response from a patient in order to conquer their illness is based on the principle of exposure. VR based therapy could also be suitable for other anxiety disorders such as specific phobias (e.g. fear of heights, fear of spiders etc.) sexual dysfunction, attention deficit disorder, dementia, schizophrenia and many others.

There are several advantages of applying VR therapy in psychotherapy practice to justify the need for such products.

- Exposure therapy for some conditions could be potentially dangerous, difficult or even impossible (e.g. vivo exposure therapy for flying phobia is prohibitive) and VR offers a safe and cost-effective solution for such a problem. (Prakash & Nath 2013, p.187)
- VR exposure therapy happens in a controlled environment where the technology could be shut down at any moment of time. The patients are able to trust VR therapy as they realize that nothing threatening is actually happening. (Prakash & Nath 2013, p.187)

VR can be a highly effective treatment for many mental disorders, and could potentially replace drug treatment. Unfortunately, there are few barriers which slow down the development and implementation of VR therapy products. (Senson, A 2016)

- Cost and technology limitations do not allow to reach the maximum potential of the market.
- Lack of clinical evidence to prove the legitimacy of the product leads to mistrust in the product.

Besides the implementation of VR in exposure therapy, there are other possibilities to use this technology to target the mental healthcare customer group.

Here is a categorical list of existing VR therapy products which was created by the author based on her desk research.

- Exposure therapy:
 1. Treating PTSD
 2. Treating phobias and anxiety disorders
- Pain relief
- Virtual reality for stress relief or relaxation e.g. patients are placed in relaxing environment to low the anxiety level (Senson, A 2016)
- Simulators to fit someone else's shoes e.g. experience visual and hearing symptoms of migraine in order to understand better what people with that malady go through and increase the empathy towards them (The Excedrin® 2016)
- E-learning e.g. therapy for patients with autism (Autism Speaks 2014)

Summing up what has been written above, virtual reality products can serve several purposes. It's important to create an understanding that there are variety of opportunities for VR in the mental healthcare field and most importantly a need for it. Moreover, products with different purposes could be required by same target group. However, in this research paper we focus on VR that serves the purpose of relaxation therapy. The next sub-chapter introduces the business concept.

1.5. VIEMR's new business concept

VIEMR is a creative industry company based in Groningen. It has been active for seven years to provide 360° / Virtual reality visualizations and apps for a variety of clients. VIEMR focusses on opportunities for 360° visualization solutions in the semi-public sector segments, in particular mental healthcare. VIEMR is aiming to build a strong business model to serve psychiatry departments in hospitals, smaller institutes and clinics, private practitioners etc. and use them as distributors to the end customer. The business concept has appeared from the VR Dolphin footage that had a considerable calming effect.

“The Dolphin Swim Club” appeared as an independent 360° project which promised to become something bigger than just a commercial spherical movie. “The Dolphin Swim Club” project allows subjects to experience swimming with wild dolphins through virtual reality anytime. Example of the product is shown in the Figure 4. The mission of VIEMR was to create the most beautiful footage of swimming with wild dolphins and make it accessible to anyone on the planet. Such experiences would be valuable and enjoyable for entertainment purposes

as well as providing relaxation for patients with anxiety disorders.



Figure 4: The Dolphin Swim Club's goggles (VIEMR)

The “Dolphin Swim Club” is already implemented in practice by Wim Velling, a psychiatrist at the University Medical Centre Groningen, who is also a partner and a client of VIEMR. Together they saw the potential in treating patients with VR and are willing to jointly design more products to help sufferers to relief stress or anxiety. VIEMR works with VR technology and is able to create more content. Moreover, the company’s huge advantage is co-operation with a respected psychiatrist who has worked with VR for several years and can state from his experience that those products serve to improve health care. “VR is a very powerful tool to engage people in all kinds of environments, which are necessary for better treatment” (Wim Velling 2016). It is very important to provide patients with tools to manage their stress level. This concept received the name VRRelax. It is going to be a platform where these tools will be placed.

1.6. Research problem, question and objectives

This research is supposed to extend the knowledge of how to design the new business model based on the existing technological advances. The study will be mainly based on a theory of business model design by Osterwalder. An explanation will be provided why designing a business model and a strong value proposition is more effective than creating a marketing strategy around the product.

Moreover, the study will explain the connection between the theoretical background and research questions and what the benefits and limitations of this particular approach are. This will make it obvious for the company why designing a business model is valuable for future business operation and, more importantly, will facilitate them to apply design-oriented thinking in their future projects.

The statement of the problem can best be formulated thus: "In the company's attempt to increase their visibility in the customer segment of mental health care solutions, they currently lack a well formulated strategy".

Therefore, **the research question** would be "how can the company's strategy to access a new niche market best be formulated?"

These **research objectives** will help in reaching an answer to the formulated research question.

1. Research the current position in the market
2. Create the profile of the main customer segment
3. Define the Value Proposition that fits the customer profile
4. Suggest a Business model according to the Value Proposition

The research goal is to create a strong value proposition for the chosen customer segment based on the primary research on who is in need of the VR relaxation solution. Once the value proposition is designed, the new business model will be proposed and revised by VIEMR in order to define the future role of VIEMR in that niche market.

2. LITERATURE REVIEW

The main research objective of this thesis is to develop a great business model for the VR Relax platform with relaxation therapy focused-content. In this chapter the author will create an understanding what a business model is, introduce the business model design and strategic tools that will be involved in creating it.

2.1. Business Model definition

In a practical sense the business model has to describe how the company sustains itself; simply put, how the company generates revenue. A more exact definition is offered by Teece (2009, p.172): a business model 'describes the design or architecture of the value creation, delivery, and capture mechanism it employs'. There is a vast amount of different perspectives on business modelling. The definitions include different core aspects such as purpose, strategies and architecture of revenue and costs and value proposition to their customers and there are different tools and frameworks that help to outline different aspects.

2.2. Business Model design

It is important to understand that a business model is a conceptual, rather than financial, model of a business. (Teece 2009, p.173) Firstly, it has to identify how an enterprise creates and delivers value to the customers, and then converts received payment to profits. There are 2 approaches to designing the value proposition: technology-driven and market-driven.

The technology-driven approach assumes that there are the existing technological resource and potentially a customer segment interested in it. The market-driven approach is a search of an important problem which needs a solution and then learning what existing technological resources are required to create a business model. In summary, the first approach would start with a solution in a search of a problem and the second one the other way around.

Furthermore, it is essential to determine the benefit to the customer from consumption/use of the product/service, i.e. a prototype value proposition and identification of the market segment to be targeted with that prototype. In other words, it is either adapting a technological solution to the customer's problem or creating a business model that will be a solution in itself. (Osterwalder 2014, 94)

2.2. SWOT analysis

The well-known SWOT analysis tool has already been in use by entrepreneurs as a starting point in developing possible options for organizations for a few decades. It covers the review of the internal and external environments of the company. SWOT is analysis of the Strengths and Weaknesses present internally in the organization, coupled with the Opportunities and Threats that organization faces externally. (Lynch 2012, p.304)

The internal analysis is helpful to define what the core competencies and capabilities of the company are. This analysis is beneficial to the company in the early stages of the new business model development as it is necessary to define those weaknesses that could turn out to be strengths. The SWOT analysis of the business model enables us to gain insight into the company, in particular how the value is delivered to the customer, why customers are willing to pay for this value and how the company converts those payments into revenue.

The external analysis examines key trends within the industry and market; industrial and macroeconomic forces have to be reviewed as well. The SWOT should be a 'brief analysis of what is really important for the organization' but not listing every conceivable issue. 'A short list with each point well-argued is more likely to be convincing.' (Lynch 2012, p.305) Figure 5 is an example how SWOT analysis should look like. The externally-based option analysis helps to adapt the business model more effectively to the shifting external forces.



Source: Business Model Generation, Alexander Osterwalder and Yves Pigneur, 2010, businessmodelgeneration.com

Figure 5: SWOT (Osterwalder 2010, p.216)

2.3. Business Model CANVAS

Alexander Osterwalder & Yves Pigneur (2010, p.14) define the business model as 'a rationale of how an organization creates, delivers, and captures value'. The concept of the Business Model CANVAS (BMC) (Figure 6) was primarily designed for entrepreneurs to provide them with simple and straightforward tools to optimize an existing business or build one from the ground up. It is a unique strategic and rather young approach to entrepreneurship in the quickest, easiest and most visual way. Despite the fact this concept is very new it has earned the trust of such big organizations as IBM, Ericsson, Deloitte and many others, who have already implemented and tested it. Thanks to the visualization the BMC allows everyone to be on the same page, which could be very appropriate for communication between different departments in a big enterprise as well as for employees with different competencies in SME. Finally, the BMC is very flexible to changes, as it is less static and more tangible than a business plan. Moreover, the BMC is not as time consuming as a traditional planning practice. There could be several CANVASES which serve different customer groups or products with different

value propositions and represent the business model.

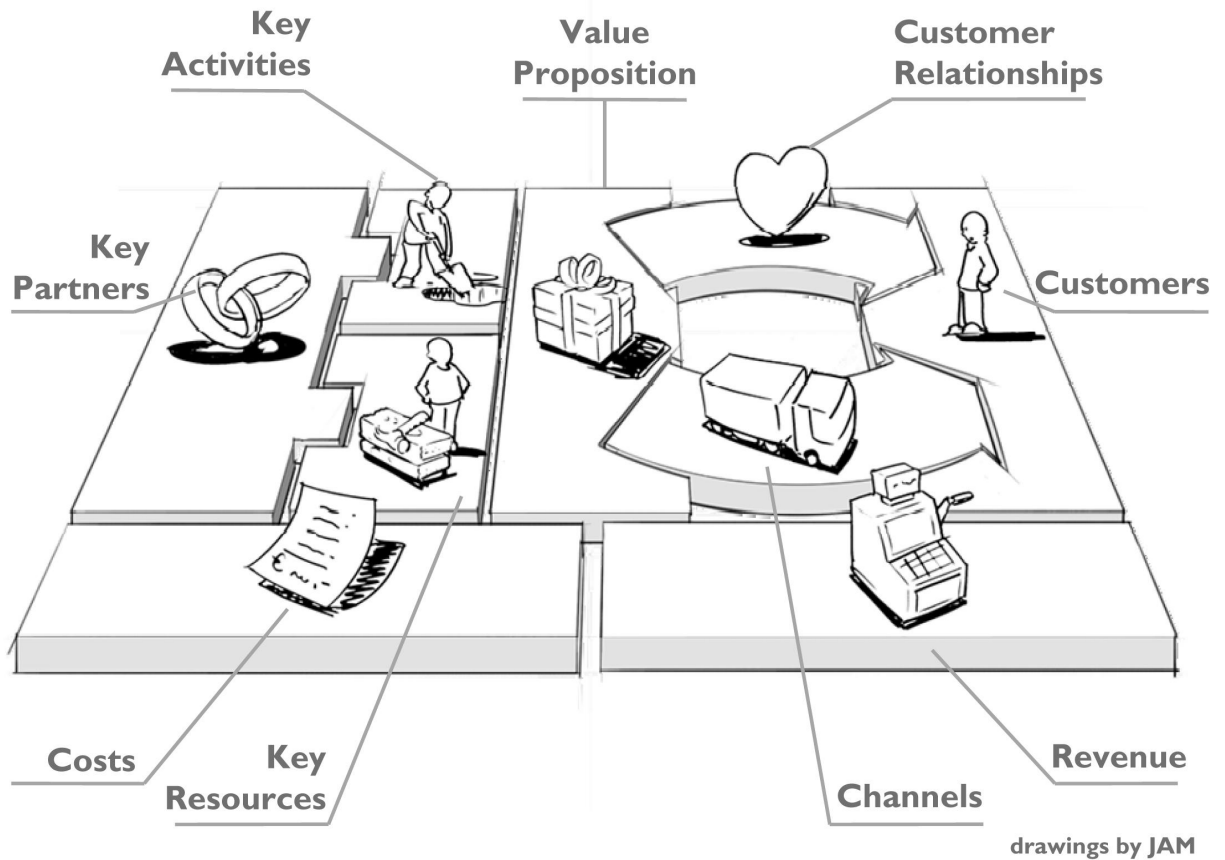


Figure 6: Business Model CANVAS (Osterwalder 2010, p.24-25)

The Business Model CANVAS consists of 9 building blocks which explain the logic of how the company should earn their profit and achieve a competitive advantage. It covers four main areas of a business: customers, offer, infrastructure, and financial viability. 'The business model is like a blueprint for a strategy to be implemented through organizational structures, processes, and systems.' (Osterwalder 2010, p.15)

Adopted from (Osterwalder 2010, 18-41)

1. **Customer segments** should answer the question whom the company serves. Who are their target customer segments?
2. **Value proposition** focus is not a product but mainly how the company can help the customer to solve their problems and satisfy their needs.

3. **Channels** must answer the question how the value proposition is delivered to the customers through communication, distribution and sales channels.
4. **Customer relations** have to be defined and maintained with each Customer Segment.
5. **Revenue streams** is successfully offered value proposition converted into the revenue.
6. **Key resources** are the required assets to deliver the above described components.
7. **Key activities** should answer the question what the operational activities of the company are.
8. **Key partnerships** show if some activities of the company are outsourced and some resources are obtained through partners.
9. **Cost structure** describes all the costs involved in the company's operations.

In summary, any business idea could be described with only 9 building blocks of the BMC. It's one image that is worth a thousand words in a business plan. Moreover, the Business Model Canvas and it's following tools are unique as they allow to communicate in one shared language.

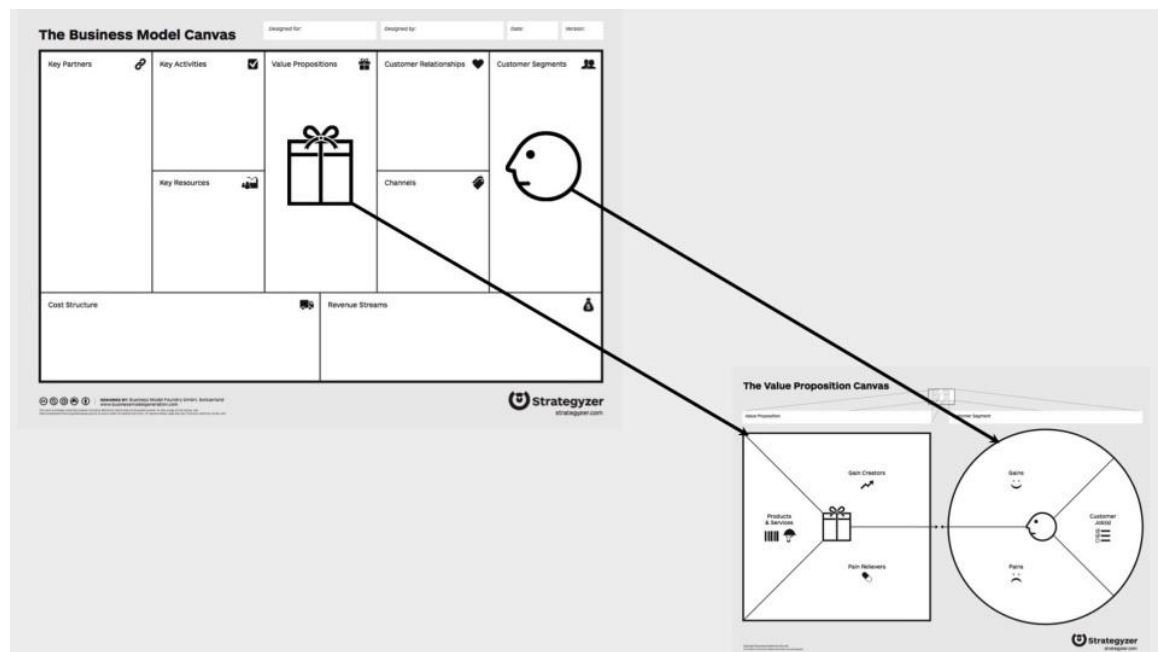


Figure 7: Correlation between Business model CANVAS and Value proposition CANVAS (Retrieved from Strategyzer.com)

Figure 7 outlines two specific blocks in the business model CANVAS which are the Value Proposition and the Customer Segments and become another tool which 'plugs-in to the former that allows you to zoom into the details of how you are creating value for customers.' (Osterwalder, 2014, p.XVI) That is the perfect integration of the Business Model CANVAS and the Value Proposition CANVAS.

2.4. Value Proposition Designer

The Value Proposition CANVAS (VPC) consists of two sides: The Value Map and The Customer Profile (from left to right). The Customer Profile maps are a set of customer characteristics which have to be assumed, observed, and verified in the market. Conversely, the Value Map must outline benefits that are designed to attract customers in order to make one side of the CANVAS meet the other.

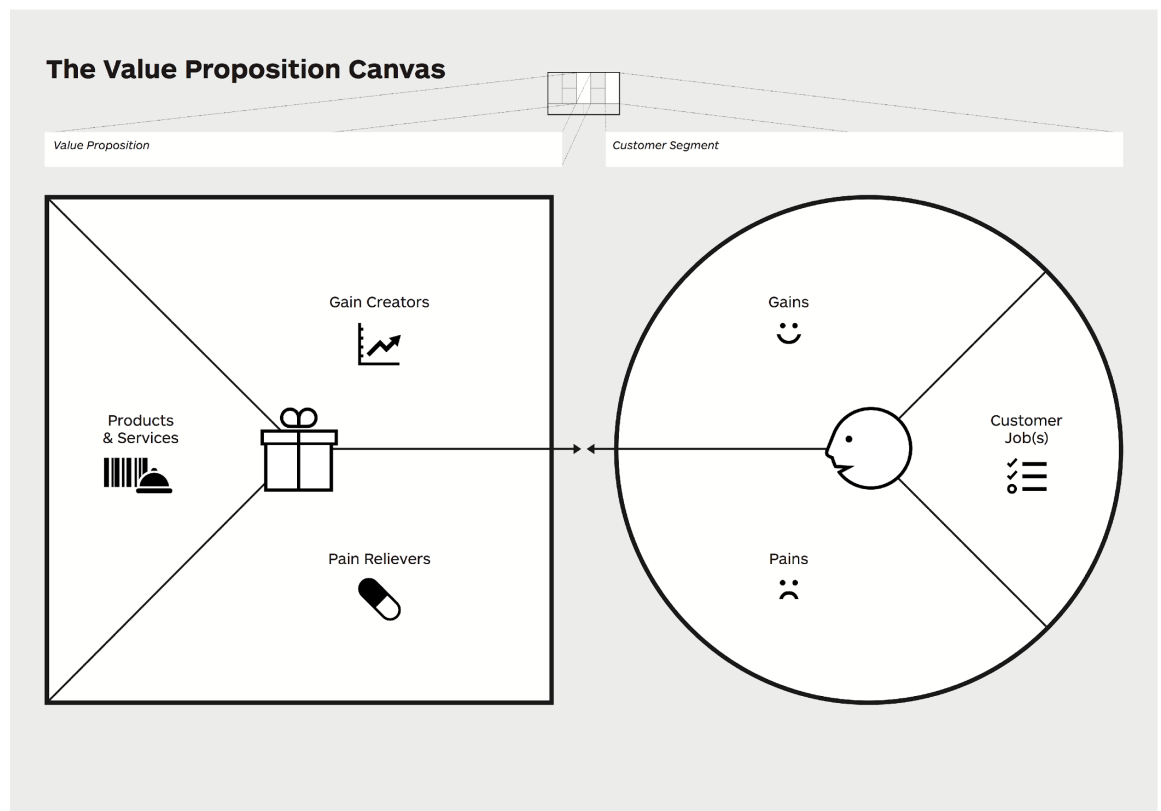


Figure 8: Value Proposition Designer (Retrieved from Strategizer.com)

The Customer profile consists of three pie slices, which define customer's jobs, pains and gains. It's necessary to remember one Customer profile describes a specific customer segment in a structured and detailed way. First of all, the customer jobs have to be identified. 'Jobs describe the things your customers are trying to get done in their work or in their life. A customer job could be the tasks they are trying to perform and complete, the problems they are trying to solve, or the needs they are trying to satisfy.' (Osterwalder 2014, p.12-17) Once the assumptions about the jobs have been laid out, pains and gains could be recognized. Osterwalder explains that 'pains describe anything that annoys your customer before, during, and after trying to get a job done or simply prevents them from getting a job done' and 'gains describe the outcome and benefits your customer wants'.

The Value Map consists of three components as well as the Customer Profile. They are products and services, pain relievers and gain creators. Firstly, it's necessary to define the bundle of products and services that help the customer to complete their job. Products and services do not create value alone – only in a relationship with a specific customer segment and their jobs, pains and gains. After the products and services have been presumed, pain relievers and gain creator will take shape. Osterwalder (2014 p.28-33) specifies that 'pain relievers describe how exactly your products and services alleviate specific customer pains' and gain creators describe how your products and services create customer gains'. A great value proposition focuses on pains relievers and gain creators according to how essential they are to customers and on those that will make a difference to your customer but not all of them. It's essential to concentrate on the pains that could be alleviated extremely well. In order to define how important one or another pain reliever and gain creator is there is need to prioritize pains and gains on how extreme they are to customer. That could be done by stepping in your customer's shoes and obtaining his/her perspective.

2.5. The Empathy Map

The Empathy Map is a tool that helps to step in the customer's shoes and draw the experience as if you would be a customer. The objective is to assume the customer's environment and the author of the thesis recommends to use the Empathy map tool to achieve it.

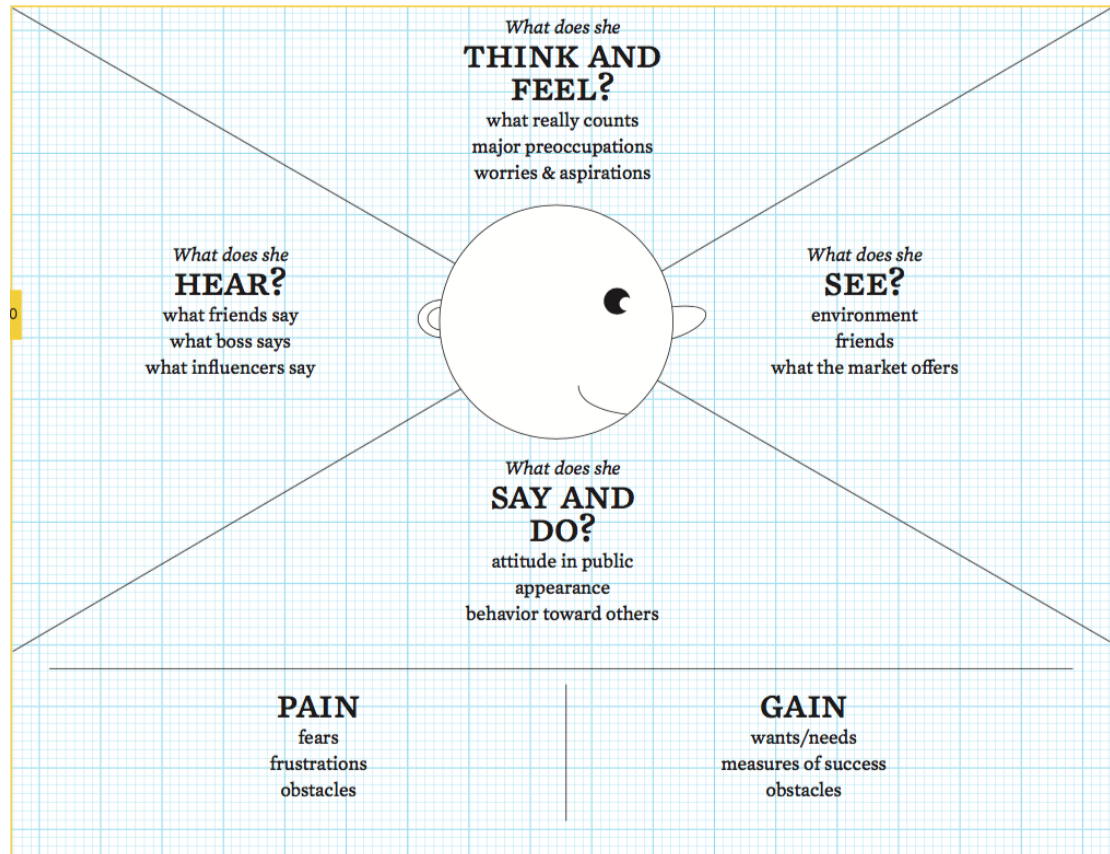


Figure 9: The Empathy map flipchart (Osterwalder 2010, p.136)

The Empathy Map is a helpful addition to sketch the Customer Profile. It is a tool developed by design consultancy company XPLANE and will help to 'develop a better understanding of environment behavior, concerns, and aspirations, doing so allows to devise a stronger business model, because a customer profile guides the design of better Value Propositions, more convenient ways to reach customers, and more appropriate Customer Relationships. Ultimately it allows to understand better what a customer is willing to pay for'. (Osterwalder 2010, p.131)

The Empathy Maps must reflect the personal profile of the customer by answering the questions from the flipchart including their name and some demographic

characteristics, such as income, marital status, and so forth. In case the company has chosen B2B strategy, the Empathy Map should present the customer profile of the person who is in charge. For example, Microsoft has created a customer profile for a key buying segment of B2B strategy: chief information officers (CIO), who define IT strategy and make purchasing decisions. Thus, the Empathy Map could also be implemented for developing a B2B strategy by defining the customer profile who has a buying power.

Designing the Empathy map of potential customer enables to generate better answers to questions such as: What are the pains and gains of the customer? Does this Value Proposition solve real customer problems? And what are they willing to pay for?

By using the tools described above it becomes very handy to create the assumptions about jobs, pains and gains of the customers. Nevertheless, it is important to gain actual knowledge about the potential customers with the following techniques: involving the customer in the Value Proposition design process and interview the potential customer in order to create a fit between their customer profile and the future value proposition. The Empathy map tool will provide the researcher with a customer's pains and gains but those have to still relate to their work profile. Successful adaptation of the customer perspective is essential in the business model design process. Customer perspectives should influence the choice regarding the Value Proposition, Distribution Channel, Customer Relationship and Revenue Stream building blocks of the Business Model CANVAS.

2.7. Strengths and Limitations of Business Model CANVAS

The BMC is a pragmatic tool to stimulate the thinking of how the business delivers and captures value to a customer.

Strengths of BMC are:

- Visual representation of BMC, therefore for allowing to talk in a shared language.

- Centrality of value
- Coverage of the different dimensions of business model documenting both value and efficiency of business

Limitations of BMC are:

- Little value accounting for a strategy in the BMC therefore additional strategy tools have to be used as an addition such as SWOT analysis
- Building blocks of BMC have a different level of abstraction. Especially financial building blocks - Cost Structure and Revenue Streams are lacking details.

3. RESEARCH METHOD

3.1. Research approach

This research paper is based on a case study research approach. This approach is preferred when the main research questions are “how” and “why” questions. Moreover, it is a suitable type of research when it has a little or no control over behavioral events. Furthermore, the case study investigated a contemporary phenomenon in its real-world context. A case study can be limited to quantitative evidence, and can be a useful method in doing evaluation. (Yin 2014, p.2)

In a case study the first thing is to identify the case situation and plan what has to be studied. It is essential to ensure that the research questions follow the logic “why” and “how” and are accountable within a main objective of this research paper and guide the researcher towards the final proposal. The research questions have to be clearly linked to the relevant business theory review. The data collection methods have to be identified for each state of a case study research and related logically.

The author of the research paper chooses a case study research approach as it is proven to be suitable in the field of business and particularly fits the given research objective. First of all, it is important to outline that this research paper does not execute business model implementation. Nevertheless, it aims to form a new great business model based on collected, presented and analyzed data in this research. The researcher is not able to influence the further development of the organization for whom this research is performed. However, the intention is to provide a qualified advice of the possible business model. Moreover, the case study research allows the use of different data sources to result in more relevant findings. Finally, the research will proceed under supervision of the organization in order to involve them in the business model development process.

3.2. Research design

In case study research it is essential to clearly define the research design components and logical correlation between them. This study is divided into 4 stages which correspond to the 4 research objectives presented earlier. By answering each of them in their order a design process of the new business model will be constructed. Each research objective is a step towards designing a great business model.

The research design is illustrated in Figure 10, showing how each research question is linked to the business theory and data collection.

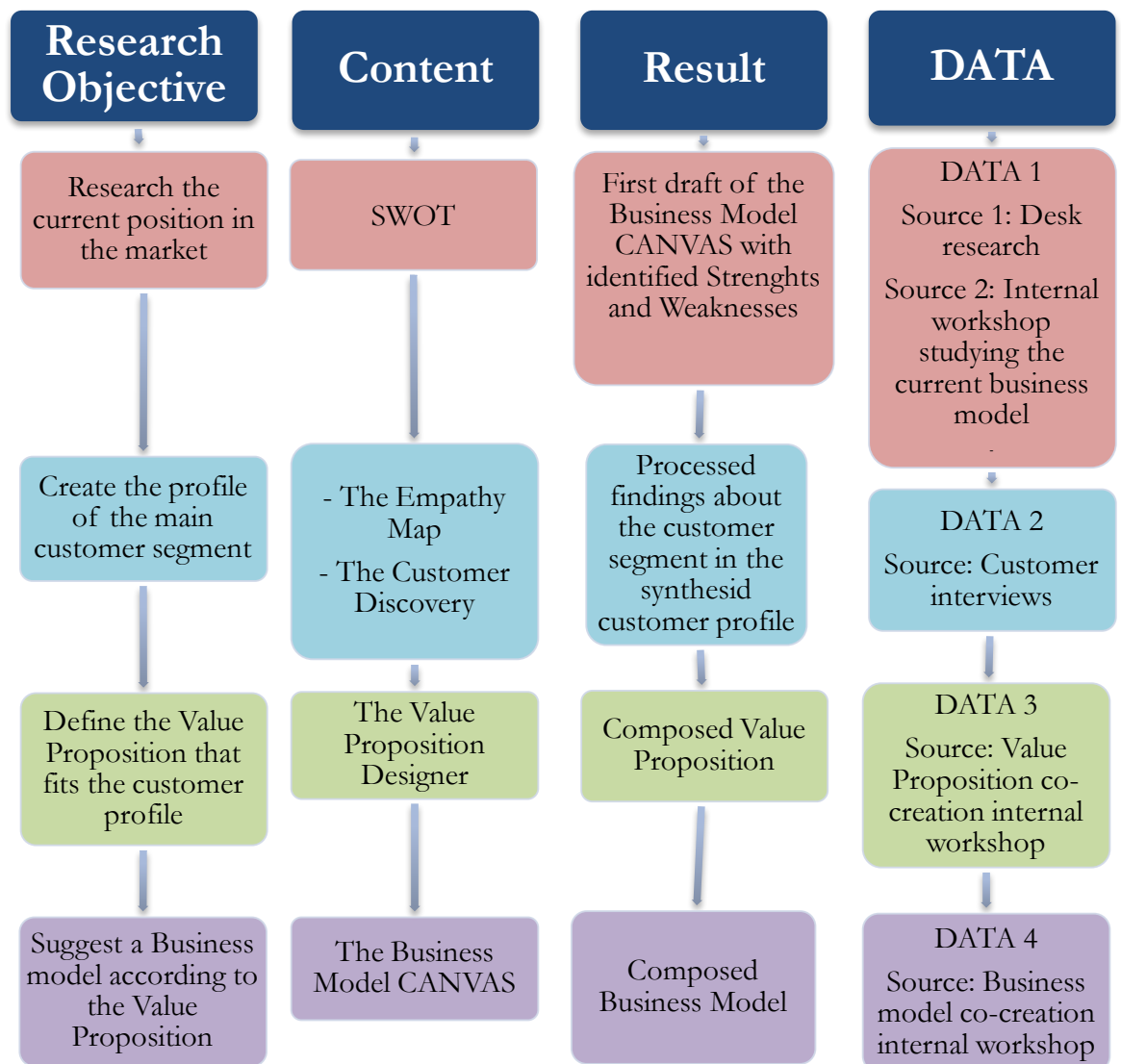


Figure 10: Research design table

As shown in Figure 10, the design process of the new business model consists of 4 stages which are identified by research questions and followed by the description of the content for each stage of the research. The figure also explains what result each stage of the research yields and the way the data is collected.

3.3. Data collection and analysis approach (How?)

3.3.1. DATA 1: Research the current position in the market

In order to identify where to start the design process of the new business model the author of this research paper must answer the first research question by structuring the data with the help of the SWOT analysis. That data will be collected from desk research and private knowledge of the founders of VIEMR.

'The Desk research is the study of the secondary sources of data – information that is already available either in the public domain or within the private confines of an organization itself'. (Hague 2013, p.41) Usually the desk research is not providing data in the form that is required. But it is important to identify the secondary source of data and what subject it has to cover. The author of this research is aiming to gather data which could be applied in the SWOT analysis, i.e. the marketing environment such as the state of the general economic situation, legal trends and various social factors.

The internal co-creation workshop will serve as another source of inside company data collection which is the experience of VIEMR's owners. The result of that workshop will be a mapped out SWOT analysis with ideas written on sticky notes (see Appendix 1) The combination of those two will provide a clear image of what the best available perspectives for the company are and which focus strategy VIEMR should follow.

As a result of that research stage the author is aiming to map out the first draft of the Business model CANVAS with identified Strengths and Weaknesses, which is based on the knowledge gathered from the desktop research and personal knowledge of VIEMR's founders involved in the Business Model Canvas design workshop. In its turn the SWOT analysis should outline the external factors that could affect the initial business model.

3.3.2. DATA 2: Create the profile of the main customer segment

To continue the design process of the new business model the author aims to create a better customer understanding. The goal is to get as much of customer insights as possible through depth customer interviews as a data source in order to map out customer profiles from the same segment and synthesize the most frequent points to one validated customer profile tool.

Hague (2013, p.69) divides research methods of primary data sources into the two traditional paradigms: qualitative and quantitative. The quantitative method is used for measuring and quantifying purposes and in practice it is accompanied by precise questions in strict order. In contrast, the qualitative method will be loosely structured providing the flexibility to gain the customer insights.

In this research paper the author is going to use the qualitative method named depth interview as a source of DATA 2. 'These interviews incorporate a good deal of the respondents' perspective... and therefore increase the validity of the information collected'. (Hague 2013, p.70) In other words, your assumptions could be simply validated by interviewing your potential customers. However, this method has a drawback: the behavior of interviewed customer does not always match their words. Moreover, the customer tastes are uncertain.

In general, the depth interview lasts around 45 mins and is carried out face-to-face with the respondent 'by taking time to open up the subject, respond to body language and build trust that results in the truth coming out'. (Hague 2013, p.76) The depth interview is a qualitative method and therefore should be performed with a small number of interviewees, not exceeding than a dozen.

Adopted from (Osterwalder 2014, p.110-11)

In order to perform depth interviews these steps should be followed:

1. Write down a list of possible respondents from VIEMR's personal network, ask them whether they would possibly be interviewed. Set an appointment for interview via e-mail. (Appendix 3)

2. Make assumptions about the respondent. The Empathy Map would be useful but not required. (Appendix 2)
3. Create an interview guide, which assists in covering the research topic, but this does not mean it has to be followed for the letter. (Appendix 4)
4. Perform the face-to-face interviews in person or via Skype.
5. E-mail a summary with the findings from each interview to respondents and wait for feedback. (All summaries are attached in Appendix 5)
6. Fill learned data into the Customer Profile by prioritizing jobs, pains and gains according to how they are essential to the customer.
7. Synthesize the finding into one united profile for the target customer segment together with VIEMR and identify the most common pain, gains and jobs.

All in all, the result of the second stage of research will be used as a starting point to answer the third research question.

3.3.3. DATA 3: Define the Value Proposition that fits the Customer Profile

Analyzed findings from the second stage of the design process are helpful to move to the third stage – the value proposition that meet the customer jobs, pains and gains. Based on collected customer insights the new Value Proposition will be sketched together with VIEMR's founders. There could be several Canvases as there could be several customers' profiles with different jobs, pains and gains as well as different approaches to address them. The internal workshop will be held with VIEMR's founders, and all ideas will be visually captured on Value Proposition Canvas using sticky notes.

3.3.4. DATA 4: Suggest the Business Model according to the Value Proposition

Finally, the last stage of the design process is to elaborate the Business Model Canvas. In the previous stage already two of nine building blocks should have

been identified: Key Customers and Value Proposition (could be more than one). That is a starting point of the new Business Model Canvas. The internal Business model co-creation workshop aims to develop a full Canvas and explore all nine building blocks to make the business model work, in other words create a Business Model Prototype. Prototyping is a very useful technique which appears a lot in the design and engineering disciplines and it allows to discover as many options as possible. Thus, as an outcome, VIEMR will consider different strategic options. Moreover, prototyping is not only about the ideas that are going to be implemented but about adding and removing elements to each Business Model Prototype. One element that would seem absurd in one Canvas could fit very well in another. As the result of that workshop, VIEMR gets the Business Model Canvas that has the most consistent basis to build their strategy on. (Osterwalder 2010, p.165)

3.4. Validity of the research design (Why?)

To answer the question why this research design and not another have to be in use in this research it is essential to understand what the stages of any startup are (VRelax is newly established business, which fits in the definition of a startup)

According to Maurya 'a startup goes through three distinct stages' (2012, p.8):

1. Problem/Solution Fit (That stage must answer if the startup has a problem worth solving)
2. Product/Market Fit (That stage must answer if startup build something that people want. It requires both problem worth solving and a minimum viable product (MVP))
3. Scale (That stage must answer how the startup accelerates growth)

Problem/Solution Fit matches the stage where VIEMR stands right now and therefore this research is covering only it. Moreover, this thesis' research is considered to review only that first stage of startup process due to the time limitation of the thesis.

This stage is the most essential for any startup as the following questions are strongly recommended to be answered before investing a company's time and effort into building a solution. This research method allows to use minimum resources before it gets to the point where VIEMR's solution meets the problem. *'While ideas are cheap, acting on them is quite expensive'* (Maurya 2012 p.8).

If it turns out to be that the chosen key customers do not want the product or they are not willing pay for it, the answer on "who will?" should be found before moving on to the Market/Product Fit stage. The chosen research method is beneficial because it allows to set up pivots (go step back) and find out which business model will work. If research findings show that the assumptions on the initial business model are proven to be wrong, the research could be repeated again until the customer segment who wants VIEMR's solution and is willing to pay for it is found.

4. FINDINGS AND ANALYSIS

4.1. What is the current state of VIEMR?

4.1.1. SWOT analysis

SWOT analysis is a basic analysis, which is used to understand what position the company currently occupies in the market. To be more precise, it allows access to opportunities and threats in the market. It also covers possible strategy options for VIEMR, i.e. ideas on how to make the most of the strengths and eliminate weaknesses. Internal strengths and weaknesses of VIEMR are based on internal co-creation workshop as well as few opportunities and threats. (Appendix 1)

Strengths of the company are:

- Good reputation in 360° /VR scene, 7 years of experience and a strong portfolio that sets VIEMR apart from the competition.
- Strong philosophy to deliver beautiful productions for clients that strives to deliver high quality 360° /VR video.

- Dual project management and ability to overlap disciplines makes it possible for VIEMR to produce ready-to-use products themselves without outsourcing.
- Young and flexible team that use their passion and talents to the fullest.
- Low overhead of production and cost-effectiveness, so VIEMR can offer good value to their customers.
- Ease in upscaling projects by co-operating with other directors and developers.
- No dependence on investors provides freedom of decision making.
- VIEMR owns its own IOS and Android SDK and HTML5 360° /VR web player to deliver better value to their customers.
- No top-down management style makes every team member equal to the other with freedom and responsibilities shared, avoiding low creativity and poor performance.
- VIEMR is loyal to their clients which leads to better retention of the customers.
- Good workspace allows to work with large teams.
- The unique content of the “Dolphin Swim Club” application gained attention of the mental health industry and as a result lead to a partnership with University Medical Centre in Groningen.

Weaknesses of the company are:

- VIEMR has a small team. Nevertheless, small capacity projects could be realized.
- VIEMR is lacking experienced manpower and therefore time as well.
- VIEMR does not have an experience in AR, which makes it impossible to work on projects with AR at present.
- VIEMR does not have a clear management structure, which creates confusion with task delegation.
- VIEMR does not have a clear planning timeline, which creates possibility of not meeting deadlines for the projects and decreases productivity.
- VIEMR does not have an address in Amsterdam, capital of the Netherlands to create an image of a successfully running company.
- VIEMR does not have a creative director, who would lead the team.

- VIEMR does not have its own hardware, which means an inability to improve the quality of production.
- VIEMR does not have a representative CEO.
- VIEMR does not have enough resources to invest in the new big projects.
- Customers abroad approaching VIEMR will be most likely unsuccessful as it requires face-to-face meetings.
- Direct competition with former employers, a company called Yellow Bird in the same city, Groningen.

Opportunities of the company are:

- VR and AR can potentially become the next big computing platform that would affect other industries (GSG 2016, p.4) and VIEMR actively position themselves in this expanding market.
- There has always been interest in VR, the first trend of VR appeared in the 90s (VRRelated 2015) but due to technological limitation customers' demands were not satisfied. Now in 2016 it is a completely different story, VR technology is becoming more polished and easier to use for the customers, which increases their retention and acquisition of new target groups.
- The Netherlands has an outstanding infrastructure to facilitate innovation. Amsterdam has been awarded as European Capital of Innovation and a high concentration of multiple VR development companies. Meanwhile, VIEMR still has a high chance to claim a lead position in the North of the Netherlands and avoids direct competition with companies based in central Netherlands. (European Commission 2016)
- The Dutch education system, in particular from polytechnic institutions, keeps graduating creative young problem-solvers, who are one of the key resources for successful performance of the company. (OECD 2016)
- GSG estimates Healthcare as second biggest industry that will be implementing VR by 2025. It's one of the reasonable arguments for VIEMR to shift their focus to start serving healthcare. Moreover, the potential of VR in Healthcare is already recognized.

- Since 2014 VR became a mainstream trend and VR/AR funding worldwide increased dramatically. Thus, the opportunity to find investors for VIEMR is very realistic. (CB Insights 2015)
- Continuous improvement of tools and techniques to create VR provides the opportunity to produce better quality content faster and easier. (Appendix 1)
- Mobile-driven VR will introduce the new technology to a bigger audience thus it will remove the skepticism about VR technology. (Appendix 1)

Threats of the company are:

- Political impact regarding legal issues of the projects. For example, VR is usually restricted to users older than 12 years as the long use of VR goggles might develop eyesight problems in children. (Hill, S 2016)
- The Netherlands attracts more foreign entrepreneurs due to the simplicity of the start-up visa scheme. Thus, the competition might increase considerably. (Ruijter, A 2016)
- The VR market is relatively new and the pricing of VR products is not yet established. There is high risk that bigger players in the market of VR (i.e. Sony, HTC, Samsung) will be establishing their own pricing guidelines that other start-ups like VIEMR have to compete with.
- Possible backlash from people whose expectations about VR are set too high.
- Misunderstanding of VRelax' purpose - It adds value to the treatment, it does not replace it.
-

The SWOT is an essential tool in market research but it does not provide a clear answer on the question "What is the current state of VIEMR right now?", it lists important points. Hereby the BMC can deliver the answer in a tangible way, that has a clear shape and logic and eases communication between the researcher and VIEMR.

4.1.2. Business Model CANVAS

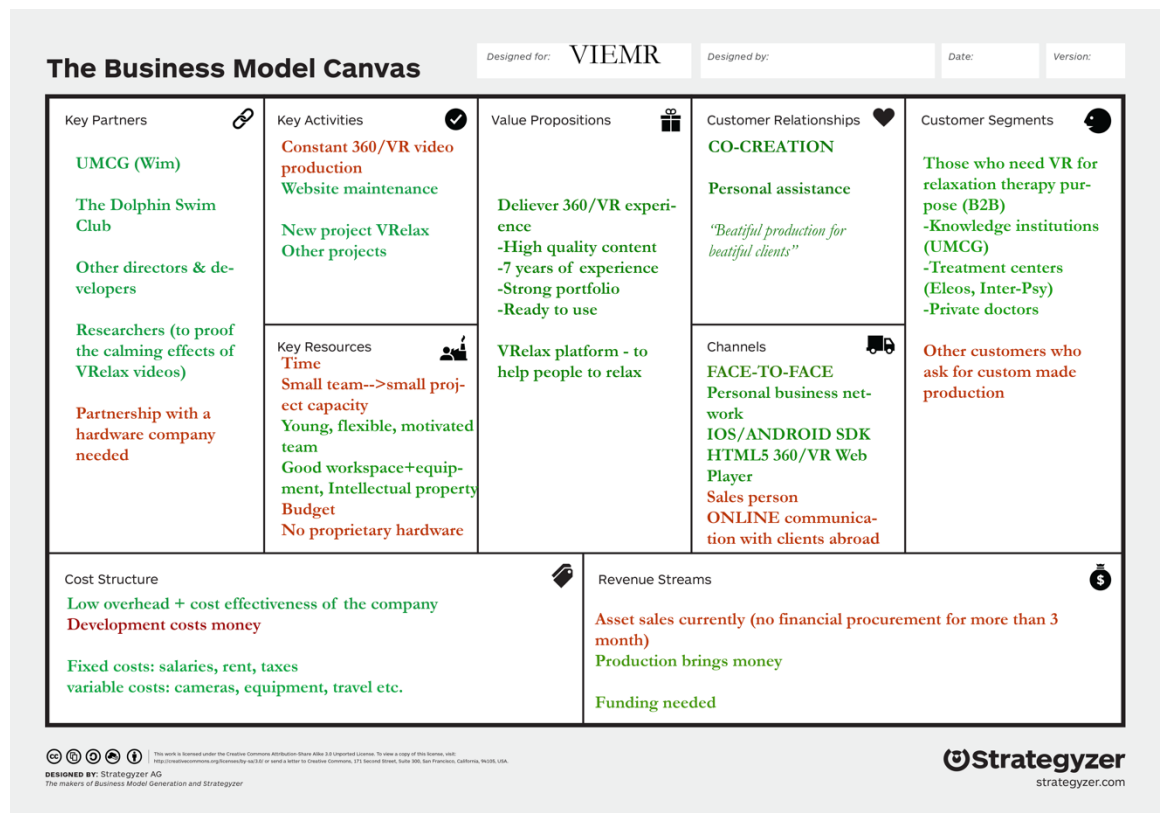


Figure 11: From SWOT to BMC

Figure 11 represents strengths, weaknesses, opportunities and threats outlined in the BMC, where green colored items are helping the business model of VIEMR and red ones don't.

That BMC represents the initial state of VIEMR and its' vision to put VRelax into production.

At the current moment VIEMR is busy producing all sorts of 360°/VR high quality video content for clients from different industries in order to sustain itself. However, if the company wants to excell there has to be a focus. The VRelax project has a high potential and one day VIEMR is aiming to have VRelax be the main focus of the company. Access to VR technology is not widely spread yet but already adopted by a few. On one hand, the healthcare industry is one of the more challenging industries to play in. On the other hand, it is one of the playgrounds

where the need for VR can reach extreme levels, as our health takes paramount. VR Relax indirectly targets everybody, as every single human being experiences stress and anxiety. However, VR is expensive to distribute at the current moment. It is quite logical to assume that there is an opportunity to distribute your solution for common problems through those institutions who can afford it. Moreover, the solution will more likely be adapted if it is approved by a doctor relying on trusted relationships between a patient and a doctor. The importance of trust is not questioned here; it is the key element in any interpersonal relationship. Logically, it is assumed that VIEMR's target will be medically knowledgeable institutions, treatment centers and private doctors who can become a distributor of the VR solution to the patients. Moreover, it is the only known customer segment at the current moment that has implemented VR relaxation therapy solutions and can provide customer insights about their experience.

The Patient is the actual end-user of VIEMR's solutions, which are distributed by healthcare providers through trusted relationships. However, the challenge is to build these trusted relationships with healthcare providers to get them to distribute the solution. At the current moment, having a salesperson visit different institutions advertising the product has been found to be unsuccessful.

VIEMR is a customer-oriented company that often provides personal assistance if the clients are having any questions. VIEMR often develops projects from scratch, based on the ideas and requirements customer have and thus co-create together by allowing customers to follow the work progress and listen to their feedback. Moreover, thanks to excellent quality of delivered videos and customer services VIEMR has built a strong personal network, which provides perfect opportunity for VIEMR to learn more about their customers and design a successful roadmap. However, the acquisition the customers is highly important for any VR company as it is hard to believe in the "sense of presence" before customers experience it themselves and therefore face-to-face contact is needed. This condition makes targeting potential customers abroad very difficult. Fortunately, big players such as Youtube and Facebook have implemented 360° images, videos and animations on their platform and thus raising numbers of people are being made aware of how VR works.

When the VR market has been examined a clear distinction could be noticed between VR software and VR hardware companies. VIEMR, as a 360°/VR video production company obviously is dependent on hardware developers. This includes two types of hardware: cameras to produce content (e.g. GoPro Omni, Facebook Surround 360, Google Jump) and headset to play content (e.g. HTC Vive, Oculus Rift, Samsung Gear VR). Creating a partnership with VR hardware companies would not only turn out to be an opportunity for further customer services (e.g. renting out goggles) but also eliminate the threat of being highly affected by pricing policies of big players on the market.

4.2. Who are the key customers?

4.2.1 Wim Veling's profile

Before the interview's phase began a meeting with Wim Veling, psychiatrist from UMCG and Benno Brada, the founder of the Dolphin Swim Club was held 04.08.2016 in order to explain the key partners of VRRelax, the goals and process of this research. Besides that, it was a unique opportunity to gain customer insight from the person who initially saw the potential of VR products with the purpose of relaxation therapy. Moreover, he is a person who represents both a partner and a customer. Outlining the profile of Wim was essential at an early stage because the author already could gain customer insights of someone who has a clear idea of why the technology is needed.

The author started by following steps described in subchapter 3.3.2. The Empathy Map (Appendix 2) of Wim was sketched based on the author's personal knowledge. However, in reality it turned out that a character such as Wim has a more complex environment and motivations that drive him to get his job done than predicted. Based on the Empathy Map (Appendix2) and validation of it the following findings filled the gaps in the customer profile of Wim.

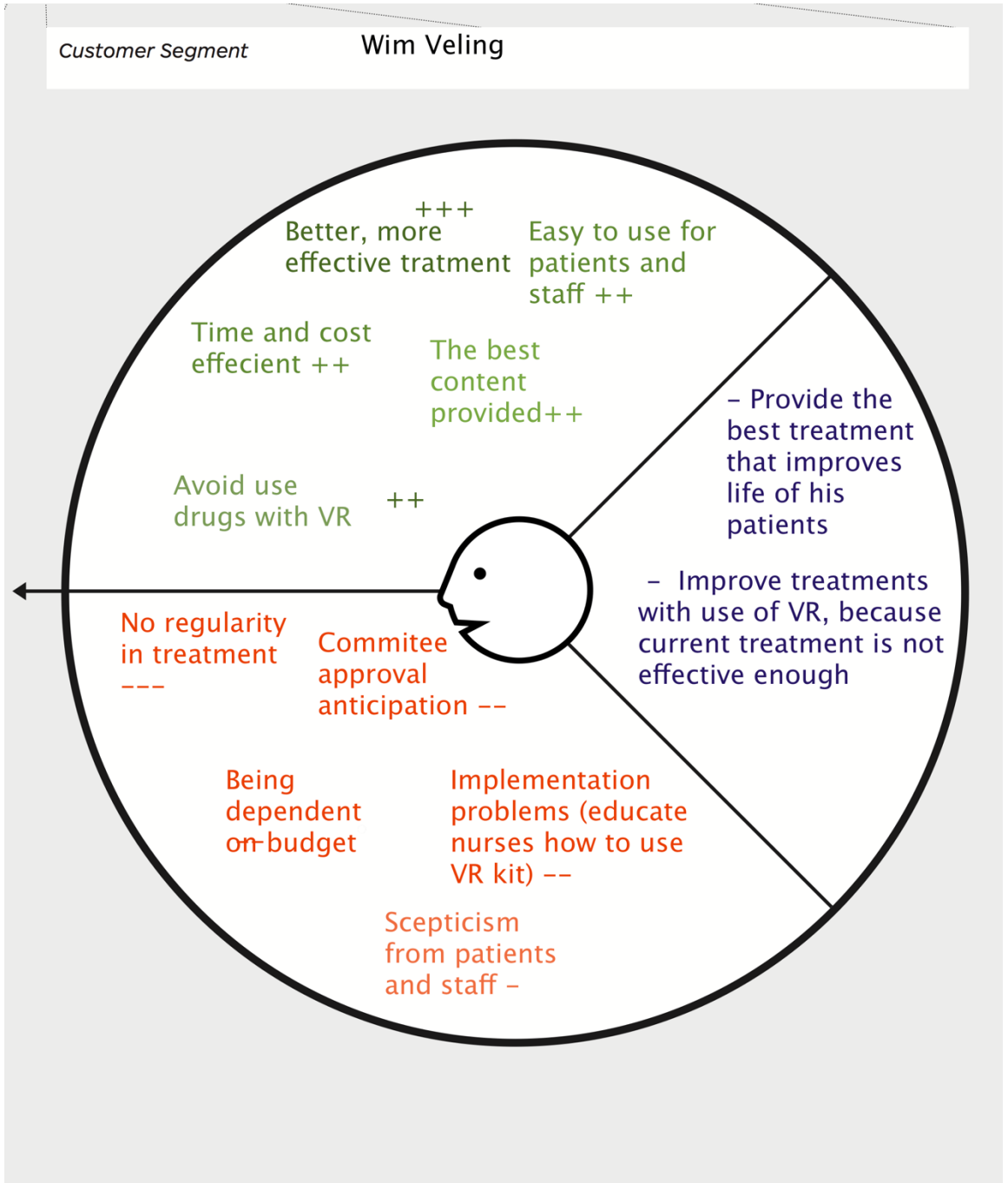


Figure 12: Wim Veling’s Customer Profile

Figure 12 is Mr. Veling’s customer profile validated by himself during that meeting. The blue colored text tells what job Mr. Veling is trying to do, green colored text tells the outcome and benefits your customer wants and red colored text tells what annoys your customer before, during, and after trying to finish the task. Pains and gains are also prioritized; the most extreme gains get 3 pluses (+++), the most extreme pains 3 minuses (---).

4.2.2. Overview of interviews

After the depth interviews were performed (for summaries of the interviews see Appendix 5), they had to be processed. The gathered data was filled in Customer Profiles, the components of which are presented in Table 1 below. This table represents findings from 7 interviews (including Wim Veling) of people who work in the mental health care industry. Some of them have decision-making power, some of them do not. Some of them worked with VR, others did not. However, they have things in common, patterns that are necessary in order to define one common customer profile.

Table 1: Customer Profiles

Name of interview	Experience with VR	Jobs	Gains	Pains	Remarks
Wim Veling (Psychotherapist)	2.5 years of adapting VR technology in psychotherapy	<ul style="list-style-type: none"> - Provides the best treatment that improves life of the patient. - Improve therapy with innovation 	<ul style="list-style-type: none"> - Better, more effective treatment - Time and cost efficient solution - Easy to use for patients and staff - Avoid the use of heavy drugs with VR - The best VR content provided 	<ul style="list-style-type: none"> - No regularity in current treatment - Committee approval anticipation for using VR - Being dependent on a budget - Skepticism from patients and staff - Implementation problems (educate nurses how to use VR kit) 	Decision making power
Eva Wijma (Intern)	Internship for the study "Through the Dementia Lens"-cinematic	<ul style="list-style-type: none"> - Complete internship - Proof that with VR compassion and empathy could be increased 	<ul style="list-style-type: none"> - Fast adaptation by people who tried VR experience - Study has shown that VR is effective for 	<ul style="list-style-type: none"> - Bad quality of goggles (Old Oculus Rift was used in the beginning of study) decreased immersive feeling 	<ul style="list-style-type: none"> - No decision making power - Committee approved the study fast. - Eva mentioned several channels

	360° experience that simulates life of ill people with dementia.		its purpose – increase empathy - Samsung Gear VR which was used in the study was fairly cheap and mobile.	- Being dependent on a budget limits	through which it can be distributed: 1)healthcare institutes 2) schools 3) included in an insurance packet
Bernard Maar-singh (Psychologist)	Development of VR relaxation game “VR 4 Health”	-Make everybody vital -Teach patients to manage their own stress levels	- Joy of creating VR game - Using design thinking in order to work with VR technology -Become a pioneer in VR mental health care segment & vitalize a society	- Development phase lasts too long - A lot of money spent & no return of investment at the current moment	Decision making power
Menno Norden (Psychologist)	No experience within his job, but Menno certainly believes in immersive power of VR	- Show the patient that the life is not perfect - Teach them how to approach life long-term	- the treatment center where Menno works) is open for innovations - Insurance companies have shown cooperation in the past when it lower down the costs - VR could be useful	- No 100% assurance that the patient is healed - Inability to imitate the situations that would help the therapy - Each problem requires its own approach	No decision making power Menno strongly believes that VR will be implemented in psychotherapy within 5-10 years.
Holly Ankjel (special advisor)	Holly is setting up the pilot project that explores the	- Help to cope with both physical & psychological	- Potentially additional tool in therapy for psychologists	- New technology causes skeptical reaction - Need in investigation how VR	- Holly eliminated skeptical reaction of personnel who hold a decision

for e-health)	use of VR with young cancer patients who are receiving treatment in isolation rooms. (The Dolphin Swim club is in the use)	challenges of treatment. - Find out can VR help transport a patient to “be” somewhere else	- Create a distraction for patients from “4 white walls”- room - Excited reaction from the patients to try new technology - Be modern - VR is “off the shelf”- technology	equipment can be sterilized to avoid infection - VR should not provoke a lot of neck movement i.e. VR content has to be slow motion (to avoid injuries) - The VR kit should be allowed to only limited content	making power by acquisition. - The VR kit was limited to “one play button” by Samsung thereby solving two pains: difficulty to use the kit and limitedness of the content
Ayhan Tatlicioglu (Founder of Inter-Psy)	No experience within his job, but Ayhan certainly believes in immersive power of VR	- Supervising the psychologists of Inter-Psy) - Running Health-I-Port – place where health innovations meet business (meeting the right people)	- Constant learning & improving of given therapies by using new techniques and technologies - Highly ambitious psychologists are welcome - Insurance companies tend to co-operate when it lowers the costs	- At the moment the company is limited in its financial growth - Visualization techniques are not good enough (specifically PTSD was mentioned as the extreme pain) -Independent research is needed for new solution to be implemented in practice.	Decision Making Power
Mirella Duiven (Coach/psychologist for performance anxiety)	Mrs. Duiven has already used an animated VR solution to expose her patients to “stage phobia”	- Improve therapy with innovation	- Working with innovation is exciting - VR tool actually helps	- There is no perfect VR product yet (need in package: relaxation + exposure) - Some patients are not used to visualization tech-	Decision Making Power

<p>prob- lems)</p>				<p>niques; they cannot use their imagination.</p> <ul style="list-style-type: none"> - Instructing how to use VR headset (Samsung Gear VR) is still difficult - Feedback from patient: dizziness 	
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4.2.3. Patterns

After laying out all the findings from the interviews, the following patterns were found and outlined in the following figure 13, where customer jobs are blue, pains are red and gains are green.

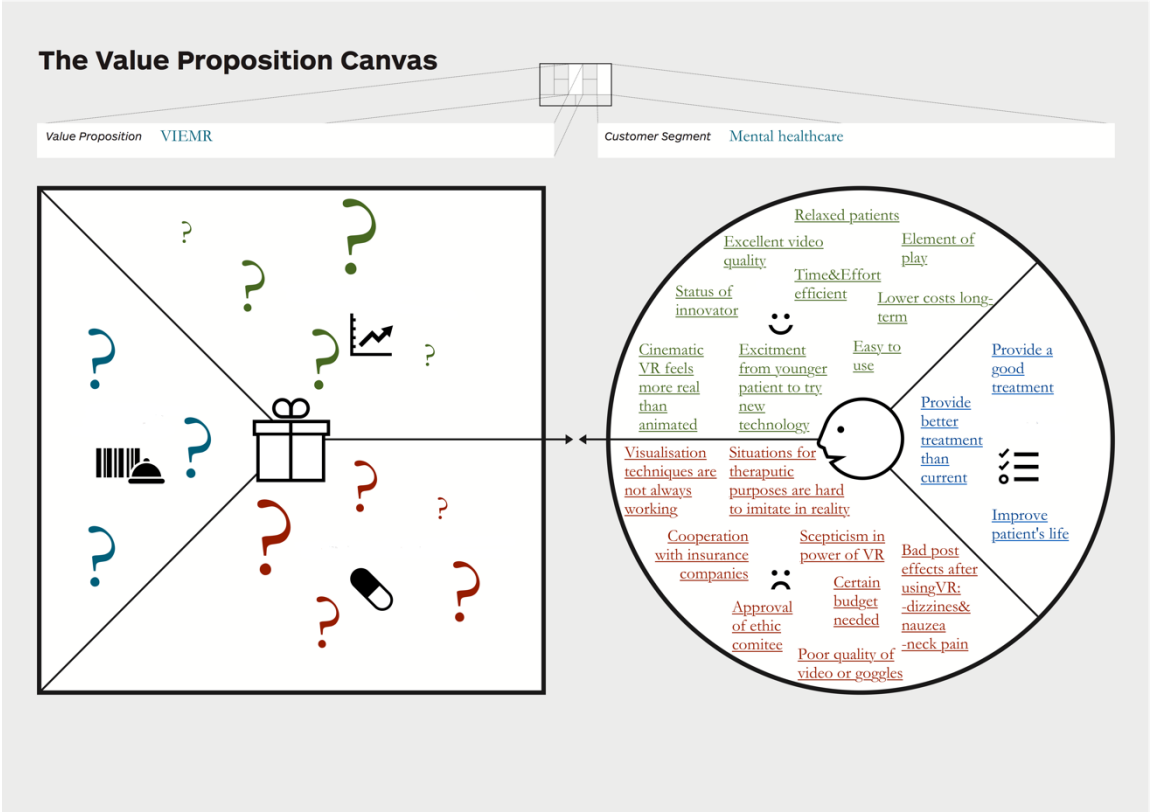


Figure 13: Patterns in Customer Profile

Jobs

The majority of the respondents are performing a similar job – improving the patient’s life with help of innovation thus making the treatment itself better. This common job was noticed in profiles of Mr. Veling, Mrs. Ankjel, Mr. Tatlicioglu, Mrs. Duiven, Mrs. Wijma, Mr. Maarsingh. However, it is a very general statement, because the driving motivation of that change is different for every respondent. Mrs. Ankjel’s job is already defined as bringing valuable technology to patients by showing them to those who actually make decisions. Mrs. Wijma’s job was to complete her internship and her good intentions were of limited decision making power. Mr. Norden is limited in his decision making power as well, but his job is to help a patient to cope with their condition as a psychologist. Mr. Tatlicioglu combines the two jobs entrepreneur and psychiatrist; with this he understands that bringing innovation on board is an essential long-term investment. Mrs. Duiven shares similar qualities. Bernard in turn has these two jobs as well as a desire to become a pioneer in vitalizing the society with VR, which means it is very exciting for him to create an innovative solution himself.

Pains

Talking about pains that respondents struggle with while performing their jobs, it was most commonly mentioned that visualization techniques are not good enough. Visualization is a process of creating a mental image. Mirella also mentioned that visualization techniques are not efficient as a few of her patients cannot use their imagination for therapy. Moreover, mental health problems have to deal with different kinds of mental health issues which require different approaches. Ideally the respondents prefer to have a package of solutions for different mental problems. (Mr. Tatlicioglu, Mrs. Duiven, Mr. Norden) However Mrs. Ankjel has focused on solving the extremely challenging task of creating a distraction for the children who are suffering from physical and mental challenges of cancer treatments with relaxation VR products.

There were few a more pains mentioned by respondents who used VR solutions in their jobs (Mr. Veling, Mrs. Ankjel, Mrs. Duiven, Mrs. Wijma)

- Skeptical reaction about the real effects of “sense of presence”. (easily eliminated by acquisition)
- Accidental nausea & dizziness after using VR
- Possible neck & back ache from trying to see all 360° degree in the VR headset and spinning around.
- Poor quality of VR goggles decrease effect of “sense of presence”.
- Getting approval from the ethics committee to use new technology on patients.
- Budget needed to bring new technology on board.
- Cooperation with insurance companies is possible when there is independent research proving the efficiency of the solution in terms of time, money or effort.

Gains

The most important gain VIEMR aim to provide is **to make people relaxed**. Besides this most important goal, there are more gains to outline:

- Experience in VR is playful thereby vitalizing.
- Excellent video quality
- Cinematic 360° video gives a better immersion effect than animated VR. (Mirella Duiven)
- Being modern, status of innovator
- Excited reaction from younger patients trying the new technology
- Easy to use for patients and staff
- Lower costs long-term

4.3. What Value Proposition would this lead to?

When the United Customer Profile of respondents is complete, it becomes possible to design the Value Proposition of VRRelax and achieve a balance between the two parts of the Value Proposition Canvas. In Figure 14, the parts that meet each other have the same color i.e customer pains should meet pain relievers, both are red. The final VPC is based on internal co-creation workshop (Appendix 6).

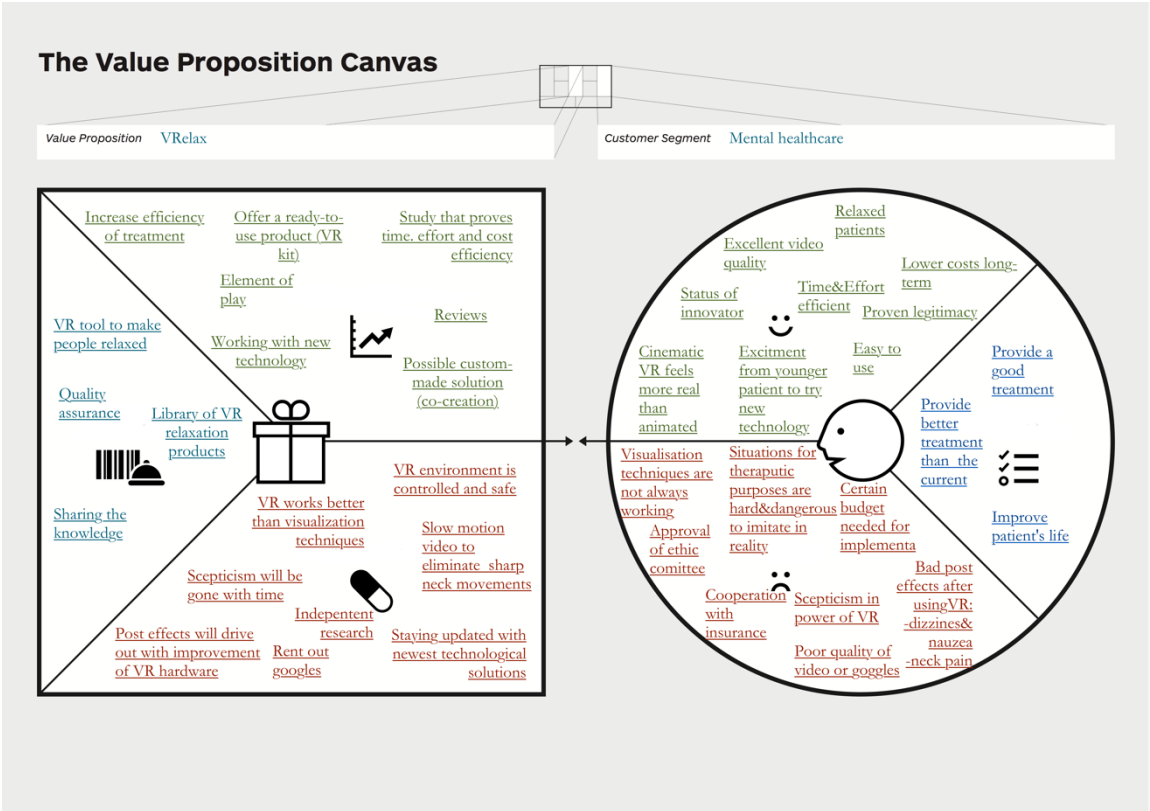


Figure 14: Final VPC

Product & Services

As it was defined above the common job is to provide a patient with a better treatment than current, which explains seeking for better innovative solutions in mental healthcare, which VR could become. But as it was narrower in chapter 1 the variety of VR solutions in mental healthcare is already numerous. In fact, it is impossible to solve all problems at once and provide a quality assurance at the same time. Thus, as it comes from name VRRelax is producing VR relaxation ther-

any purpose products. Nobody will argue that relaxed patient is better than anxious and phobic. VR Relax is a tool that adds value to the current treatment, it will be Netflix of VR relaxation therapeutic products. Moreover, it aims to provide a possibility to share the knowledge among the potential customers and build a community around VR Relax in order to polish the product together with them.

Pain relievers

The most common and extreme pain that psychologists are struggling with in their practice is that visualization techniques are not good enough and that imitating therapeutic situations is not an option due to several reasons such as cost, safety, inconvenience etc.

VR is easily solving this problem and provides controlled and safe environments where the patients can be exposed to situations that help in treatment. However, making insurance companies include innovative products in their insurance packages is not a rapid development. Independent research has to validate the efficiency of a product and- what is more important- it has to prove that this solution will lower the costs long-term.

Skepticism regarding power of VR and procedures of the ethic committee's approval could be eliminated with time as VR will reach more people who will try its immersive power on themselves as it happened with computers and smartphones. Concerning bad physical post-effects with VR, those should be minimized with achievement of different technological breakthroughs and techniques. For example, slow motion 360° video will provoke less neck movement to look through the entire VR environment and some navigation elements could help patients to focus on objects of attention instead of looking around. Moreover, VIEMR understands the importance to carefully follow the news of the VR industry (i.e. new cameras, new 3D headphones) in order to avoid producing outdated VR content. Quality assurance is one of highest priorities of VIEMR, it solves the issue of poor quality video, which diminishes the positive effects.

Unfortunately, to provide quality assurance and deliver the best VR experience it requires not only good quality content but also hardware that is able to run it. Thus, the choice of hardware by a customer has to be directly influenced by VIEMR. In the subchapter SWOT it was suggested to eliminate one of threats by making a partnership with VR hardware companies. Developing this idea further VIEMR could put an end to the challenge of choosing the right hardware amongst many that customers would otherwise face and save them time by renting out or recommending proficient VR headsets. Additionally, it can become a gain creator for customers that will make VR relaxation an easy-to-use product by pre-setting VR headsets with the VRelax tool. Furthermore, it can lower implementation costs for the customers as they do not have to purchase hardware for the full price if they can rent it out.

Gain Creators

Offering a ready-to-use VIEMR kit would help customers to attain a convenient solution to increase efficiency of treatment. The study will prove legitimacy of the product (referring to the one that Wim Veling is carrying out). The customer most likely would like to research the product before making the final purchase decision. A review system and commentary about customer's previous experiences with VRelax will help to better communicate to potential new customers what it is all about. Moreover, VIEMR is open for co-creation. What could have a relaxing effect on one person could be not working with another and thereby custom made products can prevent issues without direct solutions.

VR technology by itself is available off-the-shelf, which creates gains that are attractive to the customers. It is entertaining and modern, which cause an excitement reaction from patients who are among the first people to try out the new technology.

4.4. Which Business Model would it lead to?

The Figure 15 below represents the final business model based on processed findings from Interviews. The explanation and advice of the author of this research about each building block is provided below in the Figure 15. This final decision of the BMC is based as well on an internal co-creation workshop (Appendix 7)

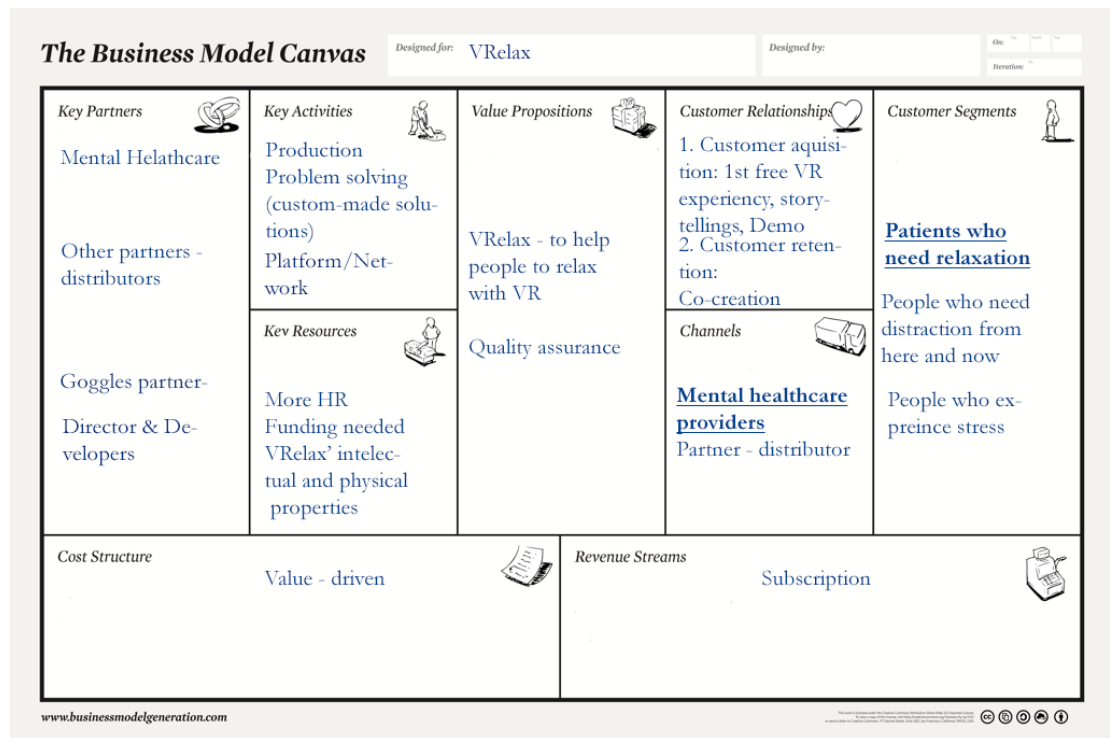


Figure 15: Final BMC

Customer Segment

The end customers of VRelax are the patients who need relaxation therapy. Those are reached through partnership with Mental Health Care institutions. This complex B2B2C strategy can be explained by two obstacles that VIEMR has faced trying to enter that niche market.

- Cost and technology limitations do not allow to reach the maximum potential of the market directly. There is a need for partner-distributors who can afford the adoption of the product and make it cheaper for the end customers.

- Partnership with mental health care institutions will provide the opportunity to prove validity of VR relaxation products and therefore leads to trusted relationships with the end user. Moreover, the independent research that proves the efficiency of the product can help the partners to cooperate with insurance companies.

-

In addition, this strategy should be considered as a starting point to overcome obstacles mentioned above as VRRelax' primary focus was to develop specifically relaxation-oriented products and become the best at it. Respondents who represented decision-making power in that mental healthcare niche market have shown more interest in other VR products with the purpose of exposure therapy, and continuous partnerships with those might result in a change of the Value Proposition and an expanded range of VR products where relaxation can be only one feature of the larger product.

Moreover, in the future VRRelax could change its business architecture from high margin, low volume (B2B) to low margin, high volume (B2C) or have two BM's that serve two different customer groups.

Value Proposition

VRRelax is a web-based tool which offers an access to the library of VR products with the purpose of relaxation therapy. VRRelax can be an added-value to the current treatment that psychologists/psychiatrists/doctors provide at the present moment. It is essential to understand that VRRelax is a development from a not yet formed industry and there are no alternatives to it yet. VIEMR can adopt the product to the needs of the chosen customer segment as well as make a twist in the Value Proposition and adopt it for another.

Customer Channels

VR Relax can successfully deliver its Value Proposition to the end customer through mental health care. In fact, they play the role of distributor and partner. Those partners are reached through the personal network of VIEMR. VIEMR should keep in mind that they could change the customer segment once they realise that their product is solving real issues for the customers who are not originally the type of the customer they originally planned to serve and therefore change a partner-distributor. As it is shown in the figure another customer group could be people who seek stress relief and, for instance, could be reached through the festivals, cafes etc.

Customer relationships

According to SWOT analysis the customer acquisition by VR companies is happening for free at the moment to build a better awareness of the technological solution and that requires face-to-face interaction. Creating storytelling videos about great experiences of customers could help to build a better trusting relationship with potential customers-distributors and even reach customers-distributors abroad. Better customer retention could be reached by involving them in the co-creation process, for instance, by involving them to review the products at the web-site and as a result to have a greater Value Proposition. VIEMR can involve customers in prototyping the new products and learn from them in the process.

Revenue Streams

In order to serve the chosen customer segment the pricing mechanism is indirect as well as the business architecture i.e. B2B. The end-customer pay their insurance package and then receive a treatment as a service. Insurance companies have certain agreements with hospitals, treatment centers and private doctors to provide certain amounts of services that are covered by insurance companies. In case there were more service offered than agreed upon, healthcare providers get punished financially. This is the way way the system works in the Netherlands.

Subscription fees can be a great revenue stream for VRelax as it is selling continuous access to a service for a fixed price per month, which allows VIEMR to stay the owner of its intellectual property and satisfy the requirements of insurance companies. In the future, the subscription fee can differ depending on a Customer Segment. (i.e. Business subscription (B2B) could differ from Normal User Subscription (B2C))

Key Resources

In order to deliver its Value Proposition VIMER needs its physical, intellectual, human and financial resources.

- Physical: workspace, distribution network, computers, cameras, production equipment, goggles etc. VRelax could own qualitative goggles and lease them as part of a subscription or acquire them from a partnership with e.g Google.
- Intellectual: brand, VR content, data, proprietary knowledge, partnerships.
- Human: VIEMR needs more directors & developers, which could be acquired from a partner or hired. VIEMR needs management & marketing teams for successful business development, which could be acquired from a partner or hired.
- Financial: Funding is needed to hire or acquire human resources to build a minimum viable product to attract investors or funding from the Dutch government.

Key Activities

In order to deliver its Value Proposition VIMER needs to perform the following operations.

- Production: make VR products with superior quality
- Platform/Network: development and maintenance of the VRelax web-site

- Problem Solving: Produce custom-made solutions for individual problems worth solving

Key Partners

There are several purposes key partners could serve - optimize the business model, reduce risks and acquire resources.

In VIEMR's case, partnerships with mental health care providers as a distributor of VRelax products was a starting point of the business model design.

Partnership with a hardware/goggle company can optimise the business model as well as reduce the risk of being affected by not yet formed pricing policies of the VR industry.

Needed human resources could be acquired from key partners as well.

Cost Structure

VIEMR has chosen the value-driven focus of cost structure. It means that are the cost of VIEMR are focused on delivering Premium Value Proposition and personalized services for customers. It was defined by the vision of the company.

5. CONCLUSION AND RECOMMENDATIONS

This chapter summarizes the key results and presents answers to the research question. It also contains recommendations for future research.

This research paper explores the problem/solution fit where the problem is to improve the current treatment, and where VR a product with the purpose of relaxation therapy has a potential to become a solution and provide a gain of making the relaxation process for patients more efficient and innovative. Research has

shown that the current vision for the solution does not cover all needs of the chosen customer segment. As another feature of VRelax VIEMR can consider the development of VR products with the purpose of exposure therapy. Moreover, the research paper explored only one possible customer segment – patients who need relaxation therapy provided by mental healthcare. It is highly possible that another customer segment has a similar problem that VR is capable to solve. (i.e people who seek stress relief and could be reached by a distributor other than mental healthcare) The same research design could be used to gain insight into another customer segment. If the problem/solution fit is achieved to serve another target group, then the Value Proposition must be adjusted for them and another business model can be applied.

To conclude, the research has proven that there is a favorable situation for VIEMR to base its strategy on the business model, which is reflected in Figure 15 taking into account opportunities and threats listed in the SWOT analysis.

However, the business model has not been tested during this research.

In order to eliminate the risk of potential failure of the chosen business model it is recommended to apply the Lean Startup circle, which contains three steps: Build, Measure and Learn.

Adopted from (Osterwalder 2014, 186-187)

- Build is for building MVP with the benefits and features of VRelax that were to be tested
- Measure is making sure VRelax and its services actually relieve pains and create gains for customers
- Learn is for finding out if and why VRelax needs to change its product and service. Additionally, which pain relievers work and which do not.

Once the company gets through the Build-Measure-Learn feedback loop it has to make the decision pivot or preserve. 'Pivot is a structured course correction to test new fundamental hypothesis about the product, business model and engine of growth' (Ries 2011 p.147)

Moreover, BMC contains not only the value but also the logic of the business. It is necessary to collect evidence that each building block has required components for the business model to work. If some of the building blocks fails, a pivot is needed, which will result in a change to the BMC. Furthermore, it is advisable to perform research that studies specifically pricing mechanisms in the chosen customer segment as the BMC lacks details about financial feasibility of the company.

Finally, this thesis was time limited as VIEMR has set a deadline by which must be finished. Because of this issue this research was limited to testing only hypotheses about who the key customers are.

This thesis took 6 months in total. The researcher approached VIMER out of her interest in virtual reality technologies. The topic was chosen in a way that is most beneficial for the company and fits the competency of the researcher. After the topic was selected the commissioning agreement and internship contract was signed specifying the purpose of the research and the time constraints. Thereby the qualitative research was limited to the network of VIEMR and the time it was performed. The maximum amount of potential respondents was not reached due to summer vacation and, in some cases, no response to e-mails.

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APPENDICES

APPENDIX 1 SWOT mapped out during internal co-creation workshop

APPENDIX 2 The Empathy map of Wim Veling

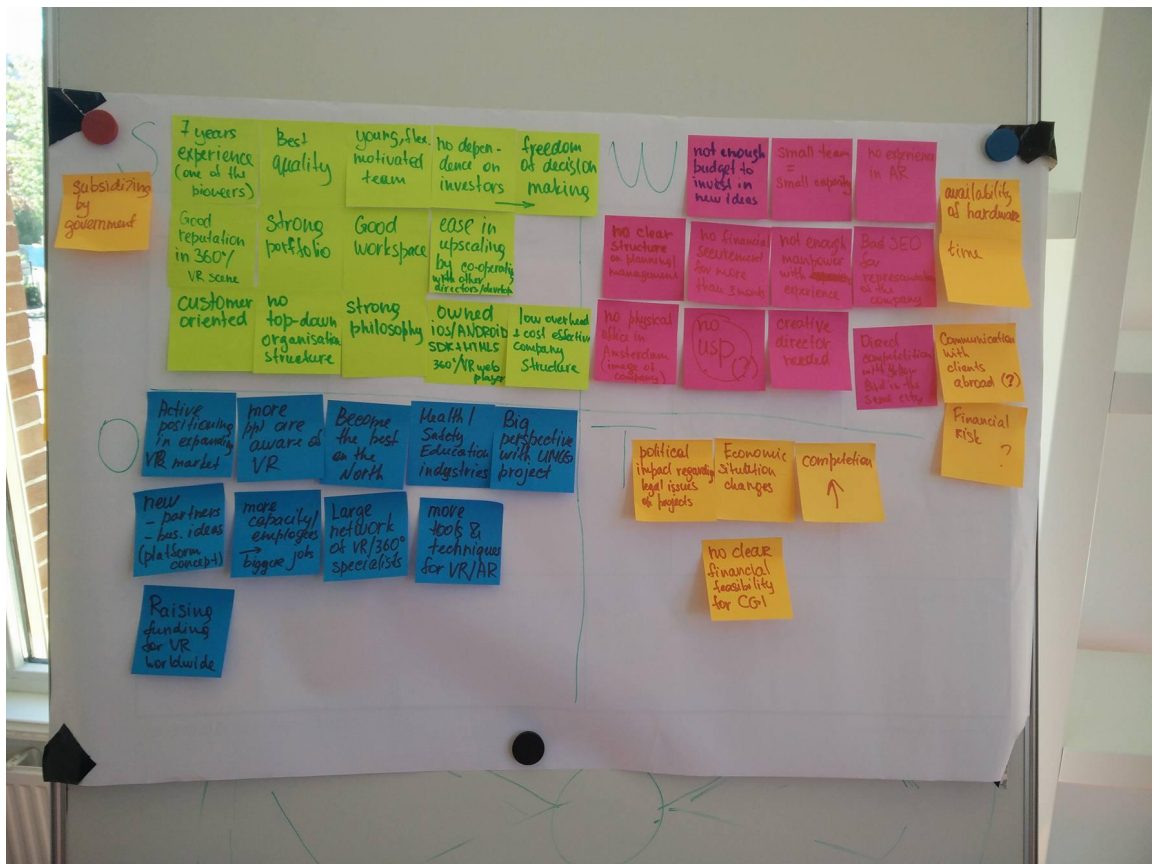
APPENDIX 3 E-mail letter template

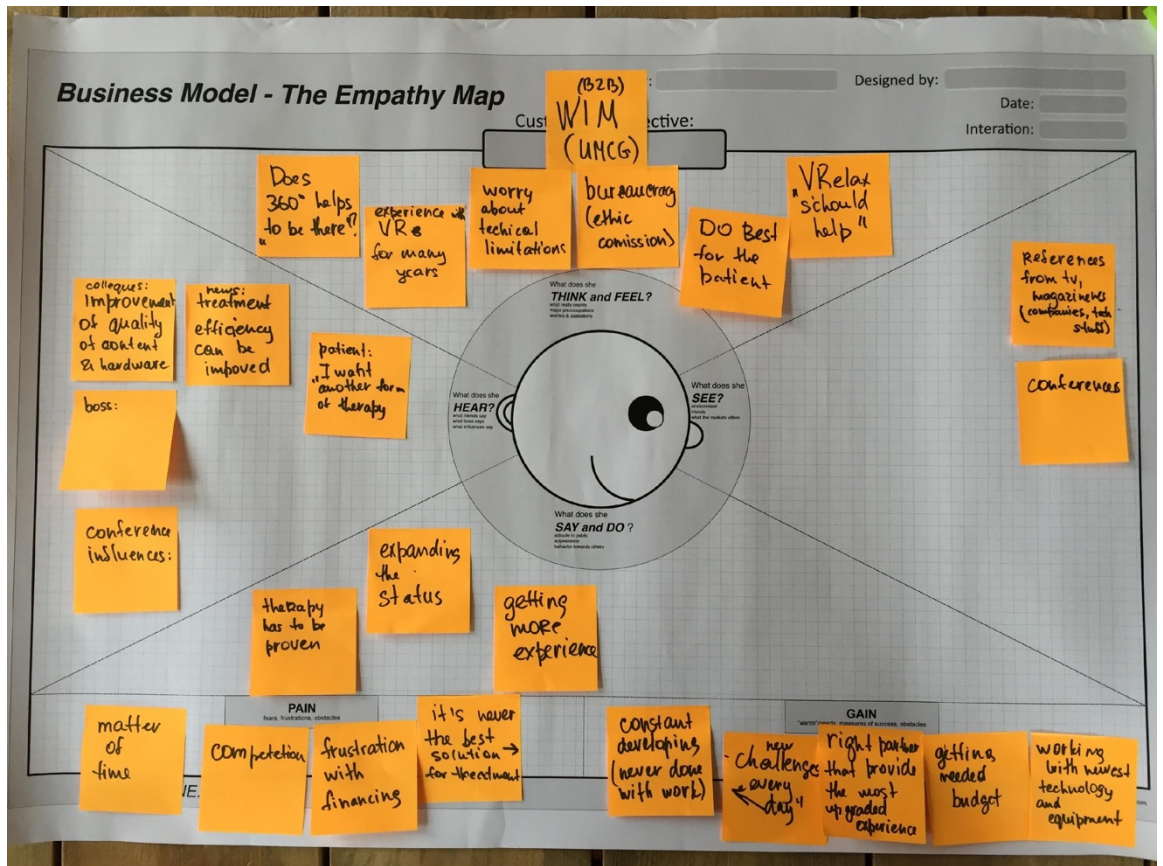
APPENDIX 4 Interview's guidelines

APPENDIX 5 Summaries of the interviews

APPENDIX 6 VPC mapped out during internal co-creation workshop

APPENDIX 7 MPC mapped out during internal co-creation workshop





Hi [name of respondent],

Quite recently you came into contact with Benno Brada about the possible use of 360 ° / Virtual Reality footage for treatment purposes within mental health care. Viemr works together with Benno and his partner when it comes to producing this footage of dolphins, among others.

Viemr is a creative agency which is working on e-learning applications for the health care industry. We have an intern from the university in Finland which conducts research on where virtual reality stands right now and how this technology can help improve treatments in mental health care. It is important to find out how mental health care institutions can get better access to specific content and technology by discovering your recent experience with Virtual Reality and possible problems you have ran into.

In this context, we would like to get an idea of your experience and findings with the VR treatment. Our intern would like to use an hour of your time for an interview.

Besides talking to [name of the company] we will conduct more interviews with other mental health institutions for which we already created Virtual Reality footage. These findings will be gathered in the research paper and may offer [name of the company] interesting insights on the results / opportunities and future of Virtual Reality within the Mental Health Care industry.

We'd love to hear if you are willing to talk with us. This can be by phone, Skype or at actual meeting.

Looking forward to your response and kind regards,

Stefan Vogelzang (Owner Viemr),

Maria Loktionova (Intern),

Benno Brada (The Dolphin Swim Club).

1. Introduction

Personal information: job/responsibilities/position within the company

Assuming that the interviewer has a purchasing power if not who else we can talk to?

Main mission: help patient to get relaxed (what are the drivers to do that? Human conscious, money something else?)

- What are the most important things you were struggling with in your daily job?
- What makes you happy in your job?

2. Customer Profile

Did the respondent work with VIEMR before? Or VR in general?

NO

- What do you know about effects of VR? Believe in it?
- Did you implement other technologies to improve the treatment of the patients?

What are your decision criteria when you implement a new technology in your practice? (ex. License, reference by colleagues, possibility of co-creation, IT issue, others) identify pains and gains in this process

YES

- What like was your last experience?
- Why did you use? Why did you find it important?
- What was the results? Downside of it?

3. Value proposition and CANVAS elements of existing experience of the respondent

- After pains and gains identify try to research existing solution but not offering VRealx yet.

- What services do solve their existing problems in their daily job? How do they use those services: channels, relationships?

- What kind of barriers are there with those services?

- What kind of channels and relationship with similar service providers (if they had) they had before and what they preferred?

- How the purchasing process goes in the company?

Finally, what is the vision of the respondent of the role of VR within next couple years?

Example of engaging questions:

What do you think about?

Can you talk me through?

What more can you tell?

In the end, ask whether they would be interested in testing coming soon prototype?

And who else we can talk to?

Summary of the interview with Eva Wilma 25.07.2016

Dear Eva,

Thank you very much for meeting us through Skype. Our interview provided me with some interesting insights that will be included in my research paper. This email represents the summary of our interview last week.

You were responsible for running the project/study that would increase the empathy towards people struggling with dementia by using VR technology. Thus, it allows to see the perspective of ill people. That project was initiated by "Into Dementia" company. The reason of that study is the quickly growing number of people with dementia, it becomes a very common problem. Further, "Through the Dementia Lens" is a cinematic 360 experience. The study has shown that it is very effective. Besides that, there are more winning factors: it's cheap and movable. The study was easily approved by ethic committee.

Among other things, the people who try VR experience have shown fast adaptation to Samsung VR Gear and VR experience.

Among downsides: The effect of experience very much depends on the quality of the video and googles (f.e. Oculus Rifts is quite outdated). This drawback was caused by dependence on sponsor and which equipment they have provided for the study performance. Another important thing, the study was performed one on one meetings, the group meeting you believe are more efficient.

The study was announced through several channels: 1) through healthcare institute database via e-mail 2) announced on web-page 3) Facebook 4) via phone
You have mentioned several channels how "Through the Dementia Lens" could reach the world in the future: 1) healthcare institutes 2) schools (as a disease is getting more and more common among children) 3) include in an insurance packet.

Did I miss something out? Or do you have something more to add?

Best regards,

Maria Loktionova.

Summary of the interview with Bernard Maarsingh 01.08.2015

Dear Bernard,

Thank you very much for meeting me today. Our today's interview provided me with some interesting insights that will be included in my research paper. This email represents the summary of our today's interview.

In your daily practice you have to deal with two types clients: 50% of them received occupational psychology focused on teams and individuals to get them flourishing again on an individual, team or organizational level. The other 50% receive a clinical therapy.

In the past you have worked on creating e-health app which provided a tool to measure and capture happiness for the patients. Among the pains you have mentioned that outsourcing experience did not allow full control of the content that was put in the app and thus the app did not look beautiful and handy enough. Moreover, it was expensive and it created a frustration as the developer do not share the same mission as you have, they were mostly seeking for the money.

Before you started off with that particular app you created a e-mental-health platform focused on dealing with psychological problems (<https://www.therapieland.nl>)

From the positive side that was a learning experience for you how to not run innovative projects in the future. Therefore, the new VR game project is developing in the controlled environment under the roof of your company.

The VR game (I call it VR game as I do not know the name of it yet: It's called VR 4 Health) is the current project that you've been working for the past year. It's based on HTC Vive hardware. The ready version is promised to be ready for the TED talks in September 2016.

The idea is not only a VR game, but a combination of VR and AR that optimize the stress levels of the player. It's not a relaxing but stressful environment where the players learn to manage their own stress levels by playing with his/her stress level following pop-up tips in the game. You believe you can educate patients to find their own individual optimal-stress levels by providing them the learning tool.

Among the gains, such project has not been done before and this makes it a lot fun. Working with the new technology is very exciting, it requires design thinking.

The job here is to make everybody vital with help from such tool and make it's accessible for everybody. Hence to be the pioneer with VR game and vitalize the society with it becomes one of the biggest gain from this project.

Among the pains, a creation of VR game requires a lot of work as it is something that have not been done before. (the team is working on the project for a year and there is not 1 product done yet) During the developing phase there is lots of money washing away and no return investment at all.

Your strategy is to create a big story out of the experience of conquering the hospitals with VR game (HTC Vive is quite expensive software) and then make it cheaper for the rest of people. Right now, together with Trimbos (mental health institute) you initiated the creation of the platform where the VR game can be placed. De Friesland (insurance company) is another party on the board, they are sponsoring the project. Did I miss something out? Or do you have something more to aid?

Best regards,
Maria Loktionova.

Summary of the Interview with Menno Norden 8.08.2016.

Dear Menno,

Thank you very much for having a Skype meeting with me and Stefan on Monday. Our interview provided me with some interesting insights that will be included in my research. This email represents the summary of our interview.

You work as a psychologist at Eleos (Mental Health Care Services) where in your daily practice you treat the patients with different sort of problems (depression, anxiety, ADHD etc.) by cognitive behavioral therapy. Major job here is to show the patients that life isn't perfect and teach them how to approach it in a long-term. You have not implemented VR in the treatments yet.

Among the pains, you mentioned that it's never 100% assurance that the patient is healed and therefore you want to provide them with techniques and tools that they can use themselves in a case of recidive. Another big pain in your practice is inability to imitate the situations that are helpful in therapy to get to the action in the room (ex. exposure therapy). Each single problem requires its own approach and its own situation to imitate, which is not sometimes possible (e.g. fear of spiders) Patients are struggling with the lack of motivation to get to the action themselves in the real environment. Currently, the patient are able to have online sessions with the therapist (that also reduce the travel time) but it is not a perfect solution for the problem. You believe, VR could offer an accustomed solution for variety of mental health problems but also for the purpose of relaxation in case of anxiety. So far, the mindfulness technique plays one of the biggest roles in the treatment. However, it is handy to have tools to relax patients, reduce their pain etc.

Among the gains, you mentioned that Eleos is open to innovations and recently created a position to pay more attention to involve more innovative solutions in therapy practices and thus to improve the care. For example, Eleos is already using several e-health apps and "blended" therapy - a mix of real and online session (it was also pushed by the government). Besides that, you have told us that insurance companies are willing to co-operate more and more in order to improve healthcare. Especially, when the new solutions tend to lower down their costs.

You predict that VR will be in daily use by psychologist in 5-10 years.

Did I miss something out? Or do you have something more to add

Best regards,
Maria Loktionova.

Summary of the Interview with Holly Ankjel 11.08.2016.

Dear Holly,

Thank you very much for having a Skype meeting with me today. Our interview provided me with some interesting insights that will be included in my research. This email represents the summary of our interview.

In your daily job you are busy with setting up the pilot project that explores the use of VR with young cancer patients who are receiving treatment in isolation rooms. You have decided to focus on children from 13 to 18 years old as the project is using Samsung Gear VR glasses and they have an age restriction and should not be used by anyone under the age of 13.. During some cancer treatment patients have a high risk of getting infection thus they have to stay in isolated room for up to 6 weeks.

Being in an isolation room for weeks at a time can be a challenge for young people, away from their friends and normal everyday activities, in addition to being ill. . Whilst receiving cancer treatment in isolation young people are offered support from psychologists and music therapists at the hospital, to help cope with both physical and psychological challenges of treatment.

Psychologists often use visualization techniques to help young patients imagine a place where they feel comfortable and relaxed, but such techniques can be hard to master when a person is unwell or tired, and often requires practice to achieve the desired affect.

that's where "Is there a role for VR?" question has raised. Can VR help transport a patient out of the "white walled" hospital room to another place, and provide an

“escape” from the hospital room. Can VR help the young person to “be” somewhere else, a distraction, transported to a beautiful place to feel calming, refreshing benefit? Can VR be a useful supplementary tool to psychologists and music therapists existing work? What are the practical implementations of using VR in isolation rooms – with regard to the sterilization requirements for example?

Among the gains of using VR, you have mentioned:

- Potentially Beneficial addition tool in therapy for psychologists and music therapists

- VR experience creates the **distraction** from the four walls of the hospital room (change focus from the problems) —> uplift mood

- Excited reaction from the patients to try out the new technology

- Be modern

- Easy access to VR VR is essentially an “off the shelf” technology.

Among the pains of using VR, you have mentioned:

- New technology causes skeptical reaction. Have needed to use time to build confidence amongst staff with the new technology. This is not simply a gimmick or simply for pure entertainment value, but rather an exploration to see whether this has potential therapeutic benefit.

- Needed to investigate if and how Samsung Gear VR could be sterilized to the exacting requirements of the isolation ward. Guidelines and procedures needed to be put in place and agreed with hospital managers. Face foam was a particular concern.

- VR might cause motion sickness thus the content has to be mild and time spent viewing VR has been limited to 10-15 minutes maximum.

- Given that this is new technology and being used in a new environment. A psychologist or music therapist will always be with a young person the first few times that they use VR to monitor reactions.

- VR content should not provoke a lot of neck movement to avoid neck problems or even falling from bed

- The content has to be limited to only allowed films. We are working with a company who has created an app which means that the telephones are set up

in such a way that they are only able to play VR content that has been specifically chosen by the project team. The telephones do not have any wifi or sim cards, such that it is not possible to access the internet or other VR content.

(solved pain)

Did I miss something out? Or do you have something more to add?

Best regards,

Maria Loktionova.

Summary of the Interview with Ayhan Tatlicioglu 22.08.2016.

Dear Ayhan,

Thank you very much for having a meeting with me yesterday. Our interview provided me with some interesting insights that will be included in my research. This email represents the summary of our interview.

You are the founder of Inter-Psy, which have been growing successfully for the past seven years. At the current moment, it has 20 departments and around 300 employees. You have 2 study backgrounds - behaviorism and social-dynamics.

A combination of those studies and your talent in putting things into business perspective were key elements to found Inter-Psy.

You are not treating patients yourself anymore but you still provide a supervision to the psychologists that are working under your roof. It is very important to create a pleasing and supportive environment to Inter-Psy's psychologists and you still get involved in the treatment process.

When we talked about innovations implemented in Inter-Psy there are two main things to mention:

-Inter-Psy employs people according to their competency profile. it means that they have to proof/learn certain competencies required for their job. It also means constant self-developing (Inter-Psy even provides certain budget for their employees for qualification upgrades, study courses etc.) To sum up, learning/doing new things in Inter-Psy is very respectful aspect.

-Inter-Psy implemented a hybrid system - a combination of face-to-face and on-line sessions. Before it has been implemented fully in practice the independent research was required to prove to the insurance company that this innovation is better than the traditional one. Thus, a project was initiated within Inter-Psy, where volunteer-psychologists performed a study based on comparison of hybrid and traditional therapies. The insurance companies in their turn co-operated when the study proves that the hybrid therapy is more compliant and also cheaper (f.e. it reduces the travel time). In general, the insurance companies are promoting e-health solution that are proven to be cheaper in a long-term.

You could think of only one downside of hybrid therapy implementation - a skepticism from the doctors.

Inter-Psy works with all variety of mental disorders. Around 20-25% of the patients have anxiety problem who needs help to manage their stress levels (different relaxation techniques) You agreed that VR relaxation movies could become an additional tool in psychologist's practice.

Did I miss something out? Or do you have something more to add?

Best regards,

Mariia Loktionova.



