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DENMARK

CONTOLK

HUMAN INTERPRETATION SERVICE PLATFORM



MASTER THISIS

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List of abbreviations

B2B = Business-to-Business
B2C = Business-to-Consumer
B2G = Business-to-Government
BM = Business model
CAT = Computer-aided translation
CSA = Common Sense Advisory
DDI = Digital Disruptive Intermediaries
DDK = Danish Kroner (valuta)
DDT = digital disruption theory
DR. = Doctor
DRC = Danish Refugee Council
EU = European Union
HR = Human Resource
IoT = Internet of Things
MVP = Minimal Viable Product
NMT = Neural machine translation
NN = Neural network
PoB = Proof of Business
PoC = Proof of Concept
S2S = Speech-to-speech technology
SEO = Search Engine Optimization
SIM = Subscriber Identity Module
SMT = Statistical machine translation
TAUS = Translation Automation User Society
TMRO = Technologies, Market, Resources and Organization
UC = University of California (Berkeley)
UCN = University of North Jutland
UI = User Interface
UN = United Nations
VAT = Value added tax

1. Introduction

This 10. semester project is about the start-up company, ConTolk, which is a crowdsourcing platform company based from the Master education, Entrepreneurial Engineering, at Aalborg University. This project is a continuous project from last semester which has the potential to become a real commercial business. The students will apply different theories and models they have learned from their Master courses in order to illustrate how they have validated an idea, turned this idea to an opportunity and how to make money from this business.

The project will be focusing on an idea to make a smartphone app for real-live human interpretation over a phone call or video call. The name of the company is ConTolk and the app should be able to locate interpreters which is available or unavailable for the users. The available ones could be used by the users, and the users can check out their performance history and educational level. The project will be structured with the theory of design thinking to understand the pain of the problem and to find a solution to this problem.

The solution is to an interpretation service which helps the customer and users purchase an interpreter based on the needs of the translation task. The users will have an app as a tool to see the different interpreters which can be available to take the task. The project will focus on how the students have tested the idea and make a prototype with collaboration with ConTolk first customer.

Through the project period, the students have collaborated with Aalborg University Incubator to successful manage the whole process going from an idea to commercial business and the asylum center in Brovst for the validation of the idea.

2. Team Background

The team consist of two persons:

Khaled Tarsheh studies at his Master in Entrepreneurial Engineering and he has a bachelor's in information technology. He has a background as a programmer and his competencies lay in programming skills with the coding language Java and other programming languages. He also has experience in banking and finance since he has worked for seven years in three banks. His interests are creativity, sports and new technologies.

Jacob Saxtoft is currently studying his master in Entrepreneurial Engineering at Aalborg University and he has a bachelor in Global Business Engineering from Aalborg University. Throughout his bachelor, he has worked with several companies like Telenor, Cembrit, Migatronic and Sjorring machine company where he worked with inventory management, production processes, supply chains and innovation development. His competencies lay in analytical thinking, production process management, supply chain management and operation management. Jacob is very passionate about systems and entrepreneurship. He likes to spend his spare time to study financial markets regarding investments and think about new ideas to solve a given problem or need.



3. Theory

This chapter focus on the different theories which can help to understand if the idea has a bright future or not. This project is going through different phases of start-up development phases and it is important to manage it as optimal as possible and therefore, the team has looked at different methods theories that can do that. Also, there will be theories which help to understand if the idea could make a competitive impact at the current translation industry.

The methods/theories are:

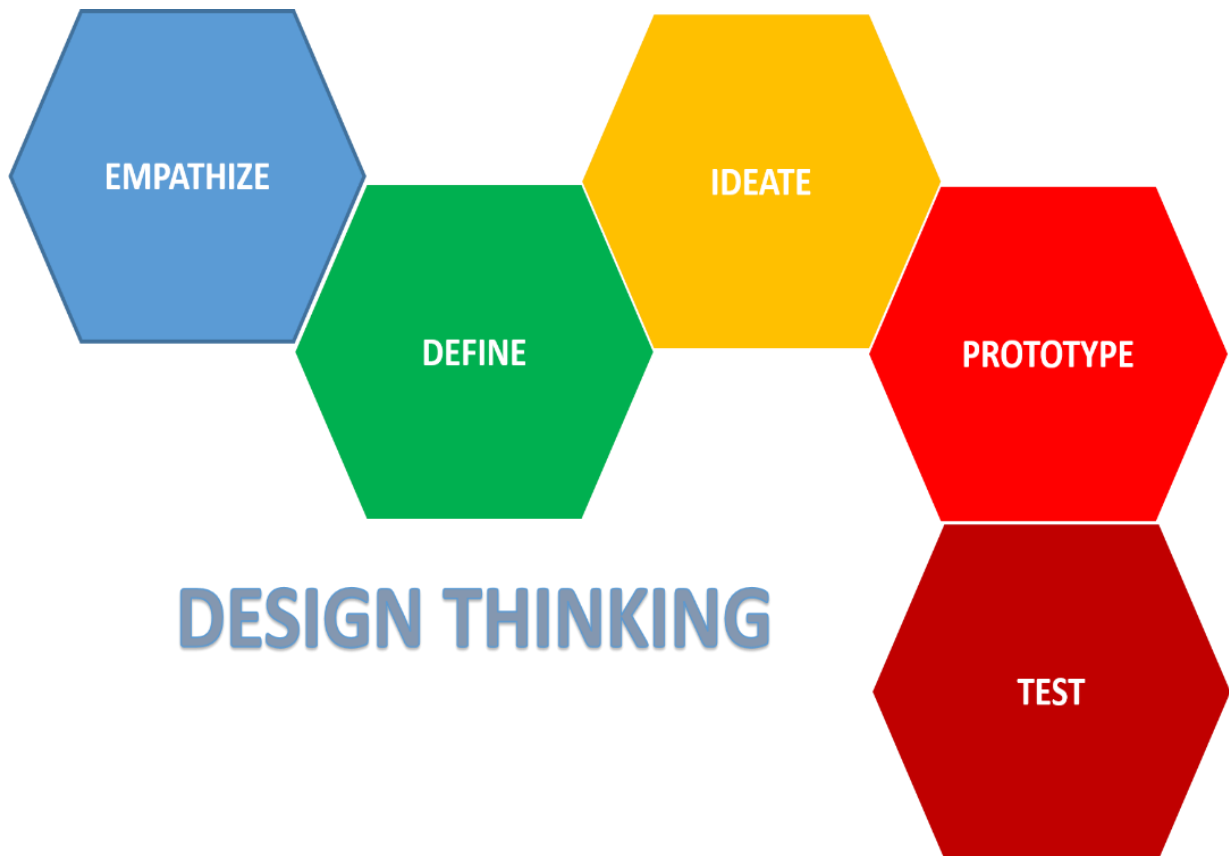
1. Design thinking
2. Disruption theory
3. Digital Disruptive Intermediaries

3.1 Design thinking

Design thinking is problem-focused thinking and works for anyone that is interesting to analyse a given problem and find a potential solution. It is initially designed for creative work developing to solve problems with creative thinking and work through a design process to solve given problems. It follows five stages that help the participant to think about the process they are going through to solve this given problem or need. It works as a non-linear process, so if you do not find the right solution the first time then you go back and follow the methods stages again. The five stages are:

1. Empathize – Go deep down into the user's daily routines to understand the problem
2. Define – From your data, you separate the problem to see where there has to be done some improvements
3. Ideate – Use divergent thinking and develop ideas for a potential solution
4. Prototype – Create a prototype like a mock-up or real product
5. Test – The prototype should be tested, and it should be multiple time depending what kind of test it is.

This model will be essential for this project to understand how the team manages to find the right solution to a problem. To determine if the team has found the right solution is based on a subjective opinion of the customer. Since this project is a continuous part of last semester, the previous data that the team has collected will also be used for this semester project.



3.2 Disruption theory

As a start-up project, it is essential to ask if the solution that the team is providing will disruptive the current market. It is a vast topic today for many entrepreneurs that they have to disrupt industries in order to compete against established players on the market. The same thing can be applied for this project, because the team has an idea that they want to test on the market and it is interesting to analyse if this project could be characterized as a disruptive company. It is important to understand the theory clearly before there are made any conclusions about if a company is disruptive or not. There are some differences between the innovation types like incremental innovation, evolutionary innovation and breakthrough innovation and the theory of disruption which has to be understood to distinguish if this project is characterized as disruptive. First, the description of disruption theory will be explained and how the disruption theory distinguishes between from the different innovation types.

The disruption theory is developed by Clay Christiansen (1997) from Harvard University and written in his book "The innovator's dilemma." The theory follows a process over time where the given technology started to provide a product performance for sudden market segments to overtake established market leaders market segments. The early development, the unforeseen technology or product would only serve niche segments that value its non-standard performance attributes and later raise to improve the standard performance and overtake mainstream markets from established players. The new technology must serve customers who market leaders are not interest in or new non-consuming customers. Non-consuming refers to new customers as the disruptive product locate as a blue ocean market which does not use the mainstream technologies. As mentioned in the first part of this section, there are some differences between the three different innovation types and the theory of disruption. Breakthrough innovation is the commercialization of a product or technology that have a substantial impact on markets which have very high uncertainties to succeed. Evolutionary innovation is continuous innovation with many incremental advances in technology or process and the uncertainty level is medium. Incremental innovation is many small improvements to an existing product to improve or maintain one's competitive position and it has very low uncertainties. It is important to understand that disruption theory is not about breakthrough innovation because breakthrough innovation creates a new better product/service which overtakes the current mainstream market without going through the process to work with customers that mainstream market is not interested in or non-consuming customers. Breakthroughs overtake the mainstream market as their first act. Disruption theory must go through the process to serve low-end markets first before passing the mainstream market.

There is a dilemma for many established market leaders because they have a good product the mainstream market wants, and they are making money on it. Then why should they build new products to serve low-end customers while they can make a sustaining innovation on their current products and sell it for more to their existing customers? It is now that new players can take the low-end of the market and build a product that may be worse than current products on the market, but it can make a sustaining innovation which can outperform the current products on the market on the long run. An example can be Netflix versus Blockbuster where Blockbuster was the

established market leader in renting out movies via VHS' and later DVDs (one movie for a periodic payment) and Netflix was this small player who started to serve low end-market by having a subscription on DVDs. After a couple of years, Netflix developed a streaming service where the customer could rent all the movies they like for a monthly subscription and Blockbuster ended with bankruptcy.

The question is why Blockbuster did not react to this streaming service? It can be many different reasons, but there can be some barriers which keep them away to response proactive to this threat. It can be adoption barriers like the established market leader has a thriving business or competencies development which can be hard to change. It can be mindset barriers like an inability to learn new things. Risk barriers like reduce the return on investment to make new products for low-end markets which sound quite irrational to many.

It is essential that the theory is used to learn how to think regarding for innovations or disruptive force rather see how it can improve the current position or market for established players. Data only work for the past, and since this world is very data-driven, then it is impossible to look into the future for new technologies or product/service which never existed before. Therefore, the theory explains that when a new technology or market player enter the industry, then it is essential to analyze their business model or technology and ask how we can develop new disruptive force under them. The established company needs to dedicate their resources and capacity to be willing to adapt to change and not just to the current business model. Figure 3.2.1 shows how the process works both for low-end markets that established players are not interest in and non-consuming customers.

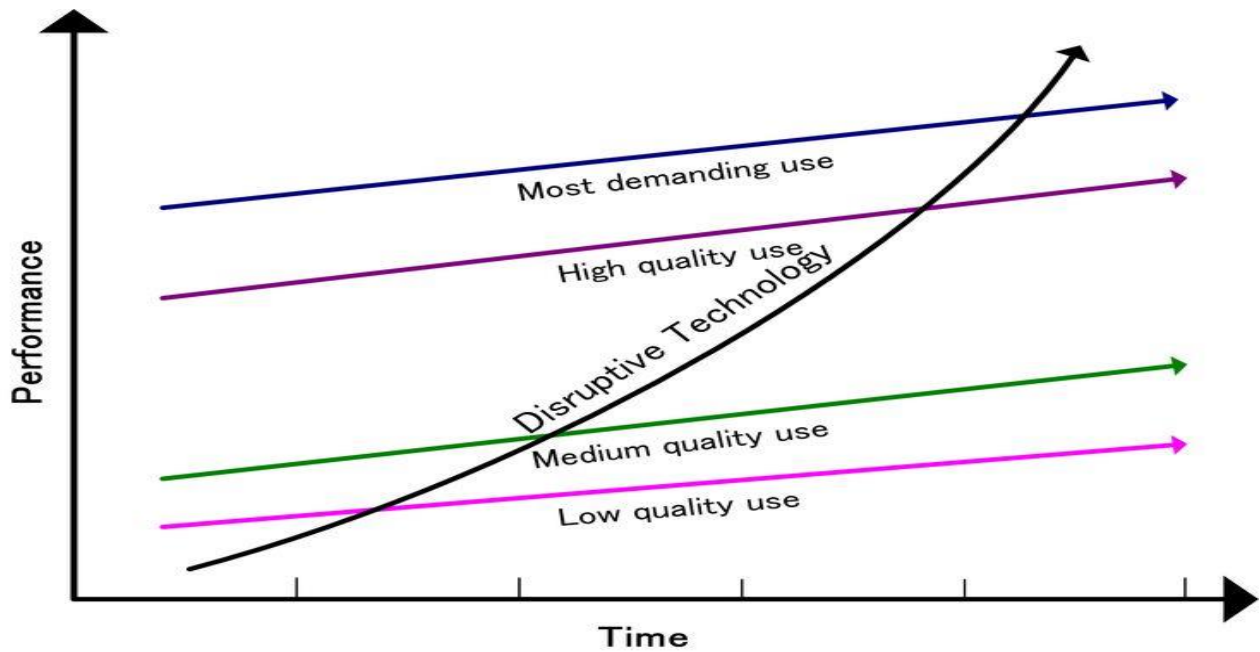


Figure 3.2.1

As for this project, the team must look at the first customer they serve and are they part of the mainstream market or serving a new customer who was not part of this market before? The other part is to look at attributes which this company provide now and how it will perform over time since the established players have to lose their market share to this disruptive force. It is then essential that the team can illustrate if the project belongs to one of the innovation types or the disruption theory. The core competencies and capacities are necessary to study to understand how we outperform the current players and how newcomers do not outperform ConTolk.

3.3 Digital disruption intermediaries

As part of this project, this theory will focus on the disruptive digital theory, because the project focus on a digital solution for a mobile device. It is relevant to use this part of the theory to the project because there are many forms of digital disruptions and it can be relevant to distinguish the different types to illustrate which problem this company solves (Reimer, Gal, Hamann, Glichriest, & Teixeira, 2015).

The first part was to understand what digital disruption is and how it is done. Next, to refers to a digital solution via technology that helps to create value within or across markets then it still must follow Clayton Christiansen's theory of disruption. Also, the solution must be part of the digitalization of content, web 2.0, mobile devices, the app economy, cloud computing and data analytics. Digital solutions can occur on different levels and different levels are:

1. People's personal lives (Mobile connectivity)
2. Work Practises (Communicating inside an organization)
3. Business practice (Information travels in the organization – ERP system)
4. Industry structure (Reshape of value chains)
5. Societal (Social media disrupt public opinion making, journalism or politics)

It is interesting to analyze how this project effect on any these levels because it gives a sense of how the project could disrupt the market. It is not just about how it affects how we do business but fundamentally to understand the world, technologies, products/services and markets.

This project is about to be an intermediary and it focuses on a digital solution to solve a given problem which is the right point to focus on DDI. The intermediaries are middlemen between two parties and help manufacturers, producers or service provider to focus on their core competencies. A world with the world-wide-web which gives a lot of information and a lengthy decision-making process then it is an opportunity for many intermediaries to find, inform, match or recommend sudden product/services for the different customers. The reason to use this digital disruption theory is to uncover the ways DDI operates and the function it fulfills. It is based on market research approach and involves three analysis steps:

1. Identify the functions
2. Classification and cataloging
3. Identification of archetypes

To do these three analysis steps then it is essential to understand the DDI functions and the DDI archetypes. Let start with the functions.

There are 11 functions with different purposes to deliver value to the customer in the digitalized world and they are:

Functions	Explanation
Cataloging	... structure a catalog of products/services sourced from suppliers
Bundling	... create and offers bundles of products/services sourced from multiple suppliers
Reordering or Filtering	... offers functionality that allows customers to interact with, reorder or filter structured lists of products/services to find a suitable offer.
Rank or Recommend	... rank or recommend product/service based on specific criteria and experience from other customers.
Delivering	... delivers digital content like downloads, streaming or via mobile app
Hosting	... deliver a cloud-based platform to upload, store and give access to different customers/users.
Sharing	... between two parties to deliver their shared work.
Intent casting	... allows users to spell out their needs for sourcing a product or service between other users or suppliers.
Channeling actors	... provide customers to select supplier-provided products/services via a digital platform.
Pricing functions	... compare prices of products from different

	suppliers.
Matching actors	... to help customers to find the right match for the supplier for the product or service via specialized algorithm.

It is crucial to understand that companies can have more than one function and it equally important to beware of that they can be used as primary functions or secondary functions. They will include in the eight archetypes which we will explain about next part of the section.

There are eight archetypes which illustrate their purpose of bringing the customer value and what that distinguish them from each other. The eight archetypes are:

1. Digital stores – Internet shops like Amazon
2. Content Hubs – digital content for streaming or downloads like Netflix
3. Sharing Hubs – Share and upload digital content like YouTube
4. Promoters focus – Provide lists of product information or special deals like Dealsdirect.com
5. Aggregators – Compare information-rich products like PriceRunner.com
6. Discriminators – Rank and recommend based on user-feedback like Trustpilot
7. Crowd Source – Source service via a digital platform, e.g. funding like KickStarter
8. Matchers – Match the customer with the right supplier like Airbnb

As there have been identified the functions and archetypes, then the project can be placed into the classification table to see to which extent the different functions the solution would provide value to customers and which archetype the project belongs to. It would give a clear sense of the values that this intermediary can provide. The different functions with the eight archetypes can be found in Appendix 1.

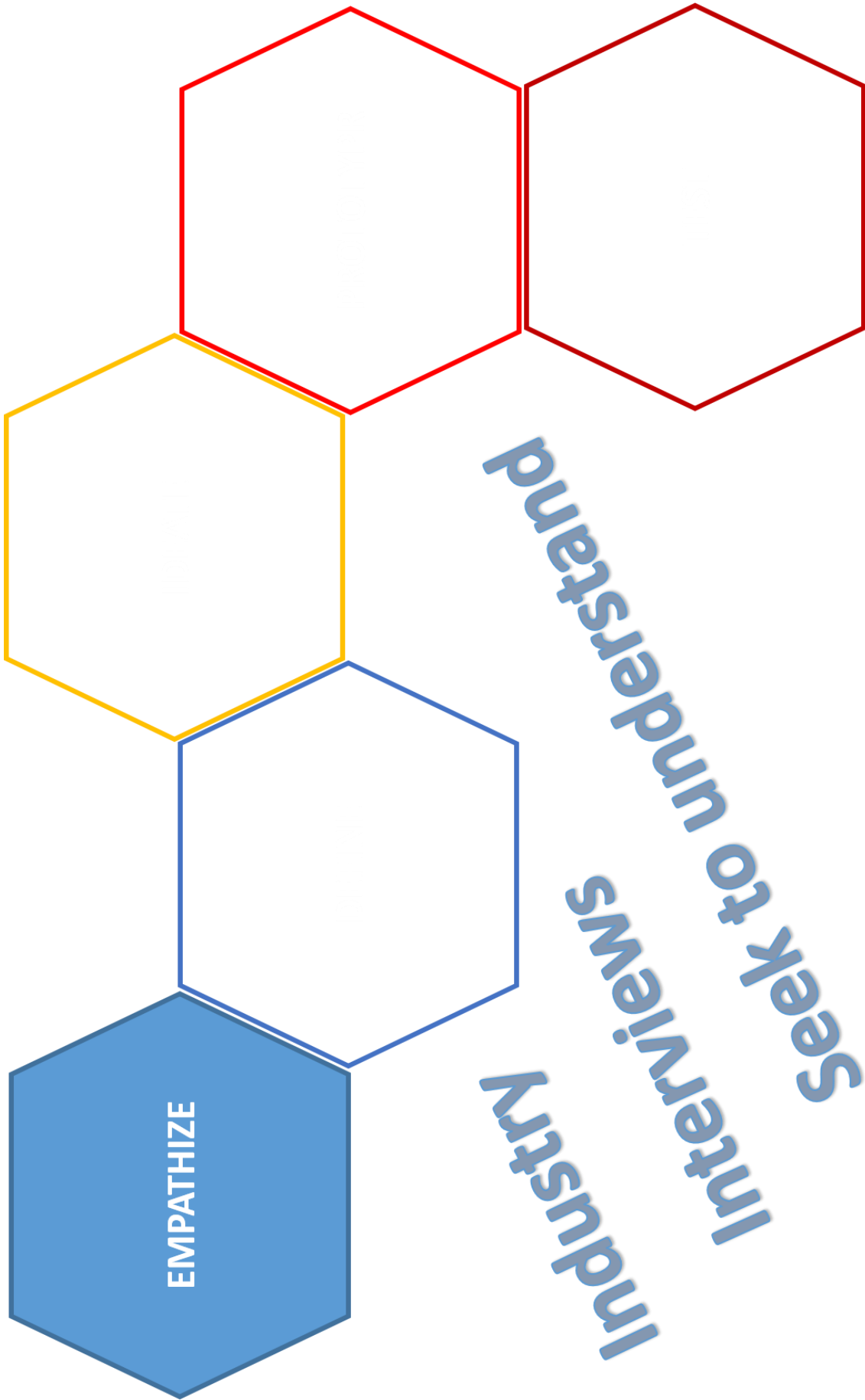
4. Initial idea

Since this project is a continuous part from last semester, then it is important to recap some of the key findings to understand how the project has developed through the previous semester period. All the presented information will generate an understanding of research the team has conducted to validate the idea and how it could become a profitable business in the future. After this chapter, there will be continuous research with validation of the product, because the project is in a current state to make the product work and the commitment from the first customer that is waiting to pay for it. However, the first thing is to give an overview of the problem the team wants to solve and how to solve it.

The original idea was to make a smartphone app for real-live human interpretation over a phone call or video call. The app should be able to locate interpreters who are online or offline, so the user can select the online ones to call. The users could use the available ones and the users can check out their performance history and educational level. The interpreters' salary for the total number of minutes of the conversations. It is the underlying assumption of the potential idea, but the project will be structured with the theory of design thinking because it will help to understand the pain of the problem much more in-depth and help to find a potential solution in the end.

4.1 Initial Pain

When a person wants to book an interpreter from established translation bureaus, then there can be some problems that make the process quite difficult. There is a lot of wasted time and resources, because the time to book an interpreter require preparation such as online searching, call the translation bureau, fill in applications to get an interpreter and wait for them to answer. Another problem is that users/customers pay for minimum an hour even though they use the interpreter for 20 minutes. This pain is based on the experience from first hand from one of the team members, and the pain must be investigated more in details to see if this statement is valid.



5. Market discovery

A discovery phase for a start-up is to unlock the market potential for this idea, but it requires that the team understand to find the relevant data to claim that this idea is valid. These data need to be both quantitative and qualitative data.

The quantitative data will be about the market for translation and interpretation both international and domestic, the competition and the business model. It is essential for any start-up to understand the industry they are entering to see how it is structured and who are the customer.

The qualitative data has a different setup because the team needs to understand that there are different stakeholders who have different interests and there could maybe be a conflict between them. To understand their interests then it would be easier to work on a solution that could benefit all parties. There will be interviews with the different stakeholders to validate the idea. It is part of the design thinking stage one: Emphasize. The goal is to get into the different stakeholder's minds, understand their feelings and see the world from their perspective because it helps to define an apparent problem and provide a valid solution which can be tested for the customer and users.

5.1 Secondary research

The objective is to find the data from relevant sources that can visualize the market potential for this idea. Since this idea started as a problem for one of the team members and as part of design thinking, then it is essential to emphasize the potential problem on a market aspect. The market for interpretation and translation have to be understood in order to see if it is worth to continue to solve this problem.

5.1.1 Global translation market

According to CSA, the market for translation is a market worth \$43 billion in revenue in 2017 and the revenue is divided into these different market areas (Tableau.com, 2016):

- Europe: 53.9 %
- North America: 34.82 %

- Asia: 10.79 %
- Rest: 0.79 %

CSA points out that the market for translation has seen some significant political changes the last 18 months which have affected the particular markets of Europe and Asia. It is related to the immigration crisis which Europe experience at the moment and the wars against terrorists in Arab countries like Syria or Iran. However, it also concluded that there had been a vast innovation drive in the industry because the client requirements have reshaped the industry (DePalma, Stewart, Lommel, & Pielmeier, 2017).

Some of these innovation trends and client requirements will be important to understand to make a clear picture of the translation industry, but first, let us get a clear picture of the translation market.

The industry for translation has two market parts:

1. Interpretation - Communication between two individuals and an interpreter.
2. Textual translation - Rewriting of documents from one language to another.

The market segments for the two market parts are entirely different.

The B2B sector mostly dominates the textual documents because businesses that trade globally have documents which need to be formed to a new language in the broad area of their value chain (Institute of Translation and Interpreting, 2017). There can also be a translation for documents for private citizens with their birth statement or marriage certificates which classified under B2C market.

The interpretation market part will be mainly in the B2G sector because the job for interpreter will be more extensive for public appearances like EU conferences, military tasks, municipality tasks or administrative tasks (Institute of Translation and Interpreting, 2017). However, some private organizations or businesses will use interpreters for specific tasks regarding sales to foreign customers or partners, but it does not make the market share that significant for the interpretation market. The initial problem or pain was to make a solution for interpretation part, but the interpretation is a part of the global translation market so the data being used can seem

generalized since it is hard to distinguish the actual data from document translation to interpretation.

To get a clearer view of the market segments of the translation industry then there has been made a market segmentation in the next part to illustrate the different segments of the industry.

5.1.2 Market Segmentation

This part will focus to provide an overview of the different segments in the language service industry because it will help to understand how the industry is divided and what solutions that are out there. As mentioned in the last part, there are two ways to do the translation of document texts and interpreting between humans, and they work either for B2C, B2B or B2G. After the segments have been identified then it would lead to which segments that the report will continue to discuss, and it is based on where the idea can contribute.

The market segmentation section is based from the inspiration from the book “Disciplined Entrepreneurship” by Bill Aulet, and it will help to cover some of the steps that are needed to be taken and thought about to do this project into a successful business.

The first step is about market segmentation and how to make a market segmentation is to start brainstorming a range of market opportunities, then the team has to narrow down to the final selected entry market (Aulet, 2013).

5.1.2.1 Documents:

The focus will be on documents translation. This form of translation sector will take into account for B2B and B2G which will help to understand all kind of opportunities companies can enter. It is important to mention that it does not just document are being translated but all sorts of text translation like a website or an app.

B2B:

Companies get their documents translated from language service providers. Companies have many documents for different purposes, and it is important to highlight all categories of document areas. Here is a list of the different market areas:

- Localization (An app's content translating)
- Websites
- Supply chain databases (Databases for inventory, customers, economy, sales)
- Terminology management
- Video subtitling (Business, Education & Entertainment)
- Digital documents

Localization is the term in the translation industry to translate content inside an app to another language. There are many apps worldwide and they generate total revenue of \$81 billion annually and it expects to grow to \$139 billion in 2021 (Cheney & Thompson, 2017). It has helped to grow the translation market far more because the globalized world for apps needs translation and this has created tremendous opportunities for new companies. One of the most active players for localization is Hong Kong-based company, OneSky, because they have made a strong name in this industry to help large and medium-sized app companies to translate the content inside the apps. Tokyo based, Gengo, has also created a good translation platform for freelance translators to translate a different kind of content in apps. It has helped to specialize its platform for programmers to convert their programming language to other languages where the freelance translators help to solve specific coding language jobs.

Websites for global companies will have to be translated into a different language to reach the customer and users as useful as possible. Today, it is not just about to translate but use the translation to create a content that is also marketing effective and the reason is that social media has captured the audience (Choudhury & McConnell, 2013). The translation market is not driven by the publisher anymore, but more by the individual user. All the customer reviews and customer support forums have made translators become more like cultural writers because they have to understand the meaning of what the users are saying and how to respond back to it. Cultures are different, and the translators have to be aware of not to insult the users otherwise it will blowback and the worst-case scenario is a shit-storm from social media groups. The translators have to translate, respond appropriately and understand the content of the website with their cultural knowledge.

The supply chain is a broad word which consists of many departments both inside and outside a company and the communication between all different departments inside the company and with suppliers, partner and customers can be critical to communicate effectively with them in different languages. Imagine, a company has to send relevant information from their production facilities to the sales department across the globe and the communication is two different languages then it is crucial that they have a translator to deliver the right information and respond with the right cultural manners. Globalization has created more business, but the complexity level has also increased which is also the case for language and cultural understanding (Taylor, 2015).

Terminology management is an interesting term because it helps translators to have a set of glossaries with different words and sentences that help to reuse ordinary sentence and words to make a good grammar-correction. It can be seen as an extensive dictionary with millions of words and sentences ready for the translator to be used and tailor-made to the specific task. This requires having specialized in good stores of servers that can contain so much dataset of words and sentences. Let us imagine that a user gets an email and it is not understandable because it is a different language. It should just take 5 minutes to answer then it is translator job to respond to this email as fast as possible. If the translator has this large dictionary of words and sentences and the email can be analyzed for words and content, then it is possible to make a reply via machine translation and then the translator has to read it and correct it before it is sent back to the customer. Some companies specialize in this area can be Interverbal Technology.

Video subtitling is straightforward because lots of videos on YouTube or movies are translated every day. It can be for business, entertainment or education and this is to make sure that the translator can understand the people in the videos and then translate them. YouTube has its features that allow users to translate the videos and they usually do it for free and since Google owns Youtube, then it is a right way for them to collect more data from the users. Entertainment videos can be large movies or small commercials over different kind of distribution channels like Facebook or Netflix. One provider, Zoo digital group, has specialized itself as video subtitling provider for movies providers like Netflix and they provide translation for all different movies, videos, and commercials.

Digital documents mean that we have a lot of different documents which have to be translated like emails or text files. The world is working on the Internet and it is not so usual to send physical

papers that will be translated into another language. The world is digital and therefore, many companies send their textual materials to a translation bureau for translating to another language and then send back again. It can any documents for different kind of industries like finance, law, HR, marketing, education or intellectual property. There are many translation bureaus which specialize in this kind of service and one of them is the Danish translation bureau, Translated by Us, which supply lot of companies with the translation of documents and with a price on 0.79 DKK per word (Blücher, 2018).

The market for documents in the B2B sector has many options to specialize in different kind of areas and this makes it appealing to create different platforms to serve a sudden need in the language industry. The next part is more what document translation needs Governments have.

B2G:

Governments in many countries use their citizen's tax money to pay for a different kind of service and this also includes the needs for some translation. Governments are operating domestic and it has different departments which require translation of documents for example immigrants or refugees. Some of these immigrants or refugees will have to learn the given country's native language, but it is not uncommon that foreigners never learn the native language of the country for sudden reasons and this is where the Government needs translations for sudden documents.

Some of the sectors the Government would need translation for will be:

- Healthcare sector
- Immigration sector (job centres & asylum centres)
- Legal sector
- Financial sector

The healthcare sector is one of the largest institutions which need translation because there can be a need to translate documents for sick foreign patients. The healthcare sector can either hire their translators who also perform a medical profession, or they hire someone from a translation bureau.

Immigration sector is where translation service will be a must need because there will be much paperwork for the municipal employees and this can be related to the massive immigration which has occurred in Europe since 2015. It has put immense pressure on job centers and asylum centers the last couple of years and depending on how open the border patrol has been then it has stressed these centers. Sweden and Germany have been the two most open countries in Europe and they have spent many resources to help all these immigrants and refugees which have a been a tremendous demand for translation. However, many European countries have also changed their political landscape because of this movement of immigrants and it has made countries to become more skeptical of letting people in their countries (BBCnews.com, 2016).

Legal sector for documents has also been affected by the migrant crisis in Europe to handle all lot of legal paperwork and the need for translation would have increased rapidly. Recently, the countries including Sweden and Germany have chosen to let fewer immigrants in because they do not have the resource to help so many (TheLocal.de, 2016).

Financial sector for documents is where there can be some particular situations where the Government needs to translate documents from one language to another. There could be some documents translated from the finance ministry to a foreign financial ministry. One company called FouadNemah.com have specialized translation for embassies to the legal and financial area (Nemah, 2018).

The market for textual documents on different digital platforms is extensive from emails to server databases in the supply chains. The next part will focus on the second market part, interpretation.

5.1.2.2 Interpretation market

This market part requires that two people or more have some interpreter in the middle which converts one language to another. There are many situations where an interpreter can be needed, and this part will try to cover that. The focus will again be on the two market options either B2B or B2G and also what kind of methods of interpretation can be used. The reason is that we do not focus on B2C is because individuals usually can use Governmental help to get translation like immigration department, but of course there can be situations where individuals pay for their own interpretation.

The interpreting market is a sub-market of the global language market and it acquires 15.47 % of the global language market which would be \$6.6 billion (Pielmeier, 2018). There is a different kind of modes, types, and modalities of interpretation which has to be understood to get a clear picture of what the final solution will be.

5.1.2.3 Interpretation Modes

There are generally two modes of interpretation, and they are:

1. Simultaneous interpretation
2. Consecutive interpretation

Simultaneous interpretation is where the interpreter sits in a booth with a set of headphones and microphone where he/she has to start translating simultaneously when someone is speaking. The interpreter has to be a good listener and translate at the same time and this is the reason it is called simultaneous interpretation.

Consecutive interpretation is where the interpreter first starts to translate after the end of a sentence or paragraph from a speaker. It is crucial that the interpreter be able to mimic the sentence or paragraph to be sure that he or she did not miss any details.

5.1.2.4 Types of interpretation

There are some different types of interpretation which illustrate the way to translate between people. The types are:

1. Conference
2. Medical
3. Judicial
4. Escort
5. Public sector
6. Sign language
7. Media (TV interpretation)

The conference interpretation is extensive use for simultaneous translation and large players like EU and UN are two of the largest employers for interpreters. The EU uses 300-400 freelance interpreters each day, they employ 560 staff interpreters and use €117 Mio. Annually (EU, 2015).

Medical interpretation is mostly used for consecutive interpreting because hospitals, health clinics, asylum centers and so forth have patients that need communication help to understand their medical condition. The medical interpretation market estimation is based on country to country and the data set from municipalities.

Judicial interpretation is to translate for legal systems in each country and it takes place either in a courtroom, administrative tribunals and where any legal proceeding is held. The market for this kind of interpretation is based on each country estimation.

Escort interpretation is where a tour guide translates one language to another, e.g. on a bus or boat.

Public sector interpretation has different kind of translation tasks for the legal department, medical or job center departments.

Sign language is where the interpreter will translate for people with hearing disabilities which require that they learn to communicate with their hands to illustrate signs which explain what people say to the deaf person.

Media is the last one and this like sign language where there is an interpreter inside the media which explain via hand communication what there is being said in the media. The most common media interpreter is the one who translates for a TV channel.

5.1.2.5 Modalities

There are three ways to make interpretation and these modalities can help in different ways compare to the need from the customer. The three modalities are:

1. On-site
2. Telephone
3. Video

On-site is a face-to-face interpretation and it is the most common use of the three modalities. It is widely used for public institutions to have near contact with clients or patients to communicate effectively.

Telephone interpretation is when the parties communicate over the telephone and it is service that helps the customer to have a more flexible use for interpretation because it is costly to transport interpreters around and it is a way to save money for the customer.

Video interpretation is visual contact over an electronic device like over the computer, smartphone or SmartPad and so on. It is good when there is need to combine the telephone interpretation for the flexible use of the interpretation and still get visual-cultural recognition from the client or patient. It is common more and more used for interpretation for sign-language so people with hearing disabilities can get communication help anytime and anywhere.

This was about all the different methods to use an interpreter and the next part will focus on the market segments and it is divided into two parts: the B2B market and B2G market.

B2B

Situations where Businesses for-profit and non-profit need an interpreter can be many, and this part will try to uncover which areas for a business could a need translation.

Some of these areas that a company could need interpreters could be for conferences, meetings, trials or tours for international guests at the company. These areas are typical for any company whatsoever the industry they operate in, and one Danish company which partly specialized in this is Adhoc-translations.dk. They support companies to get a specific interpreter for the specific task. Methods like simultaneous can be widely used for conferences but most companies will use consecutive interpretation for many international meetings or legal trials.

B2G

This part focus on Governmental institutions and Political Unions as customers and they can need interpreters for different reasons. The focus will be to understand who some of these customers exactly are and what kind of interpretation method they could use.

There are some customers inside a government because countries can let Central Governments control everything, but the real case is that Governments diversify the responsibility and control out to municipalities or regions. This means that the customer can be each municipality and some of these municipalities give the responsibility to people in different departments which are the customer that could respond to the team of this project.

Governmental municipalities and regions institutions:

- Hospitals
- Health centers
- Job centers
- Schools
- Legal clinics
- Asylum centers
- Police stations

Each of these institutions usually is partly under the municipality control, but it also depends how long employment empowerment is in each country and municipality. This has to be understood to find the decision-makers and who are just gatekeepers. The amount of money spent on interpreters can be located from each municipality, but upon the declaration it is around 305 million DKK is spent on interpretation in the justice department, asylums and health sector (dr.dk, 2018). In order to get a more precise picture of each institution then it is necessary to talk to people who handle the budgets. In a start-up project, the founders do not have endless time or resources which makes its necessary to pick the one who is interested to collaborate and make a prototype for testing of the idea (Aulet, 2013).

After we have identified the governmental institutions in the municipalities, then it is time to take on for the political unions. They are a large organization with many different actors both selected and not selected by people from the sudden country. One is EU or UN which needs many interpreters. As mentioned in earlier, the EU use €117 million annually on interpretation and UN

have over 100 interpreters, but they do not publicly inform how much they spent on interpretations each year.

There have been identified many entry options and it is now time to decide which market entry to pursue further on. The focus will still be on interpretation from now because the project is based on the initial idea that serves a need to make the interpretation for users. The customer can be identified either in B2B or B2G but based on the idea was to help public sector to handle the interpretation process then the focus on the B2G market. It is important that the team try to reach out to the different customers and try to understand their needs and convince them to use our idea. It is clear that the interpreters have been criticised for a while because they do not live up to the expectations of the customers in the health sector (Politikken, 2015). This a good confirmation that it is a problem that has to be addressed.

Since this is a start-up, then it is essential to try to act out to some of these potential buyers and see which one would be interesting to do tests with us. This will be based on section (qualitative research) in order to define a clear value proposition.

Now that we understand the different modes, types, and modalities of interpretation then it is time to get a clear view of the technology used in the translation market. The reason is that the language industry has a long history of development like any other industry and technology has changed the industry in different areas. Some of these changes have occurred because technology created new and better services in this industry. Therefore, it is important also to understand the possibilities for this project and the trends that could be important to follow to create a successful company.

The focus in the next part will not be the whole history of the translation market but more on the recent tools/technologies and trends which are changing the market right now. Let us start with the technology tools.

5.1.3 Technology tools in the translation market

The translation market is today huge and since the development of the personal computer and scalability of the commercial use of it then it plays an essential role in the productivity of the

industry. The computer with a lot of CAT has to help current translators to store, share and standardize all language sentence and translate it more efficiently than ever before. To be or stay competitive, companies have to know the different tools/technologies which can be a need-to-have.

The market for translation is a very competitive and the advancement in technology like in cloud services or voice technologies have created new markets for the industry, so the market has scaled into different areas in the industry which makes companies specialize in different market areas to stay competitive. Some of these market areas can be cloud service for translation services, app localization, post-editing tools, machine learning services for translation communities or quality assurance tools. The list is very long and goes into each market area require time and a good learning curve to understand them for practical work. Therefore, this section will focus on the technologies that have an effect on the industry for interpreters.

According to a language data network, TAUS, through their Translation Technology Landscape Report from 2016, there are these tools/technologies that can be important to understand in order to understand the interpretation industry and TAUS have this to conclude:

- Voice recognition technologies (Speech-to-Speech technology)
- Translation memory
- Translation management systems
- Quality assurance tools

5.1.3.1 Voice recognition technology

Voice recognition technologies have initially used for people with hearing disabilities to help recognize the voice, but since the translation industry has advanced, then it has been finding useful for interpretation. The industry is headed to make advancements inside the interpretation industry by making a robot that can do all the translation without human intervention and the first step to make that work is to use voice recognition technology. It is simply a computer that collects

the amount of data with words and sentences which then can be stored and later reused for future interpretation. The purpose is to make a cheaper interpretation for customers.

The next part of voice recognition is S2S. It is a telecommunication service that enables people to speak into a computer and it then answers back to them. It is based on research area from the science of linguistics, computer science and electrical engineering. Anyone can do that from his or her smartphones today and the reason that this technology is so important will be because it helps the translation industry to make a computer that can-do interpretation. However, the computer can only answer back if its amount of data with words and sentences can fit the given question or comment from a person. To measure the quality of the technology is to work with the accuracy and speed of the speech in order to do a valid translation and this is where the linguistic science and electrical engineering kicks in. Each time someone says a word or make a sentence, then it is vital that the people speak openly and with good speed and the electronic device can capture it. After, the computer science has to store and separate the data and make sure it can be reused again. This leads us to the next significant technology tool.

5.1.3.2 Translation memory

Translation memory is like a computer's inventory with all the data of words and sentences that can be reused in order to save money on human interpretation. The computer will detect a pattern and be able to answer back, but it would require a large amount of data in order to make that work. When a computer uses pattern recognition, then it is based out from machine learning which is statistical techniques to make a computer learn without being reprogrammed. The next part will take the interpretation process further to illustrate what it should do and where the problems can occur.

5.1.3.3 Translation management systems

Translation management systems are the programs that handle complex translation tasks. Based on the translation memory that a computer has can help to create machine interpreter by using the data pattern recognition to reply on the question or comment from the person which communicate on a different language. It is where machine learning can kick in and start to make

some impact because it takes the human out of the equation and it provides with a lower price for each minute use of interpretation. However, it is not so simple because when that requires to store much amount of data on the computer and then reuse it in a very efficient way to make a good translation product. There can be some problems that the computer can complete the tasks like the voice recognition did not get the whole sentences or correct word. It can be because of noise from the background, mumbling, slang or meaning behind words. Sometimes, people said one thing, but we mean something entirely different which also makes us some complex creatures. The electrical device like our smartphone could also be the problem, because if there is a problem with the speaker in our smartphone, then it would not capture the right sentence and store another word or sentence. All this means that we need to make people speak openly with a good speed plus our machine instruments like our smartphone should work. Otherwise, the data could store some new unnecessary words and it would make room for data in ConTolk service, and it means that it would cost more for storage space. The work for the computer science field for the translation industry is to work with quality assessment tools that can ensure the excellent quality of the translation from a computer. This is the next part of this section.

5.1.3.4 Quality assurance tools

Quality assurance tools is a software which helps to find some common spelling mistakes, grammar style mistakes, letter sizes, un-related text to the sentence and so on. As part of obtaining the words and sentences from the voice recognition then it can be necessary to detect if it is said right and has to be rewritten to make sense. If the computer should reply, then it needs to make sure that the question or comment can fit with some sentences which are stored on the server. A big question from many is about if machines can be able to understand the meaning behind our words. To understand this then it is necessary to understand how people communicate to see if it could be possible. Remember earlier in this section; it was mentioned that S2S could only work if the computer has enough data in its server to make a response back and this is what Google translate has done through their millions of users and the same thing with Apple's Siri. Humans are still better than a machine to interpret, but it is possible that inside 5-10 years that it may not be (Choudhury & McConnell, 2013). It is o that the language network community (TAUS) believe that the advancement of the technology could make human interpreters more obsolete.

However, the discussion is ongoing because it depends on which perspectives a person put their argument on and the next one has a totally different view. Doctoral fellow, Arjen Stolk, at the UC for neuroscience institute with his follow co-worker have examined how the brain interact when we are communicating. The argument is based on that it is tough for a computer to truly understand humans because the computer does not consider social context which is essential to human understanding (Stolk, Verhagen, & Toni, 2015). It has been illustrated from the national museum of science and innovation in Miraikan in Japan where Honda's robot Asimo could not distinguish between when someone raises their hands or their phone to take a picture (Sanders, 2016).

Based on our arguments, we have looked at the translation industry approach and from a neuroscience approach, but it can be necessary to look from very technology/futurist approach because what is the future for interpreters has to be answered. Through an interview with Ray Kurzweil from 2011, there was asked some fundamental question about machines and translation technology and how it could affect the industry. He believes that machines will reach human level regarding translation in 2029, but he also expresses that machine will not replace interpreters (Kelly, 2017). Technologies will change how we apply interpreters and he has based this argument on the founding father of computer science and artificial intelligence, Alan Turing. It is done by applying the Turing-test which help to determine if someone is talking to a human or a machine and it was based on the command of the language. This means that humans are controlled by the way they communicate with each other with the understanding of each word and the machine has to learn our language in all form of the way we communicate. It has to understand our words, our body language, our intuitive thinking, our judgment and so on. It is the reason that we have quality assurance tools to make sure that when we interpret as humans, then we need to make sure that all of this is can be ensured. Humans learn skills like body language, situation awareness, creativity and lots of other skills which have a learning curve for each one of them and this could make translation art of mastery to this profession.

It seems that translators and interpreters have machines around them on their way to become as smart as them, but their role in their job domain will still exist in another way. Translators and interpreters would go to more creative areas while speaking a second language like marketing,

journalism or writing (Languagereach, 2017). These are some of the technologies which make us understand more about the industry and where it is headed. The next part to understand the trends of the industry because it examines the technology trends which can be the reason to stay competitive or not.

5.1.4 Technology trends in the translation industry

The importance to stay competitive can be described as: *“An organization’s ability to learn and translate that learning into action rapidly is the ultimate competitive advantage”* - Jack Welch.

These technology trends have to be studied, chosen and then mastered to stay in the lead of the game between the competitors and this is what this part explains. It will focus on the TAUS’ Translation Technology Landscape Report from 2016 which is the latest version of this translation network community. These are the trends with a matched title from the report:

- To Cloud or Not to Cloud
- Datafication of Translation
- Neural MT and Deep learning
- Speech-to-Speech translation (S2ST)

5.1.4.1 To cloud or not to cloud

Cloud services are a huge technology trend around the world and one of the central revenues for large companies like Amazon or SAP today. To cloud or not to cloud is the title of this part because it asks if there is need to use cloud services or not and this is important to understand if this will be beneficial for our business at all. There will not be an answer to if it is good or bad for ConTolk, but it will focus on the factors a business decision-maker should be aware of before making the final decision. The decision is if the decision-maker should buy an on-premise or on-cloud solution. This does not just include translation industry but most large industries which are applying any form use of Big Data. The translation industry is an industry which has developed to be more data-driven than ever. First, what are the difference between on-premise and on-cloud software? The on-premise is where the company management keeps their servers and stores the data. It is beneficial for a company if they want to keep full control of the data because this data is

susceptible to the company's competitiveness. Another reason to have an on-premise solution is to consider if there have the competencies to do it or otherwise it is better to let someone else do it. There are also a lot of maintenance costs and deployment of the server which include a lot of testing, monitoring and installation of new hardware and it costs money.

The cloud solution is where the company outsource its data to an external vendor and let them handle all the hardware of the servers. It can be very beneficial for small companies which do not have the resources to store their servers. Of course, information is very valuable for companies today no matter the size of the organization, but a company stands in a situation to decide with the limited resource they have so it can be a cheaper option. External vendors benefit from the economies of scale and can make flexible server store solutions which the company have to pay for a sudden number of servers and maintain them.

5.1.4.2 Datafication of translation

The meaning of datafication is about a big amount of data that fabricates into value. It is part of Big Data and it is a trend which helps business to make decision-making more automatic (Curkier & Mayer-Schoenberger, 2013).

It is the same case for translation industry because the world will let the machines do more and more and for this industry then it is suddenly the case. The machine gets more and more data and through post-editing with manual adjustment, humans are producing smart, faster and better operating system for translation both for documents and interpreting between humans. When the machine receives the data then it performs most of the work and the last adjustments are made by humans. The machine translation will be much more efficient and the same for humans to handle jobs.

Another area where it helps the translation industry is to make better business decisions both on the strategic and operational level. For the translation bureau, it can help them to pick the right interpreter for the right conditions and understand the expectations of the customers.

One part of datafication is to make an excellent predictive tool. The reason is that it can help to understand the pattern of the interpreters when they are translating for other people and see what their strong side is and the less so strong side. It can be beneficial to understand these data to make better training sessions for employees for the translation company. It can help to make better operation decision for customers/users to pick the right translators for their need.

Since Big data has exploded in the translation industry then it is important to separate the valuable data from non-valuable data, and it is here where interdisciplinary collaboration becomes vital for datafication. Cooperation with people from communities in business, corpus linguistics, computational linguistics, neurology and translation will have to work together to understand the right values for customers. Data and the world is complicated so it needs to address complex problems with interdisciplinary collaboration to solve them to bring the best kind of service to the customer.

5.1.4.3 Neural MT and deep learning

NMT or artificial NN are practical, elegant and mathematical models for machine learning. It is inspired by the nervous system from humans which is smaller processing units (neurons) connected in a complex network that is capable of learning and adapting (Doronin, 2017). NMT learns to process the collection of translation sentence with existing language pairs. It analyzes the context in each text and understands each segment in the text which can help to determine each word of its meaning. It locates linguistic patterns that not even the human mind can find which make it more possible to generalize from a vast amount of data. The predecessor, SMT, has quite a difficult to generalize the meaning behind the words and it would only match words and sentence from a bilingual text (Doronin, 2017). NMT has, of course, some disadvantages because it cannot beat the accuracy of STM and STM cannot beat NTM on fluency according to Chris Wendt, Microsoft Researcher - machine translation's principal group program manager. It means that NMT still a long way to go and the technology still would need translators to edit text to ensure high-quality standard (Doronin, 2017).

Deep learning is a multilayer architecture that allows learning from the large amount of data in a neural network. It can be said very simple that neural network is the massive amount of neural data connected to learn and adapt and the in-depth learning help to structure these neural networks in a hierarchical representation to create more deeper learning from each one of them. The genius about deep learning that it would let the computer automatically learn from the data without manual engineering the features. To train a deep learning network would take some extensive computational resources and each word can be an informative feature and learn from such informative units would take an enormous amount of time and skills. Setting up the features to learn from the data and not pre-defined features as SMT was depended on are difficult tasks

researcher have struggled with for many years (Khalilov, 2016). According to linguist professor, Noam Chomsky, it could break the quality barrier that is making machine translation smarter, but deep learning with NN is still extended version of the statistical approach and it is not able to accurately generalize from the discrete word space based on the limited training dataset (Khalilov, 2016).

5.1.4.4 Speech-to-speech technology

This technology is where one person speaks to an electronic device, and a response from the electronic device comes back depending what the person says into the device. The technology is designed to duplicate the human voice and respond back.

TAUS has highlighted in their report from 2016 the current status, future directions, challenges and opportunities for this technology.

The current status is that we have speech technologies in our smartphones like Apple's Siri or Amazon's Alexa. It can be used for all electronic devices that are connected to the internet and it is thanks to the IoT and it is used mostly inside people's common rooms like the living room or kitchens (Kleinberg, 2018).

The future of this technology is that there are endless possibilities to use it, because wherever the human voice is used, when a product can be made with this technology. According to the Edison Research, today, 7 % of the average household in the US holds a product with the speech technology and it is projected that 75% the households in the US will own a Speech technology product around the end of 2020 (Boyd, 2018).

The translation industry from the various supplier has started to use this technology, but it does not come without challenges. As mentioned in section (technology tools in the translation market), the technology needs some excellent audio device which can recognize the speaker's voice, an excellent linguistic word vocabulary in the database and computer science program to handle all the caption of words into the database. It needs to make humans speak fluently and accurately to capture the words and sentences, the audio speaker has to handle all possible disturbing sounds and the computer needs to be able to handle the data to create soundproof voice text back (Hegde, 2017).

The technology trends are many for the translation industry and it can affect the interpreting market for various areas which makes it both opportunities or threats to this project. There is no doubt that the competencies needed to capture these trends are difficult because it would require a strong team of software engineers with a focus on datafication, mechanical engineers for audio solutions. Also, there is a need for linguistic people to have a clear sense of the language used with these technologies and trends. Even though these are some of the technologies and trends to be aware of and it is essential to use them to stay competitive. This leads us to about the competition and them ones that will be a competitor to this idea.

5.1.5 Target audience

The research so far has help to understand the market for translation and interpretation and the technologies that can influence it and now it is time to select ConTolk target audience. The initial idea is to help doctors, nurses and other health professionals to find the right interpreter for the given interpretation task. This means that ConTolk should focus on the market for interpretation and for the B2G market. The different customers are regions and municipalities and they have different department the team can target for further research. These department can be hospitals, job centers, health centers, asylum centers, police stations and so on.

The team has found the entry market and it is time to understand the competition, because there are other players on the market, but it is important to see if they support the same need as ConTolk.

5.1.6 Competition analysis

This part is quite important because the project idea will serve some need for the customer and users. The customer is B2G and mentioned in section 5.1.2.5. However, there will also be others that will try to serve that need otherwise it is a monopoly and it is not good for the service level for the end-user or customer. Based on what we have learned earlier from the last couple of section parts then we know there are many ways to do a specialized service in the language industry. Therefore, it is essential to separate the needs in the language industry and what is the need we are serving.

5.1.6.1 Target group competition

To help discover these needs, we will use the target model (Skydeskivemodellen), because it will uncover the identity of the different competitors. Figure 5.1.1 is listed right under.

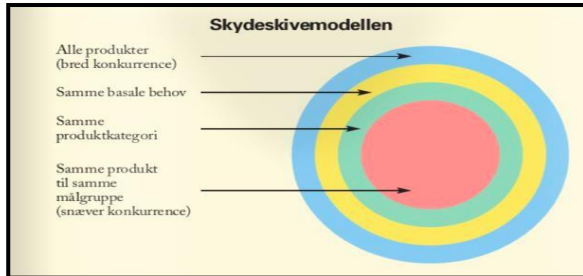


Figure 5.1.1

This model helps to clarify the different competitors on different levels. The model has four elements:

- Wide competition: This is where ConTolk will be in competition with everyone which do some service for their clients and this is blue color in the circle in figure xxx.
- Same basic needs: The primary need will be to do translation both for interpretation and documents. This will be the yellow color in the circle in figure xxx.
- Same product category: This will be all who do interpretation services for the different target groups. This is the green color in the circle in figure xxx.
- Same product to the same target group: This is the competitors that serve the same needs, use the price range (possibly) and have same target group. It is important to understand that the same target group is the B2G market in Denmark.

The full competition will be anyone who does a service to help people. This can be consultant services which have an expertise in immediate area which someone is willing to pay for.

The same basic needs competitors can be Google Translation, OneSky, Zoo Digital Group, EasyTranslate and anyone which do the translation. They maybe do both translations for documents and for interpretation in some way. It is important to understand there is a need for translation in this way, but there are some more specific competitors who serve the same need as ConTolk and this is in the same product category.

The same product category will be competitors like TolkDanmark or EasyTranslate. EasyTranslate is mentioned again because they do both interpretation and document translation. The difference is that they have a different target group which is mostly businesses and fewer municipalities.

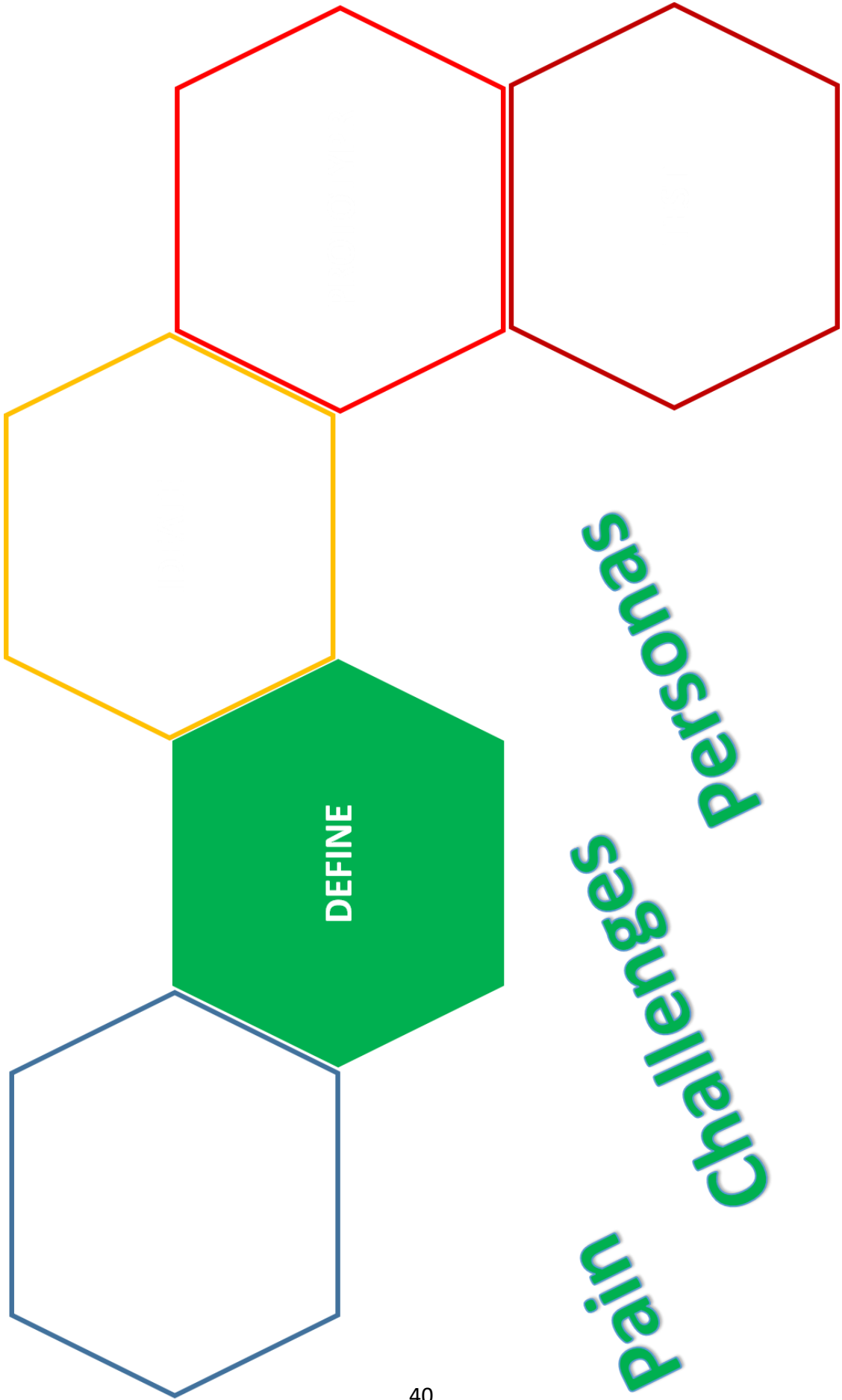
EasyTranslation operates for both for B2B and B2G.

The same product to the same target group is like Tolkify here in Denmark or EasyTranslate because they support the same needs, with around same price range and same target customers. It will also be smaller translation bureaus like Aalborg Tolk or Dansk Tolke & Mentor because they are same support customers. Smaller bureaus also take minimum on hour interpretation for their service (Tolkeservice, 2018). This can be frustrated if the customer or user use the service for 20 min.

It is the need for interpretation for the target group, B2G, in Denmark which ConTolk will be serving as the entry market. The question is if it is the hospitals, asylum centers, police departments or a fourth option and the team has to try to find someone which is interested to make a collaboration to test the initial idea. The entry market can only be found by contacting them and see if they are willing to respond.

5.1.7 Reflection

There have been a lot of information to consider and these will always be the case for a start-up project since it will help the team to understand better how to be successful. The purpose of this quantitative data collection section was to provide enough information about the industry, the customers, the stakeholders, the technologies and the competitors to make a right emphasis in the design thinking model. This has helped to understand that it is crucial to search for specific values that the customer appreciate to make a good final product which the customer is willing to buy in the end.



Pain
Challenges
Personas

5.2 Learning loop

Based on all the information through the secondary research about market, customers, stakeholders, competitors and technology in this industry, then it is time to make some assumptions based on all this information. The purpose is to find the need in the market even though it is clear that interpretation is a need based on market research. However, it is to understand some of the values that the customer will like to have into the product. Therefore, it is essential to make some assumptions that can be tested with the customer and other stakeholders to verify the need for a given solution.

The different stakeholder could have some different interests than the customer because it can be more beneficial for them. It depends how the market, the technology or the legal system is set up and the motivation for the stakeholder to answer the way they do. There could be some technology tools that make it more beneficial to use the phone instead of on-site interpretation or some law which makes the stakeholder prefer one interpretation method from another. These are some of these things that have to be answered.

Some of the assumptions are:

1. Reaching a human interpreter is not too easy, because it needs some preparations such as searching, and booking are some hassles.
2. The customer in the B2G sector will get an interpreter either on-site, phone call or video call.
3. The service is expensive and the customer cares about the price.
4. The quality of the interpreter is a fundamental value.

5.3 Primary research

There has been done a lot of quantitative research in order to make a good emphasis on the design thinking process and it still has to continue because it is important to have inputs from the different stakeholders. As mentioned in the introduction to this chapter, the qualitative data have different kind of stakeholders with different interest which have to be investigated to make the solution most suitable for all parties. This will also help to learn more about the interpretation in

general since the stakeholders provide a different point of views. It will help to localize a pattern of the problems from them.

The different stakeholders are:

- Customers: Municipalities (hospitals, legal clinics, job centers, schools or health centers), regions, asylum centers, police and military.
- Users: Doctors, police officers, courtrooms, health workers, teachers, nurses, psychologists and job center employees, who meet non-Danish speaker clients from time to time.
- Interpreters: People who speak more than one language, live in Denmark and work as an interpreter.
- Patients/clients: Foreigners who do not speak Danish.

The team will do interviews with all four stakeholders to emphasize and understand the problem more accurately. It will help to define the problem statement which can help to understand the different challenges in the interpretation industry.

5.3.1 Customer

Interview 1:

Objective: To understand the process of interpretation from the customer perspective.

The meeting was placed at the Asylum center Brovst/Tranum at Vesterkystvej 78 Brovst. The questions for the meeting is located in Appendix 2.

This customer is an asylum center in North Jutland and the health coordinator, Susanne Loegsted, which has the responsibility for three asylum centers in Brovst/Tranum, Vraa and Dronninglund, has been accepted to let the team come and hear about the challenges they have with their current interpretation service.

The team and Susanne had a discussion about what the current As-Is model look like for her and it basically where they book an interpreter, they call them over the phone and the translation starts. When the translation over the phone is over, then Susanne receive an invoice each month and pay

the translation bureau. The price is around 328 to 600 DKK with VAT per conversation. She said that she had experienced a lot of problems with the translation bureaus regarding the invoice because sometimes the bureau first sends the invoice after six months which is very annoying for her because it makes it hard to make a budget for each month. Another problem for her is that they can receive different interpreters and she has no idea how good this interpreter is. She would like if she could see the performance rate and background of the interpreter because this makes it more transparent and it would make her more comfortable.

Sometimes, Susanne and her nurses experience that the interpreters are not ready to interpret over the phone, because they are doing something else and they have to pay them no matter what. The interpreters could drive or babysit their kids while they interpret and this is something that they would like to know if this is a habit from the interpreter. They pay for minimum an hour service and this is also annoying because they usually use the interpreter between 15 to 40 minutes.

The last thing that also is an issue for Susanne and her nurses is that the interpreter give their opinion while the interpret which is very bad because it can give misinformation and the doctor can make a wrong decision.

The two team members asked Susanne if it was possible to get an interview with a refugee which speak Arabic since one the team members speak the language. However, Susanne preferred that we wait for next time and therefore, the team decided to wait until they have made a solution which can be tested at the asylum center. After the first meeting with Susanne ended, the team asks if they could come back to present the project idea after they were done with their primary research and she accepted it.

Challenges/pain: Receive invoices after six months, lack of overview (transparency), challenging to make a budget, interpreters do something else while they interpret, they pay for minimum an hour which is annoying when they use them less than that and interpreters' opinions is terrible for the information flow.

Reflection

The meeting with Susanne at the asylum center in Brovst makes quite clear that there was a need for an interpretation service which could handle all these problems they have with the current service. This requires that the team use the knowledge to generate ideas that could solve all these problems that the asylum center experience. It will become important to develop a prototype and make a budget that can provide an overview of the cost structure to solve this problem in a given product. This will be taken into account in the prototype development section.

5.3.2 Users

Interview 2:

Objective: To learn the interpretation process from the user perspective.

The interview is held with Dr. Louise Klitkov which works at Dr. Esben Sevelsted's clinic in Aalborg. The question for Dr. Klitkov can be located in Appendix 2.

Dr. Klitkov said that it is not a doctor's task to reserve an interpreter. The nurses have the responsibility to find and book an interpreter. The interpretation will mostly be over the phone because it is more flexible and it fits with the doctor-patient session which is 15 minutes, but it can occur that the interpreter will be used on-site. It is based on subjective judgment from the doctor and the nurse if they feel it is necessary to have a physical interpretation.

The interpreter is only needed for working hours because it is not so often we have patient outside of office time, but she thinks that it takes some time to reach out to the interpreter, because the interpreter is not available that day. There have been times where the interpreters have been late or not showed up which is why we use the phone more. This is waste of money and resources for her and if it were her private clinic where she should pay for her, then she would not. However, Dr. Klitkov continues to use the phone but sometimes when she calls the interpreter, no one answers, and she still has to pay for the time because it has been agreed with the translation bureau. She accepts this because it is the public sector which pays, and it is not her pocket.

After the questions were answered, the interviewed continue because Dr. Klitkov said some other interesting information. She mentioned that it would be very helpful for her if she could know

something about the interpreter before the interpretation with the patient. The reason is that she does not know anything about the interpreter and it would be nice to get an overview of their history.

Pain: Interpreters or patient will sometimes not show up, and it is a waste of time and money. She does not know the interpreter.

Interview 3

Objective: The value proposition from a doctor and understand the relationship between the price and quality of the interpreters.

There has been an interview with Dr. Morten Schliemann at a party which one of the team members attended to. The questions for the interview is in appendix 2.

The questions were based on how Dr. Schliemann define some good quality characteristics from an interpreter. He works with a lot of patients who are or have been refugees, and since he cannot communicate with them, then he also expects that the interpreter has the right communication skills to handle that task. The most important thing for him is that the interpreter can translate the questions and answers back to him in order to give him the right information to do his job. He also likes that the interpreter has some medical understanding because it helps the communication between him and the interpreter to be much more effective.

The interpreter's job for him is just to translate and explain what is going on and if the patient is anxious, then the interpreter should be able to calm down the patient. It is so important that the interpreter can describe the diagnosis the patient has and the more accurate, the better to provide the right medicine or guidance. This has been problems with this sometimes because the interpreter starts a conversation with the patient which shut Dr. Schliemann out of the conversation and it makes it more difficult to get a good overview of the diagnosis and the trustworthiness from the interpreters.

Another problem for Dr. Schliemann is all the paperwork because there is much documentation to do when he has refugees as patients. There is of course also documentation work for Danish

patients but the foreigner patients require more documentation, because EU laws require them document more. The reason is that the non-danish may not have the yellow card which is essential for identification of residences in Denmark.

Pain: Lack of quality and lot of paperwork

Reflection:

After interviewing the two doctors, it has been clear that the service level needs some upgrade. The different problems showed a need for a flexible solution, and it has to improve the quality. Based on the secondary research also confirm that there is a problem with the quality of interpreters. The pattern seems clear that this is a problem and the value seem to be there for the customer and users. The challenge with the quality has to be addressed, and the question is of course how the team can do that. This will be discussed further in the ideation section. It is interesting that the quality challenge shows a pattern and the company who solves this wins the orders, but the interpreters should also have an opinion on why this is the case. This will be the next interviews.

5.3.3 Interpreters

Interview 4:

Objective: To learn about the work of an interpreter

Mette Droscher is a woman who has been an interpreter for a few years through DRC. She works as a volunteer to interpret for new coming foreigners. She speaks German, English and Arabic (she specifies that she can speak 70 % of the Arabic language). She has a master's degree in general health from the occupational therapist education and learns to speak Arabic through language education. Most of her interpretation has been used for the municipality of Aalborg to help refugees to get the translation and she has done it for free for them.

She explains that there is a large need for interpreters for the different translation/interpretation bureaus because there is still a lot of people who cannot communicate on the Danish language or the English language. She spent around 20-30 hours a week on interpreting.

There was asked if she prefers to have interpretation meetings physically, over the phone or video calls. She sees physical interpretation as the best way for her and it fits well for hospitals or health clinics. Phone and video interpretation can be better suited for the job centers.

The dialog between an interpreter and the patient can be tricky because it depends on how the relationships between these two are. The better relationship, the more comfortable the interpretation will get. Mette likes to prepare with the patient before the meeting with the jobcentre guy or the doctor. If the patient has traumas, then it can be difficult to communicate over the phone or video, but if not then it can work with the phone or video call. From Mette's experience, there are problems with interpreters which do not interpret exactly what has been said from the patient and it is enormous problems because it gives false information about the patient. After the interpretation, Mette always wants to summaries what has been said to make sure the doctor got the important information.

According to Mette, what distinguishes a good interpreter from a bad one is the one which just translates and not rephrases the sentences from the patients. There has to be ensured that the interpreter interprets and nothing else.

Challenges/pains: Phone and video interpretation are less effective if the patient has traumas, the interpreter can provide false information, and there has to be ensured that the interpreter interpret.

Interview 5

Objective: To learn about the different interpretation methods

This interview is with Sara Selsmark which is 33-year-old women who work as a freelance interpreter for TolkJDanmark and EasyTranslate and speaks Farsi. The work as an interpreter, she has experienced different kinds of interpretation methods. It can be physical meetings, phone interpretation and video interpretation. She prefers typically physical interpretation because it is easier to understand the patient and help them to get comfortable to interpret. However, physical meetings can have an emotional effect and it can both a good and bad thing. It is good when it helps to create a relation and a trust bond, but it can also be wrong that the interpreter can get

their feelings involved. Sometimes, when the feelings get involved can lead to a rephrasing of the interpretation. This problem with feelings will not occur over video/phone interpretation and it is cheap. However, it can be difficult to hear what the patient is saying because the audio speaker has a terrible connection, or the patient could be afraid to speak up.

Challenges/pains: Physical meetings can have an adverse emotional effect on the interpreter and it can sometimes be difficult to hear the patient by phone or video.

Interview 6

Objective: What is the payment for an interpreter and learn the quality traits of interpreters.

Ali Hassan has been working with interpretation over 20 years both in Denmark and in Sweden. He speaks eight languages fluently like Latin, Spanish, Portuguese, Danish, Swedish, Arabic, French and German. Today, he works for PlusBolig as a consultant for the different residences. He still makes interpretation as part of his current job. Before his current job, Ali worked as a freelance interpreter for different municipalities like Aalborg and he was paid between 180 DKK to 320 DKK plus transport which could be 120 DKK per hour of transportation. The payment was depended on the job and interpretation method.

As the interview came to the question about what distinguishes a good interpreter from a bad one, Ali explained that a good interpreter's qualities are that they are good listeners, are punctual, can understand both cultures they interpret for and do not come with their opinions. The last quality can be difficult for some interpreters because Ali has experienced that it is possible to be so emotionally effected by a patient or client who receives wrong interpretation information. Another reason that interpreters mislead because they want to make quick money and they are not interested in understanding the patient or the client. It does not mean that the interpreter is a wrong person but can be pressured economically by misleading information. Interpreters may not work as much, and they could be interesting to make some easy money. This is a severe problem of the interpretation industry which Ali do not how to solve.

Challenge: Make sure that the interpreter does not mislead the information.

Interview 7

Objective: Learn from the owner of an interpretation/translation company and how the company handles interpretation tasks.

Ezatollah Azadi owns an interpretation company and has been interpreted for seven years. It is interesting to get another view from the owner of an interpretation company to see if he prefers sudden interpretation method and how does he handle his interpreters after a difficult interpretation. Ezatollah also prefers physical interpretation since it is easier to understand the patient/client signals. It is, of course, more expensive because of the transportation costs, but it can be necessary to have the best interpretation outcome. It can be if the patient is handicapped then it is necessary to have the interpretation as a physical meeting. Phone and video are good for simple interpretations and if the interpreter has helped a sudden patient once then it is not necessary to have a physical meeting but do it over the phone or video.

We learned from previous interviews that interpreters can be severely emotionally affected by patients which have traumas from some part of their life. Ezatollah has seen this problem and what he has done is to create a hotline for his interpreters, so they can call him any time to talk about this experience.

An interesting discussion from this interview was about how the municipalities do not understand the importance of the interpretation and they go after the price more than the quality. This makes the municipality to pick the wrong interpreter which could either mislead the information from the interpretation or not show up and still get paid. He believes that the municipality should be more educated about the importance of this subject. According to Ezatollah, it is not weird that there have been criticisms about wrong interpreters for many years from the municipality. The reason is that they focus so much on getting faster and cheaper service that they forget about the quality of the patients or clients and how it can affect their lives. Like providing the wrong medicine or send the patient home when there is need to stay at the hospital.

Challenge: Municipality could pick the wrong interpreter because of the low price

Interview 8

Objective: What are problems for interpreters working in translation bureaus.

So far, the interviews with interpreters have been focusing on what a good interpreter should be and how it can benefit the customer and the users. However, it is important also to get the perspective for how the service can benefit the interpreters.

To get a better understanding of this, there has been made an interview with a professional interpreter called Silvia Lariani. The question for her can be located in Appendix 6. She is part of an organization called Alpha-Lingua where some professional interpreters are together to search for translation jobs around Europe. She specialty is Italian. She works with five different translation bureaus but also have a personal network of her customers as part of Alpha-Lingua. For her to find a job as an Italian interpreter can sometimes be difficult. It would be easy to find a job for the Arabic language since the demand is much higher. When she is applying for a job at the translation bureaus, then she will always expect to get a good salary from them, because she is educated in the linguistic field and this can sometimes be why she also decline jobs. A lot of translation bureaus have set a small price with municipalities and regions that it will affect the quality of the interpretation which has been seen in the media the last couple of years.

In order to ensure, the good quality interpretation then the payment for the interpreter need to be acceptable. She referred to salaries that you can expect from justice department in Denmark. For a stat-authorized translator it would be 573,90 DKK per hour and if transport is needed, then it is 286,95 DKK per hour extra. If it is an interpreter with just training in social and medicine interpretation on a business school, then it would be 328 DKK per hour, and if transport is needed, then it is 164 DKK per hour extra.

Some of the challenges she has experienced by working with translation bureaus are that they do not give the interpreter a preparation time for the job which can be very frustrated because has has no idea how to tackle the task. For example, there is a considerable difference between interpretation task which involves interpreting for a criminal and another on for the sick patient at the hospital. Good background material is essential to do a good job. Another problem is that lot

of the translation bureaus are missing the ethics of interpretation because it requires training in a sudden field like medicine or law. Therefore, the bureau should only take jobs which they know can perform a useful service otherwise they should decline the task. The interpreter should always be neutral which means that every time the patient says something the interpreter should inform the user or customer.

Challenges: Less/no preparation time and unskilled interpreters are missing interpretation ethics

Interview 9

Objective: Learn about the expectations from the municipalities about interpreters.

This interview is with Michael Abildgaard which is an interpreter but also a board member of translation Union in Denmark. His interpretation of specialty is to convert from Italian to Danish and he also been chosen as part of the Italian Embassy as an authorized interpreter. The conversation with Michael leads to an interesting discussion about the problems in the interpretation industry in Denmark. The question for her can be located in Appendix 6.

One interesting fact was that Michael informed that 90 % of interpreters in Denmark is unskilled labor because there is no formed education for interpretation anymore. He points out that there is a significant need for more competent interpreters to translate relevant information from doctor's treatments, so the patient can understand what is wrong with them. If this the communication between the doctor and the patient is misunderstood, then it can have big consequences and the same thing is with the legal system with the right punishment for international criminals.

Another problem is that interpreter does not get preparation time for their tasks which is essential for someone like Michael to make a good language service. Municipalities or regions do not recognize their importance of this, and this is also a problem for translation bureaus also. The reason is that if they do not get any the information about the task then how they can perform as the customer desire.

The last problem Michael pointed out was that the unskilled interpreter does not know about interpretation ethics. The reason that this is a problem is that unskilled interpreters do not know their limits regarding interpretation and if they do not know that, then the interpretation can be poorly performed. To understand this better, interpreters will need to be good to communicate in one language but more important also the terminology in the profession can be equally important. Michael speaks Italian and his interpretation area is focused on the legal system, so he knows the different subject terminologies and with the preparation time then this makes he perform better as his job.

Since the translation bureaus get no information about the interpretation tasks then the whole information flow in the value chain will perform incorrectly and lead to a poor interpretation.

Challenges: Unskilled interpreters (90 %), unskilled interpreters do not know their limits and translation bureaus do not get information from their customers – no preparation time.

Reflection

After six interviews, it became clear that the different interpreters have some common patterns like they all prefer physical interpretation over the phone or video interpretation. They also see a common problem that interpreters can be emotionally effected from some interpretations with patients and they know that distinguish a good interpreter from a bad one. They all agree that a good interpreter has good listening skills, are punctual, can understand both cultures they interpret for and do not come with their opinions.

These different challenges should be handled so the customer can make sure that there is no misleading of information from the interpreter to user/customer. There has to be looked at how to overcome these challenges to ensure a good quality of each interpretation. A solution to stop the interpreter to mislead the information could be to record the conversation and get a second opinion on the translation to make sure that the quality lives up to the user/customer expectations. The low price can be difficult but as Ezatulloh mentioned “the municipality does not understand the importance of the interpretation...” and pick the low price, so it is our job to make sure that they pick the right interpreter and the right price. The municipalities will sometimes not

inform about the interpretation task and this can be an issue for the interpretation quality since the interpreter needs to know which person they have to interpret for to handle the job professionally. So, the team has to consider this as challenge needs to be solved by providing them a mean to communicate perfectly with each other.

5.3.4 Patients

Objective: Learning about interpretation from a third-party experience (i.e., foreigner/patient).

To understand the foreigners perspective (i.e., the patients) towards interpreting service, the team exploited their network of foreigners to meet some of them and get a better picture from their experience. In general, they do not trust the interpreters where they think that some interpreters give mostly a wrong meaning for their speech by adding their personal opinions instead of translating the exact speech. They explained more about their problems with interpreters and sometimes when they have a meeting with their kids together with a nurse or family consultant. They can sit for a while and they wait for the interpreter who does not show up, so they are being forced to cancel the meeting and postpone it.

Abo Mokhtar is a Syrian guy; he talked about his experience at the hospital when his wife was getting the treatment, where she was suffering from gynecological disease, and through her treatment process she preferred to have a female interpreter and in these cases the hospital contact with translation bureaus and request a woman for interpreting. Once the bureaus dispatched a man interpreter instead, so his wife was not comfortable and therefore the hospital canceled the treatment session and reserved a new appointment for her.

Another real example came from Germany. Through the investigating, the team found a relevant video on WDR TV and radio Facebook page (WDR Facebook page, n.d.) which demonstrating the problems and challenges that comfort the integration board. The post had a great reaction, most people, mostly from immigrants, mentioned their bad experience in the comments, which was has a terrible impact on their lives because it influences the board decision regarding judging on the asylum case.

Challenges: Their speech/opinions need to be respected and privacy to be considered.

Reflection

As a result of an investigation in regard of the third party (e.g., immigrant), it was apparent that foreigners who do not speak the local language face some hassles with interpreters and they have some concerns about relevant personal issues when the interpreter translate the conversation. They sometimes feel that they do not translate the exact words without any addition or change and this is a problem regarding protecting their privacy and the comfort to talk to an interpreter with the same gender. These concerns have to be taken into account in order to make all stakeholders satisfied at the end.

5.4 Sub-conclusion

Now, the different interviews are done and the pains and challenges are many for ConTolk to take into account. The research about the interpretation market has been done and the competitors have been located then it is time to define a problem statement to conclude from all the pre-analysis to make a guideline for ideas that should lead to prototype that can be tested.

The assumptions from the learning loop have to be concluded to see if they have been answered and if they are true or not.

Assumption number one makes the statement that it is not easy to reach out to an interpreter because there are some preparation hassles with the booking and searching functions. It is true that users have to go through lot of searching and booking to find the interpreter they need.

Assumption number two says that the B2G market will get interpretation service either on-site, over phone or over video and they use all these different options. The most common is on-site.

Assumption number three says that the interpretation service is expensive and the customer care about the price. However, it is not expensive because the customer actually pays for a small price, but they pick less good interpreters. The reason is that most interpreters in Denmark is unskilled which makes the interpretation service from many bureaus quite low. The customer care about the price and this is true, but they have chosen the less qualified interpreters as the primary reason.

Assumption number four says that the quality of the interpreter is a fundamental value. The customer is looking for acceptable quality for an affordable price, so this assumption is not true since the price is also a desired value for them.

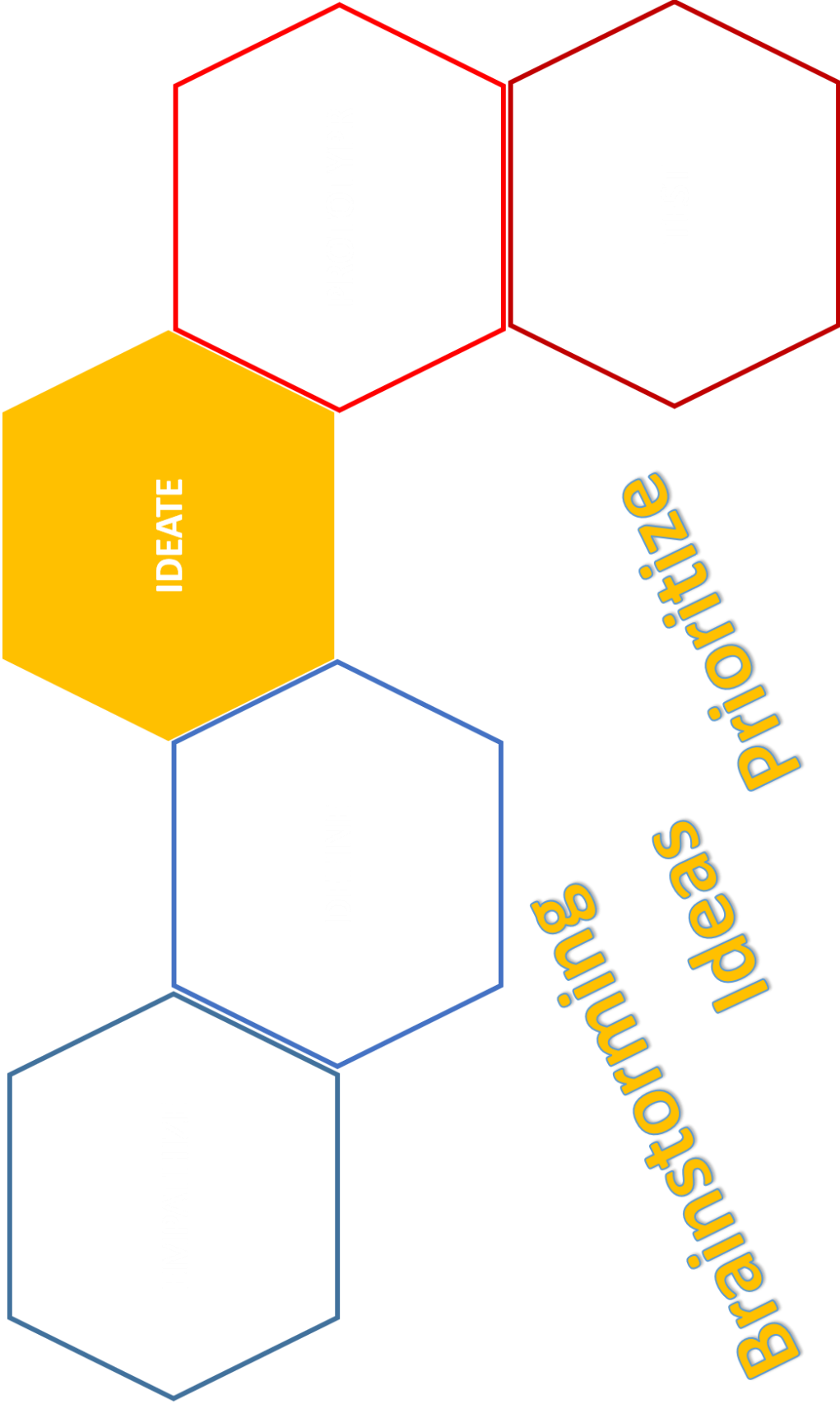
6. Define problem

The market discovery with primary and secondary research has helped to get a good understanding of the problem for interpretation. There were some assumptions from the secondary research that the primary research had to answer, and new challenges/problem occur under the investigation in the primary research. The values for the different stakeholders have been identified, and it is time to make a clear problem statement.

Problem statement: “The public-sector departments in Denmark has experienced many challenges with interpreters and they are looking for a more satisfied solution”

The current service has problems with the quality because the users do not know anything about the interpreter they get. The missing visibility of the performance rate from the interpreter is a definite value for the users and the customer. It is also vital that the user can see which interpreter they select because they do not want one which they have a terrible experience with. Also, there is a need for more flexibility in regard use of the service and price since there can be situations where either the interpreter or the user is not ready which requires to postpone the meeting, and regarding the stream market prices are mostly paid per an hour. The customer should only pay for what the using of service and this is what is mostly missing. Therefore, the need to use the service on their terms will have significant value for them.

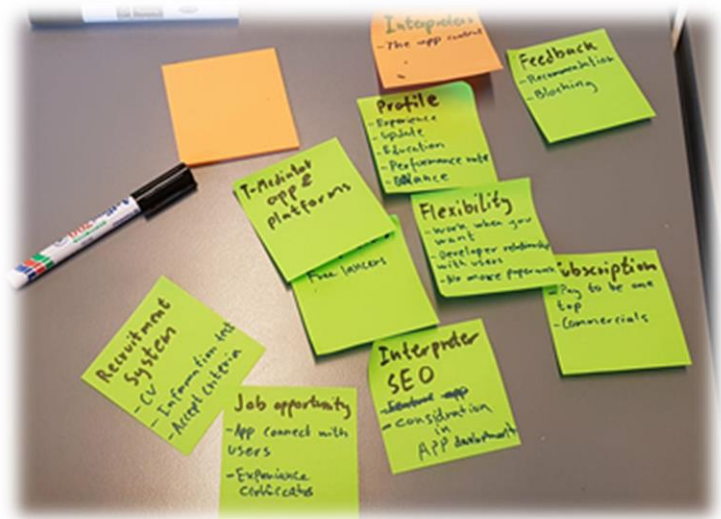
The problem statement has been established and it is now time as part of the design thinking process to take the information and put into the ideation phase.



7. Ideation

The next chapter is about creating a solution via many different ideas that the team has come up with. As part of design thinking, there has been emphasized all about the market of interpretation, the competition, the customers, the different stakeholders and so on. It has created much knowledge for the team members to generate many ideas to make a successful product. The problem statement section has shown that there are different needs associated with each group of stakeholders. However, the team knows that it is not easy to serve all those needs one time, but instead, it would be useful to identify the possible solutions considering the team capabilities and then select the best one that has fewer cons and more pros. The first step undertaken was to get a clearer view, so it was essential to identify the specific needs and desires of each group in order to figure out the values that could be delivered through a proposed solution. As seen in table 7.1, the list pains and gains for each group of stakeholders. Pains refer to problems that face them while they are doing specific job tasks, in turns, gains are about what they wish to have to make their functions be done better, more comfortable, more efficient, and etc.

The brainstorming has driven to innovate a software solution that may help to establish a remote connection between the user in one side and the interpreter in another side, automating the whole process and overcome the current troubles. There were some options here It could be a desktop application, website and mobile app and the team had to identify the



suitable one and identify its specifications. However, to find the desired solution, it should emphasize on the promising values such flexibility, which has led to choose mobile app because of the ease of use and the accessibility by everyone especially the freelance interpreters. Also, the user can use it anywhere and do not have to go to a sudden place to use the devise. On the other

hand, the desktop software mostly is located in a static place, that means the meeting should be held in the area where the computer device is, like the office room. So, it is not flexible comparing with a mobile device especially in case of using the service outside the workplace building, it will be validated later (see Marner interview in validation section).

Customers	List of Pains	List Gains
<p><u>Users:</u> Doctors Nurses Employees</p>	<ol style="list-style-type: none"> 1. Numerous steps have to be done to complete the interpretation task. 2. The interpreters' profile is mostly hidden. 3. The user has no role in selecting the interpreter or even giving feedback. 4. The service is not adaptive to changing in reserved time. 5. The quality of service is weak regarding interpreter's communication skills and the interpretation provided. 	<ol style="list-style-type: none"> 1. Automated process hence no paperwork. 2. The ability to select the desired interpreter, with visible information of his profile and experience. 3. Flexibility regarding the paying, reserving an appointment time updates. 4. The users need accepted quality of the translation. 5. Satisfied service—the interpreters have excellent communications skills, respect their job regarding focusing on the conversation, no own opinions added and try to be accurate while interpreting.

<p><u>Customer:</u> Municipalities Medical Sector Asylums</p>	<ol style="list-style-type: none"> 1. The customer pays additional amount because of meetings time modification. 2. The customers do not ensure the precision of translation although they pay money. 	<ol style="list-style-type: none"> 1. Reduce the cost of interpretation. 2. Satisfied service.
<p><u>Freelance interpreters</u></p>	<ol style="list-style-type: none"> 1. Translation bureaus do not get information from their customers – no preparation time. 2. They get a job up on calling from bureaus regardless their time whether they are free or busy. 	<ol style="list-style-type: none"> 1. Be prepared for their tasks. 2. Gain money through doing task based on their time (not the bureau's request). 3. Make a professional profile which can attract customer to use them.
<p><u>Third party/Foreigner/Patient</u></p>	<ol style="list-style-type: none"> 1. They need to convey the exact meaning of their speech without any annoying or Interference by the interpreter. 2. Their privacy needs to be protected and their opinions want to be respect. 	<ol style="list-style-type: none"> 1. A good interpretation service that considers their privacy and makes them satisfied.

Table 7.1

7.1 The cure:

The solution for these hassles is a smartphone app which provides the interpretation service via connecting the user with an interpreter. The user can locate interpreters who are available in the online list. The app serves mainly two main tasks:

1. The user can see the list of online interpreters and call them.
2. The freelance interpreter can make own professional profile and be able to change his state from ONLINE to OFFLINE and vice versa. ONLINE means that he is ready to receive a call, while OFFLINE means he is busy and no longer available.

When the call is being ended, the user pays for the number of minutes they used on the conversation.

The solution would strive to relief the mentioned pains and generate the gains as much as possible. There are three fundamental values that the team has concluded:

1. The quality of service.
2. Flexibility (use of the service and payment).
3. Transparency (See the quality of the interpreter).

7.1.1 Quality of service

It means providing an accepted translation as well as the user should be satisfied. The “empathize phase” of design thinking process has shown most of the interpreters are unskilled. However, they are not skilled enough to do the task of interpretation as it should be regarding translating the precise speech and take care of communicating with the user. So, quality provided by ConTalk service would be delivered to the user/customer considering two essential things:

1. Improve the interpretation quality by recruiting qualified interpreters and planning to evolve them continually (e.g., tests and incentives).
2. Improve the customer care by educating the interpreters how to interpret in a good manner and high communication skills.

7.1.2 The flexibility

Easy to use and pay per usage (PAY AS YOU GO). The user can make a voice or video call with just a few clicks to get connected with a remote interpreter and when the call is ended he gets the e-invoice to be paid. Thus, the process becomes automated and no more paperwork. In turn, the interpreter can get a job upon his time; it just needs him to use the app and make the status ONLINE to start receiving a call and gaining money per the call time, the period of interpretation.

7.1.3 Transparency

The app would allow interpreters to make their professional profiles including their names, gender, experiences, the field of working (e.g., hospitals) and performance rate. Hence all this information would be visible to users who, based on them, can select the favorited to interpret to use, in addition to he has the option to evaluate the service of each interpreter by rating (give a number of stars) and adding feedback.

7.2 Disruption theory (digital)

Now, we have learned a lot from secondary and primary research and understood some of the values for a potential solution. The three fundamental values show that ConTolk need to consider doing a service that shows the quality of the interpreters and it has to be transparent. The flexibility for the use of the service and payment (Pay as you go) is also a significant value, and this is interesting to discuss and if this could disrupt the industry of interpretation.

In the theory chapter, we learned about disruption theory and DDI which shall help us to determine if this idea will in any way be disruptive. The first thing is to see if ConTolk lives up to Clayton Christensen's criteria that define a disruptive company. To recap the criteria, a start-up must:

1. Serve a low-end of the market or serve non-consuming customers in the same market.
2. It cannot be a breakthrough innovation.
3. It has the purpose to make the product or service more affordable/better for customers over time.

To analysis the situation for ConTolk then it is essential to look at the circumstances that the company face right now, where the company has three asylum centers in the potential customer portfolio which is part of low-end of the market since the most significant customers are municipalities and justice department here in Denmark. This means that ConTolk has fulfilled the first criteria.

The next criteria are about if there is a breakthrough technology involved in ConTolk and the short answer is no. The reason is that ConTolk uses same technologies as Airbnb or GoMore which can be cloud storage, JavaScript framework, cloud hosting service and so on. These are not new technologies, so ConTolk has fulfilled criteria number two.

The last criterion is a process that has to evolve by making the product better in quality over time. Only time can tell that, but it good to see what ConTolk is doing right now in order to track the path the company is heading ahead to. The company wants the customer to pay per minute for the service (Pay as you go) and this is also what ConTolk try to differentiate them from the competitors. The thing is that some few providers give the service for interpretation per minute instead of one-hour service, but it also depends on the interpretation method. If it is on-site interpretation, then it will still be per hour or maybe per 30 minutes service, so it is not very new. The phone and video service can be the area where the interpretation per minute will work and make it more affordable. Again, few companies offer this in Denmark and one of them is EasyTranslate with their app EasyTalq, but it is only for sudden customers with a large volume of interpretation each week. The thing is that the market for translation is based on the low-cost strategy because companies in the translation industry are very determined to offer a little price to the customers. So, the affordability for customers has always been there, and that is not the general problem. The problem is the quality of the service, and it has lacked for a while so ConTolk has to improve the quality for every user and this is what a good rating system and evaluating system of interpreters can solve.

The answer to criteria number three is yes because ConTolk can use current, not breakthrough technologies to make the service better with good affordable features and functions in the app to perform a better interpretation service than the competitors. The company fulfill Clayton Christensen's criteria and can be characterized as a potential disruptive company.

The next part will look at the DDI theory since ConTolk will be characterized as an intermedia and the company is part of the digitalization trends that is going on in the world. It will help to find where the company has disrupted the industry inside the digitalized trends.

7.2.1 Digital disruption intermediary

Now, we can say that ConTolk can become a disruptive company and the reason that we say that it can become is that we have to wait and see over time if ConTolk outperforms establish players by overtaking their customers in the future. In general, there is a potential disruptive company right here but it will be more interesting to see which functions that can be characterized to understand in which area ConTolk disruptive the market. It is where the theory about DDI comes in where it helps to see in which way the cure influences the market on different levels.

The first thing as part of the theory is to look at the functions that ConTolk has used as part of digital intermediary technology trends. This will help to determine in which way ConTolk will disrupt the current industry it operates in.

ConTolk has a rank and recommending function because the company has made a rating system for the users to see the quality level of each interpreter and what other users have recommended. The second function will be a cataloging function because ConTolk provides a comprehensive and structured catalog of service of interpretation which is sourced from a sudden supplier of interpreters. The next function will be reordering/filtering because the company does allow customers to interact and reorder a list of interpretation services to find a suitable offering. Another function for ConTolk will be intent casting function because the company provides functionality that allows users to spell out their needs for sourcing service from suppliers on a platform. The last function will be the match-making function because ConTolk will be an intermediary service which helps the customer to match the right interpreter to their preferred price and quality. This also makes the users more responsible for their choice of service since users like doctors want good quality service for all their patients, but they are still bounded by a budget from the hospital. This means that they will also have an economic aspect in mind when they are making a decision and ConTolk's service will help them to evaluate that decision better because they can see what they are buying. The users have the options to check out the interpreter's

profile and see the rating and comments from other users and ConTolk will help to match the preferred quality of the interpretation service for the user.

The next part of DDI is to catalog the functions and see which functions are primary or secondary and why.

The primary purpose for ConTolk is to help customers to find the most suitable interpreter, so we are talking about to spell out the customer's needs by sourcing it out to a platform that helps to match with the right service provider. It means that the primary functions will be:

- Instant casting
- Matching actors

The secondary functions for ConTolk can be characterized that the company makes recommendations of sudden interpreters by cataloging them in a platform that helps the customer to find the most suitable interpreter that can reorder again. This means that the secondary functions will be:

- Cataloging
- Reordering
- Ranking/recommendations

In figure 7.2.1, the primary and secondary functions can be located right under.

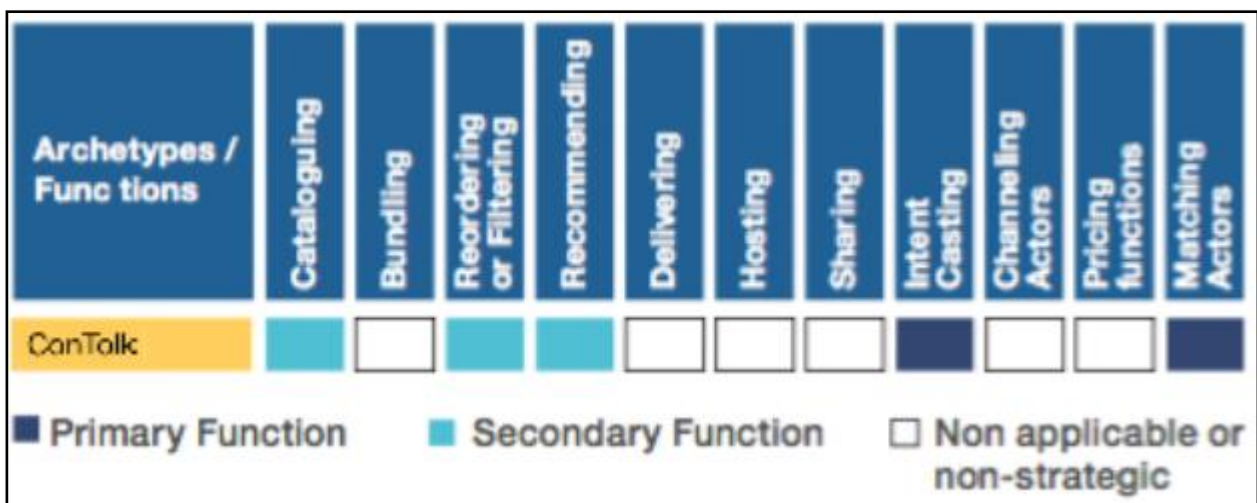


Figure 7.2.1

Based on this, ConTolk will be characterized as the matcher archetype, because the company makes a list of interpretation services from different suppliers that can perform the quality of the service from the customers' expectations. The company service fits very well to this industry which tries to organize efficient match-making but has not been able to do so and based on the primary research then it seems very right. The value chain plays a vital role for the function to match the right interpreter because if the customer does not inform well about the task they have to complete, then it is difficult for the translation intermediary to find the right interpreter for the job. The preparation time for the interpreter will also play a significant role because they have to understand how to handle the sudden patient or client and provide the right information to the user. All these ideas will affect the level of the user's work practice, because it changes the practice how the user book an interpreter. Typically, a doctor uses the nurse to book an interpreter, but now the doctor will do it directly. It also affects the industry level, because ConTolk is cutting out some support functions like the nurse to book an interpreter and this can save time in the whole value chain.

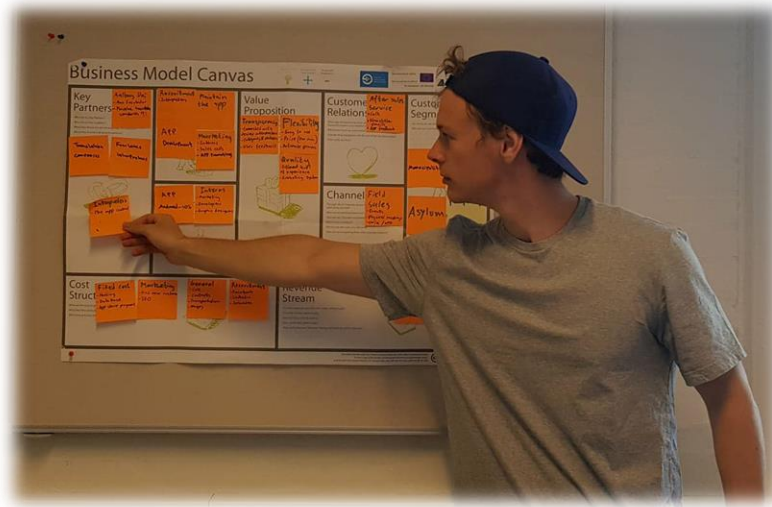
These ideas have created a potential solution, and it is also time to test these ideas to a real customer, so ConTolk will go in the next step as part of the design thinking model to make a prototype and validate it with potential customers.

Based on the research, the value proposition and customer segment have been identified precisely. The next step is to map the activities, resources, cost, and revenue that are essential to understanding the business and before launch the project, it is the business model which represents the logic of earning money.

7.3 Business model

Business model consists of two main parts; the customer section refers to the attributes related to a customer like value proposition, target market channel, customer relationship and revenue; and operational section contains the activities to be done, needed resources, support partners and the cost whether start-up or operational. To design ConTolk's BM, the team must find answers to these questions: who is our customer? What the values we provide him? How are we going to create and deliver these values? How much that cost? How could the project generate revenues? It realized the impact of innovating BM on the project success and the translation market and

therefore, the team took into account that the BM options for this project must be evaluated, so the team understands how to differentiate from the competitors.



To do this, the questions above should be answered, and the core attributes of BM should be determined(Pivot):

1. Value proposition
2. Market segment
3. Value chain
4. Cost and profit
5. Value network
6. Competitive strategy

A very useful tool to use here is a business model canvas, figure 7.3.1, which helps to give a view of the business logic by holding the assumptions of eight building blocks of BM: key partners, cost structure, revenue stream, activities, resources, customer relationships, channels, value propositions and customer segment. These assumptions are converted over the time to knowledge through learning from the market (Arteaga & Hyland, 2014). The team outlined two BM options, one is about selling online service, and the other one is a multi-sided pattern. The building block of cost, key activities, channel, key resources and customer relationship are mostly similar in two BM options:

Cost structure

All fixed and variable expenses need to be paid to run the project and stay alive. Mainly the cost goes development and maintenance the app and then in the second place the general administrative fees, marketing and accounting fees.

Key resources

It refers to the resources are essential to have to supply the other building blocks. For ConTolk, the smartphone app that provides the customer segments with promising values and needs by primarily facilitating the communicating between the users of two groups (e.g., doctor and interpreter). The connection could be a voice call or video call, which allow the user (e.g., the doctor) to get interpretation service provided by the freelance interpreter, on the other side.

Key activities

All activities that the team must do it to deliver the value proposition and support other building blocks. The primary activities for ConTolk are app development and maintenance; promoting the app and marketing activities.

The channel

It describes the means of communication and reaching out to customer segments to deliver value. The team planned to sell the product directly to businesses, as well as through smartphone App and later on the website. Regarding advertising, awareness will be raised by presenting the product at fairs (for example municipality fairs) and universities events.

Customer relationship

This part is vital because ConTolk has to make an attractive platform to ensure that the users will interact with interpreters. Meetings, focus-groups or new beta versions need to be involved in making sure that the brand equity stays influential to the users. Also, the app allows users to send feedbacks based on their experiments with ConTolk.

Now, the team will discuss what kind of business model they should choose and there will be looked at two kinds of BMs: The Selling service and Multi-sided BM. The building blocks are not similar because of the impact on the customer segment, epicentre, epicentre, regarding ConTalk case so that next section would demonstrate the difference between Business model options.

First option - Online business for selling service

The value proposition here is the interpretation service which is selling online via mobile application and the customer segment is the public sectors departments like hospitals and asylums. The business model could build starting from one building block as the epicenter that affects other block or even multiple blocks. In this option case, figure 7.3.1, the epicenter is the customer segment that affects apparently on key partner blocks and key activities. The reason is that, to provide the customer this service then we need suppliers like translation bureaus that can support ConTalk with its demand for interpreters as well as the freelance interpreters that serve ConTalk customers with interpretations through the app. Hence, the translation bureaus and freelance interpreter considered as key partners.

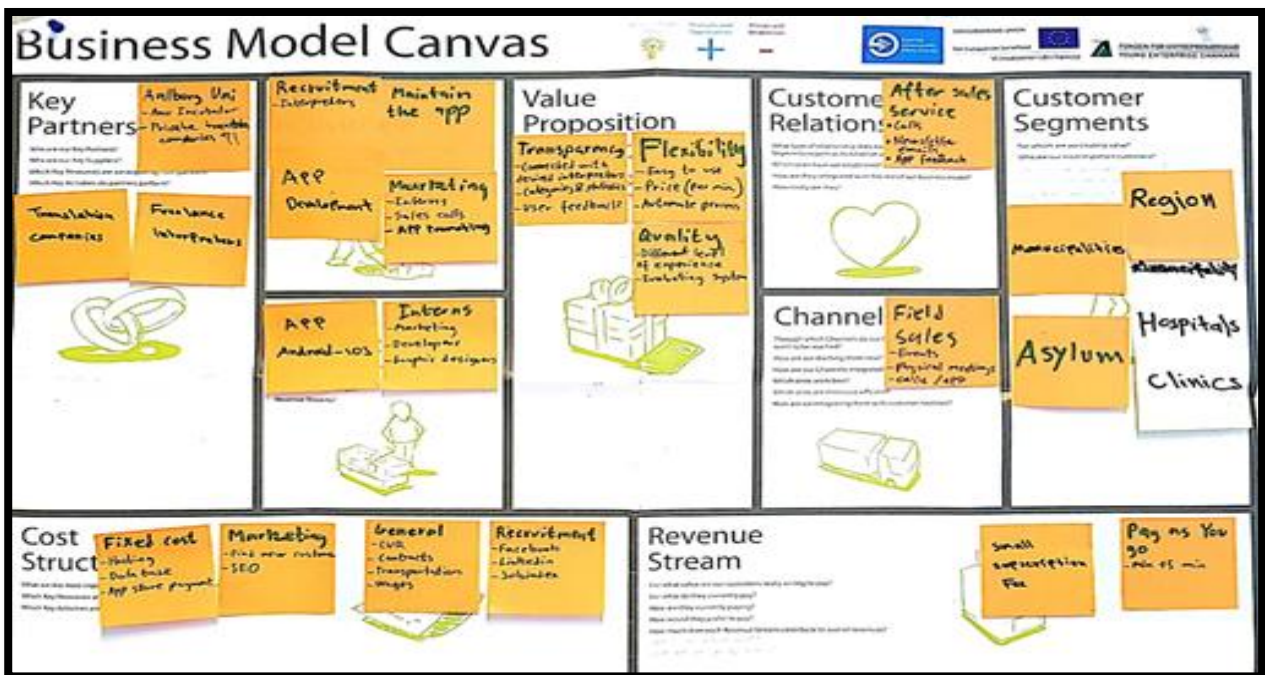


Figure 7.3.1

Second Option-Multi-sided platform:

This option is about adopting a multi-sided pattern of business model, which considers the volume

of users on multiple sides. It creates value by facilitating interaction between the different user groups, where the presence of one group is representing a value for another group. In this business model pattern, each distinct value proposition would be associated with customer segment. Figure 7.3.2 shows the multi-sided BM. Consequently, The ConTolk BM attributes would be:

Customer segments

1. Public sector department controlled by regions (hospital, clinics and midwife center) or municipality (job Centre and integration department); and asylums. All these prior departments need a human interpretation service in their meetings with foreigners speaks a different language (e.g., Kurdish, Persian and so on).
2. Freelance interpreters: a group of people who speak fluently at least two languages their native language and the local one of the country where they live (e.g., In case of Denmark, they speak Danish).

Value proposition

As mentioned before, each customer segment will be provided with a distinct value. Hence, the values of flexibility, quality and transparency are for first customer segment of public sector departments. Freelance interpreters represent the second customer segment, and they are linked with values of the flexible job, less paperwork and making a professional profile.

Revenue

The revenue model is enriched by diverting the sources of income. Therefore, therefore, the team strived to innovate multiple models. The customers/public sector will pay monthly the deserved fees of interpretation depending on the established call duration which is 10 DDK per a minute, and he has to pay for a minimum equivalent to 15 minutes of call duration=150 DDK. Also, the customer gets one user account for free and pay 100 DKK for each additional user as a monthly subscription. (future revenue). In turn, the interpreter pays the amount of money to be visible at the top of online list simulating the SEO of google search engine. Otherwise, he can use the app for free.

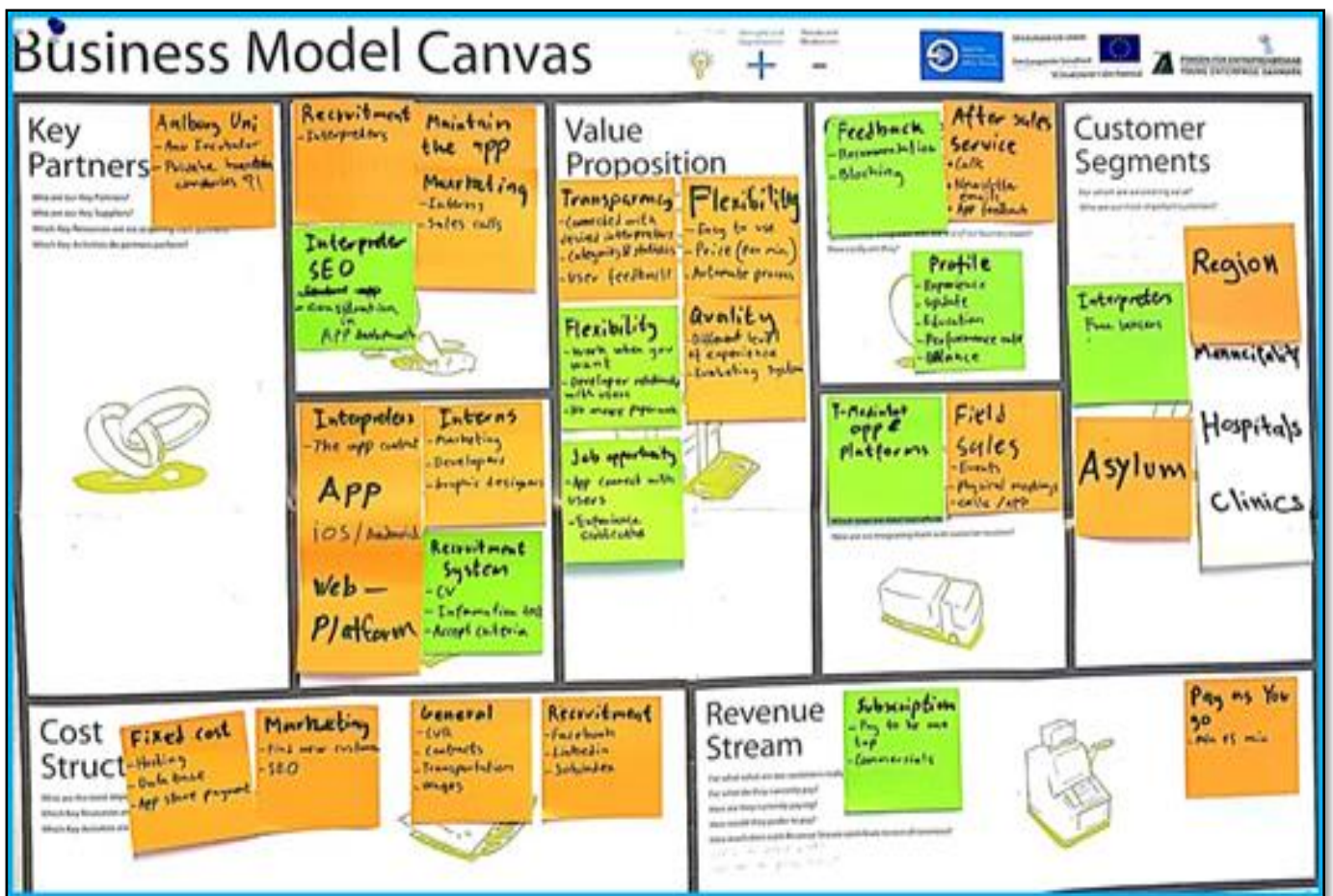


Figure 7.3.2

Evaluating BM options:

The team has outlined some criteria for evaluating and selecting one BM option which could be the best suitable one for ConTalk startup. Where evaluation conducted based on identifying the cons and pros in each BM and that by considering three critical factors for evaluating the selling service BM and the multi-sided BM:

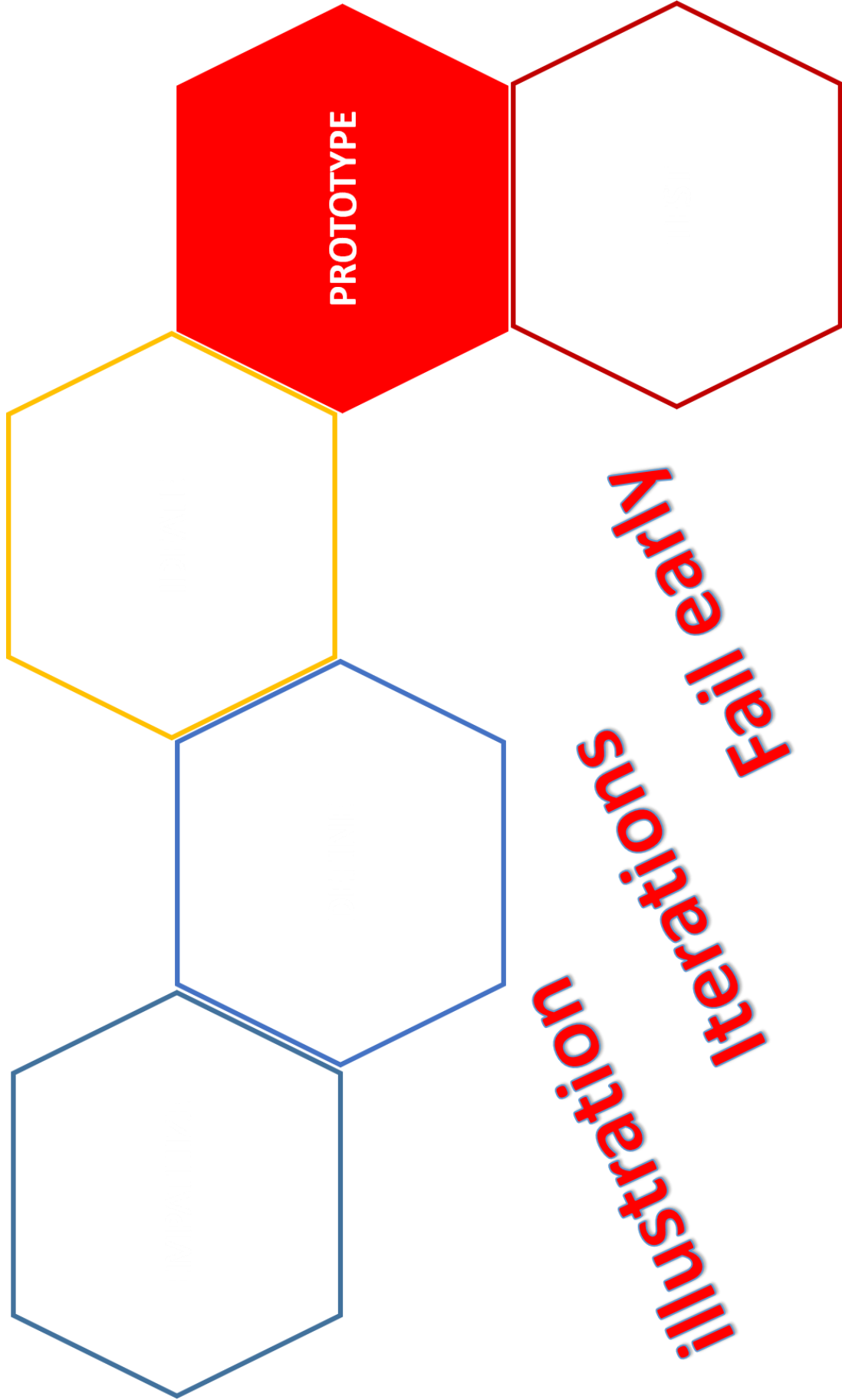
1. Fit to the team competencies.
2. The effort compared with profit.
3. Less cost and more revenue.

Selling service BM is about serving the customers with the desired interpretation, which require to

deal with interpreters as employees or partners and also make a collaboration with translation bureau for supplying ConTolk with its demand. The task constitutes a kind of challenge to the two team's members because it needs to huge effort for recruiting and evaluating people, human resource management and deep consideration (contract). Also, the team needs to build a very good relationship with translation companies and bureaus in order to collaborate with them to fill the gap of lacking interpreters serving ConTolk app, which is not easy to be a customer to the competitors. Otherwise the project falls down.

Multisided BM considers the interprets along with users as customers, which means less effort in regard HR management because each interpreter can manage and organize his profile and also there no need to collaborate with translation bureaus since the app has the content of many interpreter profiles. Regarding revenue and cost, it is more profitable since it needs less cost (e.g., contracts fees and other administration fees) and more revenue since the interpreter pays for SEO visibility. This pattern of BM is easier for ConTolk team to adopt regarding their competence, where it is primarily just required to develop, maintain and promote the app.

The team decided finally to go with multi-sided BM, for the reason of meeting the criteria the team committed, where it is appropriate regarding team capabilities, acceptable effort and more profitable.



8. Validation

In this chapter, the reader will understand the validation of the concept which refers to the whole process performed to present the PoC and the PoB, including the methods have been used for that purpose. The importance of this phase is to ensure that the solution provided through the concept is going to solve the current problem for the potential customer, so the product represents a real value the customer needs. So, we need to convert the project's uncertainties into certainties and test the assumptions until they become known for the team. Therefore, the project went through several learning loops of experiments considering the four uncertainty categories TMRO (Arteaga & Hyland, 2014).

- Technical—Understanding technology drivers, value, and economic feasibility.
- Market—Learning about market drivers, value creation, and business viability.
- Resource—Accessing money and project-specific people and capabilities internally and externally.
- Organization—Gaining and maintaining organizational legitimacy for projects aligned with business units yet on a longer time horizon, or projects where there is not a clear organizational home.

The findings acquired by applying the primary and secondary research had been done, which provided a good knowledge regarding the market and industry. However, there were still the remaining uncertainties for ConTolk and they have been structured into three groups. The most critical uncertainties have been color in brown as seen in Table 8.1.1.

Technical	Market	Resource
1. The proposal solution delivers the promising value to users and customers (flexibility, transparency and quality service)	1. Market entry: the public-sector departments is the target market. So, the team does not know how to entre B2G markets? Moreover, who are the decision-makers? The buying centers?	1. The competencies of the ConTolk team can pursue the project alone or otherwise there is a need to support.
	2. Regulations and laws: If there are given contracts that may prevent new market entry. 3. Governmental regulation influences the project.	2. What kind of support? 3. What are the competencies missed? 4. Regarding the funding needed to launch the project, is the project could be funded by self-funding or need to find an external source of financing?

Table 8.1.1

As shown in table 8.1.1 where the most critical uncertainties identified, so it is time to convert them into certainty. Therefore, the next section will handle these uncertainties in a disciplined way, depending on two dimensions Latency and Criticality (Arteaga & Hyland, 2014).

8.1 Dimensions of Uncertainty

To address the uncertainties that mentioned in the previous section, it is important first to sort them into important and less important challenges. The two dimensions were considered: Latency and Criticality. Latency is about uncertainties we can anticipate and those we cannot. In ConTolk project case, the most latent is the issue relative to resources because the team is not sure

whether they can run the project alone or they need to engage number qualified people in IT, marketing and business management. On the other hand, other uncertainties like a kind of software solution are not too hard to be anticipated, it could be identified throughout the learning loops within the project process and understanding the user experience since the team is skilled in this field and the same for other uncertainties. Figure 8.1.2 illustrates the structure of the model.

		Criticality	
		Low	High
Latency	High	Cell 2: Unanticipated but Routine	Cell 4: Unanticipated Show Stopper
	Low	Cell 1: Anticipated and Routine	Cell 3: Anticipated Show Stopper

Figure 8.1.1

Criticality is about what is a routine and what is a showstopper. Here the showstoppers have to be identified whether the anticipated or unanticipated because it represents an indicator to project success. So, the ConTolk team priority went to addressing the all showstoppers, and especially converting the unanticipated ones to anticipated.

In the table 8.1.1, the cells in brown are the unanticipated showstoppers. Firstly, the solution provided, it is because the value proposition is the core of the project so if it means nothing to the customer, the later would not buy using the service via ConTolk app and hence the idea is killed, and the team could project could not pursue the project. Secondly, the regulations and laws, where none of the team members are familiar with the Danish data law, and this could shut down the project. While, the other uncertainties represent the routine in the project.

8.2 Validation Process

However, the team realized that a target customer is an artificial person (i.e., Asylum). Hence this means the communication would be with numerous end-users of different personas, which is not too easy. Therefore, the team decided to use methods and tools that are appropriate to that issue like interviews, MVP and prototype, which are very interactive facilitated directly communicating with the customer, instead of staying at the office and using the traditional method, such surveys and questionnaires.

8.2.1 MVP:

It is a tactic used in customer discovery phase of Lean start-up methodology, to understand early, spend less money and less effort spent, whatever the target audience accept the product or not, and if they are willing to pay money for it? So, it helps to measures to which extent the customer wants to buy the interpretation service or not. This tool has used in the third-semester report and it makes sense to mention the result of implementation in this report.

MVP was implemented through three many activities, figure 8.2.1:

1. Build, which means build the representation of the product that can make sense to the customer and pay him to react.
2. Measure the customer's reaction and feedback regarding the product.
3. Learn from the experiment, get a clear view and make the core assumption validated.

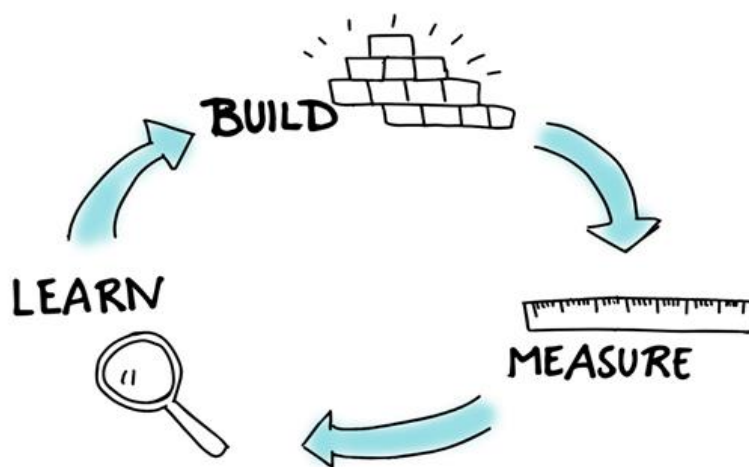


Figure 8.2.1

ConTalk's MVP was built as website page, contains the explanation of the service provided, app including features and video sketching in addition to a registration area for viewer inputs like email address and mobile number for getting free app trial. Afterward, a list of email addresses of target audience like doctors, clinics, hospitals, asylum centers, municipality's departments and relevant people was prepared, and the webpage link and the attached video were sent out to them. The goal was to measure their reaction toward the proposal service.

As a result, the hosting website showed a statistic of ConTalk webpage, which is a positive indicator of the service attractiveness. There were 192 visits and 240 page views in the period between 8th October 2017 to 8th November 2017; figure 8.2.2 shows the statistics.

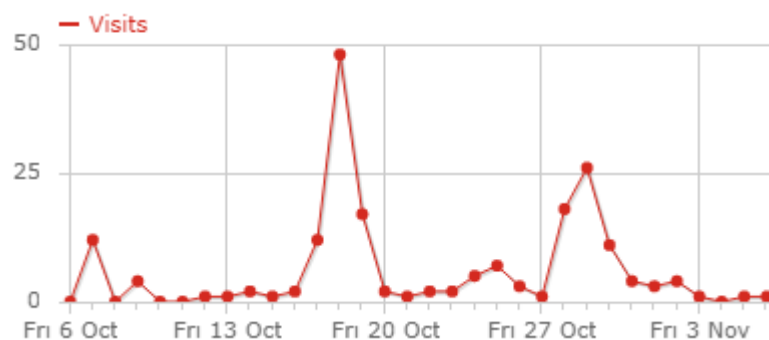


Figure 8.2.2

Moreover, the team got some phone calls and received emails from interested people who showed the desired to test the app. The MVP test result demonstrates kind of interest by people targeted, where some appointments were arranged to hold with them and thus the most critical assumption of serviceability for sale have become validated, that what the team got learned.

8.2.2 Meeting with municipality officer

Objective: to validate the idea in municipality market segment.

This interview was held with “Mr. Mariner av Lofti,” a family consultant at Aalborg municipality (Appendix interview questions). Mariner has been working for the municipality for more than ten years, and he met many families came from different countries throughout his work. He explained that there is no translation unit in his department and usually, they order an interpreter from

private companies when he has a meeting with the foreign family. He added. Also, the municipality pays millions DKK as expenses for translation service every year, and currently, there is a tendency to pressing this amount significantly. The team presented MVP 's page and video that gave him the understanding of the idea and illustrated the mechanism of ConTolk solution. Marner loved the product and described how this could be a fantastic solution for him in case the interpreter does not come(for some reasons) or even if he has a short meeting with a given family, he can use the app to get a call instantly with an interpreter.

8.2.3 Interview

Objective: Validate the idea in the asylum market segment.

The team returned and showed Susanne the product they made for their interpretation service and asked for her opinion on it.

Susanne was willing to make a commitment to testing our idea because she was impressed with the vision for this product and it does not make her work more difficult. The commitment agreement was signed by Susanne and it can be located in Appendix 2.

8.2.4 Prototyping & Product Development

This chapter will emphasize on the stages of app development, starting with prototyping process until the end up with Beta version. It will show the logic that gives the foundation for decision making through the development process. The app is the major part of the ConTolk service by which the user can get connected instantly with interpreters. So there is a need to understand what the functions and features that users and stakeholders need to be handled, through this app, regarding the interpretation issue in their workplaces in terms of both business and technical perspectives.

Prototyping process:

The importance of prototype is to shortage the distance between the entrepreneur and stakeholder in order to evaluate the idea and get feedback. So, the purpose is to explore the

experience of how different stakeholder would perceive the product regarding feelings, hearing and what the product would be affected their workplace, the experience prototyping.

The process went through iterations of development until the ending up with first app release, implementing prototyping process model. The emphasis was on developing an app with the appropriate user interface, that much customer needs and desires and get him satisfied or even delighted through providing more than the expectations, (Kotler & Armstrong, 2016). Figure 8.2.3 shows how the process is taking place.

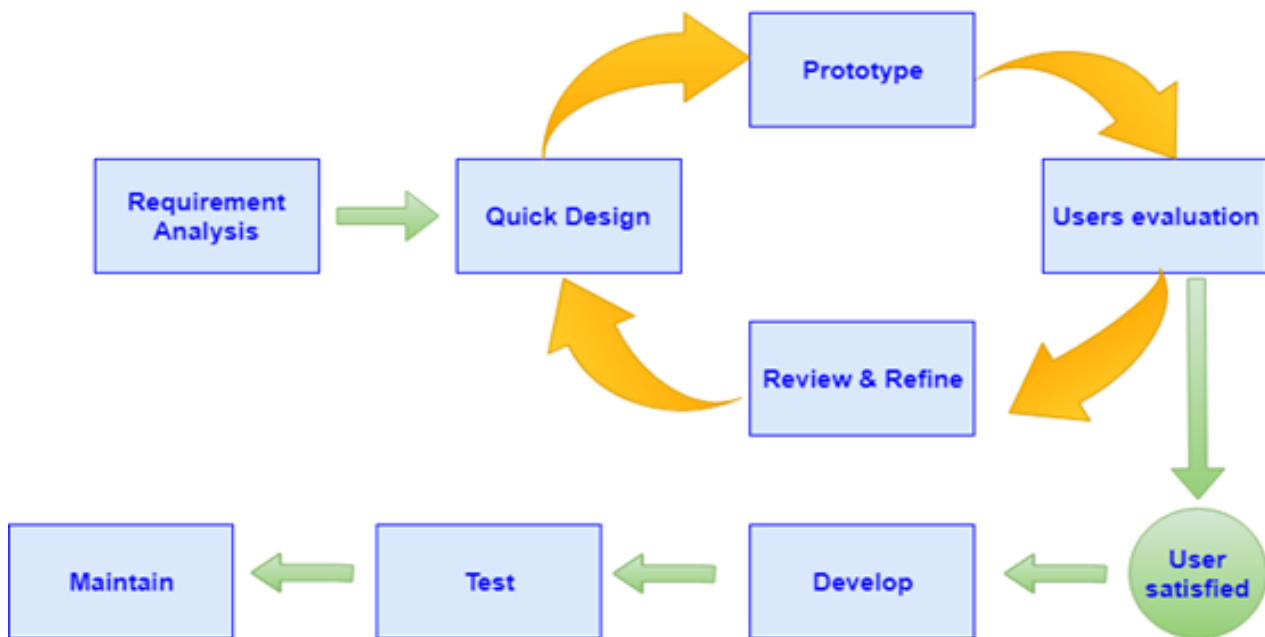


Figure 8.2.3

Requirement analysis:

This critical stage by which the requirements and specifications that need to be considered in app development are gathered and analyzed. Therefore, the team planned to communicate with users, ask them and get a clear understanding of what exactly they need along with keeping the emphasis on value proposition as a vision to the product design.

First iteration-illustrations: The several meetings were conducted with doctors and nurses, the end users, at their workplace such asylums and clinics. It used illustrations on paper to demonstrate the scenario of the idea, low-fidelity prototype, and the conception of how the app would work in order to get feedback, figure 8.2.4.

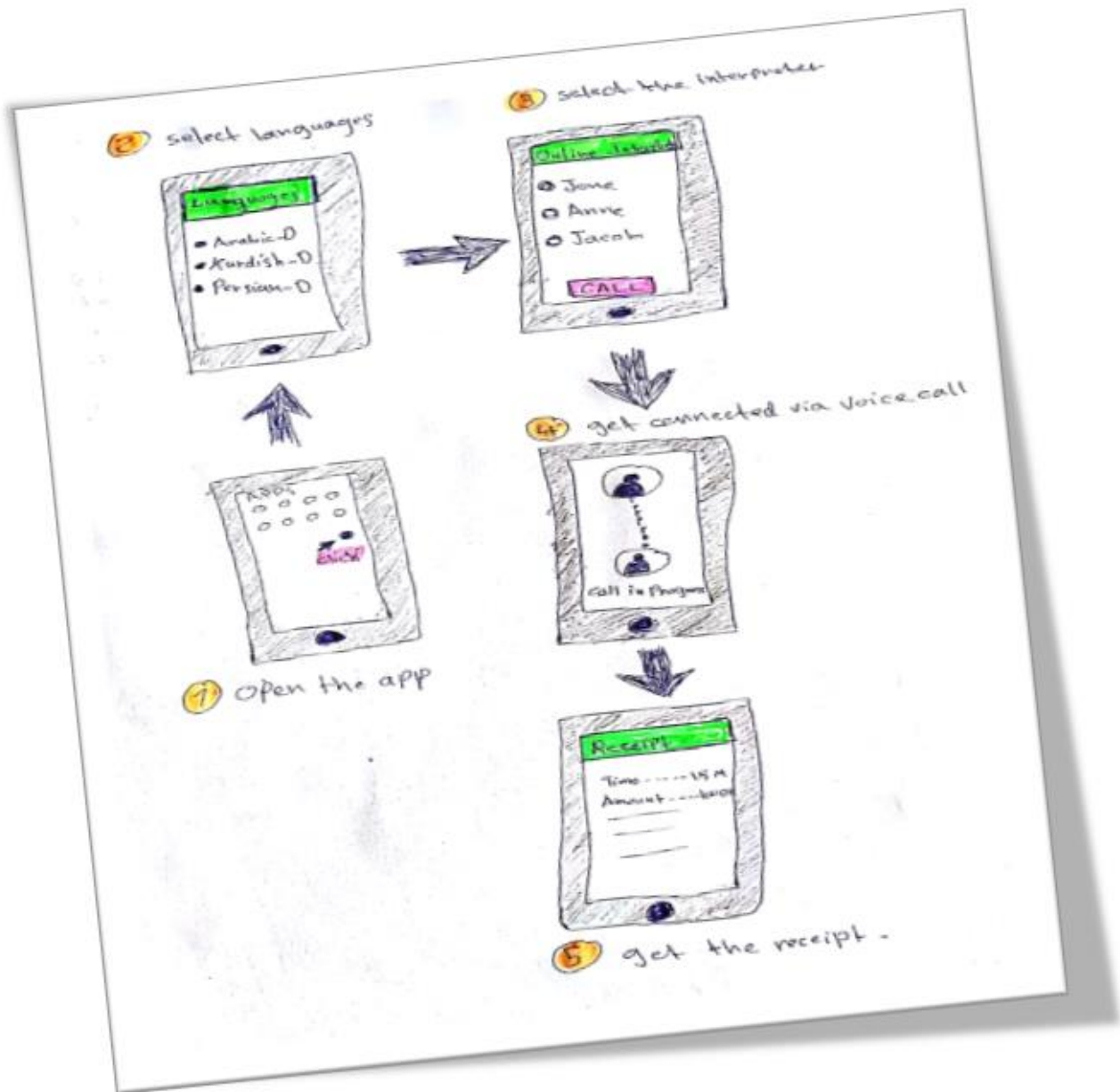
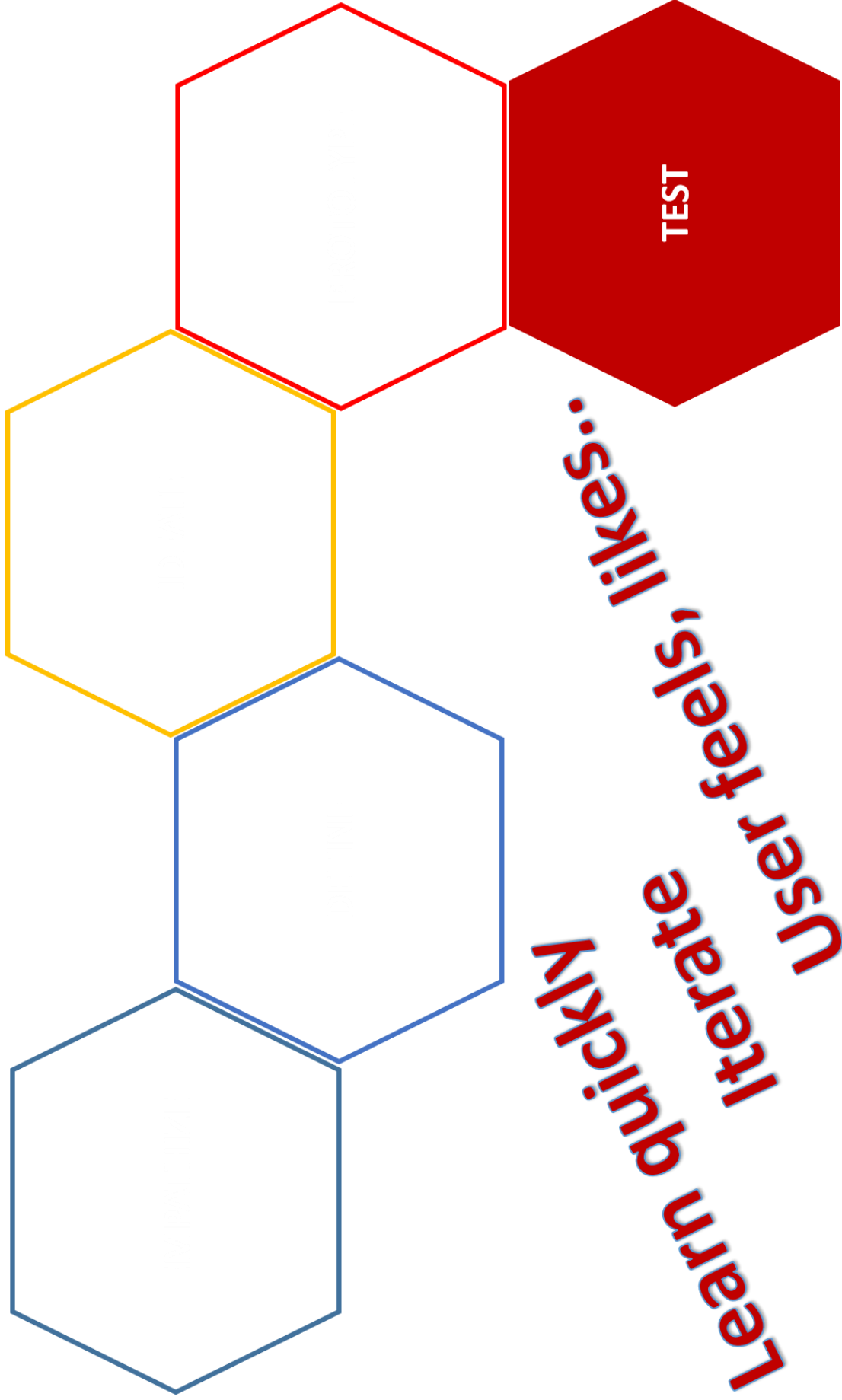


Figure 8.2.4

The objective was to evaluate the idea and derive a common foundation of app developing between the team and the users regarding delivering the desired values of flexibility, transparency and quality service. Nurses and doctors liked the idea, and they elaborated it would be helpful to get the interpretation service through this app, it is almost like a flexible interpreter is available everywhere, so no more reservation hassles.



The second iteration-Interfaces: In this iteration, the team designed the app prototype utilizing prototyping web-platform called inVision (invisionapp, n.d.) which was very useful to make the prototype in the speedy and efficient way. The prototype consisted of UI, no coding, linked to each other so the user can try and interact with to get a high-fidelity of stimulation to the real app, as seen in figure 8.2.5.



Figure 8.2.5

Afterward, the meeting has been held with nurses at Brovst asylum. The objective was to figure out the active contextual factors and other factors such as privacy, personal and environmental that may affect the user's daily life (Buchenau & Fulton Suri, 2000). Though the meeting, the app prototype has been deployed on nurses' mobile devices and where each one tested it alone whereas the team kept observing the experiment and added notes. As result of that, it has been observed that some nurses did not prefer to be mixing between their gadgets and work tasks, where they were wondering whether the app will access their contacts and call logs or even using the SIM number to make the call. However, Susanne Loegsted mentioned that they have a mobile for work using so they can download the app on this shared mobile and then get the interpretation service through it. Also, she added it is fine to use her mobile if it does not touch

her privacy such contacts log. On the other hand, she added a note regarding the interpreter's gender, experience and rest profile. She said, "It could be better if we can see the interpreter's profiles before making the call because it is interesting to know the years and field of experience then we can decide whether to call or not." On the other hand, some mobile telecommunication companies have a weak coverage area of connection, which is so essential to making a regular call using SIM card, because the asylums are usually closed to forests and so far from the cities.

Reflection:

The interactions between users and prototype shorted the distance and gave a clear view regarding factors that have to be considered for the app development. However, most nurses were skeptical regarding touching their mobile's personal information, the privacy factor, in addition to the coverage area of SIM card telecommunication companies must be considered as a critical environmental factor. These two factors, decisions and gathered feedbacks guided to aware of essential points and features have to be implemented in the 3rd iteration of app development, like below:

1. List the desired language.
2. List of online interpreters, which allows the user to check interpreter's profile (shown gender and experience field) and get connected with.
3. The user can grant the permissions of accessing his mobile device, so he ensures which the information the app can access.
4. The app should provide the user with the option of connection for both regular call and internet call.
5. The user gets a receipt after the call is ended with all details (such call duration date, deserved amount and so on).
6. Rating service and adding feedback.

The 3rd iteration-App:

After finish gathering and analyzing the requirements, the real app has been developed considering the reflection of prior prototyping iterations, so now the user can have a real stimulation for the experiment of testing for the desired app. It is a demo of a functioning

prototype has very simple UI and contains main features that planned to implement mainly checking interpreter’s profiles, making a connection (regular and internet) and get the receipt. On the other side, the team had arranged with two interpreter volunteers to help us in testing where they would play the role of real interpreters regarding interpreting for users via mobile call. Figure 8.2.6 shows the function of the prototype.



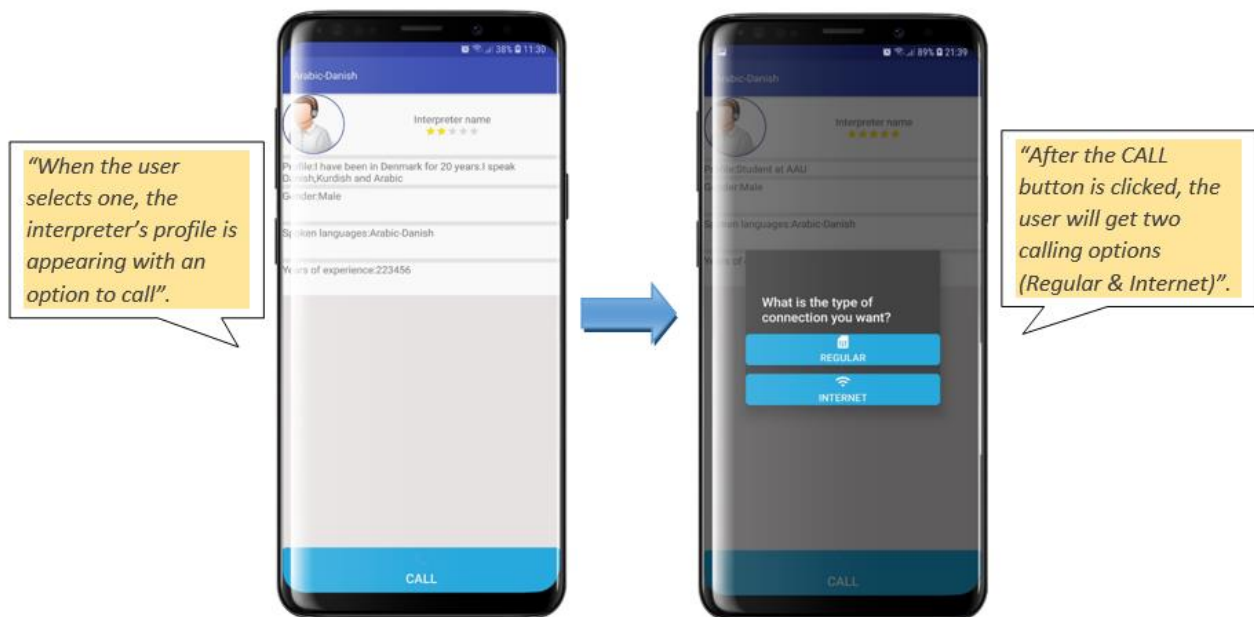


Figure 8.2.6

For user evaluation, another meeting was held with the doctor, Aselya Nielsen, and nurses at Brovst asylum again. However, before the meeting, there was a list of test objectives were specified categories based on the tester, stakeholder:

Stakeholders:

1. User: doctor/psychiatrist
2. Customer: Asylum center Brovst.
3. Interpreter: volunteers

Main Goal: The app is useful for all stakeholders to deliver part of its value, the flexibility value.

General objectives:

1. Users and interpreters can use the app and know its features.



2. The app has a friendly interface for both users and interpreters
3. The app works as we expect, without bugs and customers satisfied.
4. Data entry - Who controls the sign-up process and data gathering?
5. All participants will be satisfied with the app

Objectives for Users

1. Ensure that the app is useful to find an interpreter as its aim and deliver the flexibility (price & use) value.
2. Understand the user experience from the user's perspective.

Objectives for customer

1. The customer is satisfied regarding features in the app. Features like:
2. Understand the sign-up process responsibility.
 - a. Get connected with desired interpreters instantly
 - b. Rate the service.
 - c. Get the invoice instantly after the call.
 - d. Profile information.

Objectives for Interpreters

1. Ensure that they will answer the received call.

Objectives for patients

1. Ensure the patients will be interpreted for via the interpreters from the app.
2. Ensure the patient will be comfortable to speak into the phone.

Testing and Evaluation:

One week before the meeting, the team has prepared for performing the test through doing a few steps to grab the desired purpose. First, Susanne, the health coordinator, was asked to provide the team with the schedule of doctor visits and patient spoken language, and the schedule was sent indeed. Since the two volunteers speak Danish, Arabic and Kurdish, the test appointment's day has

been determined considering that just these two languages are going to be adequately served. Then the next step was to ensure the interpreter volunteers are ready to get the call around the specified time on the test day. Thus, everything went well the testing time specified and confirmed by all participants nurses, doctor and asylum coordinator.

During the testing day, there was a friendly atmosphere between the staff and the team, the app's functions worked perfectly without bug or crashes and everything was fine. The doctor used her mobile and ran the app during the session with Arabic spoken patient. The session took 31 minutes and when it finished, there was an appropriate time to get feedback from both the doctor and patient regarding their experience with testing the interpretation service via a mobile app, ConTalk.

Stakeholders' Feedbacks:

Doctor: Regarding the experiment, the doctor was happy with the result, she liked the app, the immediate service provided and how easy to use. She suggested promoting ConTalk in other asylums in North Jutland where she works.

Also, she added some notes regarding the app, where explained about the confusion she has got it while trying to call the interpreter, which is because of the design of calling activity and two buttons in, SPEAKER and CALL, which made her wonder as if there are two options, not two functions. Another thing, the interpreter's gender would be better if it locates with the name and photo of the interpreter because the user can see the interpreter's gender directly in the list of online interpreters instead of viewing his profile.

Patient: She was twenty years old girl from Iraq, satisfied with service and she got a clear interpretation. When she was asked about the service, she said," It is very comfortable since it protects my privacy where the interpreter cannot identify me. Also, the interpretation was obvious that the interpreter comes from Iraq also, my home country".

The interpreter: It was very easy for them, no problems found, and they created profiles and knew what to do to change his status from ONLINE to OFFLINE and vice versa.

Asylum Coordinator: Susanne was impressed and showed the ability to use ConTalk to get connected with real interpreters which categorized into groups based on experience fields. There were questions asked about the sign-up process; profile required information and invoice form. Her answers demonstrate there is a need to a number of accounts linked with username and password where the nurses can use them in their departments, but Susanne does not prefer to have an admin account with permission of creating and granting accounts to the nurses since it is an additional task for her which is not needed. She provided us with a copy of an invoice form of translation bureau to get inspiration of what the important information is, and she emphasized to make payment due date at least more than two weeks because they need that period to handle the payment.



Reflection:

The last iteration is done, the view had become more explicit and the team understood what the customer and user need precisely, as well as development uncertainties of app functions became facts. For example, the team understood the process of creating accounts and the invoicing part, which was one of significant uncertainty faced the team through the development process. The prototyping process has demonstrated the progress of app development whereby it was realized that everything on right route because all the app's requirements were gathered, tested with the audience and mainly the customers get satisfied. However, it is the time to pursue developing the beta version of completed software architectures:

The client tier: It is for UI functions the user can interact with,

The business tier: The code of programming that make the UI features and functions works

moreover, the database tier: For saving and managing the user's data (i.e., cloud database).

Finally, the team is guided to consider the points below in ConTolk beta-version:

1. The Sign-up process is ConTolk staff task.
2. No need for SPEAKER button, the interpreter voice should be automatically heard from mobile device speaker when the connection established.
3. Interpreter's gender and rating grade, workplaces appear along with his name and photo in the ONLINE LIST activity.
4. The user grants/rejects permission when the app wants to access mobile assets, for example, regular call permission as seen figure 8.2.6.

Beta Version:

The team developed the Beta version of ConTolk app for the Android operating system considering the previous process outro, figure 8.2.6. It became ready to deploy and test. Therefore the team prepared a list of ten people from own network to play the role of testers for beta test.

The app published on google play as beta release utilizing google developer console which beneficial tool to track crashes and tester behavior to fix bugs and improve the app's performance. The test went well, the testers were divided into two groups each five persons. The first group testers played the role of interpreters and another one played user role in order to get high-fidelity of stimulation for real case. The result of the test was successful unless small bugs which were fixed later. The data can be located in appendix 7.

9. Milestone plan

The milestone plan aims to map the practical steps that the ConTolk team planned to do in order to run the project successfully. It is a useful tool that guides the team through the series of logic activities whereby it could know what jobs are achieved and when. Furthermore, each team member can see the progress of the project and evaluate the performance.

The team objects through milestone plan to identify tasks that have to be done in order to

transform the project between two primary states: From market experiment to confidence Boosting or even defeating. In other words, the team would implement market learning concept until reach the point that makes it ready to run the project with enough knowledge and almost zero uncertainty, or otherwise pivot to the business model.

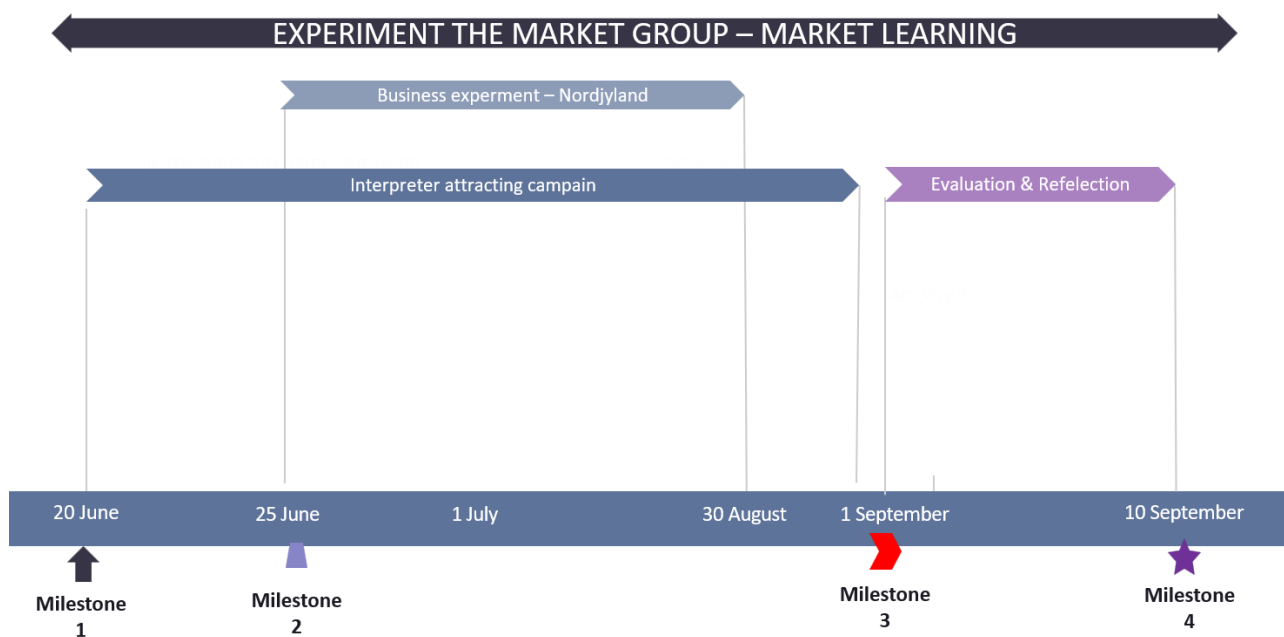


Figure 9.1

The figure 9.1 demonstrates the three main essential tasks that are going to be done during summer’s months 2018, start at 20 June and end at 10 September. It represents the first phase milestone plan by which the market segment (22 Asylum centers in Denmark) will be divided geographically into three market groups and then tested as the order below:

1. North Jutland group.
2. Central Jutland group.
3. The rest of Denmark group.

According to multisided-platform, the team ought to increase the volume of users in contrast sides where each side constitutes value for the other one (Multisided-pattern), but the dilemma here, with this kind of business model, is the balancing between the sides. For example, the number of interpreters needs to fit the number of users connected to the platform, in order to serve them efficiently. On the other hand, the team wants to kill two birds with one stone, firstly boosting his

confidence regarding the idea and secondly, learning by doing where the market would be understandable regarding what did we do good? What did we do wrong? Moreover, what the requirements for next phase are.

This planned to be done through the three milestones that are shown in figure 9.1:

1. Marketing campaign aims to engage the interpreters in the app platform by targeting them and gather their information of signups in project's database which will be discussed in section 10.2.2
2. Experiment beachhead market (asylum centers) by doing business experiment with market groups (start with North Jutland asylum centers).
3. Evaluating the conclusion of the first phase of milestone plan and reflect based on the result evaluation to decide whether to plan the second phase (undertake a new marketing campaign and another business experiment in another market group) or pivot (see the section 10.2.2).

9.1 Business experiment

This section will elaborate the execution of business experiment according to Pivot startup approach (Arteaga & Hyland, 2014). It is a useful way that facilities are constructing knowledge through learning from customers feedback. As a start-up, it is important to communicate with potential customers and learn from the target market to avoid the failure after the launching as much as possible. The experiment execution requires three things to consider here: The market group, product and call to action (CTA).

Market group: It consists of the number of asylums centers locate in Denmark, Nordjylland region, in which asylum coordinator, the decision maker, represents the buying center.

Product: It is the Android version of ConTalk app which could be tested by asylum center staff.

CTA: It is something very critical to see to which extent the customer is willing to buy and use the product, so it indicates how the market will react when the ConTolk is launched.

This also will help to estimate the volume of sales(subscriptions). The team will prepare ITP form (intent to purchase) including the information of the customer, the number of users needed and at the footer of the form, there is a quick questionnaire containing questions of what the reason of buying? And what the reason for not buying? In order to understand the essential value of ConTolk service from the customers perspective(In practice).

Other analytics also would be determined while the team is experimenting with the mentioned market group to be complementary to the questionnaire such:

1. The number of signed CTA.
2. The number of asylum centers that decline the service.
3. The number of interpretation hours per month.
4. The number of promises (Positive impression).

When the experiment is done, the team is going to evaluate it in terms the analytics gathered, feedback and the whole experiment in general. Then, the result will be presented to the experts of AAU incubator since the team has already enrolled in, in order to hear from them their opinions regarding what it achieved. However, this experiment is a very critical step that may move the team to another stage of the confidence in a project where the decision should be taken whether to go further to launch the project, experiment another market group or pivot to innovate another business model or even make some change in the idea project.

Finally, the team's decision would be taken based on the result of evaluation and experts' feedbacks. The needed feedback from other asylum centers leads to the question of how ConTolk will promote itself to another customer. The next section will describe marketing plan for ConTolk to promote itself to other customers and how the company will recruit interpreters.

10. Marketing

This chapter will focus on two sections: Marketing and interpreter recruitment. ConTolk has a multi-sided BM, and this means that the business has to bring together two interdependent groups of customers and create value for both of them. The company has to promote itself to different customers like asylum centers, but also recruit the interpreters because they perform the service. The chapter will start to discuss how the company can promote itself out to other customers and afterward how to recruit the interpreters.

10.1 Promotion

As part of the growth process for any start-up is to make a good marketing plan. ConTolk needs to promote itself out to future customers and this section will discuss more how they can do that. This part will focus on steps to make a marketing strategy which can help to guide the team to pick the right marketing methods. This section is crucial because it helps to identify areas that the team members have to be aware of and help to make a better decision to promote the company.

ConTolk found their first customer by e-mailing out about their MVP to them and they contacted the team for a meeting. The team called the asylum center's health coordinator, Susanne Loegsted, which were interest to see what this concept could do for her and her colleagues. This is how ConTolk started to get in contact with their first customer and in future, ConTolk needs to find new customers and users so what kind of marketing will be needed.

Based on the experience to find the first customer then it is clear that the marketing method was e-mail marketing and it could be an effective method to capture new customers. However, it does not mean that this is the best marketing method for ConTolk. To answer this question, it is important to make a marketing strategy and to pick the most optimal strategy then we need a guideline. The main role of marketing management is to identify the target customers to deliver them the values and build a profitable relationship.

The business model canvas shows that some customers segments are regions and municipalities and it means that ConTolk has to make a business agreement with them before the different users

will be given access to ConTolk's service. However, ConTolk first customer was an asylum center under Jammerbugt municipality and they did not have to use their municipality to accept the interpretation service that the municipality suggested. Susanne is the decision-making and if the interpretation service lives up to her expectations, she chooses the service that she wants. This means that it is crucial for ConTolk to understand all the potential customers' decision-making structure in order to locate the person responsible for picking the interpretation service (i.e., the buying center). This will help ConTolk to make decisions on how to promote the company. If it goes through the regions or municipalities, then ConTolk needs to have a good sales strategy to offer the municipality a sudden quality and price for the interpretation service. However, if it is a public institution department like Susanne's asylum center, then it is her responsibility to find the interpreters, so she is an example of the person, decision-maker, who would be targeted by ConTolk making activity. The best tactic to do here is digital marketing because it is efficient to identify target segment. These marketing methods can help to reach first-time customers and some of these methods can be:

- E-mail-marketing
- Social media marketing
- Pay-Per-Click marketing (Google AdWords)
- SEO

E-mail marketing is a relationship tool because it is the most personal communication channel of these four marketing methods. It is most personal method since it targets the specified email address associated to a specific person. Other marketing methods are owned by large social media companies or digital search companies like Facebook and Google.

The advantages of using this method are that it is cheap for companies and it can be connected with different analytic tools to measure the key performance indicators. It can be open e-mail rate or click rate for the newsletter. This is important because it can help ConTolk to expand their brand awareness to new and existing customers.

The disadvantages are that it can take some time to learn email marketing for the own team members that it requires excellent skills to build good content for the email newsletter, blogs or

messages out to the targeted customers. It is an effective method, but SEO is the most effective marketing method (Kronborg, 2018).

Social media marketing is used over the different social media companies like Facebook, Instagram, LinkedIn and so on. It is unique because it helps to locate the target market very useful. Facebook and LinkedIn both have functions on their platform where the user can make a campaign or Ad and it can target people in the right segment plus with the budget that the user like.

The advantages are that this method helps to target the marketing to the right customer with the budget that the user wishes to spend on. The other unique part of this method is that it can create loyalty with customers and communities to make a good brand awareness. This can help to make the return on investment much better if the right person targeted.

The disadvantages are that it requires much work to understand the customer because if the marketing campaign to the wrong customer, then the money is wasted. It is also very time intensive which means that it will take good resource of people to monitor the network of people that are targeted. It is important to remember that the customer has to be continually updated with or the community which has to put much effort to make them like the company.

Pay-per-click marketing is an internet advertising model which where an advertiser pays a publisher when the ads are clicked. Every time a user or customer clicks on an ad then the publisher who made the ad makes money from the company which likes to get the customer to enter his website. It is a good way to know customers traffic and know that they properly are interested if they clicked on the ad.

The advantages of this method are that the advertiser can measure the customer traffic and understand them better if they choose to buy or leave the website and it can expand the brand awareness globally and it can be done very fast.

The disadvantages are that it can be quite complicated if there is no experience of what to do, then it could be better to let someone manage it. This means that it can be costly, but it also depends on the budget, but it is not so cheap as social media marketing or email marketing.

Additionally, it is not a sure thing to make more money, because it depends on the quality of the ads, specific keywords, product and so on.

SEO is search machine optimizer and it helps companies to make their websites easy searchable when the internet browser types specific words related to their products or services. Today, people use Google to search for almost everything and this looks like a must for every company to use the channel of Google to stay ahead of the other competition.

The advantages are that SEO helps the business to be searchable for their target audience. This will create a continuous flow of traffic of customers to the website or application. People google every day over the internet and the right words are the key to business growth and SEO can help with that.

The disadvantages are that the SEO will take time to make because it requires a good content and understanding of what to do. This is why many companies hire digital SEO experts or marketing companies to handle this. This can be costly since the SEO expert or SEO bureau want a minimum number of amount of money to make this campaign and the consulting time has also to be paid for.

10.1.1 Target audience

Earlier on in this section, we mentioned that we have to understand who are the target audience and which channels are they using?. We have learned earlier that the decision-makers have to be identified and this can be Susanne Loegsted which is health coordinator for the three asylum centers in Jammerbugt municipality.

She works in the asylum center in Brovst, her education background is medical nursing and she works now for a public institution. Public customers are not interested in making a profit but help people most as possible and the quality for interpretation is a key factor for Susanne and she can buy the interpretation service based on prices that are politically chosen. We learned in the section 5.3.3 that there are different prices for interpreters and it depends on their education level which ConTolk can take account for plus add the profit for the company.

A target audience for the public market can also have some purchase criteria like choose quality over price or vice versa and based on the learnings from section 5.3.1 then Susanne want to have better quality. Another thing is to consider about Susanne is if her loyalty lays to sudden interpretation bureaus and what we have learned from section 5.3.1 then it does not look so, because she is not happy with the current service.

What we can learn from this analysis of the target audience is that we work with a public institution and they are unhappy with the current service, so there is no loyalty to sudden interpretation bureaus. Quality is the critical thing for the customer, but of course, all public administrators like Susanne has to account for a budget but she works for a non-profit organization aka the municipality and they are interesting to provide a satisfied quality service for their citizens and in this case for the asylum seekers.

10.1.2 Channels for the target audience

If Susanne wants to find an interpretation bureau, then she googles “interpretation” and search for providers. However, it can also be the case that the interpretation bureau contacts her and she listens to their proposals and they discuss the price and conditions for the interpretation service. The way that the interpretation bureau contacts her is either by phone or e-mail (Loegsted, 2018). Based on this information and the assumption that other asylum centers do the same way then it could very beneficial to use e-mail marketing and SEO.

The team has to consider that none of them has experience with SEO or E-mail marketing, so they may consider taking some time to learn it or contact a digital marketing bureau with this task. A third option is to find a third partner that can do this. Of course, the number of customers (demand) has to match with the number of interpreters (supply). The team has attended an E-mail marketing course at Aalborg University which were held by Dennis Kronborg from Konxion.

The next section of this chapter will discuss the recruitment of interpreters and why it is essential to find good interpreters.

10.2 Recruitment

All the investigation and research to understand if there is a need for our service has been done and the app test with the customer is done then it is time for the second essential part to make the service work: Recruitment. ConTolk needs to recruit interpreters that translate the context in the conversation and they have to be rated after how good they are, which is what this chapter will be focusing on. Later, the chapter will discuss the method to recruit and why it is chosen instead of other options.

10.2.1 Critical mass

First, ConTolk has to identify the critical mass of interpreters which can be difficult compared to the number of customers and their needs for each language and how often they use the same or different interpreters. Susanne Loegsted has helped to locate that the three most common languages they need translation for are:

- Arabic
- Kurdish (Sorani)
- Farsi (Persian)

Susanne informed over email that it is not possible for her to identify if she and her nurses used the same interpreter since it is the translation bureau which finds the interpreter. They can ask for the same interpreter, but it is not often that they get the same. Therefore, the critical mass is based on personal assumption and investigation from competitors.

Based on research for different bureaus like A2D Tolkeservice ApS or DRC translation service have between 700 to 900 interpreters in their network and support 70 languages both of them.

However, other bureaus like Tolk- on Mentorgruppen claims to have only 100 interpreters and provide only for 25 languages. It seems that the variety for each bureau can be wide and it does not answer what the critical mass for interpreters should be. Then there is only one way and that is through intuition thinking and learn by doing from customer experience and the first customers are the three asylum centers lead by Susanne Loegsted. It can be difficult for a start-up also to answer the critical mass question without experience but the team has decided that they think

that five persons for each language which is 15 will be the start. This estimation is based on that having one person can speak each language and there are five days a week where the asylum center can use interpretation and there are three languages so the total of 15 interpreters needed to be available at the beginning.

This is a fundamental measurement in capacity management to understand the actual output (demand for the service) and the capacity of interpreters needed (supply). Therefore, the number of interpreters that work through ConTalk should be consist with the demand from customers and suitable with the resources that the team has. In the start-up phase, it would not be the most considerable concern, but it can be in the future as the company grows to large scale.

The critical mass can only be identified in the start-up phase by understanding the demand of the service for the desired languages needed, and through intuition. The reason is that none of the team members have started a language service before and the competitors do not have the interest to share the intel of their recruitment process history to us as a given competitor. The assumption is 15 for the three languages and one for each week's day to deal with fluctuations from the interpreters' daily lives. The next part is to look at how to attract interpreters.

10.2.2 Interpreter attracting method

The next step is to demonstrate the chosen recruitment method. ConTalk has to find a way to recruit the first interpreters because they are critical to making the service work. Our app has been tested successfully and it is now time to find the interpreters. This first part will explain some of the possible recruitment methods and the advantages and disadvantages of them. The second part will tell why the team has chosen the specific method over others.

The methods to recruit interpreters can be many and it is a question about which can help most effectively to find the needed interpreters in different languages. As mentioned in section 7.3, the team has chosen a multi-sided BM and this means that the recruitment has to find interpreters that fit the interpretation needs of customers via a sourced intermedia platform. The different tactics to recruit can be:

- Personal network
- Go to different language centers
- Go to municipalities as a channel to find interpreters
- Use social media like Facebook or LinkedIn
- Go to higher education institutions

These are some of the options that the team can start to use to recruit the first interpreters and the question is which one? There are some criteria that they have to live up to and they are:

1. They can speak Danish fluently
2. They speak fluently one of the common languages used in Denmark.
3. They have some experience with interpretation regarding years

These different methods have both advantages and disadvantages and it is important to understand them before making any decision to use. This is what will be done now.

The personal network can be more or less effective depending on the team members personal network ties, because if the team members have good networks with the right people, then it is cheap and time-efficient. Otherwise, if they do not have a strong tie of networks with potential interpreters, then it can be very time-consuming and useless in the end.

Language centers in Denmark are located in many large cities and smaller cities and it can be easy to send out a flyer and get in touch with people. It would require that the team has some good relationship with the language schools to make them help us to find interpreters because this will help to determine the levels of each interpreter. It is important to find good people with fluency in Danish plus their native language. It does not mean that the interpreters only have to be foreigners who want to become Danish citizens, but native-born Danes will also work if they can translate between Danish and Arabic or Kurdish. It would be crucial to have established a relationship with some language centers because it will help to save some time to understand if the interpreter will live up to require criteria.

The municipalities have access to different foreigners that could be potential interpreters and their database will have many people that could be investigated. However, it would adequately be

difficult access to these people because municipalities are not allowed to give out personal information about citizens. It may be more helpful if the team members have a network of people which work in the municipality that could give some intel about people they could contact. Social media like Facebook and LinkedIn are good tools to search for people that could become interpreters. If the team can locate different groups or individuals of these media then it is easy to find many interpreters on a large scale. It is possible to make a Facebook Ad which can search geographically, demographically and behaviorally about the users on the media. It does cost money and depending on how many users see it will cost.

Education institutions like universities and colleges in Denmark can help to find language students to be an interpreter as part of their studies. An example can be students at Aarhus University and Copenhagen University which is studying Arabic and Islamic culture would learn the language from some Arab countries. However, they will only be temporary interpreters until they have finished their studies and will find a full-time occupation afterward. It is possible that they continue as interpreters if their payment is for full-time and worth the salary for their studies.

As the different methods have been identified and explained their advantages and disadvantages, then the next part is to pick one. It is important to remember that it is based on if some of these methods can fulfill the chosen criteria because the team has to examine their options and make the most optimal decision based on the given resources they have.

The personal network can easily be used for the team members to locate some of the first interpreters because it helps to get started and use them to perform the service without spending too much time to find new ones. As it seems now, the team now only know three people who would be interesting, but they are not very experienced, and this does not live up to the criteria. The language centers have a potential volume of new interpreters, because since the massive immigration inflow to Denmark in the recent years then new people come here to learn Danish and become a Danish citizen. It is also a good opportunity to spread out the word of our service and what it is trying to accomplish. However, the new potential citizens of Denmark would have no experience with interpretation and this can be a deal breaker to use them as the first one. If

they were started to be educated in the science of linguistics, then they could make a potential candidate with some small training.

The municipality has some interpreters as part of their employee portfolio and they accurately like to keep them. Some are experienced and some are not, but they will be there and maybe ConTalk can convince them to change their paths. However, we learned that some interpreters like to a steady job and this is what the municipality can provide so it would be a terrible sales argument to try to convince to work for us because they become freelancers. This means that the job security would disappear for them and it can be horrifying for some people.

The first three options have not provided the best result, because they do not live up to the criteria and let us see if the next one can. This is social media recruitment come in and the benefit of this is that the interpreters can easily be located via an ad campaign which only targets the ones which have interpreters as a profession and it can find locate the users for both Android and iOS. This will save much time for the team to locate the right interpreters for the start-up period. Both Facebook and LinkedIn can be used for this and the question is which one is most suitable? Well, LinkedIn is designed for professional users who are trying to find a job and this is mostly for steady income jobs not so many freelancers. However, Facebook is more open because it provides a platform where users and create different groups and forums to talk about different topics. Facebook has the interest to learn so much it can about its users and sell this information to businesses which can be very suitable since it can locate which users have iPhones or Android phones. This gives some help for ConTalk to analyze an important decision which is about if the company can start using only interpreters with Android. If yes, then the company can launch much faster, but if not, then the team has to decide on making the iOS platform. It means that the team has to make a critical decision because they can decide to do the programming itself or find someone to do it. If they decide to find someone else, then it is either finding a third partner or hire some consultant to do it. Should the team sacrifice equity of the company or spent more money in the start-up phase. Recruitment over Facebook will, of course, cost money and depending on how many users click on the ad will determine the price, so the price will be \$0.58 per click which means that if we spend \$10 (63 DKK), it will provide 17 clicks. The question is how many clicks are needed. To answer this question, the team went to a one-day e-mail marketing course to ask this question. The lecture of the course was the partner and sales director of

Konxion marketing agency located in Aalborg, Dennis Kronborg and he told the team that they should focus on the rule of the thumb marketing inverted pyramid. The inverted pyramid is located in Appendix 8. It shows the number the reaction and the behaviour of the target audience then, 10 % will open their email, 10 % will click on the link in the email and 10 % will buy/use the service. This means that ConTolk needs at least 300 clicks to satisfy the need for three interpreters for the three languages as mentioned earlier in section 9.2.1.

The last option is to locate students who study different languages at different higher educations. They would have learned Arabic, Kurdish or Farsi language at their education institution plus they learn about the culture and how to manage people from these Islamic environments. They would need to have little training with interpretation techniques like only to interpret and inform the user what they are talking about and learn to be prepared for every task. The one problem with this recruitment method is that the team has to ask each and one of them if they use Android or iPhone which can be time wasting. It would be more suitable when the team both the app for Android and iOS ready so this option will be the second priority but after the iOS system is ready. The campaign for recruitment of interpreters will start 20th June based on the team member's decision in the milestone plan.

From here, ConTolk has identified which channels to use to recruit and social media under Facebook will be priority one because of the criteria have to be accomplished. However, ConTolk has only located the channels and the interpreters have to be evaluated. The reason that this is important will be that the customer shall be satisfied with their interpretation service and ConTolk has to ensure the quality that they pay for. Therefore, there will be made an evaluation system which is still under development, but the team has identified how their want to evaluate them. Figure 8.3.1 shows the rating system, so each user can see how good each interpreter is.

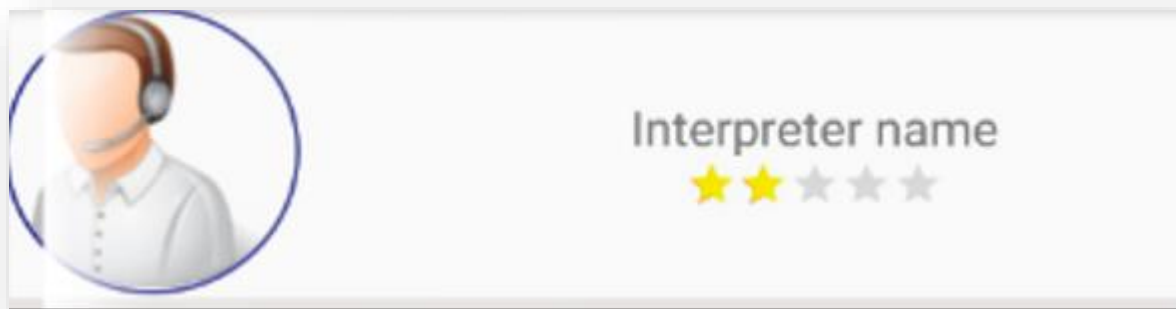


Figure 8.3.1

The evaluation system is set up in two parts:

1. The evaluation of new interpreters into the system
2. The evaluation of current interpreters from the rating system.

First, the team wants to use a five-star system as there also have been mentioned in the Ideation chapter, because it is important for ConTolk to give the users full transparency of the service and see the prices that can be offered from different interpreters. The first part of the evaluation system for new interpreters is divided into three categories to measure their current quality level of the interpreters. They are:

- Experience of interpretation (30 %)
- Education (20 %)
- Oral test (50 %)

The reason that we have chosen this structure to measure the quality of the interpreters are that ConTolk believes that experience and education tell a lot of how good an interpreter is (most considerable in job CVs) but it is easy for anyone to claim that have experience and education. Therefore, the oral test will account for 50 % of how good the interpreter is because it gives a proof of their skill set. The experience will account 30 % and the education will be based on if the interpreter has a relevant education for interpretation. ConTolk has started to look at the education at different levels and it is measured by if the interpreter has finish gymnasium, bachelor or a master in Denmark. If the interpreter has to finish Secondary school, then he/she

receive 10 % of the 30 % of education and if the interpreter has a relevant bachelor in languages, then it is 20 % of the 30 % of education and so forth. This is still initial state of the evaluation system. The team will call this the “ConTolk Degree” as a name for the evaluation system.

The experience will start from zero to six years. If the interpreter has zero experience then it is zero % and if it is one year then it is 5 % and six years’ experience gives 30 %. Experience says something about a person, but ConTolk wants to ensure the quality of the interpretation so it is important that the interpreters can prove their experience with an oral test.

The oral test will account for 50 % since it is essential for ConTolk to get a proof of the skills of the interpreters. This test part is still under development, but it will be based on how the interpreter express themselves for different questions and the knowledge of understanding when someone is talking to them. It will also focus on the interpreters understanding how he or she should act between the users and the patient.

The second part of the evaluation system is based on when the interpreters are already in the system and they have to perform for the customer or users. Each time the interpretation between the user, the interpreter and the patient is over, then the users can rate the performance from the interpreter. The user can rate the interpretation performance from one to five stars plus they can write comments if they like. This is very important, so ConTolk can keep track on the performance level of the interpreters and help the interpreter to become better. ConTolk focus is to be a platform that connects the interpreter and the user which makes a multi-sided business model, and this does that the company has to account for both interpreters and the customer's needs. Customers want a good qualitative interpretation service with an approved price and the interpreters want to get interpretation tasks based on their schedule. Therefore, ConTolk does also have to measure the performance of the interpreters and measure with the needs from the customers. The customer will select different interpreters depending on the price and quality they are offered and ConTolk has to match the two parties together.

As we have learned, there are different recruitment methods and the team has made some criteria to choose the most suitable methods in this start-up period. The result was the social media platform, Facebook, since it reached all the criteria. The network effect for interpreters can

be precious for ConTolk because when the company has a good enough number of interpreters, then it would make it easier to scale the business for new business options. The recruitment will never stop because people quit, and new ones come and the company will grow and need new ones for new customers. Therefore, the team has also seen a potential option for this process. ConTolk needs to rate their new interpreters through an evaluation system and this is done by a five-star system which will be measured in three categories. Experience, education and oral test will determine how many stars the interpreter will receive and it is still under development at the moment.

Usually, interpreters have a network with other interpreters which can be exploited. Therefore, it could be useful to exploit that network to ConTolk's advantage. The idea is to use the peer-2-peer method in the recruitment process, so then ConTolk has established a standard base of interpreters then the company can let interpreters recruit other interpreters. This is, of course, a basic idea and needs some validation, but this will give ConTolk a unique selling proposition compare to the competitors.

The recruitment part is the second essential part to make the interpretation service very strong and the team has to show the future customers the benefit from the rating system, but to make the rating system to work then it needs something to rate. This is where ConTolk can be spoken about if they disrupt the current market with this rating system and recruitment process. The start-up does not have a breakthrough innovation and it starts at the low-end of the market then only through time it will turn out to see if it is a real disruption of the market.

Now, there has been discussed what ConTolk can do and it is good to be aware of the different options the team has, but it is also important to think about the costs and this is what the next chapter will discuss about.

12. Initial Operational Plan

The plan gives the details of practical steps that the team would accomplish in order to reach the desired goals. The primary goal is to build a big database as much as possible contains information and CVs of candidates(interpreters) who have applied for working through ConTolk app. Then, the team would start the recruitment process to select a specified number from them especially who have android phones, at the beginning, considering the criteria determined (see the criteria

section xxx) that fits the customer need (i.e., the asylum centers). Afterward, and when the interpreter's side is ready, the next goal is to serve the three asylum centers where located in Brovst since the app have been tested there (see prototyping section) and the coordinator and nurses were satisfied and ready to use ConTalk service.

The strategy of the team adopts learning by doing concept whereby the knowledge will be constructed, and the experience increases. Therefore, the decision has taken to do jobs step by step and learn from what it is done, the mistakes or success factors. Thus, the first phase of project's life will be serving one center and then one more and so on.

13. Initial Sales Plan

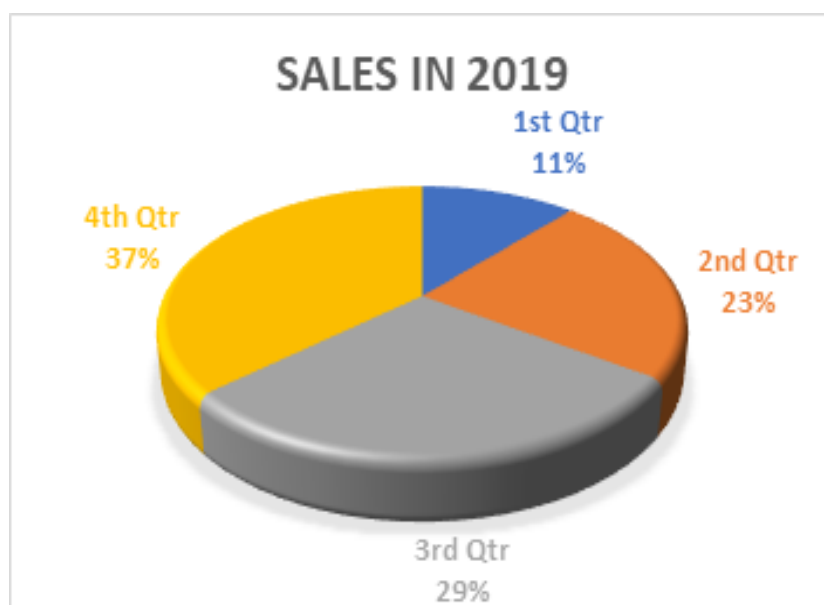
Twenty-two asylum centers in Denmark planned to be mostly served within 2019. The average of interpretation hours used for each center depending on the information collected is around 50 hours a month cost approx. 28000 DDK, means

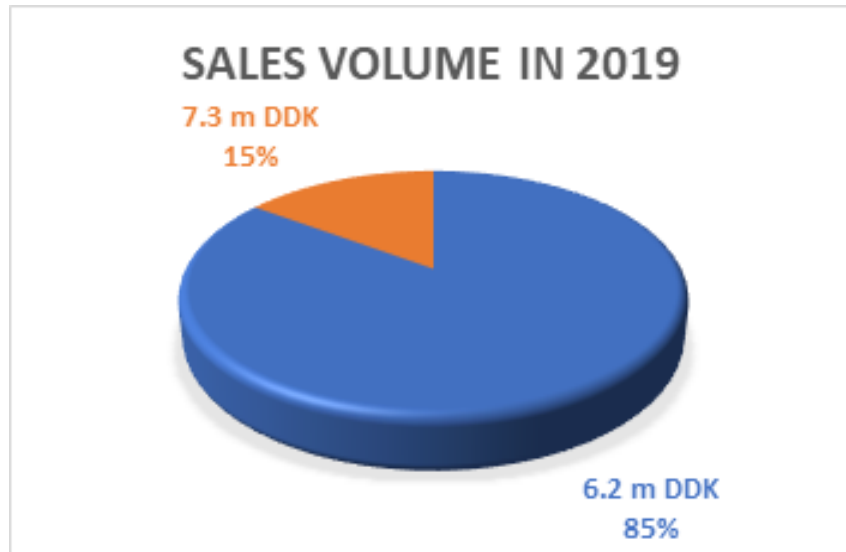
$50 * 12 = 600$ hours used per a year for one center,

$600 * 22 = 13200$ hours used per a year for all centers,

$28000 * 12 = 336000$ DDK the cost per a year for one center,

moreover, $336000 * 22$ (centers) = 7392000 DDK the volume of interpretation service market for asylum centers.





In 2020, the plan is to enter municipalities market segment because at that moment all ConTolk platforms will be available for users, enough number of interpreters engaged, and the team will have had a good experience. The estimation for this year is to acquire additional 40 interpretation hours each month until reach the number of 1400 hours a month by the end of the year. However, the increase in the sales volume would meet the increase in the cost because the team may recruit salesman who probably gets paid approx. 30000 DDK a month (JobIndex, 2018).

14. Budget

The budget will illustrate what ConTolk's cost will be and the EBIT they expect to have after the end of a year. There will be budget for 2018, 2019 and 2020 and they show also how the costs will change over these three years. The budget for the first three years can be found in Appendix 9.

Revenue Projection: According to the business model, the main revenue stream is collected from interpretation fee paid by a customer per usage. One-minute interpretation costs the customer 10 DDK and minimum pays for 15 minutes. The unit price has been tested when the team was testing the prototype in Brovst asylum center and it was accepted by the buying center there. Since the team planned to provide a flexible price, the price model was defined PAYG (PAY AS YOU GO) also considering the market mainstream prices provided by competitors, which is in the range between 300 and 600 DDK per hour. The ConTolk service provides added-value on the interpretation

service, the software tool to manipulate the task and flexible use in addition to relevant information interest the users. Therefore, the price has defined as 600 DKK per hour (i.e., 10 DDK per minute). On more thing, the customer pays a small subscription 100 DDK for each user account (monthly subscription) except the first one for free.

On the opposite side, the interpreters get a free account, but they pay for ConTolk SEO (the visibility at the top of the online list) as optional choice whereby they get the advantage to receive more calls for interpretation, and thus more money. The stream of revenue decided to be defined in future after the startup become launched and when the ConTolk platform get engaged enough numbers of customers on both sides.

ITERPRETATION HOURS IN EACH CENTER OF THREE ASYLUM CENTRES	
INTERPRETER NEEDED FOR	HOURS PER A WEEK
Doctor Visits	9,5 hours
Dentist Visits	1,5 hours
Midwives	0,5 hours
Nurses	2 hours
Total	13.5 hours

Table 11.1

The table 14.1 demonstrate the number of interpretation hours that each asylum centers need in a week. These numbers provided by the coordinator there as weekly demand. This means the following numbers for one asylum center:

$13.5 * 4 = 54$ hours per month.

$54 * 60 = 3240$ minutes per a month.

3240 (minutes) * 10 (DDK the price per a minute) = 32400 DDK the price per a month for one center.

In the interpretation market, the interpreters get between 180 DDK to 300 DDK per hour. At the beginning, the team planned to give the interpreters flexible and attractive prices (5 DDK per a minute) in order to attract them to sign up for ConTolk platform.

This means $32400 * 50\%$ (5 DDK per minute) = 16200 DDK of revenue goes as wages to the interpreter and the remaining amount 16200 DDK is the estimation of monthly net revenue from one asylum center.

Regarding the cost structure, the report of previous semester has shown the calculation of startup and operational cost whether fixed or variable. Startup cost is something paid once for requirements that are critical to starting the project such legal requirements (own shareholder agreement costs 1000 DDK and CVR costs 500 DDK) (LegalDesk, 2018).

The operational costs, which are the expenses are being spent throughout the project to keep the business running. Mainly, the app needs hosting service, cloud service which is free for first six months (Spark plan subscription) but later, when the app data volume is increased the best choice is the Flame plan subscription 175 DDK a month (Google Firebase, 2018). Also, the VoIP voice calling service costs 0.014 DDK per minute (Sinch, 2018) and the e-banking service 235 DKK per a month. Another operational cost is for the accounting expenses where the team made investigation (mentioned in the report of previous semester) that lead to adopting Dinero service which provides a free accounting software tool with essential features and a premium version with more features for 165 DKK per month.

Another variable cost is the marketing expenses, whereas mentioned before the team would adopt a digital marketing plan using Facebook Ads and marketing emails. The later is cheap and need just a good personal effort and enough time for email list building. However, the Facebook ads cost 3.65 DDK per a click. The team planned to start a first campaign (20 June 2018 – 1 September 2018) by which the goal of a reach around 100 applications of candidates (i.e., interpreters) become achieved. Thus, one hundred clicks cost 365 DDK every month.

For ConTolk IOS, Android apps and website development, the team can take care of Android and website, while the IOS one is needed to be developed by assistance from software company or freelance developer. The website will be built using WordPress platform which is very easy to build the ConTolk website and get a custom domain costs 52 DDK per month billed yearly (624

DDK) for a premium subscription, the best choice for entrepreneurs (WordPress, 2018). IOS version of ConTolk app may be available within the beginning of 2019, the development takes around two months and a half based on OOOZOU estimation (Oozou, 2018) and it costs around 125000 DDK. Finally, the general expense like transportation fees and administration fees, where it has been dedicated 2000 DDK a month for them.

15. Conclusion

This project is based on an idea to make the interpretation service better. The project is about the company ConTolk and its history so far in the start-up phase. The company is founded based on the initial idea to make an app that connects the interpreter with different users like doctors, nurses, psychologists and so on. The two team members of ConTolk wanted to give a better experience of the interpretation service and this led to an investigation of the market, target audience, competitors and stakeholder analysis.

The project was guided through the design thinking methodology which helps to emphasize a given problem, define it, ideate for a solution, make a prototype and test the prototype for some users and one customer. The team made cooperation with a health coordinator, Susanne Loegsted, who is responsible for the operation of three asylum centers in North Jutland. The team has made a prototype and tested its functions at the asylum center in Brovst with a doctor to understand the value of the given solution.

The test went well, and this means that ConTolk has founded a given app that works for a customer and the next step in the process for the company is to recruit interpreters. They are essential because they perform the service and ConTolk multi-sided business model has the task to match the right interpreter to the right task for the customer. The company makes money by taking a transaction fee of 50 % of the number of minutes that the interpretation time. The company does not want to satisfy the customer and users, but also the interpreters since it is vital to have the right knowledge about the skill set of the interpreter and what they can do and what they need training for. Interpretation is a profession, but the Danish market does not seem to think about that since the quality of the interpreters has been criticized for years.

The future steps for ConTolk are to recruit the right interpreters and the company has to make a good evaluation system and education system to make the interpreters better. The marketing is

also very important regard to promote the company to new customers and recruit interpreters because it is essential to have the right supply of interpreters to support the demand for interpretation for different customers. The future is exciting for this company and in the process, the team member has to make some difficult choices like if there is a need for an extra team founder to handle the challenges for marketing and iOS development. The team can also try to do it by themselves, but it will postpone the launch of the service and this is the situation that the team experience right now and adequately will also in the future.

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17. Appendix

17.1 Appendix 1

Archetypes / Functions	Cataloguing	Bundling	Reordering or Filtering	Recommending	Delivering	Hosting	Sharing	Intent Casting	Channeling Actors	Pricing functions	Matching Actors
Digital Store	■	■	■	■	□	□	□	□	□	□	□
<i>Expedia</i>	■	■	■	■	■	□	□	□	□	■	□
<i>Buy.com</i>	■	■	■	■	□	□	□	□	□	□	□
<i>Amazon.com</i>	■	■	■	□	□	□	□	□	□	□	□
Content Hub	■	■	■	■	■	□	□	□	□	□	□
<i>iTunes</i>	■	■	■	■	■	□	□	□	□	□	□
<i>Pandora</i>	■	■	■	■	■	■	□	□	□	□	□
<i>Netflix</i>	■	□	■	■	■	□	□	□	□	□	□
<i>Spotify</i>	■	■	■	■	■	□	■	□	□	□	□
Sharing Hub	□	■	■	□	■	□	■	□	□	□	□
<i>Youtube</i>	□	■	■	□	■	■	■	□	□	□	□
<i>Flickr</i>	■	■	■	□	■	■	■	□	□	□	□
<i>Pinterest</i>	□	□	■	■	■	■	■	□	□	□	□
Promotor	■	□	■	□	□	■	□	□	□	□	□
<i>Myshopping.com</i>	■	□	■	□	□	□	□	□	■	■	■
<i>Deals Direct</i>	■	□	■	□	□	□	□	□	■	■	■
<i>Groupon</i>	■	□	■	■	□	□	□	□	■	■	□
<i>Wotif.com</i>	■	□	■	□	□	□	□	□	■	■	■
<i>Priceline.com</i>	■	□	■	□	□	□	□	■	■	■	■
Aggregator	■	□	■	□	□	□	□	□	■	□	■
<i>Lasoo.com.au</i>	■	□	■	□	□	□	□	□	■	□	■
<i>iSelect.com.au</i>	■	□	■	□	□	□	□	□	■	□	■
<i>Unimall</i>	■	□	■	□	□	□	□	■	■	■	■
<i>Pizza.de</i>	■	□	■	□	□	□	□	□	■	□	■
Discriminator	■	□	■	■	□	□	□	□	■	□	■
<i>TripAdvisor</i>	■	□	■	■	□	□	□	□	■	□	■
<i>Moneysuper-market.com</i>	■	□	■	■	□	□	□	□	■	□	■
<i>Reddit</i>	■	□	■	■	□	□	□	□	■	□	■
<i>Yelp</i>	■	□	■	■	□	□	□	□	■	□	■
Crowd Sourcer	■	□	■	□	□	□	□	■	□	■	■
<i>Kickstarter</i>	■	□	■	□	□	□	□	■	□	■	■
<i>Designcrowd</i>	■	□	■	□	□	□	□	■	■	■	■
<i>IndieGoGo</i>	■	□	■	□	□	□	□	■	□	■	■
Matcher	■	□	■	■	□	□	□	□	■	□	■
<i>Airbnb</i>	■	□	■	■	□	□	□	□	■	□	■
<i>Uber</i>	□	□	□	□	□	□	□	□	■	□	■
<i>e-Harmony</i>	■	□	■	■	□	□	□	□	■	□	■

Primary Function
 Secondary Function
 Non applicable or non-strategic

17.2 Appendix 2

Interview - Questions

- Explain the current process to book an interpreter
- Can you use any translation bureau on the market or are you obligated to use a sudden one?
- How do you ensure the quality of the translation?
- What is the most important aspect of a good translation?
- What is the value you search for in an interpreter and translation bureau?

17.3 Appendix 3

Bindingsaftale (Beta version)

Aftalen med de to partier, de studerende (Jacob Saxtoft og Khaled Tarsheh) fra Aalborg Universitet og Sundhedsfagligleder for Asylcentre i Vrå, Tranum/Brovst og Dronninglund hos Jammerbugt Kommune (Susanne Løgsted), forbinder dem til en beta-test af applikationen, T-Mediator, som afprøvning af potential nyt IT-system for bestilling af oversættere.

Aftalen har IKKE fastlagt en bestemt prøveperiode for testning af applikationen, men vil blive bestemt mellem de to partier. De vil kommunikere på basis af hvad de føler vil være nødvendigt.

Susanne Løgsted vil kunne afbryde Beta-testen af applikationen efter ønske og er ikke bundet til en fast tidsperiode.

Underskrift

De studerende

Jacob Saxtoft

Khaled Tarsheh

Sundhedsfagligleder



15/11.2017

Susanne Løgsted

17.4 Appendix 4

Interview - Questions

- How do you reserve an interpreter?
- What interpretation method would you prefer with the interpreter? Why
- How long does it take to reach the interpreter? Do you need the interpreter at a specific time of the day?

17.5 Appendix 5

Interview - Questions

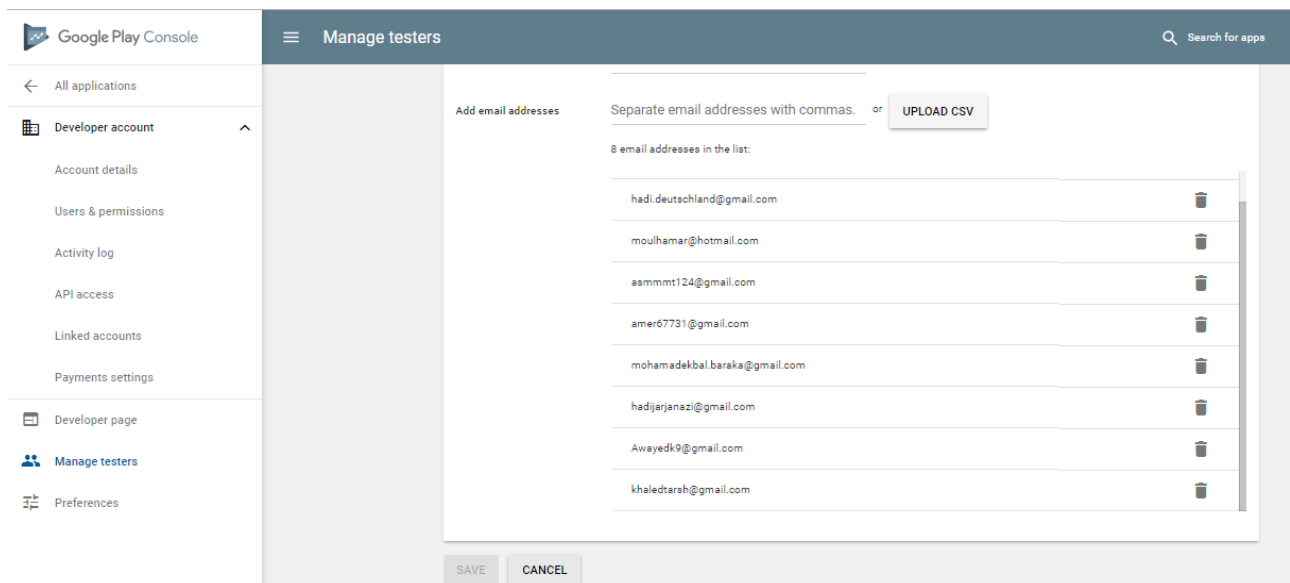
- Do you receive any foreigners or refugees as patients?
- What are the skills you want an interpreter to have?
- Can you tell me anything that is a challenge with the interpreters?

17.6 Appendix 6

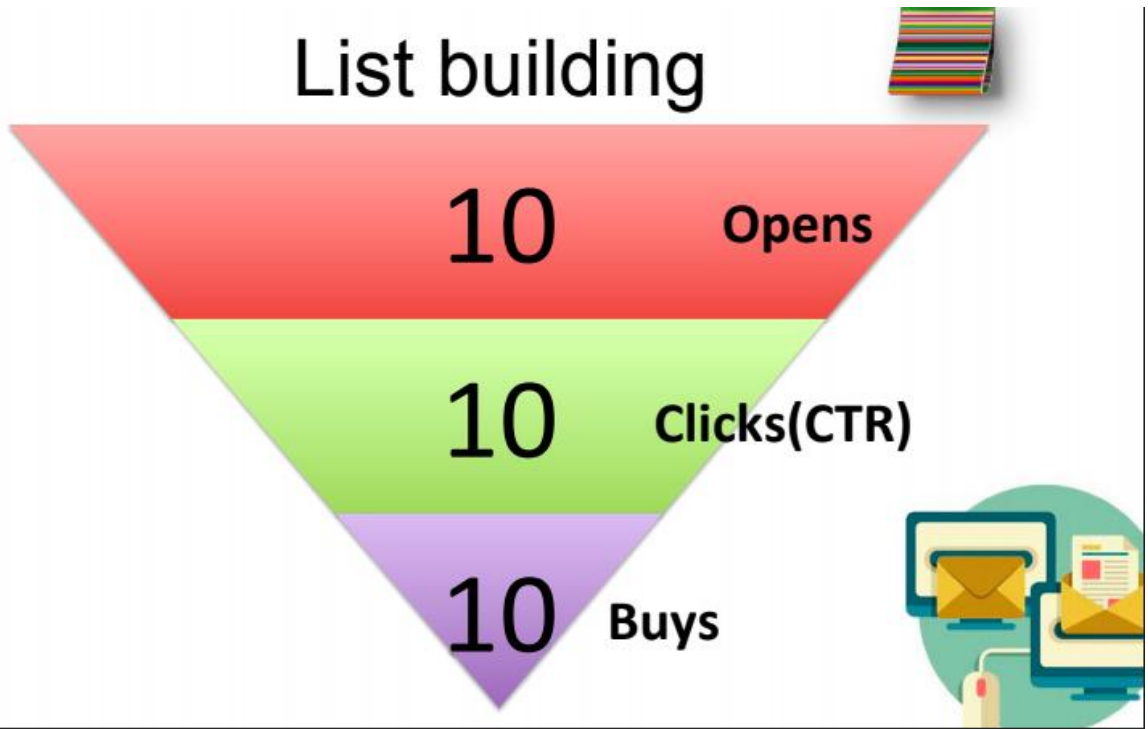
Interview – Questions

- How many translation bureaus do you work for or have worked for simultaneously?
- How difficult/easy is it to find a job as an interpreter in your opinion? Why?
- What are the key factors you consider when you apply for a job? Why these?
- Can you explain some of the challenges that you have experienced with current translation bureaus? Why?

17.7 Appendix 7



17.8 Appendix 8



17.9 Appendix 9

The budget in 2018

Team/ competencies cost	Januar	Februar	Marts	April	May	June	July	August	September	October	November	December	SUM	Notes
Software consultation	0	0	0	0	0	0	0	0	0	0	0	0	0	
IOS Programmer	0	0	0	0	0	0	0	0	0	0	0	0	0	
Marketing							0	0	1.000	1.000	2.000	2.000	6.000	
Total team cost						365	365	365	365	365	365	365	2.555	Facebook Campaign
Legal consult (start-up advice)						0	0	0	1500	0	0	0	1500	
eBanking service	0	0	0	0	0	0	0	0	235	235	235	235		
Accounting (Billy)	0	0	0	0	0	0	0	0	145	145	145	145	580	
Interpreters fees	0	0	0	0	0	0	0	0	6000	15000	30000	60000	111000	
Hosting service(wordpress)	0	0	0	0	0	52	52	52	52	52	52	52	364	
Firebase cloud service	0	0	0	0	0	0	0	0	175	175	175	175	700	
General expenses	0	0	0	0	0	0	0	0	1000	1000	1000	1000	4000	
Total cost													126.699	Total cost
The number of itpretation hours	0	0	0	0	0	0	0	0	20	50	100	200		
The unit price(Minute)	10	10	10	10	10	10	10	10	10	10	10	10		
The number of users	0	0	0	0	0	0	0	0	1	1	2	2		2 users for each asylum centers(estimation)
The subscription fee per a user	0	0	0	0	0	0	0	0	0	0	0	0	0	
ConTolk SEO fee														
Revenue	0	0	0	0	0	0	0	0	12000	30000	60000	120000	222.000	
Total Revenue													222.000	Total Revenue
EBIT													95.301	EBIT
Taxes													20.966	
Net Profit													74.335	Net Profit

The budget in 2019

Team/ competencies cost	January	February	Marts	April	May	June	July	August	September	October	November	December	SUM	Note
Salaries	0	0	0	0	0	0	0	0	0	0	0	0	0	
Software consultation	0	0	0	0	0	0	0	0	0	0	0	0	0	
IOS Programmer	50.000	50.000	25.000	0	0	0	0	0	0	0	0	0	125.000	
Marketing	365	365	365	730	730	730	730	730	730	730	730	730	7.665	Facebook Ads
Total team cost														
Legal consult (start-up advice)	0	0	0	0	0	0	0	0	0	0	0	0	0	
Accounting (Billy)	145	145	145	145	145	145	145	145	145	145	145	145	1.740	
Interpreters fees	60000	75000	90000	150000	165000	180000	195000	210000	225000	240000	255000	270000	2.115.000	
VoIP calling service(Snitch)	168	210	252	420	462	504	546	588	630	672	714	756	5922	
Hosting service(wordpress)	52	52	52	52	52	52	52	52	52	52	52	52	624	
Firebase cloud service	175	175	175	175	175	175	175	175	175	175	175	175	2.100	
General expenses	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	24000	
Total cost													2.282.051	Total cost
The number of interpretation hour	200	250	300	500	550	600	650	700	750	800	850	900		
The unit price(Minute)	10	10	10	10	10	10	10	10	10	10	10	10		
The number of users	8	10	12	14	16	18	20	22	24	28	32	34		
The subscription fee per a user	800	1000	1200	1400	1600	1800	2000	2200	2400	2800	3200	3400	23.800	2 users for each asylum centers(estimation)
ConTalk SEO fee														
Revenue	126400	160000	194400	319600	355600	392400	430000	468400	507600	558400	612400	655600	4.780.800	
Total Revenue													4.804.600	Total Revenue
EBIT													2.522.549	EBIT
Taxes													554.961	
Net Profit													1.967.588	NET Profit

The budget in 2020

Team/competencies cost	Januar	February	Marts	April	May	June	July	August	September	October	November	December	SUM	Note
Salaries	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	360000	sales man
Software consultation	0	0	0	0	0	0	0	0	0	0	0	0	0	
IOS Programmer	0	0	0	0	0	0	0	0	0	0	0	0	0	
Marketing	730	730	730	730	730	730	730	730	730	730	730	730	8.760	20000 for sales man + 1000 for facebook
Total team cost														
Legal consult (start-up advice)	0	0	0	0	0	0	0	0	0	0	0	0	0	
Accounting (Billy)	145	145	145	145	145	145	145	145	145	145	145	145	1740	
Translators effort fees	540000	540000	570000	600000	660000	690000	720000	720000	780000	780000	840000	840000	8280000	
VoIP calling service (Snich)	756	756	798	840	924	966	1008	1008	1092	1092	1176	1176	11592	
Firebase cloud service	175	175	175	175	175	175	175	175	175	175	175	175	2100	
Rent	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	96000	
General expenses	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	24000	such transportation + furnitures
Total cost													8.784.192	Total cost
The hours of interpretation service	900	900	950	1000	1100	1150	1200	1200	1300	1300	1400	1400		
The price per a minute	10	10	10	10	10	10	10	10	10	10	10	10		
The number of users	34	34	38	40	42	44	46	48	50	52	54	56		
The subscription fee per a user	3400	3400	3800	4000	4200	4400	4600	4800	5000	5200	5400	5600	53.800	second year subscription fee
ConTalk SEO fee														
Revenue	655600	655600	714400	760000	836400	883600	931600	950400	1030000	1050400	1131600	1153600	10.753.200	
Total Revenue													10.807.000	Total Revenue
EBIT													2.022.808	EBIT
Taxes													445.018	
Net Profit													1.577.790	Net Profit