Master Thesis

DEVELOPMENT OF A PROCEEDING MODEL FOR CREATING A PLATFORM BUSINESS MODEL

Performed at

Fachhochschule-Masterstudiengang
Innovationsmanagement

by

Jon Duroudier BSc.

mentored by
DI Dr. Alexander Marchner

Graz, Mai 2019 .....

Signature

STATEMENT OF ORIGINAL AUTHORSHIP

I hereby declare that I am the sole author of this master thesis and that I have not used any sources other than those listed in the bibliography and identified as references. I further declare that I have not submitted this thesis at any other institution in order to obtain a degree.

Graz, Mai 2019

Signature

PRINCIPLE OF EQUALITY

In order not to disturb the flow of reading by a constant mention of both genders, only the male form is used in this work. However, this always implies the female & male form.

ACKNOWLEDGEMENTS

This work would not have been possible without the support from my girlfriend Irene and my family, who have been very patience, comprehensive and especially helpful for the last two years.

Special thanks to my mentor DI Dr. techn. Alexander Marchner, colleagues and friends who were always there to answer my questions and ready to discuss many concepts and ideas during the development of this master thesis.

SUMMARY

The machining industry is one of the oldest and most traditional industry from the last two centuries. Its development at the early beginning supported the well-known “industrial revolution” period, and over the years, new technical developments has brought the machining technology to a very high level of precision, accuracy and competitiveness in terms of cost and quality. Nowadays the world is facing a new revolution related to the internet of things, big data, and the virtual world; which is mainly supported by the high maturity and capacity that the internet communication offers, and that is supposed to be the revolution that will democratized the technology.

According to these statements, the goal from this master thesis is to disrupt the traditional machining business model, with a new business model concept based on the platform business model, offering a complete solution for the targeted group of users.

With help from the self-developed proceeding model for the business model generation, all the aspects related to the current existing types of machining business models have been analyzed and documented, being identified 7 different types of models. In addition to this, a deep research in the platform ecosystem has given as a result, plenty of insights and characteristics that must be taken in account for a successful implementation of a platform system into the machining industry. Following the proceeding model step by step, the user’s identification has been done obtaining their biggest problems and objectives they want to achieve related with the machining industry.

Mixing up all these ingredients together in a structured way has given as result a list of pain relievers and gain creators that fulfills the users’ needs. And to culminate the work, the rest of the 9 blocks from Osterwalders business model generator have been defined, keeping always the vision of the “machining platform” in mind. The final outcome from this master thesis is then a business model based on the platform concept applied to the machining industry.

ABSTRACT

Technology and digital revolution have transformed and disrupted traditional industries from the beginning of the 21st century. Some of these industries are the hostelry and transport industries, where Airbnb and Uber set up new business Models based on platform solutions which transformed the traditional way it worked. According to this tendency, the machining/milling industry want to be disrupted, having as output a new business model based on a multisided platform system. As part of the challenge, the different actors needed for a business model are analyzed to create, based on their characteristics, a proceeding model that permits a systematic and effective creation of the final business model. For final instances, the out coming model is discussed with experts in a workshop to check its feasibility and robustness.

CONTENT

1. INTRODUCTION

Over the last 10 years the market has been witness of many traditional business models transformation based on the digitalization. With these transformations, the economic, social and industrial layers were as well changed, and the way how they interact between each other turned into new ways that weren't known before.

Nowadays the world is entirely inter-connected. Smartphones, Smart Houses, connected cities, Connected cars, Smart shops, are just some examples from all the possible combination that we have in our life. This new devices, gadgets and connections generate big amount of data that allows the companies to get more information, forecast better the future and prepare themselves to the new changes and challenges.

New Trends like the Block-chain technology, smart business models, or Platform based business models will continue developing and gaining more and more weight in the near future. Thus, new risk and opportunities will appear forcing the current companies to adapt their business model to the new times if they do not want to fail or miss new opportunities.

1.1 MOTIVATION.

Coming from the engineering field, it is for me a big challenge to learn and understand how a platform business model could be set up and designed to get a successful launch and development from itself.

Nevertheless, the most motivating part is to apply this new knowledge to an industry which I work with; the machining industry. Furthermore, it is for me very exciting to implement a different business model to a very old and traditional industry, following up the ecommerce tendency that revolutioned other industries like the hotel and the taxi industry.

1.2 PROBLEM PRESENTATION

Working as a mechanical engineer or doing private activities with engines and vehicles, I have been involved in several projects were special parts or prototype parts were required. In most of the cases, the material of the required parts had to be a metallic material due to its mechanical properties. Therefore, other alternative and more accessible manufacturing processes like the 3D printing where always discarded. In 90% of the cases, the part had to be done using a machining process.

As every time, the problem was concentrated in finding a company or "someone" with access to this kind of resources to manufacture the required part. In most of the cases it was tried always to work with the same provider in which it was possible to trust, but due to availability problems it was sometimes necessary to change supplier and search for another one facing the following problems:

- Time consuming; searching and asking
- Quotation was unprecise
- Delivery dates were not fulfilled
- Uncomfortable process

As the internet revolution has reached all the industries, some alternative for machining and production services based on Internet technology were searched, but unlikely, the services founded were not satisfying 100% the real needs. Even if they were fast and efficient producing parts, there was a big difference in the price between the difference alternatives although the same part with the same mechanical tolerances was requested.

To solve this problem, the idea of creating a manufacturing platform appeared from these problems, where customers and providers could get in touch and interact to cover their needs. But obviously, the definition of this platform characteristics and its business model should be analyzed in detail and explained; which will be the main topic for this master thesis.

Continuing with the introduction, let's explain a little bit more in detail what the "part machining" and a platform are to get at least the basics about these topics that will be use very often in this document.

1.3 MACHINING:

The machining process is way of modifying a workpiece, by cutting shaping or removing material in a controlled way to obtain the desired result or product. In this process there is always a workpiece, which want be modified, and the cutting/shaping tool, which is used to remove the undesired material.

The process itself is a very ancient method that was used by our ancestors over thousands of years to produce tools and goods that helped them to improve their life quality. But in the 18th appeared for the first time the "machinist" concept. For that time, a machinist was considered a man who built or repaired machines by manufacturing its own parts by using all kind of techniques like shaping or even casting. With the industrial revolution in the 19th century, the machinist concept changed its meaning the actual one; and the word machinist or the verb machining was used for the people or process that we know as "conventional machining".

Under the term of "conventional machining" this are the most used process:

Turning, boring, drilling, milling, broaching, sawing, shaping, reaming, and tapping.

At the beginning of this technology, the tools and machined used for the different processes were very rudimentary and very basic. But over the time, these machines were improved offering more precision and flexibility in terms of part production.

Furthermore, the biggest improvement that can be considered in the world of machining, was achieved by the implementation of the electronic control systems and the computer aided manufacturing, as well known as CAM. The development of this technology started in the middle of the 20th century, but it didn´t reach it maturity until the 80´s/90´s of this century. With the CAM system it is possible to program or predefine the steps that machine has to follow to produce one part. The benefit of this method is that it is possible to repeat many parts without almost any error, and the complexity of the parts to be machined can be increased considerably. With the revolution from the IT industry a lot of programs and software started supporting traditional industries. In our case, the Computer Aided Design (CAD) played (and still continue playing) a major role in the production of machined parts. The CAD Systems are programs that allow to design parts on the computer that can be directly be produced with the workshop´s machinery, as they include the CAM system as well. This software has become a very powerful tool for every industry or

designer that wants to produce a part, and nowadays all the companies that offer this kind of solutions keep developing and improving these tools to make them faster, better and with more features. The key of this programs is that CAM system is integrated in the CAD Software, and the complexity of the part can be extremely high, as it can be machined with a 5-axis machine as well[1].

1.4 INTRODUCTION TO THE SERVICE PLATFORM

The concept of service platform is referred to an online “market place” where different groups of people can interact to exchange goods or services. Normally, the group’s users are split-up in costumers and providers, but there is also the possibility of being customer and provider at the same time. But nevertheless, there are other third users participating in platforms attract by the high interactions between the producers and consumers; for example advertisement companies.

The platform must allow a value-creating interaction between customers and providers; therefore, the platform must facilitate the matches among users to make the exchange of any kind of good or services easy and comfortable. It must eliminate the barriers of time and space and use some algorithms to find the best solution for every user[2].

The platform business model can be applied to almost every industry where the information has a value, o where the price fluctuation or supply and demand are key factors. Therefore, the platform base business model can be applied to almost every traditional industry that we know. The platform business usually is very scalable and can be expanded in less time compared to a traditional business from the same industry[3].

1.5 GOALS AND TARGETS:

The master thesis is clearly divided in two parts; theory and praxis. Therefore, there are different goals and targets for each one.

- Theory:
  The final result for the theoretical part is the definition of a process/tool that help to define a business model for a platform-based business just following the different steps of it. In the process/tool, all the key points for the definition must be enclosed and explained in the correspondent chapters, to be able to understand why each used method was selected for every step and how it works.

- Practice:
  The starting point for the praxis part will be the “process model”/tool that has been defined in the theoretical part. From there on, the tool will be applied to define the business model for the chosen industry; the machining industry in our case.
  Once the first model is defined, a feedback loop is required to receive inputs and recommendations about the key factors of the model. Therefore, different interviews with potential users, experts and

[1] Cf, "Machining." *Wikipedia,* https://en.wikipedia.org/wiki/Machining
[2] Parker/Van Alstyne/Choudary (2016). P.5
[3] Parker/Van Alstyne/Choudary (2016). P.3

other experienced entrepreneurs that have already tried to digitalize a traditional industry or process.

2 BUSINESS MODEL; DEVELOPMENT METHODS

The “Business Model” concept appeared many times before in the previous chapter, but its meaning and definition has not been explained yet. Therefore, this chapter’s goal will be to try to answer these questions, explaining and analyzing the most popular and useful ways of presenting and displaying a business model with the methods that nowadays are being used. In addition to this, the pro´s and contra´s from each one will be explained.

2.1 ORIGIN AND DEFINITION

The words “business model” are quite common to hear in a business or industrial world, but actually not everyone that talks about it does know very well what they mean in depth, or which actors and entities interact in this concept.

To detect the origin of this word combination, a study was performed in the end of the 20th and beginning of the 21st century. The goal of this study was to trace the appearance of this words in papers, journals and documents to see its popularity and see how it developed over the time. The keyword used for this search was “business model”, but a derivate of this like “e-business model” or “internet business model” was included as well.

Year	In Title	In Abstract	In Keywords	in Full Text
2003	30	159	10	667
2002	22	109	2	617
2001	11	100	7	609
2000	16	67	1	491
1999	3	42	1	262
1998	1	19	0	128
1997	1	14	0	66
1996	0	14	0	57
1995	0	4	0	36
1994	0	2	0	18
1993	0	5	0	18
1992	0	2	0	15
1991	0	1	0	10
1990	0	4	0	7

Table 1 -The use of the "business model" concept over the years.
Source: Osterwalder/Pigneur/ Tucci (2005), P .12

As shown in the results of the Table 1, the term “business model” is a young term that started appearing more frequently in the mid 90´s. It is believed that the term was related to the expansion of internet, and that it was linked to the new business types and technology that started appearing at that time.

But what is understood under the word “business model”? What does exactly mean?

Going deeper into definition both words can be analyzed separately, as they have their own meaning. A model is considered “*a simplified description and representation of a complex entity or process*”[4], whereas

[4] Osterwalder/Pigneur/Tucci (2005), P.2

the word business, can be contemplated as "*the activity of providing goods and services involving financial, commercial and industrial aspects*"[5].

If these two definitions are combined and put them together, then the result is the following:

"*A business model is a conceptual tool containing a set of objects, concepts, and their relationships with the objective to express the business logic of a specific firm. Therefore, we must consider which concept and relationships allow a simplified description and representation of what value is provided to costumers, how this is done and with which financial consequences*" [6].

This definition is one of the first englobing all the key factors of a business model. It includes the way how a firm makes business, and how the relationship with the costumers and their added value is.

The business model itself is a topic of the economic science that generates a big interest between the experts of the materia. This is why it is possible to find several tools or instruments to represent a business model analyze and understand how they work. Nevertheless, only the most relevant models will be listed and explained in the coming pages.

2.2 ST. GALLEN BUSINESS MODEL NAVIGATOR

The University of St. Gallen, placed in Switzerland, is one of the leading Europeans business school. As the innovation is the key of success for any firm, the University of St. Gallen developed different tools and procedures to understand which key factors are driving the companies to the success, whereas many of them fails even if they were leading a specific market or technology. For example, Kodak.

One of these tools is the "Business Model Navigator". This model is based on an empirical research, in which the most revolutionary business models from the last 50 years were analyzed to extract their core values in order to figure out a pattern. The most relevant outcome from this study was that 90% of the business innovation are a result of a combination from existing models. Just 10% of them are a completely new. As a result of it, the process to drive innovative business models was created, and 55 different models were identified and described. As a part of this investigation, we will list some of them that are useful for our platform business model.

In the business model diagram is the starting point for the business model innovation, in which we can find four important parts for its definition: ***Who, Why, What, How***[7]

[5] Osterwalder/Pigneur/Tucci (2005), P.2
[6] Osterwalder/Pigneur/Tucci (2005), P.4
[7] Cf. Gassmann/Frakenerger/Csik (2014), P.27

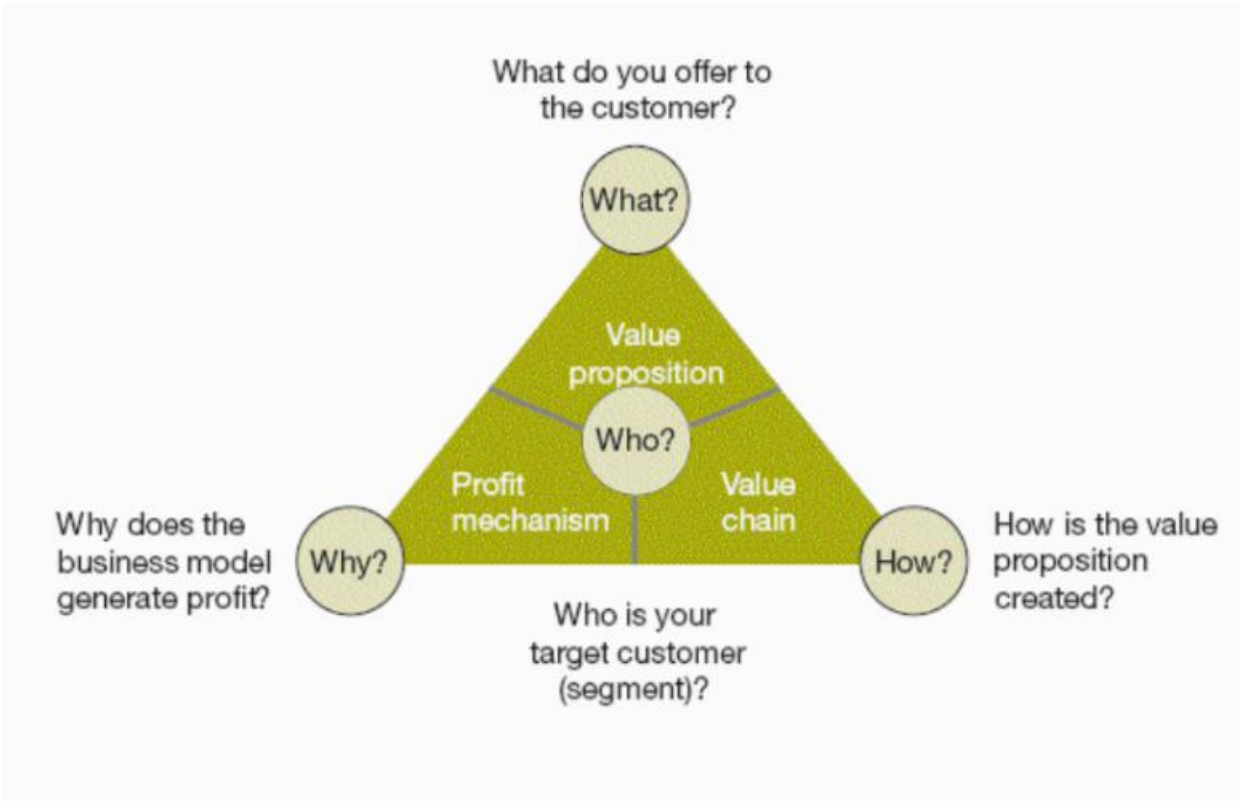

Figure 1 – Business model navigator.
Source: Gassmann/Frakenerger/Csik (2014), P.42

Who: It is referred to the target customers to whom the business model is designed, and as it is shown in the diagram, it is the hearth of the model. The customer stays always in the middle, and everything turns around him.

What: Is the value proposition, *"What do we offer to our customers?*". To answer the question, we have to look obviously to the product portfolio, in which the different products and services that a company offers are listed.

How: For this point, the resources and capabilities must be detailed. It must be known how the value proposition is created, and how the product will be produced (If a product is offered).

Why: The fourth segment refers to the viability of the financial system. Does the model work financially? Does it offer any value to the shareholders? To answer these questions, it must clearly known how the cost structure for the company is, to make sure if the model is financially sustainable or not.

The goal of this diagram is to have a clear picture about the customer segments, the value proposition, the chain value and the profit mechanism in a single layer that helps to have a clear idea about how the business works. The plot is useful to have an overview about the company´s current model, and it is a good starting point to begin with the model innovation using the four steps process, plotted in the figure 1, designed by the St. Gallen University[8].

[8] Cf. Gassmann/Frakenerger/Csik (2014), P.29

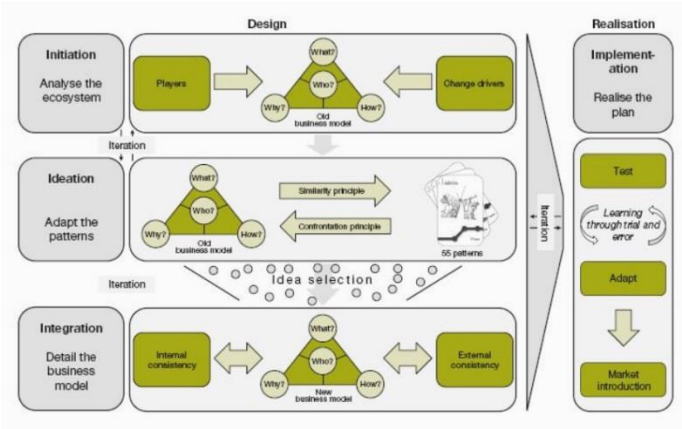

Figure 2 – Business model innovation process
Source: Gassmann/Frakenerger/Csik (2014), P.82

First step – Initiation: Analyzing your ecosystem. As explained earlier in this chapter, in this first step is necessary to collect all the possible information to make a good overview from the current business model. Describing the value creation, the logic, the purpose from the company and its interactions with the market will show how the current direction from the company is.

Otherwise, to have a good overview about the companies positioning in the industry and over their competitors is essential. It helps to set the goals and to learn from the competitors.

Megatrends and regulatory changes play a very important role as well. As the manager from a company is not able to change them or influence them easily, it is better to understand them and adapt the company's business model to stay always within the "game´s rules"[9].

Second step – Ideation: Adapting patterns. Just think outside the sandbox, make a brainstorming with fresh ideas. For this idea generation, the St. Gallen University identified and described 55 different business model patterns that are very useful for this new generation. Imagining how the company's activity could work using the other 55 Models is a very good exercise that provides a big input of ideas. For this kind of methods is very useful to use some whiteboards, flipchart or cards as tools, and therefore, as you can see in the figure 4, the St. Gallen University developed a card set which allows to do these kinds of exercises much faster and understandable[10].

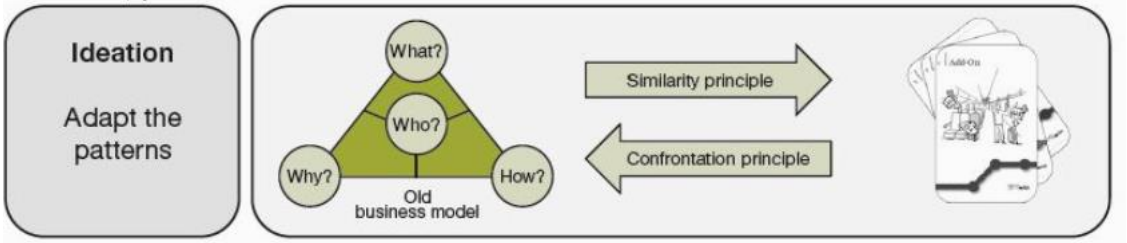

Figure 3 – Ideation Step.
Source: Gassmann/Frakenerger/Csik (2014), P.145

[9] Cf. Gassmann/Frakenerger/Csik (2014), P.54
[10] Cf. Gassmann/Frakenerger/Csik (2014), P.77

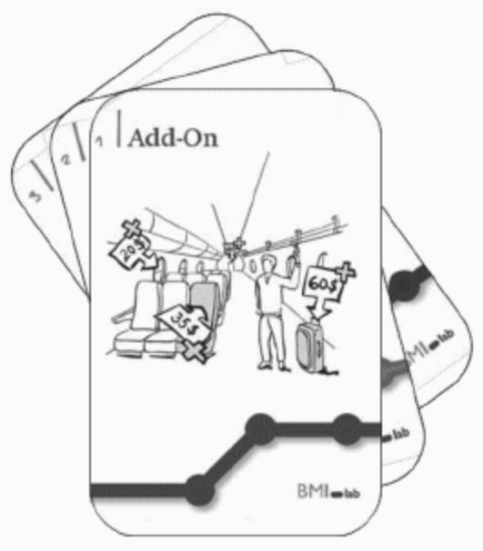

Figure 4 – Business model pattern cards
Source: Gassmann/Frakenerger/Csik (2014), P.146

Third step – Integration: Shaping your business model. After making the pattern adaption from the earlier step, for sure it is normal to have a lot of ideas for a potential business model. But nevertheless, it is crucial to check the internal consistency and the viability of the ideas. This step is about redesigning, making the new business model, and checking that all the actors and factors that play a role in the business model are properly set up. It is necessary to check the internal and external consistency. The first step is referred to it suits to the direct actors that are inside the model (*who, what, why, how*), and the second one is for checking the satisfaction from the stakeholders and its interaction with the prevailing trends and competition[11].

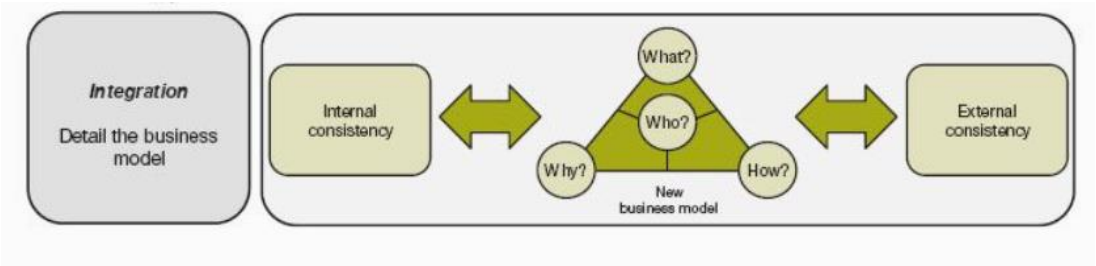

Figure 5 – Integration step.
Source: Gassmann/Frakenerger/Csik (2014), P.180

Fourth step – Implementation: realizing your plans. Once the first three steps are done, the most difficult step is about to start. This step includes very hard and stressful activities like redefining the communication channels, new contracts and negotiation with providers, search of new partners, markets…and so own.

For this step, it is very recommended to design, prototype, and test. The ideas must be prototyped and tested to check the consistency of their design; and in case that they are not working, go back to the design phase and start the process again[12].

[11] Cf. Gassmann/Frakenerger/Csik (2014), P.94
[12] Cf. Gassmann/Frakenerger/Csik (2014), P.100

The 55 Business Models:

The University of Sant Gallen in a very exhaustive work collected and classified the existing business models in 55 different patterns. These patterns, are very useful for a brainstorming or a creative workshop, because it is possible to imagine a concrete activity done with a different business model that in a normal way you could not imagine[13].

2.3 CANVAS MODEL FROM ALEXANDER OSTERWALDER

A very well-known business model, may be the most famous one, is the Canvas model from Alexander Osterwalder. This model is used for analyzing and developing innovative business models, and it is characterized for summing up the most important actors from a business model in only one page. The graphic is divided in 9 different blocks, which according to Osterwalder´s criteria, are the necessary ones to define a business model entirely.

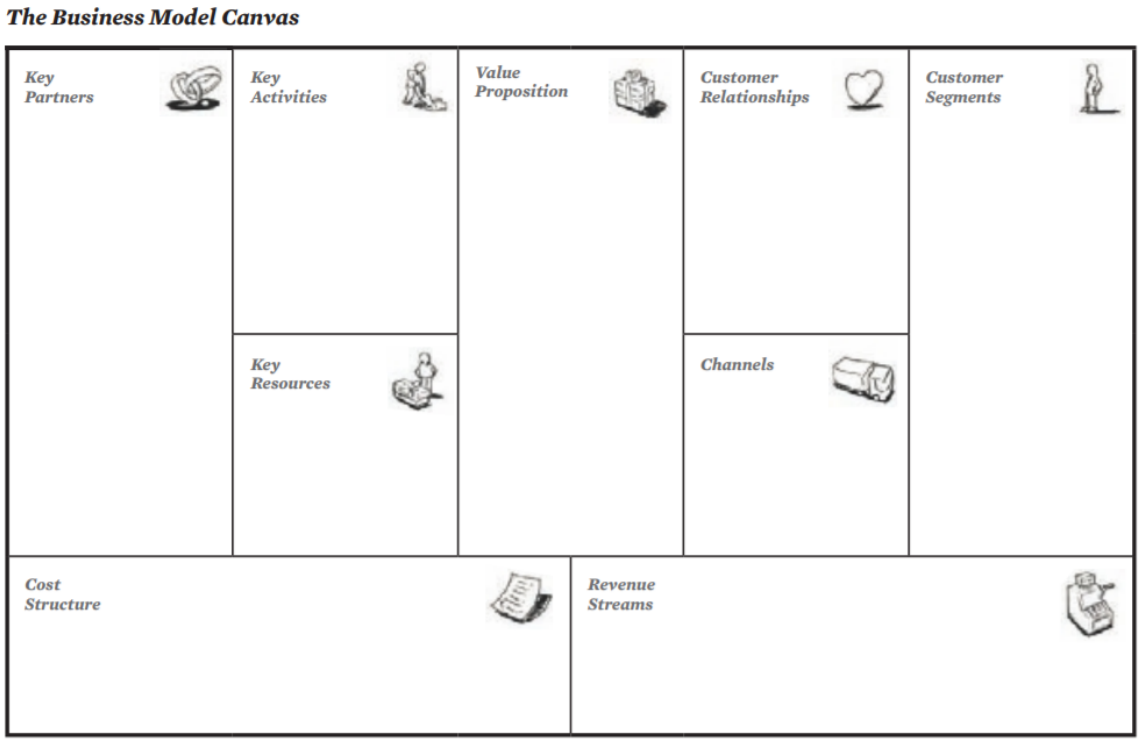

Figure 6 – Canvas Business model Layout.
Source Osterwalder/Pigneur (2010), P.12

The figure above is the Canvas Model explained before. As clarified earlier, it is divided in 9 main blocks that will be briefly explained in the following lines[14] [15].

[13] Cf. Gassmann/Frakenerger/Csik (2014), P.135-516
[14] Cf. Osterwalder/Pigneur (2010), P.12
[15] Reillier/Reillier (2017), P.45

- **Key partners**: The key partners are the surrounding companies or support partners that allow any company to offer the desired value proposition. For example, a key partner for a platform service would be a special developer, one special service provider, or any other provider that is crucial for the model´s succed.

- **Key activities**: The hearth of the model. They are the activities that will permit the model to offer and provide the value proposition itself. They define what exactly the business must do to achieve a successful transmission from the value propositions to the customers.

- **Value proposition**: Is defined by the product or service that is offered to the customer segment as a value creator element. It is the reason why a customer decides to buy a specific product instead another one from the competence. It is a conjoint of attributes that generate value from the customer´s point of view.

- **Customer relationship:** This block defines the way the company treats the customers. It can be done in different ways; automatically, regular reports by mail, personal assistance, self-service…

- **Customer segments:** Defines the group of customers that want to be reached with a product or service.

- **Key resources:** Are the essential and minimum resources needed to develop the business activity. Resources can be from human skills to location, production machinery or any other thing crucial for the business to work.

- **Channels:** How are the customers contacted? These blocks describe the way the customers are reached to get the information about the value proposition.

- **Revenue Streams:** In this block is explained how the company monetizes the service or product. There can be different revenue stream in the same business model. For example, the stream coming from a monthly fee and the stream coming from the advertisements published in a website.

- **Cost structure:** defined by the costs produced to create and offer the value proposition[16].

2.4 THE ROCKET MODEL

The business rocket model is a model created by the company *Launchworks & Co.,* which is a company specialized in supporting and launching platform-based companies between other activities[17].

[16] Cf. Osterwalder/Pigneur (2010), P.16-17
[17] www.launchworks.co

Benoit Rellier and Laure Claire Rellier are the company co-founders , and after working and advising many years e-commerce & telecommunication companies, launching new products & services and platforms, they decided to create the rocket business model. As a platform works in a different way than a traditional business does, the traditional management frameworks weren't able to define it correctly.

The model they created is based on the core activities of firms working on multisided markets. The main activities that a platform must achieve are the following ones:

- Attract a critical mass of customers on each side of the market
- Match them
- Enable them to transact
- Optimize their own operations and ecosystem iteratively

The similarity to the rocket is due to the big amount of energy required to launch this kind of businesses. Compared to a traditional business, a multisided platform has at least two sides or user groups that must be attracted to start with the platform´s functionality. When the platform reaches the critical user mass, the required power to attract users can be reduced; which is similar as a rocket does when reaches the escape velocity.[18]

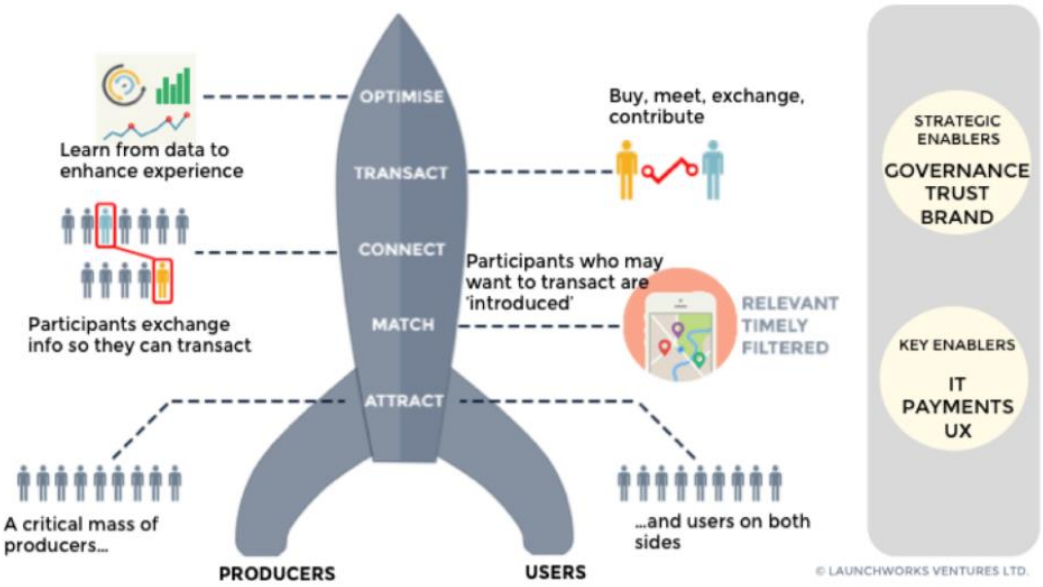

Figure 7 - Representation of the Rocket Model
Source: www.launchworks.co/insights/launchworks-marketplaces-connect-2017.

Attract:

This is the first block that must be taken in account. As written before, a traditional business does not have this problem, because they produce a product or offer a service that is developed for a defined customer segment.

As a platform is a marketplace where at least two groups of users are interacting, it is extremely important to involve them in the platform. This problematic is related to the network effects and

[18] Cf. Reillier/Reillier (2017), P.46

attracting a critical mass of users on both sides is crucial for a long-term success. Without one of these groups, the platform will not be able to start with its functionality.

As this is one of the biggest problems of launching a platform, known as the “Chicken or Egg” problem, different strategies will be explained to solve this issue in the next chapter.

Match:

A platform is characterized for enabling a transaction between users. But first, the correct matching between users must be done. This characteristic becomes more important when the platform starts to scale, and the critical mass of users is reached. Therefore, different tools like “filters” or “geographical limits” must be implemented to filter out the most valuable transactions for the users.

In this first step, the users are presented, and a correct matching function can help increasing the network effect.

Connect:

Before two users makes a transaction, a communication is required between them to discuss and define some details or clarify questions. For example, in eBay it is possible to ask direct questions to the seller if the product is damaged or it has any scratches.

The connect stage is very critical for the platform as well, because at this point the users can decided to finish the transaction privately outside bypassing the platform, once the communication between them has happened. This phenomenon is called “user leakage”. To avoid these problems, the platform must incentive the users to use the platform offering benefits that they cannot find outside the platform.

Transact:

One of the platforms identities is the capability of interaction between users and participants. In many cases, like int traditional business, the transaction uses to be an exchange of a service or good for money. Nevertheless, it is possible find other newer ways of transaction like exchanging “Thumb ups”, “likes” in a video, or a Votes in a comment.

The transaction type must be defined for both sides of the market. It might be a different way of transaction for customers rather than for producers. On the other hand, the platform itself can take benefit of a transaction like many of them do. For example, eBay or Airbnb take a commission for every transaction done through the platform.

Optimize:

For running platforms, this “optimization” step is critical for the platform´s continuous improvement and development. This data-driven process allows the platform´s manager to take decisions based on collected data to regulate both sides of the platforms, implement new methods to enhance the transactions, matching or connection processes.

Platforms generate a lot of data that is processed and used for detecting problems or "neck of bottles" in their value creation system. Therefore, there are multitude of performance indicators that allow the manager to actively improve the platform and prove their hypotheses and new changes[19].

Platform enablers:

The rocket model is supported by some key enablers, which surround the model ecosystem. If an analogy example is taken from the mechanics, the key enablers are like the oil that lubricate bearings and gears in a machine.

The enablers can be splitted in two groups: Strategic enablers, and additional enablers.

Strategic enablers:

- **Governance:** set of rules, policies and norms that are used to regulate the ecosystem. These will depend on the platforms identity and will influence on who is allowed to enter the platform, how disputes are solved, and on disciplinary fines.
- **Trust:** The factor without it would be impossible to scale nothing. The trust is the factor that enables the engagement from participants. If the rules, processes, environment, filters, and payment provide a save ecosystem, the participants will use the platform. To enhance the trust feeling many different strategy's and platform designs can be adopted.
- **Brand:** is related to the trust enabler. Depends on the user's experience, which is mostly influenced by other platform users who with interacts. Therefore, big platforms like Airbnb co-create with their users the overall experience to differentiate themselves from the other competitors...

Additional enablers:

- **IT Infrastructure:** Key factor for a successful platform. Englobes al the IT resources like programming, API´s, capabilities, cloud-based solutions, and so on. It is estimated that the 70% of the IT resources are used to provide a better matching algorithm, whereas the other 30% is used only to improve the front-end usability.
- **User experience:** As explained before, the user experience is often influenced by the interaction with other users. Compared to the traditional business where the value chain is controlled from the beginning to the end from the provider, for platform businesses is not the case. But furthermore, the platform must provide with tools to avoid fakes or faulty articles in the platform to grant the users an outstanding experience.
- **Payments:** a frictionless payment method is the last critical step for enabling the transaction. This solution must be tailored and well planned to avoid any problem or misunderstanding that could irritate the customer[20].

[19] Cf. Reillier/Reillier (2017), P.47-50
[20] Cf, Reillier/Reillier (2017), P.50-52

3 WORKING METHODOLOGY

This chapter is dedicated to different methods that will help to identify and analyze many important aspects for the development process. May be only few of them will be used in the proceeding model and entire work, but it is important to list, explain and understand the different methods that exist to solve a certain problem. Even if 2 or 3 tools listed here can solve the same problem, each of them for sure has a different way of facing it and offering a different solution that will lead to solve the problem.

3.1 TOOLS FOR REQUIREMENTS IDENTIFICATION

According to the requirements that are essential to identify in different states of the business model generation process, it is crucial to understand how to collect, analyze and understand them the following tools and methods described below are some examples of powerful tools specified for this purpose. In this case, the tools must be able of analyze a sort of companies, industry or any kind of company groups and identify the key points and weaknesses from each of them.

On the other hand, the tools are required to understand what the customer feels and think about a certain service or product that he has bought or use. The process must analyze how the customer thinks since he finds out his problem and decides to use a certain product/process/company, until he finishes using this product/process/company and changes from activity. Furthermore, a tool is required to understand deeper who my customer is, and what he is interested in.

3.1.1 Bench marking:

Created in the second half of the 20th century, the benchmark method was primarily used by Japanese companies after the Second World War. Afterwards, the printer company Xerox implemented this method, followed by other automotive companies like Ford [21].

The benchmark is a method in which products, processes or services offered by a company can be compared to similar ones from leading companies. This companies can be direct competitors, or top companies from foreign industries. The goal is to identify the best practices of these top companies to ensure a company´s competitiveness and success. There are ten main Benchmark methods, mainly differentiated on how the data is obtained for the benchmark activity. To have an overview on how they look like, here is a short description of them[22]:

- Public Domain benchmarking: consumer magazines, newspapers.
- One-to-one benchmarking: considered as the most common benchmarking type, is when the participants are visiting each other.

[21] Cf. Vahs/Brem (2015), P.131
[22] Cf. Stapenhurst (2009), P.20

- Review benchmarking which is typically carried out by a team visiting each participant, identifying relative strengths and weaknesses, best practices and perhaps making recommendations and even facilitating improvement.
- Database benchmarking in which a participant's data are compared to database of performance levels. Trial benchmarking is carried out by trialing and/or testing products and services from other organizations and comparing them against your own products and services. Survey benchmarking usually carried out by an independent organization surveying customers to ascertain customers' perception of relative strengths and weaknesses compared to competitors. Business Excellence Models benchmarking in which an independent assessor scores aspects of the organization according to a Business Excellence Model such as the Baldridge Award or the European Foundation for Quality Management (EFQM).[23]

Even if there are this many different ways of benchmarking, all these variants are characterized by using almost the same process structure, which is divided in 3 main systems: Planning, Benchmarking Performance, and Improvement.

Planning:

The first step in every benchmark project is to select a product or service to benchmark, and to demonstrate that there is the need of doing this benchmarking work. A benchmark study is a method that requires a lot of effort, therefore, if there is not a clear sign of weakness in the company, the management will be doubtful about setting up the program. Therefore, in this case it is required to collect all the data and evidences that justify the work.

Once this step has been overcome, it is necessary to organize a team and to develop a proposal for the activity, in which all the weaknesses that want to be analyzed are explained, as well as the benefits that the company is getting from the study.

Continuing with the development, the potential participants must be selected. If the benchmark is done outside the company, it has to de decided to whom is oriented the benchmark process and how it will be done:

- Are the direct competitors included?
- Other industries are required for the research?
- Geographical coverage?

This step has a big relevance because it has an impact on how the metrics for the evaluation are defined.

The metrics enables the user to have some real and objective data to compare the performance between different participants. In this case many different parameters of the benchmarked product can be used to have a proper evaluation of it. The more accurate and easier to score a parameter, the better will be the quality of the obtained data[24].

[23] Cf. Stapenhurst (2009), P.19
[24] Cf. Stapenhurst (2009), P.51

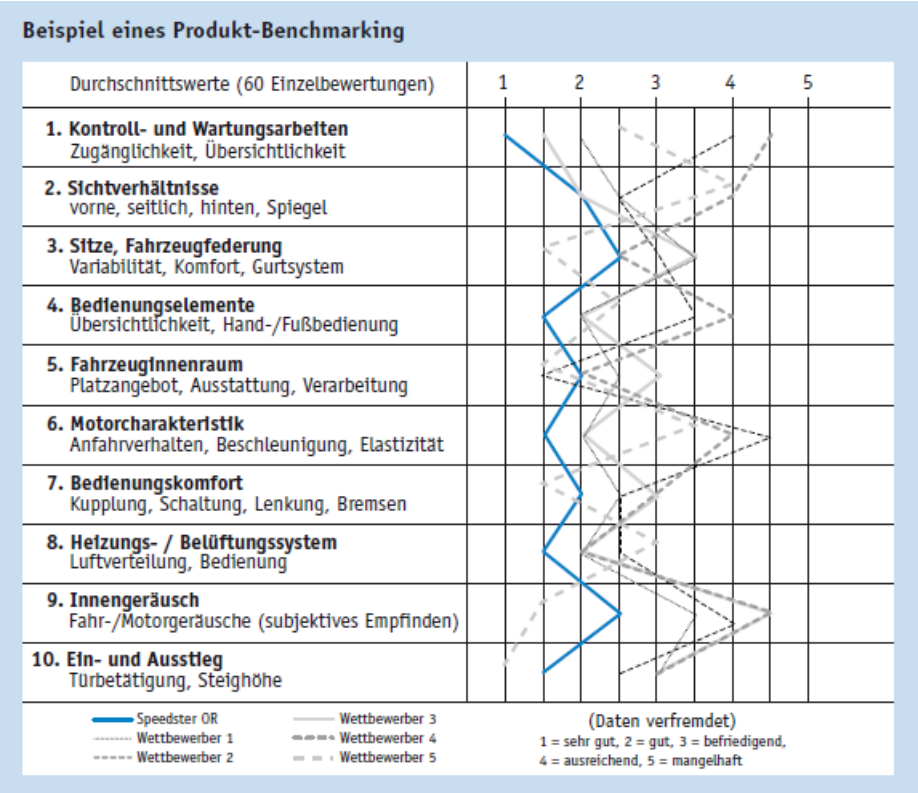

Figure 8 – Product Benchmarking
Source: Vahs/Brem (2015), P.133

Performance:

A crucial step from every benchmark study is to collect and validate the gained data. This can be done with some surveys or so called “data collection packs”, with some questionnaires and easy to fill spreads hits. However, it is also possible to collect useful information from databases and competitor’s websites.

When the data has been collected and submitted, it is necessary to start with the validation of it, deleting all the implausible data that could have been collected. The level of complexity will depend on how many parameters were chosen for the benchmark and how big the data recompilation was. This will obviously have an impact in the data analysis and on its quality[25].

Improving the organization:

Finally, after getting the most important lessons out of the data, decisions must be taken to have a benefit of the work done. In some cases, there is the possibility of taking some fast decisions, but in other ones it is required to study the case deeper to ensure that the correct way has been taken[26].

[25] Cf. Stapenhurst (2009), P.55
[26] Cf. Stapenhurst (2009), P.57

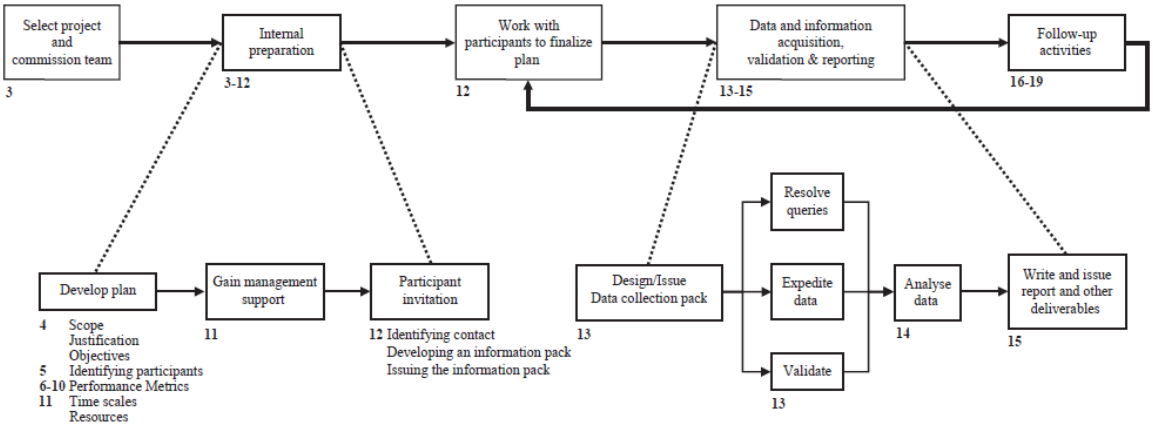

Figure 9- Benchmark process.
Source: Stapenhurst (2009), P.56

Summing up, the method permits us to analyze different products using objective indicators that allows as to take decisions based on reliable data, whereas on the other hand, the effort and amount of resources to do this kind of test is very high and complicated.[27]

3.1.2 Customer Journey Map:

The customer journey map is a method used to analyze the customer´s interaction with the product or services from the beginning until the end. The process is divided in every single stage that is related with the product, in which the feelings or problems from the customer are expressed. The customer journey map is always done from the customer's point of view, because the goal is to understand what is experienced in every single step. In this way, it is possible to understand the pains and customer's needs. The points in which the customer is interacting somehow with the product or service are called "touchpoints"; therefore, it is required to add so many steps in the model, as "touchpoints" the system has.

As the customer journey map is done from a customer´s point of view, it is necessary to define who is the customer or the ideal group of customers. Therefore a "persona" must be defined for the journey. In this definition, a short identification profile must be defined with useful information like preferences, socioeconomic status, communication channels and other useful information that helps to identify the customer.

As explained before, the customer journey is a timeline of events, where the customer goes through different steps experiencing different feelings. These steps can be splitted generally in the following ones:

1. Awareness: The customer becomes aware of the category and the problem that they need to solve.

[27] Cf. Vahs/Brem (2015), P.132

2. Consideration/research: Customers research various ways to solve their problem, deciding whether or not they want to purchase.
3. Evaluation: Customers decide to purchase and evaluate various options.
4. Purchase/commit: Customers purchase the product/service.
5. Onboarding/out-of-box experience: Customers are educated on and interact with the product or service.
6. Retention: Customers consider staying with the same provider, switching providers, or discontinuing the product or service altogether.
7. Advocacy: Customers invite others to experience the product/service.

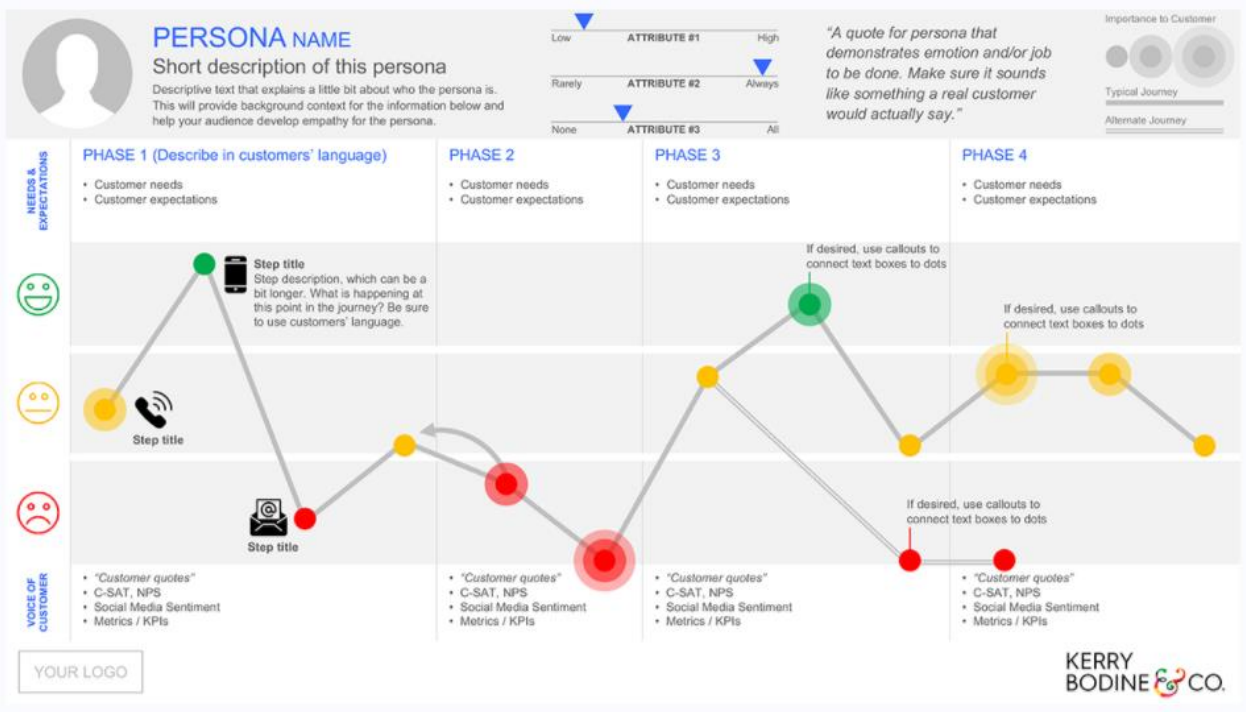

Figure 10: Customer journey map.
Source: kerrybodine.com/how-to-use-our-free-journey-mapping-template/

In the graphic above, a customer journey example is plotted. The journey in this case is divided in 4 stages, and in the "Y" axis we have 3 parameters to measure the customers felling, needs and desires. If the journey map is required for this master thesis activity, the model will be adapted to the case of the machining industry.

3.1.3 Value Proposition Canvas

Simple but very effective and easy to use is the next tool for value proposition that is going to be explained in the following lines. The Canvas Value Proposition helps to design and test customer value propositions in a very intuitive way. The model works as a plug-in from the Business model Canvas, and it is based in two from the nine main blocks: Customer segments and value propositions. With the value proposition

Canvas, it is possible to isolate this to groups to check if the proposed values are fitting the customer´s needs[28].

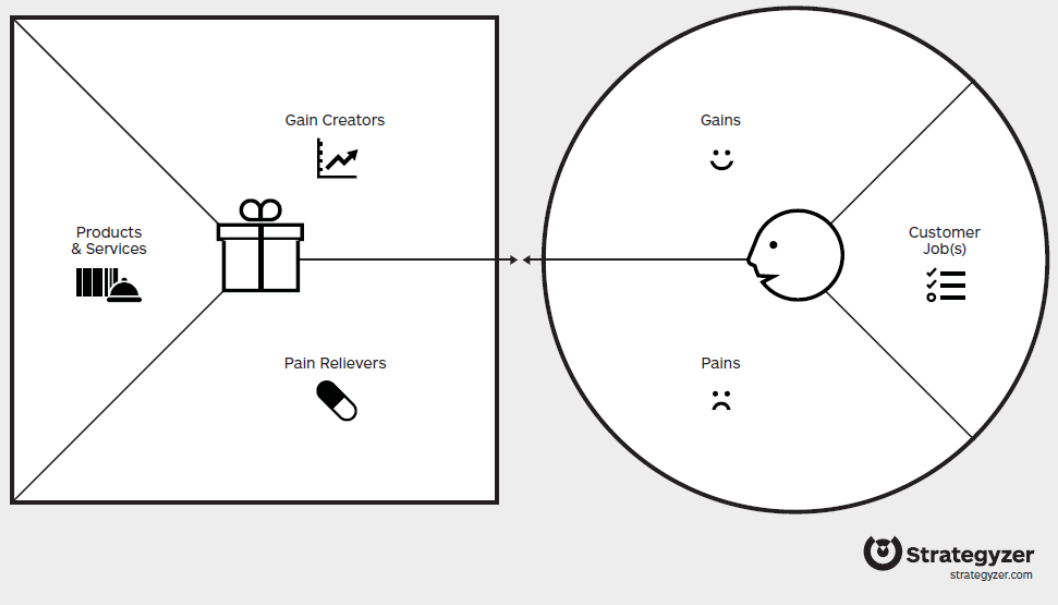

Figure 11 – Value proposition and customer profile.
Source: Osterwalder/ Pigneur/ Bernarda/ Smith (2014): P.19

- The customer´s profile is divided in 3 segments, which define the customer´s characteristics; pains, gains and jobs to get done. Pains are the problems or annoying things that the customer wants to get rid of, gains the benefits and positive effects that the customer want to get, whereas the job to get done are the steps and processes that customers must follow to get to the goal. They are the important problems and issues that they want to solve.
- On the other hand, the value proposition map is used for designing the features that the offered value proposition must have to fulfill the pains, gains and jobs. The map is built with three blocks, Product and services, pain relievers and gain creators. The products are the created main value proposition, pain relievers describe the way the pains are shortcutted, and gain creators describe the extra positive aspects created for the customers[29].

If the value proposition side is matching the customer's needs, there is a problem solution fit, whereas there is a product and market fit when the product is tested in the market with real customers.

Summing up, this tool is a very useful and intuitive way of presenting the key points for designing a value proposition for a product or service in very few steps.

3.1.4 Personas:

When developing a product or service everyone starts to think about fancy and good features and tools their product must have, but many of these product developers often forget who their customer is, or they simply finish in a wrong product because they did not have clear the target customer.

[28] Cf. Osterwalder/ Pigneur/ Bernarda/ Smith (2014): P.19
[29] Cf. Osterwalder/ Pigneur/ Bernarda/ Smith (2014): P.37-52

To solve this problem, the personas terminology firstly appeared around 1999 by Alan Cooper in his book "*Why High-Tech Products drive us crazy and how to restore the sanity*". But what is exactly a personas?

A personas is a user profile that represents a group of people that shares the same similarities as the customer defined in the personas profile. In the personas profile, all the relevant and important information that defines our user is written, creating its own identity: name, age, studies information, social status…

It is important to define entirely the customer, because one of the goals of the personas profile is to avoid the stereotypes like when a customer market segmentation is done filtering by gender, age, religion or other characteristics. With the personas it is possible to make groups of customers, but only with people who shares the same similarities[30].

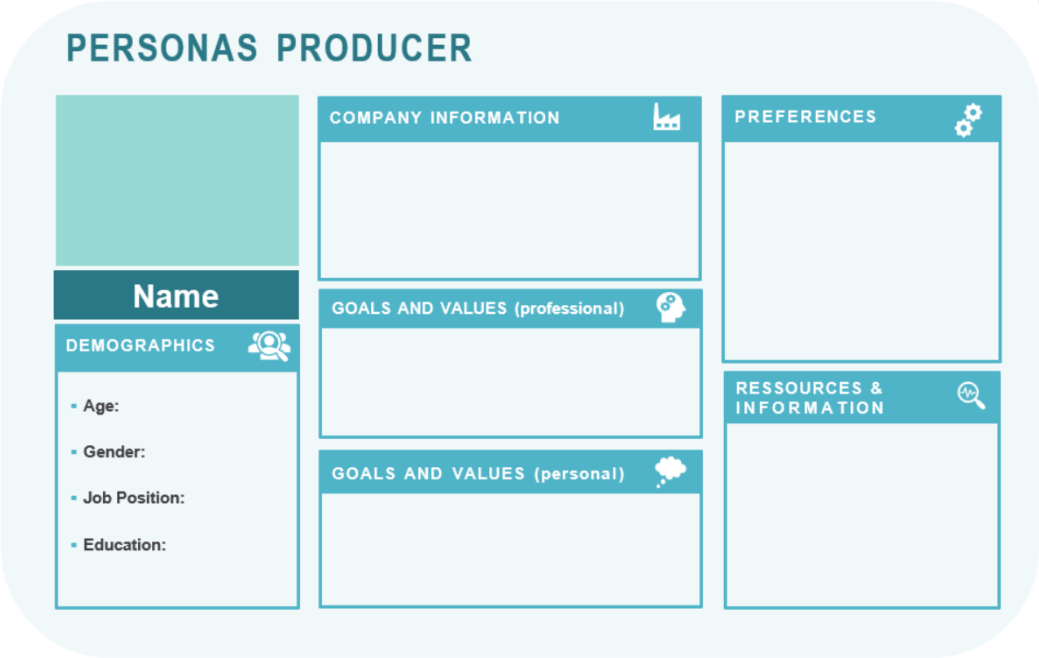

Figure 12 - Example of Personas profile template.
Source: Own representation

The personas methodology is very useful when developing a product with focus on the end user (User centered design), and it helps to empathize with the different customers while designing the features for the product, especially in the idea generation and evaluation stages.

[30] Cf. Revella (2015): P.42

3.2 METHODS FOR IDEAS GENERATION

3.2.1 Brainstorming

This method is the most common one used in several industries and in non-professional environments due to its high popularity and simplicity to implement, but however, in most of the cases the rules are not followed, and it is done wrong. To have a successful brainstorming, these simple rules must be followed:

- **Participants & duration:**
  The brainstorming is a group discussion, between five and ten people, focused on a specific problem where the participants contribute with their ideas to solve and find a solution. In best case, the group is formed by heterogeneous people with different backgrounds and ideas. The idea generation should not be longer than 15-30 minutes, because as it is proven by different studies, the brainstorming loses its effectiveness after this period of time[31] [32].

- **Ideas generation:**
  At the beginning, the topic and the problematic are explained to the participants, and the norms and rules must be clearly defined and explained. In this phase, the idea generation happens, where all participants propose ideas to solve the problem. It doesn´t matter how plausible the idea itself is, it only matters to get as many ideas as possible and to document them in a whiteboard or in a flipchart with key words or small drawings. It is desired to have a big quantity of ideas instead of quality.

- **Do not comment and criticize:**
  It is forbidden to criticize or to talk about other´s ideas, as the goal is to put on the flipchart as many of them as possible. Furthermore, this is one of the success key factors, because people lose they fear to be criticized by other and continue saying their ideas... The evaluation from the ideas and the selection is done later in the last phase.

Summing up, the brainstorming is a powerful tool for ideas generation that can bring very valuable ideas from mixing up ideas or concepts that it is only possible by having a multidisciplinary team for the activity.

3.2.2 Brainwriting; 3-5-6 Method:

The brainwriting method could be considered the brainstorming's development, and even it is not as popular as the brainstorming, it usually produces more ideas than a brainstorming session[33]. The fact, that the participating people write their ideas down, avoid the blocking effects found in the face to face brainstorming activities. Moreover, another benefit of using this method is, that the participants write their ideas down, and there are no possibilities of manipulation ensuring good results and quality[34].

[31] Cf. Schawel/Billing (2018): P.57
[32] Cf. Chauncey (2013): P.8
[33] Cf. Chauncey (2013): P.44
[34] Cf. Vahs/Brem (2015), P.289

One of the most popular variants of Brainwriting is the 6-3-5 Method. In this alternative Brainwriting scenario, 6 participants write 3 ideas in a sheet of paper, and after 5 minutes writing, they pass their sheet to the next participant, who will further develop their initial ideas again in a 5 minutes time slot. Each sheet will be passed 5 times before finishing a round, which means that every initial idea will have 5 additional development steps.

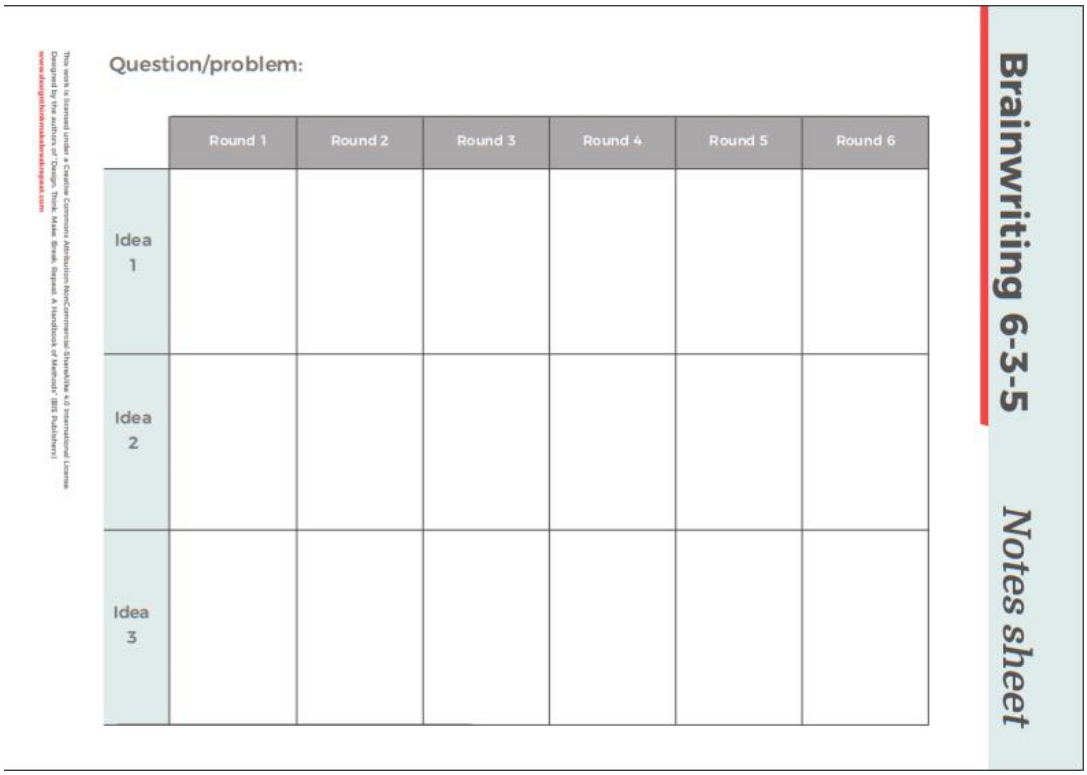

Figure 13 – Brainwriting 6-3-5 Sheet
Source: http://designthinkmakebreakrepeat.com/brainwriting-6-3-5/

The result is a multiple variety of ideas obtained from different minds and interaction order that give a very reach idea generation.

3.3 METHODS FOR DECISION MAKING

The art of taking the correct decision is in every project, process or development a part of the job that has to be done. For taking a decision, it is necessary to have all the relevant information and alternatives to choose always the best one to achieve the desired target. In this master thesis, after every small chapter from the practical part the results will be plotted or described, and if needed, any of the methods explained in the following lines will be used to choose the correct decision. Decision taking implies always to leave at least one option to one side. But in case decisions must be taken, here are three methods that will help with:

3.3.1 Matrix for ideas evaluation

The method is used when many different ideas are available after a creative workshop or after using a tool that permits the ideas generation. Normally at the end of this kind of exercises the result is a list with many

different Ideas that need to be ordered and prioritized, in order to work with the results effectively knowing which of them are most relevant. Otherwise it is not possible to develop a realistic solution.[35]

The matrix, as any other table it has two axes that are used to position every single result in the matrix to evaluate it. In order to evaluate the attributes in a neutral way without influencing it with personal opinions or denotations, it is necessary to choose two parameters for each axis that permits an objective evaluation. Normally, in the X axis the feasibility is selected, whereas in the Y axis the relevance is chosen.

In the figure 14, it is possible to see how the matrix looks like. If the axis are observed, it is possible to see the parameters explained above. The ideas are classified depending on both parameters and placed in the matrix and depending in which area from the matrix they are, they will have more or less attractively to be developed.

- The upper right area from the matrix is the region with highest priority. As the ideas placed there have the biggest impact and are easy to implement, then the highest priority is given to them.
- Just above this area, down and right, there are the ideas which are easy to implement, but without a low relevance compared to the rest of them. Therefore, is considered this region with a second level of priority
- Following with the same priority level, the upper left area from the matrix is placed. In this case, the ideas have a high relevance, but they are quite difficult to implement.
- Last but not least, at the lowest and left region from the matrix it is possible to find the region with lowest priority. This means, that the ideas placed here have the lowest impact and the highest complexity for being developed.[36]

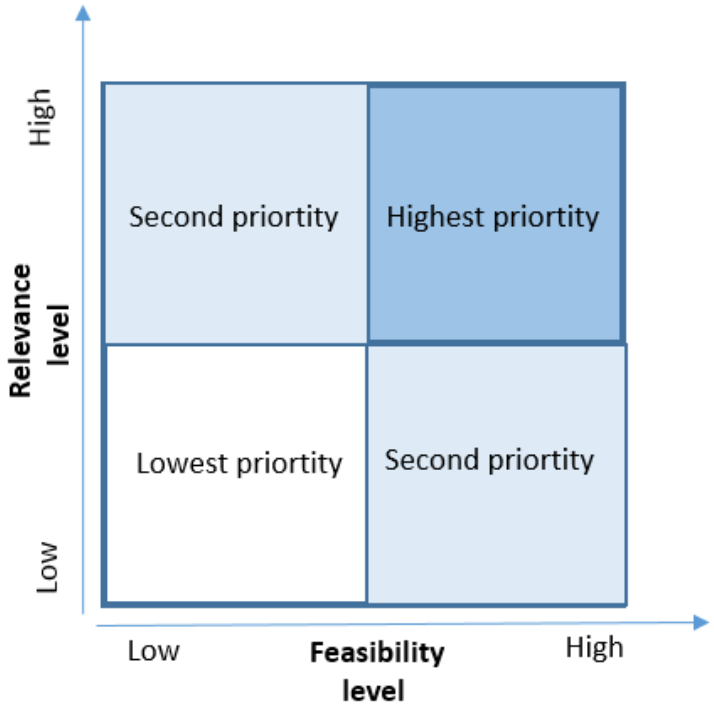

Figure 14 - Matrix for ideas evaluation.
Source: Own representation

[35] Cf. Schawel/Billing (2018), P. 157
[36] Cf. Schawel/Billing (2018), P. 158

Resuming, the matrix for the ideas evaluation is a very easy to use method to organize ideas in a structured way and to plot them for a good visual interpretation. At a glance it is possible to see the ideas with more potential. But on the other hand, to get a deeper understanding about the ideas before taking a decision, further evaluation with other tools should be done to guarantee a good result.

Anyway, it is possible to adapt the matrix for every special case where the axis criteria can be changed. And, even better, it is possible to use more than one matrix changing the parameters to evaluate the ideas. The more matrix and information the user has, the better and easier the decisions can be taken.

For example, this method could be a good tool to evaluate the ideas that will come out from the praxis part later on, and will permit a better development in case that some of them must be prioritized.

3.3.2 Checklist

The checklist is a tool that helps to take decisions using many different rating criteria. The used criteria depends every time in the cases and objects or systems that want to be rated. This is why a checklist should firstly receive the “music criteria”

Under the terminology “music-criteria” are collected all the relevant criteria that must be mandatory fulfilled. If any of those music criteria cannot be fulfilled, will automatically the idea for the current filtering step discarded[37].

For the other ideas that can fulfill all their music criteria, further steps are prepared. To continue with the filtering process, some „can-criteria“ are added to the already existing criteria. The can-criteria must not be fulfilled mandatory, but to increase the idea´s attractiveness, the higher the number of fulfilled criteria, the higher the idea´s relevance is. The checklist is a good method to remark the biggest success opportunities of any idea with relatively les effort. Specially for these cases are the Music- criteria, which are criteria that can be answered or scored with a “yes” or “no”, are very suitable for this kind of checklists, where a firstly analysis is required. Checklist can be in plotted or structured in many different ways, like questions or any kind of table of contents with scoring bullets[38].

Regarding to the proceeding model of the master thesis, the checklist is very helpful to make a first selection of the ideas generated in brainstorming and brainwriting sessions, where a first out filtering of ideas is needed. Furthermore, the checklist can be used as well to check and rate complete solutions packages in first instance, to see if they are fulfilling the most relevant criteria that are needed.

3.3.3 Pairwise Comparison

This tool is used to compare different options regarding their relevance and supported by a matrix and a mathematical weighting method. With the pairwise comparison matrix, certain criteria and properties considered important for the comparison can be compared to other ones and scored regarding their relevance[39]. The out coming result from the method is a ranking of criteria based on the relevance they

[37] Cf. Vahs/Brem (2015), P.330
[38] Cf. Vahs/Brem (2015), P.332
[39] Cf. Brockhoff (1994), P. 253

have. The benefit is that using the tool many different criteria can be listed out from most relevance to less relevance[40] to have a clear vision about the parameters relevancy.

The pairwise comparison has 5 steps to be followed, described in the next lines:

- The first step is to write all the objectives along the top row of the table, and along the vertical left column of the table. The order in both column and row must the equal, otherwise the comparison will be done wrongly.
- The second step is to put dashes on the diagonal blocks. The reason is that the main diagonal cannot be used for the comparison
- The next step is to compare the different elements between them. The comparison is not done randomly, it must be done in the following order. Starting with the first criteria from the column, the comparison is done with the other criteria from the row. Each comparison is scored with a number between 0 and 1 depending on the relevance. If the criteria from the row is more important than the criteria from the column, a 1 is written.
- The sum of the different points is done at the right column, or in the las row from the table.
- After making the sum, the parameters can be then ordered regarding their relevance, and then the most important can be chosen if a decision is needed.

	Criteria A	Criteria B	Criteria C	Criteria D	Criteria E
Criteria A	X	1	1	0	0
Criteria B	0	X	1	1	0
Criteria C	0	0	X	0	0
Criteria D	1	0	1	X	1
Criteria E	1	1	1	0	X
Sum	**2**	**2**	**4**	**1**	**1**
Ranking	**2.**	**2.**	**1.**	**3.**	**3.**

Table 2 – Pairwise comparison.
Source: Own representation

In the Table 2, a matrix for the pairwise comparison is shown as example. As explained before, the criteria are firstly written in the top row of the matrix, and in the left column; respecting the same order. Starting with the A criteria from the column, the different criteria from the row are compared, and if the criteria from the column is more important than the other one, the pint is written in the box.

Summing up all the points in vertical in this case, it is possible to see which of the criteria is the most relevant, and how relevant it is compared to the others. It is important to remark, that there are some criteria

[40] Cf. Vahs/Brem (2015), P.333-334

with the same scores. In these cases, it is possible to make again the pairwise comparison between the criteria with the same scores until a clear linear ranking is achieved.

4 PLATFORM CURIOSITIES

The concept of service platform is referred to an online “market place” where different groups of people can interact to exchange goods or services. Normally, the group’s users are split-up in costumers and providers, but there is also the possibility of being customer and provider at the same time.

The platform must allow a value-creating interaction between customers and providers; therefore, the platform must facilitate the matches among users to make the exchange of any kind of good or services easy and comfortable. It must eliminate the barriers of time and space and use some algorithms to find the best solution for every user.

The platform business model can be applied to almost every industry where the information has a value, o where the price fluctuation or supply and demand are key factors. Therefore, the platform base business model can be applied to almost every traditional industry that we know. The platform business model usually is very scalable and can be expanded in less time compared to a traditional business from the same industry.

Furthermore, from the beginning of the 21st century, the tendency of every industry has been going digital, and many of them has open a platform to offer their services. But a Platform business does not work exactly like a traditional company that we know, therefore it is important to understand their particularities and singularities.

4.1 NETWORK EFFECTS

A platform´s success is partly influenced by the network effect that it is able to create or reach. But before going deeper into the topic, let explain what a network effect is.

The network, as its name says, is a big interconnection between nodes that can be physical, like the telecommunication networks, of virtual like the Facebook or LinkedIn network.[41] The networks, depending on which type of interaction is allowed are splitted in two types: unidirectional or bidirectional. In the first one, the messages or packages can be only sent in one direction, whereas in the second one, the messages are sent in both directions.

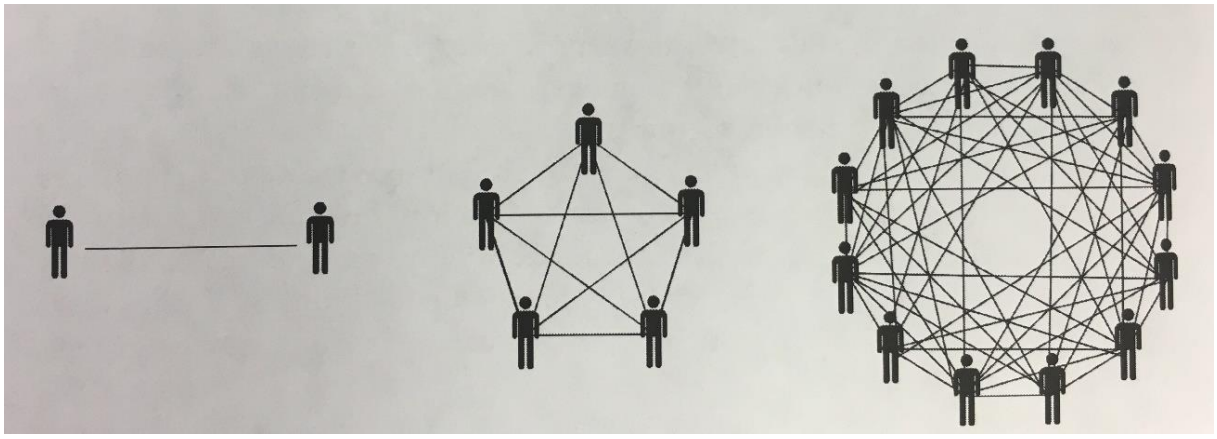

Figure 15: Network effect.
Source: Reillier/ Reillier (2017), P.42

[41]Cf. Reillier/ Reillier (2017), P.33

Whereas in a traditional business the exclusivity is a differentiation from other products, in a business platform model, the more crowded of users the platform is, the more powerful the network effect will be[42]. Therefore, the network effect happens if a service or product become more valuable if more people use it.

The network effects can be classified in two types, depending on the used type of platform.

- **Direct effects:**
  In this case, the network will be more powerful, the larger the number of users they are connected. This case is valid for one sided platform like the telephone, fax, internet, or any communication channel. For example, if only one person in the world would have a fax to send messages and documents, it would not be very useful this technology because nobody else could receive his messages, and in last instance, its network effect would be extremely poor or inexistent. This type of platforms become more powerful the larger the users it has; because if more people is using the fax as a communication method, the further and better it will be the communication with other people in other cities and countries. Increasing the number of users will attract more users. It could be said that it is like a "snow-ball" effect.

- **Indirect effects:**
  For these kinds of effects, it is necessary to look other type of platforms. For the direct effect we spoke about one sided platform, but in this case, we have to speak about "multisided platforms".
  A multisided platform is one interaction space where at least 2 or more group of users can interact between them to exchange goods, services, or any kind of valuable product. This platform type is the most used one in the world and it is very easy to find lot of examples: Uber, eBay, Airbnb, Visa and lot more.
  If Uber is taken as an example for the explanation, it is possible to see clearly that Uber is a multisided platform. In one side there are drivers who want to give a ride, and in the other side there are users who want to be transported.
  If there only would be a lot of drivers who would like to give a ride, but any passengers who would like a drive, it would be impossible to make any transaction of services and the platform would not work losing the attractiveness for the users in consequence. In the other way around, if there only would be passengers who would like a ride, but nobody who can give it, it is again a nonfunctional platform case. Therefore, for the correct functionality of the platform, it is necessary to have two almost equal sides, where one side can satisfy the demand from the other one and vice versa.
  For this platform system, the indirect network effects occur when one side is attracted by the other side. If the number of passengers increases, more drivers will be attracted to give drives because the demand is higher. And the higher the number of drivers is, the more passengers want to use the service because of the high availability of cars[43].

Anyway, it is possible to use both type of Networks effects in the same platform. For example, when Facebook started, they only could get benefits from the direct network effect. Firstly, their classroom mates joined the platform, and later other people joined just because lot of people was there. But when they started

[42] Reillier/ Reillier (2017), P.33
[43] Parker/ Van Alstyne/ Choudary (2016), P.30

to grow, they decided to add advertisements and to create applications. In that point, the platform started being a multisided platform using the indirect network effects as well. Advertisers and developers were attracted due to the big amount of user they were there, and on the other hand, the users were attracted because more friends could be found in the platform (direct) and because interesting functionalities and App were created by developers (indirect)

The network effects are very important, because they represent one of the most important barriers for competitors, and it will help to protect the market and the business itself. If the platform has a big powerful network effect, it will be more difficult for a new platform to enter the market. And even a new platform business models disrupt the current system, a platform with a big network effect will have more time to react and correct the errors because the big number of users will not leave the platform so fast, because the numbers of users is very big. But a network effect is not only about the number of users, it is about the number of active users and the number of transactions they make. A non-active User contributes less than an active user obviously.

4.2 REACHING A CRITICAL MASS

For network effects to become more powerful it is necessary to reach the critical mass of users for the platform. This point is defined by experts as the point at which the growth of a network becomes "self-sustaining"[44].

For new platforms that start creating network effects it is crucial to reach this critical mass point, because most of the platform that they do not, in most cases fail. For a growing platform is very difficult to make a good match between users because of the reduced number of users and its poor Network effect. But as the network effect goes in circles, the more users the platform has, the better will be the matching between users and in consequence, the service offered by the platform.

On the other hand, a network effect can also have some negative effects on the platform functionality when the critical mass is reached without a proper balance between both sides.

Taking as example to explain this phenomenon a dating app, we will easily understand why many of them failed in the past years[45].

The dating app is mainly a two-sided platform where men and women are matched depending on the platform's algorithm. The typical problem in these cases was that when the app reached the critical mass and became popular due to its effectiveness. A lot of men joined the platform exponentially looking for a match with a woman. Of course, this produced a big unbalance between both sides, and lot of women decided to leave the platform. The tendency of the men was to send a date request to the most attractive women, but as the number of men was very high, the request was done as well by not very attractive men for those women, and as result, the women left the platforms because they did not find a perfect match with men from their level. And in the other way around, the men who tried to get a date whit those women never got an answer and they left as well because they were unhappy with the experience.

[44] Reillier/ Reillier (2017), P.35
[45] Parker/ Van Alstyne/ Choudary (2016), P.27

There are many different methods to avoid this problem that can be implemented in the platform´s architecture. For example, it is necessary to have a good matching algorithm, and therefore it is useful to get as much as possible information from the users to increase the matching effectiveness among them. In other platforms, to get both sides balanced, there are some entrance barriers to join the crowded side like paying a monthly fee, or an exhaustive profile check from the platform administrator to ensure a good quality of users and balance[46].

4.3 MULTIHOMING

For some platforms it is very common to have developers that sell their products in more than one platform or that produce the same content for different platforms. This phenomenon is called *multihoming* and helps the developer to increase their presence and benefits while reaching more people.

This is a clear case what happens in the smart phone world. There are mainly two clear platforms that share the global market: iOS and Android. For these two platforms, there are some exclusive applications that can only be find in each operative system, but some of them are developed by free creators that decide to put them on both systems.

4.4 MONETIZATION

In traditional business models where goods or services are produced, the well-known economies of scale are used to fix the products pricing. Many companies get benefit of this system, because they can divide the fix cost from the machinery, salaries, and another fix costs between the amounts of products manufactured.

But for Platform business models, getting money from the network effects is a very tricky topic that can ruin the platforms strategy if to many frictions are introduced while pretending to monetize for its use. It is very necessary to keep in mind that:

- Users provide value for other users through the platform due its network effects
- Charging one side from the platform affects to the other side (Cross effect)
- The critical mass of users is required to make the platform valuable for the other side.
- The pricing strategy in a platform has a huge impact on its usability attractiveness.

It is important to capture the value from the transactions to have a profitable business model, because otherwise, the model does not longer exist. But is even more important that the price for the value proposition is well accepted by the users.

As this master Thesis is focused to develop a business model for a platform that does not currently exist, it will emphasize on which kind of pricing methods can be applied for the launching step, where the critical mass of users must be reached[47].

[46] Evans/ Schmalensee (2016), P.69
[47] Evans/ Schmalensee (2016), P.106

4.4.1 Pricing for beginners

The biggest worries from people who launch their brand-new platform is to always to find the tradeoff between pricing and user growing rate until reaching the critical mass of users. Platforms entrepreneurs are always fear of offering the services for free and never getting money from them; or charging money for the services and never getting the critical mass of users. Furthermore, it is very common to swap from one revenue model to another one, once the mass flow is reached; but this must be prepared very well to minimize the negative impact on the user. This strategy and the most popular pricing models for "beginners" will be listed in the following lines.

4.4.2 Free use

Many of the platform entrepreneurs decide to offer their services for free for the following reasons. As commented before, the goal is to reach the critical mass, and charging users for the entrance or any service introduces friction to the platform, and it will be more difficult to raise the number of users. Later, the model can be changed to charge a fee or a freemium model for example. The negative side from this strategy is that very big investing capital is required to support the strategy.

4.4.3 Trial period

For this case, a free usage of the platform can be offered for a period of time, and after finishing the period, the user should pay for using it. One of the problems here is that lot of users will not spend too much time in the platform if they know that after a short period of time they have to pay for something they have been using for free. This emotional barrier won't let the number of users to rise. WhatsApp did exactly this method at the beginning; the first year was for free, and after engaging all the users and even charging a very small amount of money for its use, many users left the messaging app. This is why some platforms try to reach the critical mass in this period, to attract other users like advertisers who want to put their advertisements there in exchange of money. So far, the users will continue using the platform for free having some extra advertisements on their screen.

4.4.4 Charging for premium

This model is as well-known as freemium model, where the users can use the platform basics features for free, whereas other user pay for the extra-tools and options that the platform offers. In this way, the free use strategy is focused on rising the number of users, whereas the premium model is focused on gaining more revenue for the platform. The critical point in this model is to decide where to put the barrier between the free features and the payment tools. The free version must be designed in order to fulfil the platforms value proposition without needing to pay for it. This means that all the minimum required features must be available for everyone. The premium version can have extra benefits and tools that helps to make the experience much better and to choose for example between different providers.

This method was used for example by LinkedIn. The users can use the free version creating their profiles and posting their jobs, whereas the jobseekers and head hunters must pay money for advance searching and connecting features.[48]

4.4.5 Transaction fee and membership fee

The transaction fee is applied for platforms where the service and goods exchanged between users creates significantly value for both sides. Then a fee is charged to one of both sides if the transaction occurs. This model is used for example by Airbnb or eBay. In both cases, the pages have a big amount of inventory and offers from sellers and advertisers. The problem is that if the posted offers do not have a good quality and it takes lot of time to sort out the crap from the interesting offers, the users finally lead to abandon the platform. For these cases, the surfing data from the users can be stored to improve the searching engine for each case, to increase the matching users and offers.

Companies like Fiverr or Airbnb are companies that connect service providers with service consumers. For these cases, a direct communication between both sides is normally required to arrange some details or clarify questions. When the communication between both sides created, there exist the risk of having a deal between users which happens off the platform. Here the only looser is the platform itself, because the uses used the platform to connect, and they did not pay the fee for it.[49]

To avoid this problem the platform must be provided with tools to avoid the communication; like a clear communications process where certain information is not possible to write, or other controlling tools. Nevertheless, a better way to avoid the off-platforms deals is to offer the users a kind off benefit by doing the deals through the platforms. For example, a kind of insurance that covers the transaction if any misunderstanding or problem between both sides happens.

A small derivation from the transaction fee is the “flat-rate” transaction fee. As the name “flat-rate” says, you already can imagine how it works.

In most of the transaction fee cases, there is a fixed percentage from the price that the platform owners get. This percentage goes normally between 2% and 16%-20%. For people who is not a platform member, a higher percentage rate is applied; for example, 6%, whereas for registered users who pay a monthly fee, the percentage is reduced to a lower value; 2% for example. This method is used to adopt more users. Launching member’s fee campaigns, where for a short period of time this kind of accounts can be purchased, help to the platform to get more users, as they know that the opportunity given has a big advantage compared to a normal account.

4.4.6 Conclusions

The type of monetization that is chosen for the platform will depend on how the platform is build (which value want to be monetized), and of course will affect its growth of users to reach the critical mass of users. To sum up all the monetization types we have described above, here is a table with most relevant positive and negative characteristics from each of one

[48] Reillier/ Reillier (2017): P.143
[49] Parker/ Van Alstyne/ Choudary (2016), P.116

TYPE OF STRATEGY	PRO	CONTRA
Free use	Good user engagement Frictionless entrance Good opportunity for increasing users	Economical effort Difficult to change to a monetizable method
Trial period	Easier to monetize the value	Risk of losing users when changing to pay method
Charging for premium	Charging strategy is free to design	Good definition from main and extra features
Transaction Fee & Membership Fee	In general, only charged when a value is created	The charging fee must be according to the generated value

Table 3 - Evaluation of the monetization types.
Source: Own representation

4.5 TRANSITION TO MONETIZATION

As explained earlier in this chapter, some of the beginners in platform business models decide to offer a free usage of the platform with the aim of reaching the critical mass value easier. However, to have a sustainable business model the value generated must be monetized somehow.

If the platform has been set for free, there will a moment in which the platform needs to start earning some money for its own sustainability; and for these moments it will be described the different transition techniques. This is a challenge in which the users must see a clear benefit of paying for the "same" service:

- The first rule is to avoid charging money for the same service the customer was using for free. People are very sensitive to prices changes, even more than outside the virtual world.
- If changing from free to fee, create new features or create more value for the users that can justify the price change. In this way, the customers will understand easier the change. But even in this way, there will be customers that will not understand the change and will tend to leave the platform. The positive point from this, is that only the users that are really interested in using the platform will continue using it.
- Another possibility to change from free to fee is to offer some features for those people who only pays the fee, and over the time try to redirection the core value to the features that are only available in the fee version.

Summing up, this are the most relevant aspects for the monetization of a platform business model. There is a tradeoff between monetizing and reaching the critical mass for beginners that must be always taken in consideration for planning the business model, for defining the platform´s attributes and for designing the platform itself[50].

[50] Parker/ Van Alstyne/ Choudary (2016), P.125

4.6 LAUNCHING STRATEGY: CHICKEN OR EGG?

Traditional business followed almost always the same way when launching a new product into a market. Firstly, the product must be produced and a retailer to sell the products must be found. To attract the consumer´s interest some advertisements in newspaper and other media has been done; and then it is a matter of time to see the KPI´s values to evaluate the customer´s satisfaction. This is roughly explained how a traditional business works for launching a new product obviating the previous market study and further work.

For one sided platform this methodology could work adapting the process for each case, but as the goal is to launch a multisided platform, the process explained before will definitely not work.

In multisided platforms, the key factor is to launch both sides of users at the same time. It is impossible for the platform to be launched if one side is missing. Therefore, the next question is always appearing at this stage: which side has to be launch first? This problematic is known as the “chicken or egg” dilemma. This phenomenon is one of the biggest particularities from multisided platforms at the launching point, this is why in the following lines the most relevant launching strategies will be listed.

4.6.1 Focus on one side

For this strategy, the platform forgets in first instance the final functionality from itself and try to understand one of both side’s needs. In general, the most complicated side to attract is chosen for this step. The goal is to understand the pain points from this group of people and provide them with an effective tool that will help them with the daily troubles. Once this group of people is using the set of tools prepared, is the time for launching the platform features that is used to attract the other side from the platform.

For example, the British company “myTaxi” started understanding which the biggest troubles for a taxi driver were and developed an app with tools and functions that help them to be more effective on their job. When the app was good enough and the taxi drivers were using it continuously, they introduced the platform feature that matched passengers with taxi drivers. As one side of the platform was already using it because of other powerful tools, it was very easy to attract the other side as the taxi drivers were already using it. Otherwise, it would be almost impossible for “myTaxi” to convince the taxi drivers to use a platform for matching drivers with passengers. [51]

4.6.2 Piggyback strategy

As the name says, in this case the strategy is to connect with other platforms users to recruit them to as our own platform. This strategy is very common, and it was used by famous companies like PayPal or YouTube.

In the last case, YouTube made an application to post videos on the MySpace social network. For that point, MySpace was the biggest social media from the world, and it had a lot of traffic. YouTube used this social media to attract traffic to their platform and engage users.

[51] Reillier/ Reillier (2017): P.93

4.6.3 Seed one side strategy

In this strategy the goal is to create value (producer side) for users (customers). If this works, other producers that want to interact with the other side users will join the platform too. In many cases, the platform plays the producers role, and using “fake” accounts they start producing goods and values for he customers. The negative aspect is that it cost quite a lot of effort and economic “power”; but on the other hand, the benefit is that you can decide which kind of standard quality the created value must have. Because other producers will act depending on the quality standards they see from the created jobs until they join the platform.

This method was used by companies like Reddit or dating apps. Reddit for example created a lot of fake accounts that were paid by the company to produce interesting articles to gain some attraction to the website.

To launch a dating app for example is a very hard job, because at the beginning the platform is empty, and nobody will join a dating platform where nobody is there. This is why the fake accounts are very common in this type of sites.

4.6.4 VIP or marquee strategy

Consist on attracting key users or providers to the platform offering them some incentives or advantages. This technique is very used in the gaming ecosystem, where any gaming platform will survive without the games from Eastport’s. Therefore, the platforms like PlayStation, Xbox, Microsoft, offer to the game producer some succulent advantage packages to them.

4.6.5 Micro-market strategy

It is possible to start with the platform focusing only in a niche market or in a small geographical area. This is a good test to prove if the concept is working and to test it effectiveness. If the concept is working, it can be extrapolated to other markets or simply expand it action radius to bigger areas.

Facebook started firstly engaging the class students from the founders, and little by little, the university students joint, and finally the cross connection between universities helped to enhance the network effects. Compared to other social media like MySpace or Friendsters, the network effect was really strong, because the people that was joining the community were friends as well in the real life and they knew each other. Whereas in Friendsters and Myspace, there were random people, and it was more difficult to find your real friends there. This is one of the reasons why those social media platforms failed[52]

4.6.6 Event strategy

This can be considered as an express and smaller variant from the micro-market strategy, where an App or platform is launched at a chosen event. The potential of this type of strategy, is that in specific events,

[52] Cf. Evans/ Schmalensee (2016), P.167

the group of participants is good defined, and it is quite easy to target; and if the product launch is done in a clever way, it is possible to create a viral effect.

This strategy was adopted by Twitter, which choose a festival to launch the platform, in which it was possible to send messages to the people and they were possible to see in a big screen on the stage.

4.6.7 Conclusion

Another example of this strategy was Tinder, which was a mandatory app to enter in the student's parties from the University of California. Later, Tinder used the *campus to campus* strategy used by Facebook, and it could reach an incensement of users from one million per month.

Concluding this chapter, several ways of launching a platform to solve the *chicken or egg problem* has been analyzed. All the strategies listed before in upper paragraphs are some of the used ones from some of the most successful virtual companies. Nevertheless, not all of them can work with all the platform types that exists. May be only a few of them will work or may only a mixture of different strategies will work. For highlighting the most important characteristics of them, here is table to have a better overview:

TYPE OF STRATEGY	PRO	CONTRA
Focus on one side	Good user engagement One side is ready	Not for all platforms Economical effort
Piggyback strategy	Big number of potential users	Technical difficulty for interacting with third platforms
Seed one side strategy	Create your own standards	Laborious and resource consuming
VIP or marquee strategy	Premium producers will attract more traffic	Offering benefits is often difficult from the economic point of view
Micro-market strategy	Functionality check Scalability in stages	Time consuming, not as fast as the other alternatives
Event strategy	Good user targets Big number of users at the same time	Strategy must be clever, and very good targeted focused on the users

Table 4 - Evaluation of different type of strategy.
Source: Own representation

5 PROCEEDING MODEL

After listing and documenting the relevant methods, tools and information required to analyze and develop a platform-based business model, it is time to develop the proceeding model to create the final business model. Just for remembering, the goal is to make a business model for a platform that currently does not exist, and that in the hypothetic case of existing must be firstly launched. This is why in first instance the proceeding model will be designed following this framework.

In the proceeding model, the methods and tools explained in the previous chapters will be used, and the goal is to make the model with a good usability for the practice part, where the business model itself must be defined being the end result.

5.1 DETAILED FIRST CONCEPT

In this sub-chapter, the first concept is divided in all the single steps that the proceeding model has, and every step is explained to understand what is done and required in each of them.

5.1.1 Starting point:

As the name says, this will be the point where everything starts. At this early stage, the global goals and boundary conditions must be defined to know what we want to achieve, therefore it is highly recommended for using this model to have a rough idea or a schematic picture in mind about how the desired platform should work and which kind of problems must solve. Therefore, the next questions must be answered. (The following conditions are filled following our platform´s boundaries as an example)

- Industry: *Machining Industry*
- Problem: *Connect users and producers for an easy part ordering method*
- Platform status. Does it exist? *Conceptual phase. First stage would be the launching.*

It is very important to give as much information as possible, to document everything closing properly any kind of hole in the schema that could lead to a goal lost. For that reason, whoever is using the model must firstly have clear idea about his concept.

5.1.2 Reverse engineering:

I called this sub-chapter reverse engineering, because regarding my engineering studies and background, the analysis processes done here to understand how the competence works deserves this name. Going a little bit deeper, the sub chapter is divided in two smaller parts, where market analysis and customer analysis is done.

- Market Analysis:
  The analysis is done for the industry in which the platform must operate, and all the different existing variants of producing/ordering machined parts must be listed and their key points and the process functionality documented. For this step, the benchmarking methodology is used, and the result is,

as explained, a list of the different methodologies including the purchasing process. The results can be presented in a CVP or in a Canvas model format.

- Platform analysis:
  The goal is to make a platform business model, therefore a benchmark for already existing platforms has to be done. Here, some similar platforms (in size and status) to the "ideal first launching version" must be find. In this case, it is necessary to find as many as possible that were launched recently and that are in the *user attracting* phase. If it is not possible to find examples with this particularity, it could be possible to analyze any other platform with some similarities to the platform that wants to be created.
  The goal is to find and analyze how they work, which methods and tools they use to monetize the value if they do, to offer a safe environment, and collect their different attributes.

This information will be later used for the customer analysis; to understand how they feel when using the methods and to detect the pain points of those existing methods.

- Customer analysis:
  Here the first connection with one side of the platform starts to happen, the customers. The purpose is to understand how they feel in every step of the ordering process until they get the part.
  It is necessary to create some Personas profiles, and to use the customer journey map to analyze the processes better and find the biggest pain points. The processes that will be analyze from the personas point of view are the purchasing profiles that has been created in the market analysis sub-chapter. Every single personas, with every single model must to be tested, and the output must be a list of pain points that different customers suffers while purchasing the parts. This list of points will be later on the input for the ideas generation.

5.1.3 Value proposition

After analyzing and understanding the key points and pains from the existing business models and the pain points from the customer, it is time to generate some ideas to create solutions and value. It is important to remark here, that the point of view has to englobe the platform ecosystem. This means that there are different groups of users, and that it is necessary to find solutions for each of them. In one hand for the customers, and in the other hand for the producers. If it is only focused on finding ideas for one side forgetting the other, it will be impossible to create a robust business model that works.

5.1.4 Ideas generation

Starting from the pain points collected in the previous chapter, it is time to generate some ideas with the brainstorming and brainwriting methods to generate as many ideas as possible. The idea generation method will probably not enough to solve all the important pain points that will be detected, but they will be a good input to start defining the attributes for the value proposition, that will be included in the business model.

5.1.5 Attributes definition

Carrying over the ideas generated in the brainstorming and brainwriting phases, it is time to use the Canvas Value Proposition to start paring pains with pain relievers, and ideating gain creators. The attributes are the characteristics and features that the platform must have to offer the value proposition.

It is necessary to remark, that for this phase the readers point of view and mentality should be like from a platform developer, and that this process must be done twice: firstly for the consumers, and secondly for the producers. The result will be two different Canvas Value Proposition that must be tested with our personas profile to check their plausibility.

As it is an iterative process, at least the Value proposition must be tested one time with every personas profile (consumers and producers) using the customer journey map, to see If the attributes are fitting or not. Once the Value proposition is tested and almost validated for fist instance, it is time to pass to the next chapter.

5.1.6 Business model generation

Until now, the most relevant things for the business model has been defined, but a good business model is not only about a value proposition. The rest of the environment for the platform is about to be defined.

From the business model definition will outcome the whole functionality from the platform and the interaction between users and the platform. Once again, for better understanding, the studied case will be used as example.

5.1.7 Business models

As the chosen platform does not exist, and the first step for it would be the “launching” step, it is essential to keep in mind which barriers must be eliminated to help the platform to reach a critical mass of users and to attract traffic and users to it. All this strategies should be supported by the business model proposition. To define the business model the chosen model and blocks to define all the information is the Canvas business model from Osterwalder, because it gives a good overview in a very clear way.

Normally, going through this problem solving process, many different alternatives appears and suddenly it comes out that there are different business model possibilities that could work. In theory there will be only one optimum solution that will cover almost all necessities and particularities; but before taking a decision in dismissing potential business models, it is recommended to keep and discuss them in the feedback loop with the experts.

5.1.8 Feedback Loop

The feedback loop is a big opportunity to discuss and learn about errors done by previous entrepreneurs and from which strategies will not work. For the feedback loop, it is important to discuss the models with the parties implicated in the platform; but even more important is to find experts with experience in similar platforms that can provide a real helpful opinion about the whole concept.

- To have representative answers from experts it is necessary to contact at least 3 experts in platform business models that are or have been involved in launching platforms in which an interaction between users to exchange goods or services was required.

- Continuing with the feedback loop, the opinion from the users must be collected. When talking about users, both sides must be considered: consumers and producers. To have a reasonable answer quality, it is necessary to collect at least 3 answers per side. But if more opinion and discussions can be collected, the better the feedback. For this activity it is crucial to have identified the user group clearly to have trustfully opinions.

5.1.9 Final version

The final version (if needed) from the business model will come after analyzing the feedback loops with the users and experts. Most probably the outcome from this loop will be a redefinition from the business model or even from the value proposition. After changing and correcting those points, the business model is ready and finished to be tested.

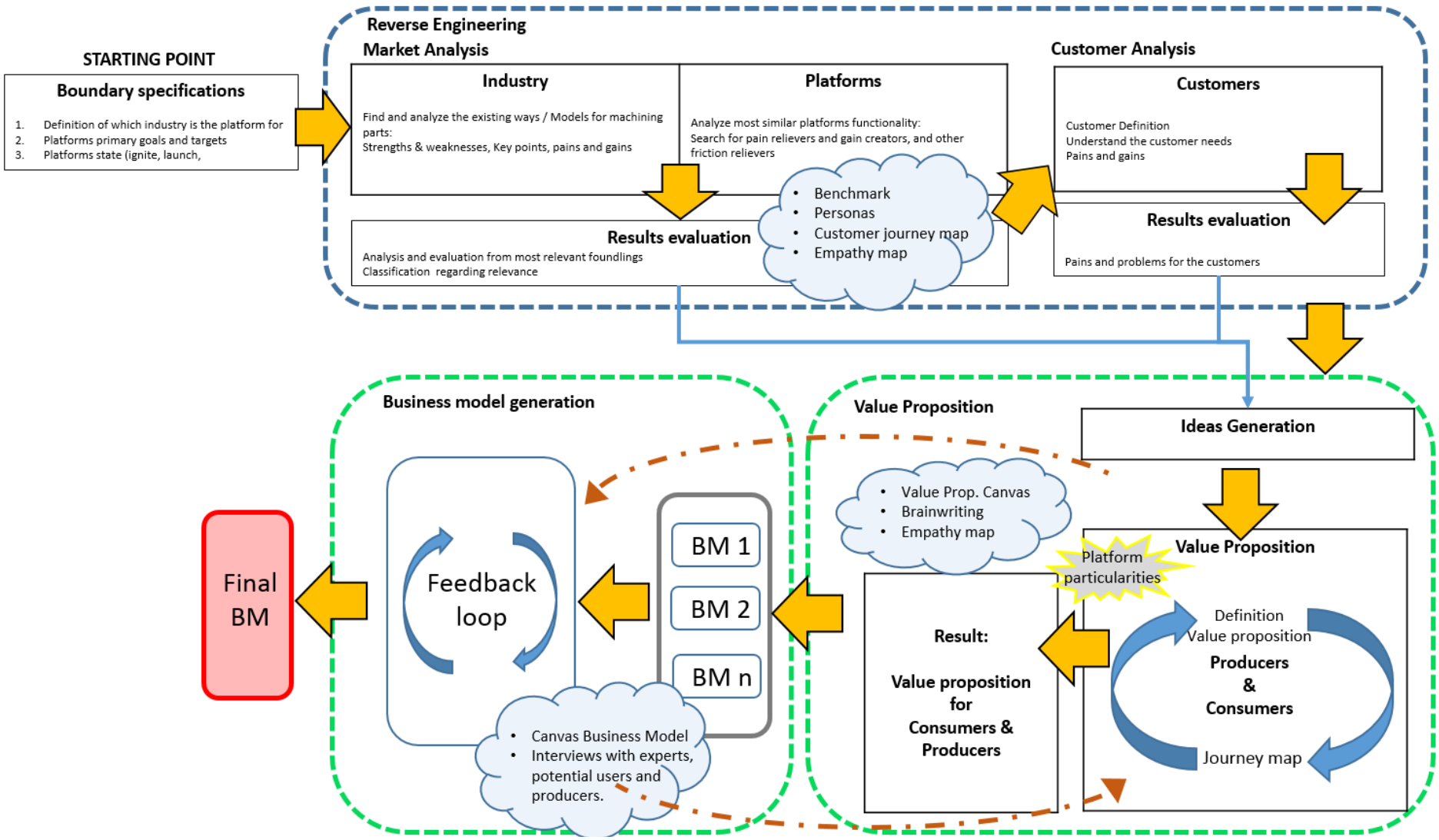

Figure 16 - Proceeding model for the business model generation

6 WORKING WITH THE MODEL

After defining the proceeding model specially developed for this concrete case, it is time to use it and to start building the business model. This chapter will follow the same structure as the previous one, because each of the sub chapters will be followed and used to take the maximum outputs of them.

6.1 DEFINING THE STARTING POINT

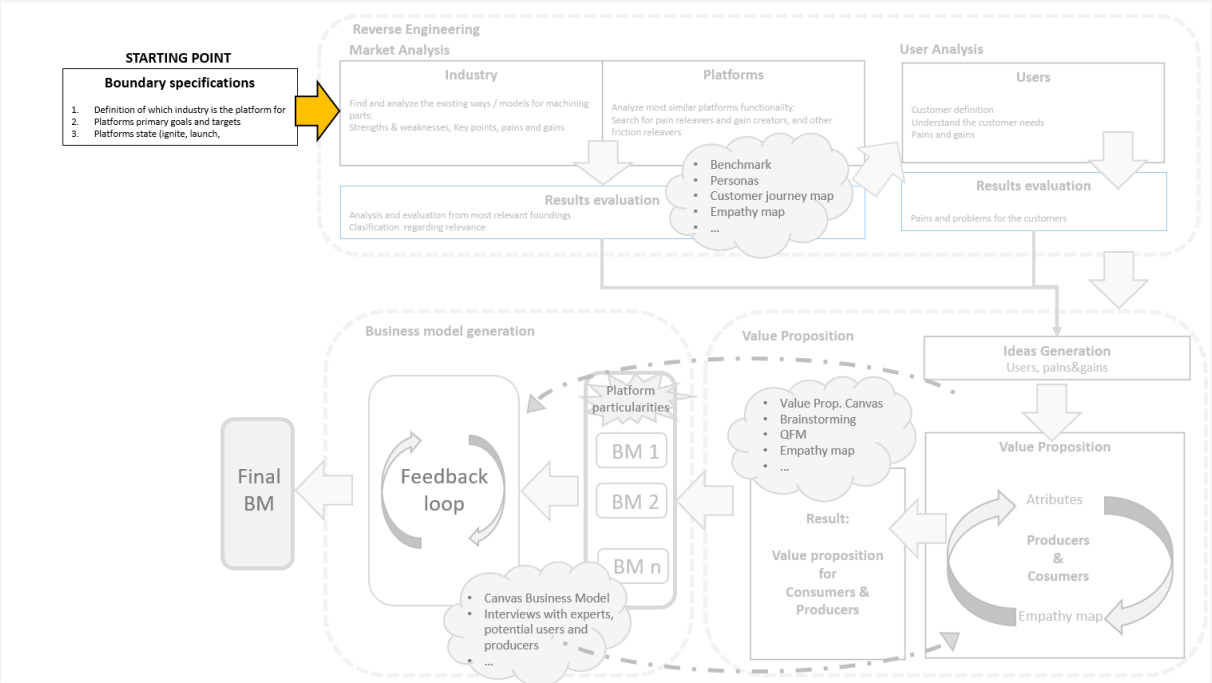

Figure 17 - Proceeding model for the business model generation - Starting point

Previously in this document it has been explained the main purpose from this master thesis, but in case it has been forgotten, it is never too late to refresh the main points that define the final goal.

The master thesis will try to develop a business model to produce machined parts based on a platform business model. From the last sentence can be readen some important keywords, which are “business model”, “platform” and “machined parts”, three concepts full of meaning and very complex, that make a very wide combination depending on how they are mixed and on which of those has a higher relevance with respect to the others. To define the starting point for this complex word combination it is necessary to create the boundary conditions, and therefore the following questions must be answered:

- ***Which industry wants to be disrupted?***
  As clarified in earlier phases, the business model wants to be tested for the *machined parts* industry. The industry type is completely free to choose, but due to personal and professional background, this one has been chosen for this master thesis.
- ***What is the Platform status?***

Even if this question sounds a little bit simple or not very relevant to answer at the first moment, It has a major impact on the further development from the proceeding model. It has been explained in the chapter number 5 that depending on the platform´s status different strategies must be followed to keep improving and offering added value to the users. In this case, even if the boundaries has been chosen in a free way, it makes sense to define the boundaries with a bit of coherence, to have a starting point as real as possible. **Therefore, the platform type used for the study is a platform that is starting and igniting; Trying to reach the minimum number of users, in its launching strategy.**

- ***Which goals and targets has the Platform?***
  The platform must provide a added value solution for both sides, that solve the pains from both sides.
- ***Who are the platform´s users?***
  As the question says, it is necessary to define which kind of person will use the platform. In one side it is possible to find the producers, and in the other side the consumers. Nevertheless, it could be that a platform user have both profiles: consumer and producer.
  As starting point, the producers are defined as small/medium traditional workshops without resources and time to offer an online service, and without capabilities of gaining extra clients through internet. Nevertheless, private users with access to machining capabilities could be a producer too.
  On the other hand, the consumers are defined as small companies, start ups and private users that need to have access to machined parts occasionally.

It may be possible that the defined users/producers change during the development and further analysis, because it could be possible that new user cases appear while studying the users in more depth.

In any case, to sum up this sub chapter it is important to list up the defined starting point to keep it clear for the rest of the thesis:

SUMMARY TABLE	
Industry	Machined parts industry
Users	• Producers: Small workshops without capabilities for e-commerce. • Consumers: Small companies, start-ups, private users with occasional parts needs.
Platform Status	Ignition phase, reaching the critical mass of users.
Goals	Provide added value for the current pains.

Table 5 - Definition of the starting point

6.2 REVERSE ENGINEERING

The goal from this chapter is to detect and analyze the different ways of producing parts, customers, and to benchmark different platforms in similar situation to this one to understand which strategies or pain relievers they used to pass the critical phase of reaching the minimum number of users.

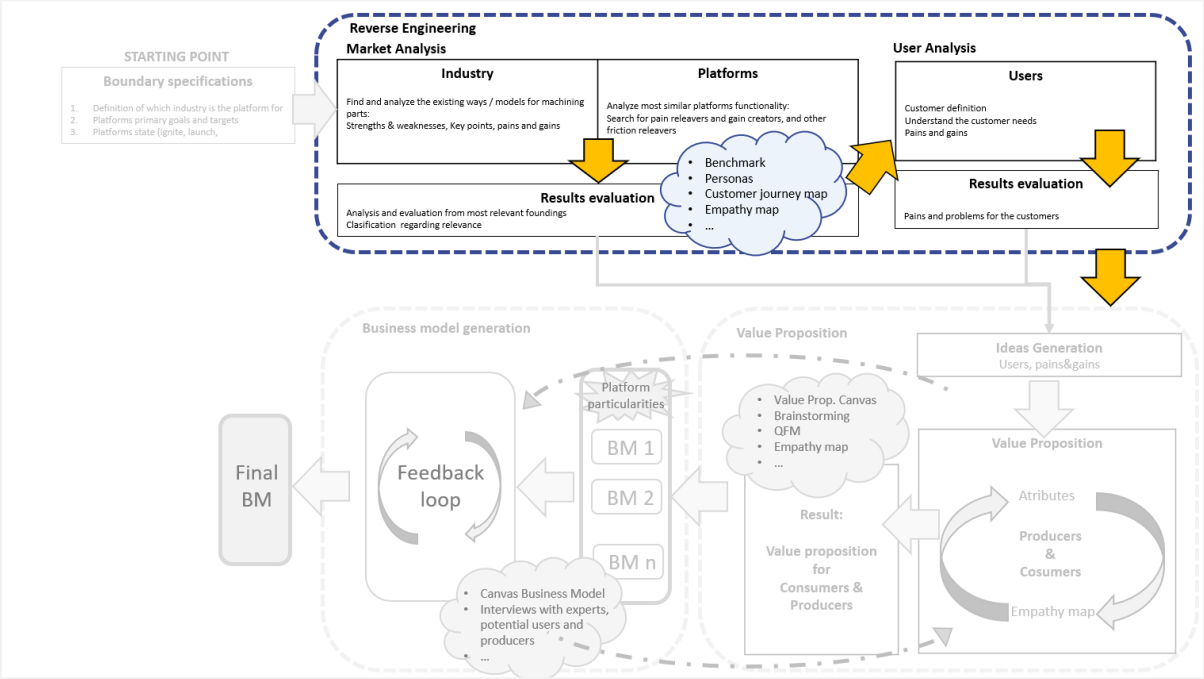

Figure 18 - Proceeding model for the business model generation - Reverse Engineering

6.2.1 Industry

The research has been done during many weeks, and for this purpose the own experience and internet search has been used. Furthermore, many discussions with working colleagues about this topics helped me to find out other ways of acquiring machined parts. At the end, seven different ways of ordering a machined part has been found, analyzed and documented. Two of them are based on traditional way of ordering parts, whereas the rest five are based on internet and digital solutions.

In the next table the different methods are listed, and in some of them the best examples have been chosen as they are the market leader in their business type.

	METHOD	TYPE / COMPANY EXAMPLE
	➢ **Machinery workshop** Traditional way of asking for quotes.	Analog
	➢ **Intermediary** Person who knows machinery workshops to place orders	Analog
Weerg. Get your parts, very fast!	➢ **Online shop**	https://www.weerg.com
RAPIDFACTURE Drehteile online konstruieren, kalkulieren, bestellen.	➢ **Online shop with online design**	https://www.rapidfacture.com
3D HUBS	➢ **Online shop with outsourced production**	https://www.3dhubs.com
ORDERFOX.com	➢ **Online marketplace for B2B**	https://www.orderfox.com
	➢ **Social media groups and advertisement websites**	https://www.facebook.com/

Figure 19 – Summary of different methods for machined part ordering

6.2.1.1 Machinery workshop

This type of businesses exists since the industry appeared couple of hundred years ago and it could be considered as the oldest and most traditional business mode from all of them.

In this case, the workshop owns the machinery to produce the parts, and among other tasks, it has to organize the entire production chain. From getting the row materials, hiring employees, getting the jobs or contracts, until producing the parts and delivering them to the customers.

The relationship between the customer and workshop is based on personal connections. Normally their action radio is not very big, and they are located where big industries are placed to get jobs from them. The most typical revenue model is the “pay per part/job” but rarely it is possible to find an “all in” revenue model for very specific industries. In some areas where the industrial activity is very strong, there are machinery workshops that could be considered supporters from the main companies, as they specialize their skills and adapt their resources to the main needs of the companies.

In addition to this, machinery workshops are quite flexible in terms of job types. In the machinery industry it is possible to produce parts in a production line, or to repair and re-machine broken machine components

like shafts, cylinder-heads or housings. Obviously, the size or produced and machined parts depends on the workshops size and on the CNC machines they have.

To summarize the main parameters explained in the previous paragraph, the 9 blocks from Osterwalder´s Canvas model are used

BLOCK	DEFINITION
Value proposition	Get rid of the machining jobs,
Key activities	Parts production and reparation
Customers segments	B2B segment and B2C segment
Revenue Stream	$/part ; $/job
Cost structure	Machines, Loan costs, Material, Building,…
Customer relationship	Personal contact
Channels	Mouth to mouth, local fairs, Internet, Social media, industry websites
Key Resources	Material and machining know-how, IT
Key Partners	CNC producer, professional schools

Table 6 - Osterwalder´s Canvas model´s blocks applied to the Machinery Workshop

6.2.1.2 Intermediate figure

The figure of the intermediary person or company appears from the needs and pains of the traditional workshops presented in the point above. Sometimes, workshops faces prompt overload phases that are not long enough to enlarge the workshops capacity or to hire more people, and therefore they are forced to outsource part of the production. In other cases, the workshops may accept some jobs packages in which there are some types of machining process that are not possible to do, due to lack of knowledge or specific machines. And in the other way around, there exist periods in which the workshops don't have enough job or contracts to cover the workshops capacity, and therefore they need some external extra load.

The intermediary figure is in these cases the bridge between workshops and companies to distribute the workload through workshops. He has a good network and connections among the industries that permits him to find out which workshop is struggling to gain some jobs and which workshop has the best capabilities for some specific jobs.

As every effort must be paid, the intermediary figure charges a fee to every job he delivers to any workshop, and depending on how much a workshop needs a job, he can adjust and play with the fee he wants for placing the contract. As explained, the intermediate figure works with companies and workshops, this is why the B2C model is not considered by the intermediary persons.

Using again Osterwalder´s model´s points, it is possible to highlight the most important points:

BLOCK	DEFINITION
Value proposition	Offer the proper capacity and Jobs at any time
Key activities	Distribute Job and offer Machining Capacity
Customers segments	B2B segment: Machining workshops, companies.
Revenue Stream	Fee; % /contract
Cost structure	Office costs, phone, transport
Customer relationship	Personal relationship, network.
Channels	Mouth to mouth, local fairs, company visits
Key Resources	Network, reputation, social skills
Key Partners	Internet searching companies

Table 7 - Osterwalder´s Canvas model´s blocks applied to the Intermediate Figure

6.2.1.3 Online shop

Until now, the explained business models or way of getting to machined parts were based on traditional or analogue methods; which means, using real life´s resources without using internet. But from this point in advance, the models explained are based on the digital era.

When internet access became more popular to the society, many businesses and shops started creating websites in which they offered their services and products online. In most of the cases, the business model was mainly the same, with the only difference, that they added a new communication and selling channel for the customers. It was thought, that with the new channel they could reach more people, and therefore sale more products.

In fact, some machining workshops followed this same steps and opened a website in which they were offering the machining services to anyone who wanted to send a request. As using this method permits to increases the workshops action radio, the delivery costs are bigger and it makes very difficult to send big parts to be repaired. But what is clear, is that the core competence from the online shop is that they own the machines and that they have the machining know-how to produce the parts.

Going deeper into the Online shop details, four different types of shops has been identified. All of them has some similarities in common: The communication is done via mail, and they only produce parts; they don´t receive parts for reparations.

6.2.1.4 Standard online shop:

The standard online shop is the simplest shop that can be find in internet. As explained before, this type of business were the first one appearing in internet and they offered the same services that they had in the

real life, but online. The biggest benefit for the shop is that they can reach more people by offering the online service.

Nevertheless, the ordering process and the internal quotation process is the same one as in the real life. Every step requires from an employee supervising every decision from the first request until the package delivery. Even if it is online and it is supposed to be faster than in the analogue way, it takes sometimes more time because of the slow email communication.

BLOCK	DEFINITION
Value proposition	Get rid of the machining jobs on an easy way
Key activities	Parts production
Customers segments	B2B segment and B2C segment
Revenue Stream	$/part ; $/job
Cost structure	Machines, Loan costs, Material, Building, IT, Web services, delivery.
Customer relationship	Mail, advertisement
Channels	Mouth to mouth, local fairs, Internet, Social media, industry websites
Key Resources	Material and machining know-how, IT, programmer,
Key Partners	CNC producer, professional schools, Delivery companies

Table 8 - Osterwalder´s Canvas model´s blocks applied to the Standard online shop

6.2.1.5 Online shop with improved process

A further development from the traditional online shop is the Weerg Company. In this case it is easier to explain this business model using this company as example, because they have adapt their business model to offer a better value proposition improving the online shops first generation.

Weerg.com is an online shop that owns their own machines. But what does make Weerg better or different to the previous one? To get the answer for this question is necessary to try to order a part through their website and experience their fast and user friendly ordering and quotation system.

In case someone wants to make a request, they only have to drag and drop the CAD file in to the quotation browser, and it automatically analyzes the given part and propose a standard price based on some standard materials and machining parameters. In addition to this, it is possible to choose the number of parts and the desired material for the part among different options like surface roughness or other extra finishing option that they can offer. It is not possible to select any other material or treatment out of the catalogue. If the quoted part is satisfying the customers speciation's; the next step is to define the delivery time and address. The price given at the first quotation has a standard delivery time of 10 days; but there is the

possibility of changing it having an impact on the final price. If the part is needed urgently it is possible to order it in express mode paying some extra money for it, while if there is not any urgency for the part, it is possible to delay the delivery time having some benefits on the final price.

The delivery system is done with a mailing company that offers a tracking number system that permits the customer to track his part until he receives it.

Weerg has put its efforts for its online shop on the user experience, giving a fast and flexible ordering process that covers most of the needs from the machined parts.

BLOCK	DEFINITION
Value proposition	Get your machined parts very easy and fast
Key activities	Produce machined parts
Customers segments	B2C and B2B
Revenue Stream	Fee; % /Job
Cost structure	Machines, employees, IT Services, delivery
Customer relationship	Good service, usability, user experience
Channels	Internet announcements, Websites, social media
Key Resources	IT Service, programing skills, Web interface
Key Partners	Delivery companies, Internet providers, social media networks

Table 9 - Osterwalder´s Canvas model´s blocks applied to the improved online shop

6.2.1.6 Online shop with online design

Another variant from the online shop is the solution provided by the German company Rapidfacture. As this solution is very specific and it is again focused to the user experience but for a different costumer group, it is easier to explain it using this company as example.

Rapidfacture is a further evolution from an online shop. Founded in 2014, offers the capability of machining parts online for anyone who needs a CNC part. So far, it looks like Rapidfacture offers the same services than the two other systems described before, but actually, they offer an added value for a very specific customer group.

But before explaining this particularity, let's refresh the ways of machining that exist. For machining a part (turning or milling) it is required to have a drawing to know the sizes, tolerances and surface quality that the part must have. Normally these drawings where done by hand until the CAD method came into the market, but anyway, drawings are still used for very simple turning parts like shafts, caps, screws, or any other revolution parts. For any other more complex parts where a CNC machine is required, a CAD software is necessary to create the file that the machine needs to cut the part.

Rapidfacture saw that many people that rarely needs a machined part, don't know how to make a drawing perfectly, and they normally forget some details that are important for the production itself. This lack of information causes in traditional online shop a long mailing process with questions and answers from both sides. Furthermore, people who makes a drawing asks most of the time for revolution parts, because the complexity of making a drawing for a CNC part is so high, that they directly try to find a CAD software to design it with the computer´s support.

Starting from this fact, Rapidfacture developed an online CAD software to design any revolution part. The customer can directly create its own part there seeing live the cost of every single step or segments that he has added. Additionally, the software only admits parts with sizes that can be machined in their workshop. Having this software limitation permits the shop´s owner to send every part created with its software to the production line without any worries, because he knows that every step and tolerance asked for the part will be within the machines capabilities. This solutions permits to Rapidfacture to access to a reduce group of customers; private customers and small companies that occasionally need a machined part.

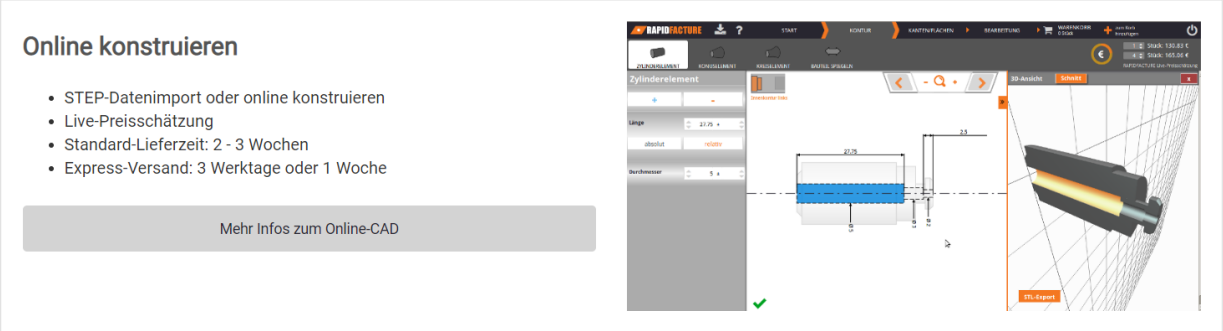

Figure 20: Online construction feature – Rapidfacture.com

But as they also offer the CNC machining service for non-revolution parts, there also exist the possibility of uploading a CAD File for getting a quote. For the quotation it is possible to select like in the Weerg case, the desired material, the surface quality, and the amount of parts. Obviously every change or modification on these parameters has an influence on the price. ,

Once the part is designed and defined, is time to define the delivery time. A standard part production has a delivery time from 2 to 3 weeks, but again, there is the possibility of getting the part faster. For 1 week

Figure 21: Drawing manufacturing – Rapidfacture.com

delivery 40% of the price is charged, and for an express delivery 150% of the price is charged to the final price.

But appart from these options, Rapidfacture offers the possibility of sending a drawing via mail to machine the parts like the “traditional online shop” does. In consequence from this method, the ordering time prolongs over the time due to the long communication process.

BLOCK	DEFINITION
Value proposition	Get your machined parts very easy and fast with low resources
Key activities	Produce machined parts
Customers segments	B2C and B2B
Revenue Stream	Fee; % /Job
Cost structure	Machines, employees, IT Services, delivery
Customer relationship	Good service, usability, user experience
Channels	Internet announcements, Websites, social media
Key Resources	IT Service, programing skills, Web interface
Key Partners	Delivery companies, Internet providers, social media networks

Table 10 - Osterwalder´s Canvas model´s blocks applied to the online shop with online design

6.2.1.7 Online shop with outsourced production:

Finishing with the online shops, the last variant of them will be presented. For this occasion, the company 3D Hubs will be used as example to explain this business model. 3D Hub started manufacturing 3D printed parts before he jumped to the metal machining industry, and after succeeding with the business model used for the 3D parts, they implemented almost the same model to the new market.

At first look, the company offers the same capabilities and services for CNC machining and milling like Weerg does. It is possible to get an instant quote uploading a CAD File to the website, and it is accessible for anyone who has connection to internet; which means that it is available for the B2B and B2C market. As the other website does, there is the possibility of choosing from a catalogue the desired material and surface quality; and of course, there are different prices depending on the delivery date. In this case, it is only possible to choose between 5, 10 or 15 business days. Until here there is not any major difference, but how are the parts produced by 3D Hubs?

3D Hubs, in difference to the other competitors, does not have neither an own workshop nor CNC machines. 3D Hubs produce the parts using the machines from other workshops. The website is like a big platform where orders are placed. Depending on the workshop´s capabilities and internal organization, the jobs are assigned to a specific workshop. There is an internal ranking too for the best workshops based on job´s quality, and other parameters which has a big relevance when placing a job to a workshop. The benefit for

3D Hub is that they do not have to pay the machines costs and the employee's loans, and they can easily adapt their production capacities depending on the production´s demand.

Regarding how 3D Hubs places the orders to the partner, there is not too much information available. An internal algorithm sends the customer request after being quoted and paid by the customer to a specific manufacturer partner, which at that certain moment fulfils the best characteristics to produce the part. The partner has a limited time to accept the job or to decline it. If the job is declined, the partner must give a reason for why he is declining it. A reason could be that the partner does not have currently capabilities, or that they cannot produce it for the asked delivery date.

In the case that the partner cannot produce the part for the delivery date, he can counterbid the delivery date with a new proposal. And in the same way, if the price does not fit to its production costs, he can counterbid the price too.

After accepting the job, the production phase can be started, and after finishing the part, the delivery takes place following the 3D Hubs rules. 3D Hubs organizes the delivery with its courier partners to reduce as much as possible the producer´s pains, and to keep a standardized delivery system for every produced part. On return, 3D Hubs charges a fee for the offered services.

BLOCK	DEFINITION
Value proposition	Get your machined parts very easy and fast
Key activities	Distribute Jobs to machining partners
Customers segments	B2C and B2B segment
Revenue Stream	Fee; % /contract
Cost structure	Office costs, phone, transport, IT Service
Customer relationship	Trust, effectiveness
Channels	Internet websites, Social media, makers communities
Key Resources	Partner networks, users engagement
Key Partners	Machining wokshops, IT Providers

Table 11 - Osterwalder´s Canvas model´s blocks applied to the online shop with outsourced production

6.2.1.8 Online marketplace for B2B:

In the last example 3D Hubs was working as an online shop to produce the parts, but in the end it was acting like a platform because it needs both users to keep the business running.

For the following business model that will be presented, the German company "Orderfox AG" has been chosen to explain how it works. Orderfox is a Marketplace for the B2B market where workshops can offer their machining capability and companies can post the parts they need.

Focused on the B2B market since 2017, Orderfox has developed a very user friendly and powerful platform to ensure a good and professional user experience, having the possibility of using many different searching tools that can define every single project very accurately. Having a global marketplace permits the parts consumer to have more possibilities to find the correct production partner for the parts that want be produced, but anyway, there is the possibility of using filters to delimit the market region. This service is free of charge for the consumers, but producers must pay a fee for participating in the marketplace.

In difference to 3D Hubs, Orderfox does not assign any job or project to a production partner; instead of this, Orderfox offers the marketplace for any company from the machining industry to handle and find the best partner for each project, and furthermore, it is possible to find a section with news from the industry and a section to buy and sell machines. And the biggest difference compared to 3D Hub is that Orderfox does not control the payments and delivery deadlines; it just offer the marketplace for the companies.

Summing up all this ideas, the business model that comes out is not very similar to the last ones we have analyzed.

BLOCK	DEFINITION
Value proposition	Satisfy any machining need in our marketplace
Key activities	Provide a space to interact for machining customers and providers
Customers segments	B2B segment
Revenue Stream	Free for consumers; Fee for producers
Cost structure	Office costs, employees, IT costs
Customer relationship	User experience, all service, mailing
Channels	Internet, Fairs, Mailing
Key Resources	Network, reputation, Programing skills
Key Partners	Internet searching companies

Table 12 - Osterwalder´s Canvas model applied to online marketplace for B2B

6.2.1.9 Social media groups and advertisement websites

Last but not least, there is another model that is used to produce machined parts based on social media and advertisement platforms.

20 years ago internet was considered as a distraction tool for some social groups. If someone wanted to disconnect and enjoy the free time watching videos or visiting websites, internet was a good option. But nowadays it seems like the real life happens in internet, and that if someone is not in internet, he just do not exist. This trend in the social behavior has affect little by little almost every industry and segment, and so it does with the machining industry.

On social media like Facebook it is possible to find groups and communities for almost any application. And of course, there are many communities for CNC machining depending on the language they are using or the region where people lives. Having a look to this Facebook communities, it was possible to find many communities with sizes between 3000 and 28000 people.

Some of them are to discuss generic problems and solutions from the machining industry and for selling spare parts and machines. But there exist some groups too where people tries to find machining capabilities like this one:

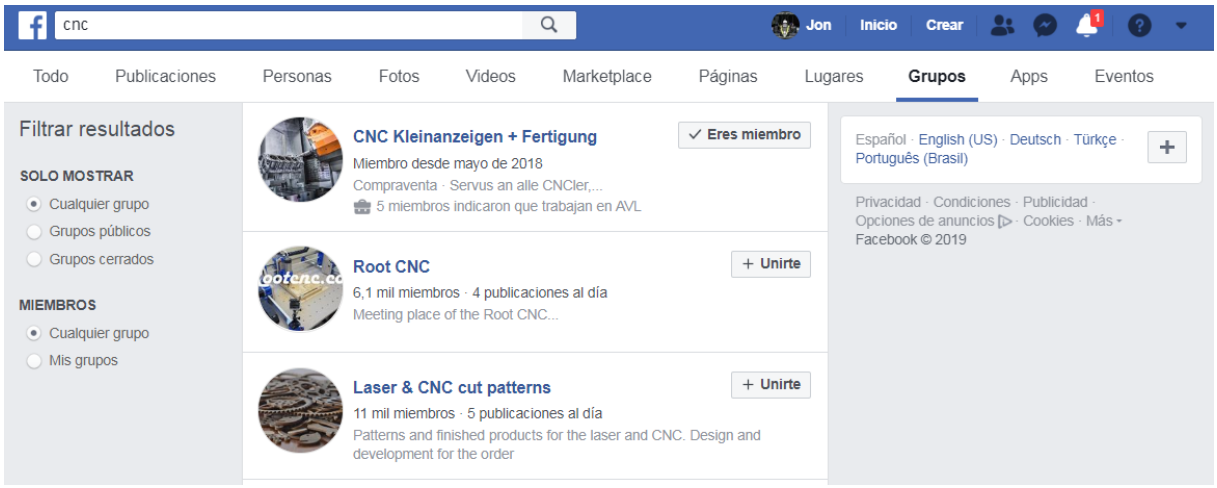

Figure 22: Facebook machining groups – Facebook.com

In this way, it is possible to reach someone who owns privately a milling machine or who has access to this capabilities and has free time to machine a part in exchange for some money. Every job or request is posted in a FB post, and people use to comment the price for how much they would produce it. For more detailed questions and delivery details, the conversations switch to private messages.

The social media platforms offer a free access to this kind of groups, and they just offer a place (marketplace) where different users can interact to fulfil their needs. Sometimes the problem is to keep a clean threat on the post, because sometimes people start changing topic or saying silly things, and even there are at least one moderator and one group owner who have to ensure a minimum control there, it does not occur frequently.

To have the complete picture out of this business model, the table with the most significant parameters from the Osterwalder´s business model will be used one more time:

BLOCK	DEFINITION
Value proposition	Find your machining partner
Key activities	Offer a place for interaction between consumer and providers
Customers segments	B2B & B2C segments
Revenue Stream	Free
Cost structure	Office costs, phone, transport

Customer relationship	User experience,
Channels	Mouth to mouth, social media, advertisement
Key Resources	Network, reputation, social skills
Key Partners	Internet searching companies

Table 13 - Osterwalder´s Canvas model applied to social media and advertisement websites

6.2.1.10 Benchmark Summary:

On this chapter the different ways of accessing to a machined part has been explained. Some of them are based on non-digital methods, whereas the main possibilities to reaching people with this capabilities is based on online systems. It is important to remark the positive and negative aspects for a customer who is a small company or a private user who occasionally needs a machined part; but also from the workshops owner´s point of view. Because as the thesis wants to explore the platform methodology, it is necessary to evaluate positive and negative aspects from the producers working on the different business models.

From customer´s point of view:

TYPE OF BUSINESS	PRO	CONTRA
Traditional Workshop	Part production and repair Communication and direct contact	Normally low priority; long delivery time Time effort
Intermediate figure	Part production and repair Network and good connection	Only for B2B
Online shop	Commodity	Laborious process and communication - Fixed price, not possible to compare quotes between providers
Online shop focused on user experience (Weerg, Rapidfacture & 3DHubs)	High commodity Fast quoting and ordering B2B and B2C Good tools to maximize user´s experience Re-machining possibility	Fixed price, not possible to compare quotes between providers
Marketplace	Good usability and tools Big market and workshops availability	Only for B2B Market No insurance in case of disputes

Social media	Good user targets Big number of users at the same time	Thread are difficult to follow Private agreements; no insurance in case of dispute

Table 14 - Evaluation of customers – Own representation

From producer's point of view:

TYPE OF BUSINESS	PRO	CONTRA
Intermediate figure	Charged fee is not clear; depends on intermediate´s mind	Only for B2B
Online shop focused on user experience (3DHubs)	High commodity Standard process B2B and B2C Good tools to gain more customers. Scalable	Big investment in IT. Difficult differentiation, easy to copy
Marketplace	Good usability and tools Big market and customers availability Independent from production Only "space" provider	Only for B2B Market No insurance in case of disputes Difficult to start growing, big investment needed
Social media	Good user targets Big number of users at the same time	Thread are difficult to follow Private agreements; no insurance in case of dispute

Table 15 - Evaluation of producers – Own representation

6.2.2 Platforms

Platforms has become very popular in very few years, and even if they are a lot of them, there are not specific formulas that can be used for every industry, segment or user group. It could be said, that every existing platform has its own life. Therefore it is necessary to understand and get insights of how they survived and which attributes they added to their functionalities in order to manage a good user experience and in the end, to gain more active users.

In this chapter some platforms in similar situations to the platform defined at the beginning will be analyzed, and other platforms that provide similar services but focused on different industries will be tested to see which services they offer and how they work.

6.2.2.1 Fiverr

Fiverr is one of the biggest platforms for creative & and professional services worldwide. Anyone who wants to offer a service in the marketplace is free to open a profile to advertise himself, and on the other side, people with specific needs is able to find perfect skilled person for his project. This platform is focused on many different industries and topics like Marketing, Graphic design, programing, Videos & animation and Audio.

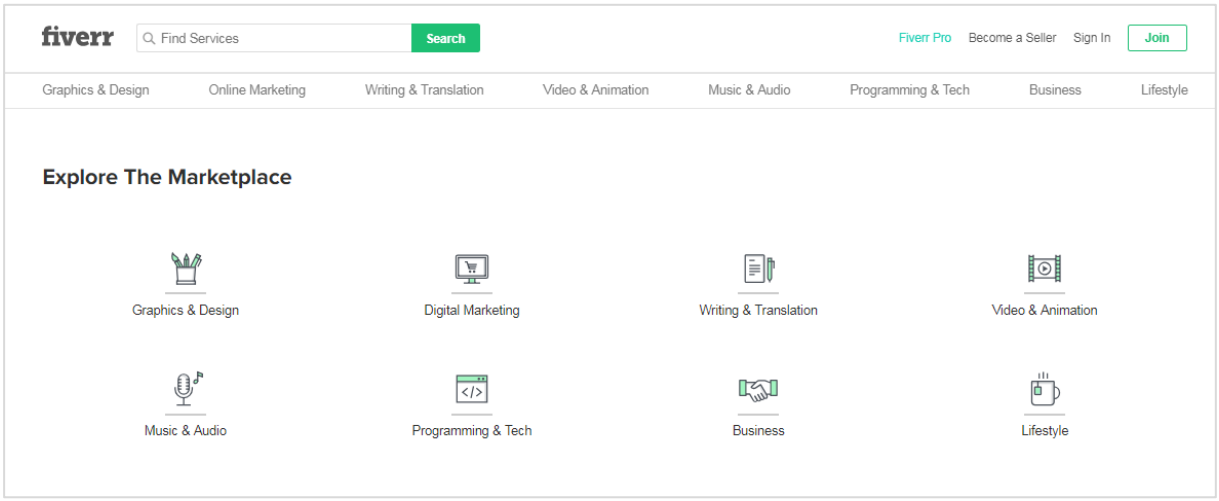

Figure 23 - Main view of the marketplace offered by the platform Fiverr – Fiverr.com

The platform offers the space for people to interact and exchange their services for money, and for any topic mentioned before, there are plenty of freelancers ready to work. Furthermore, Fiverr offers the tools and framework to the users to interact and exchange the services in a safe mode guaranteeing the quality and user experience for both sides.

But how does it work? Which steps has someone to follow as user?

The first step is to search for the topic in which someone is interested in. Let's take as example that a Website developer is needed.

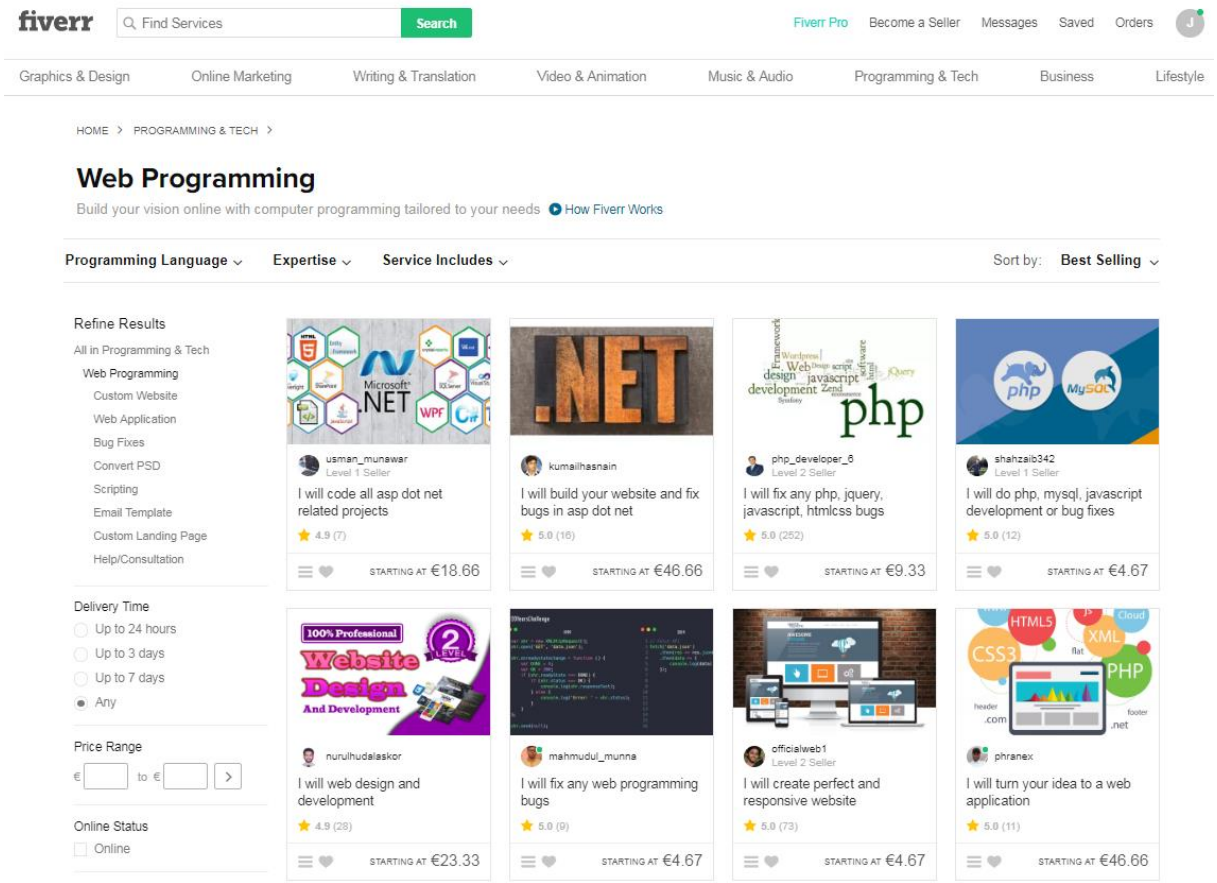

Figure 24 - View of the Web Programming services offered by the platform Fiverr – Fiverr.com

On the first page, it is possible to see many different profiles from people who are able to do the job. On their description they explain with more details the capabilities and experience they have. Another two important criteria that can be seen at a glance are the starting price and the score or rating for the jobs they have done until the day.

With the filters functions from the platform it is possible to search for some specific skills required for the project, or just simply adjust the search depending on delivery dates, seller's points, and range of price or many other parameters.

If some developer has been found, a more detailed description about himself and his experience can be found on his profile. There it is also possible to see the job packets that he offers with different rates; normally they are splitted in Premium, standard and basic. There is also an option to choose the delivery time, which as seen in other business types, it has a direct impact on the price.

The platform allows to send a request to different providers at the same time to get a quotation. For the quotation, it is possible to speak directly with the providers using the platform´s chat. In this way, all the communication stays in the platform and parallel communication outside the platform are avoided.

It does not look very important for someone who is using the platform for the first time this issue, but for the platform it does, and it is one of the major problems to solve. The platform while offering the marketplace for people to exchange their services, is charging a fee on the final price which is making the final amount bigger. The natural reaction from the users, once they have he contact with the provider would be to

exchange the private email address or the telephone number through the platforms chat to bypass the platforms fee. Fiverr was aware of the problem, and took some measures to avoid the problem; because every bypassed transaction means losing money for the service that Fiverr did. Therefore Fiverr implemented an algorithm in the chat system that recognizes any email address or telephone number, even if they are not written correctly omitting some letters, the @ or numbers. If the algorithm detects this behavior from the users, a warning message appears; and if the behavior persists, it is possible to be banned from the platform.

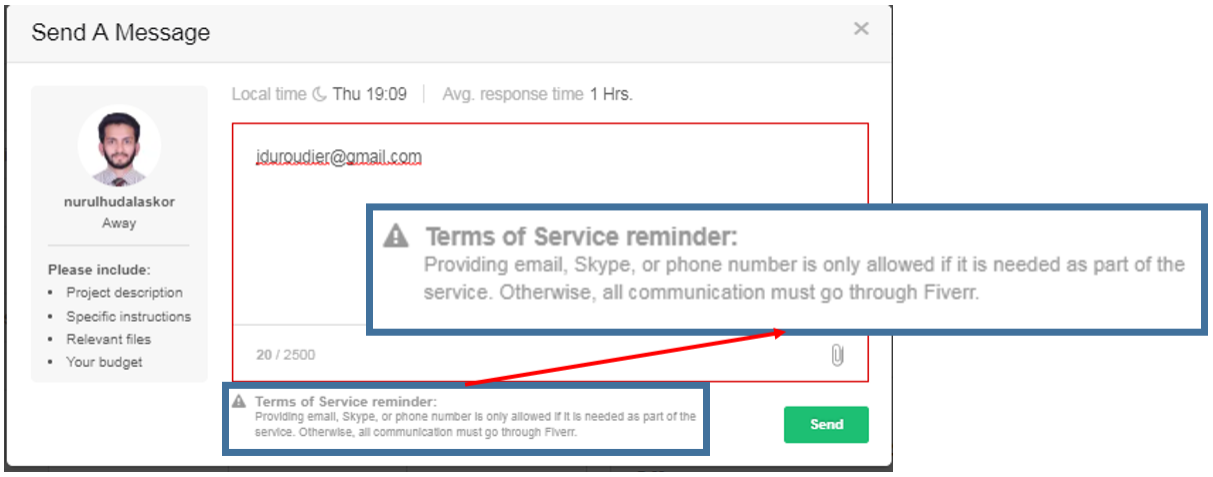

Figure 25 - Example of method to capture value – Fiverr.com

For the money charged, despite of the services explained until now, Fiverr offers a top to end service and has a support line for any question or doubt that could occur during the process. If the customer is not happy with the final result, or there is big delay with the delivery time, it is possible to ask the money back. For these cases the platform has a dispute service, in which a Fiverr staff collect all the information from both sides and decides what to do with the dispute. This service only happens if the transaction is done through Fiverr, which acts like an insurance, and in big contracts this service could be a good investment.

Continuing with the disputes, it must be said that the seller always has a more difficult position. If the dispute is not accepted from the seller and the work is finished, he has the risk of getting a back feedback and punctuation on his profile, which leads him to reduce his opportunities to get another job because of the bad rating. Therefore some sellers prefer to accept the dispute and jump to the next project rather than getting a bad feedback on the profile; because the feedbacks are not possible to delete form the profile.

Fiverr started as a marketplace for freelancers who wanted to gain some extra money in internet, but after refining the system, the platform offers a professional service which is only composed by verified professional freelancers or small companies. Therefore, Fiverr offer its marketplace to the B2B and B2C users. On both sides from the private persons and companies can participate.

On the other hand, it is known that the bigger a platform the better its network effect will be, and for this reason there exist many recruitment methods. Normally there is a direct discount or a bonus for someone who manage to bring new users to the platform. But sometimes this is not enough to get the bonus; in some

cases it is required that the new user has to make at least one transaction in order to receive the bonus. Fiverr uses also this system, and in this case, the new user only has to sign up to get the economic benefit

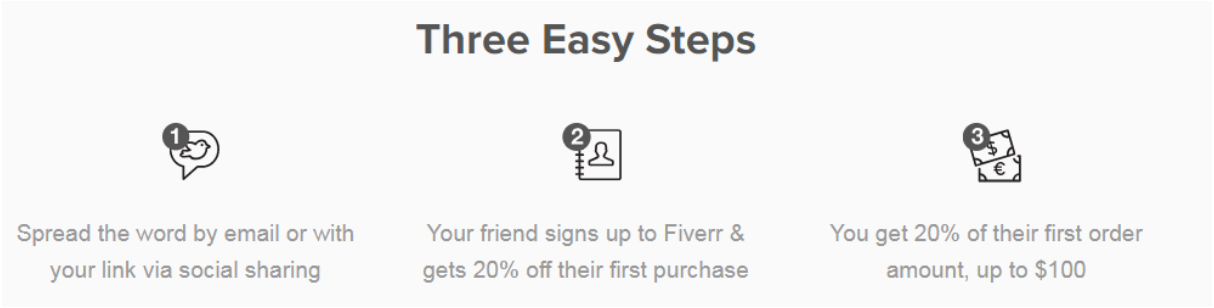

Figure 26 - Example of bonus system used by Fiverr – Fiverr.com

To make the ordering process more understandable from the start until the end, the process diagram for both sides has been done.

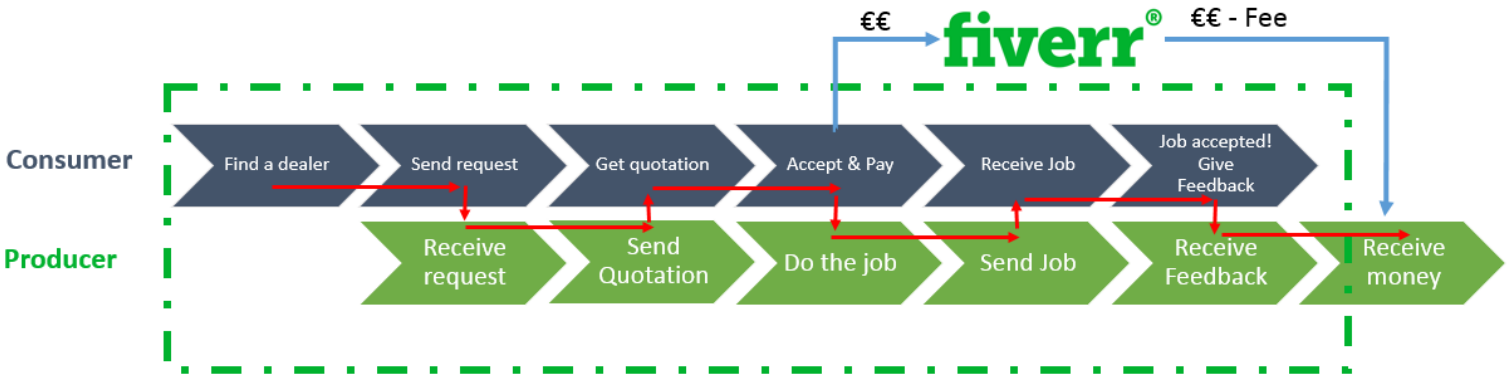

Figure 27 - Process diagram used in Fiverr - Own representation

Finally, to summarize and to have the most important key points from this business model clear, the same table as before with Osterwalder´s points is used:

BLOCK	DEFINITION
Value proposition	For customer: Biggest freelance community in a mouse click step For freelance: Get more jobs in a very easy way.
Key activities	Marketplace for freelance and customers interaction
Customers segments	B2B and B2C
Revenue Stream	Fee; % /Job
Cost structure	Website, server, staff, programers
Customer relationship	User experience, mails with staff members
Channels	Mouth to mouth, advertisement, social media,
Key Resources	Programing, marketing, Web developers, business developer,
Key Partners	Freelancers

Table 16 -Osterwalder´s Canvas model applied to Fiverr business model

6.2.2.2 Malt

From a freelance marketplace let's move to another freelance marketplace. In this case, the platform explored has been www.Malt.es; This platform was set up in 2013 by 3 French programmers after facing problems at hiring freelances for their daily work in the business world, with the goal of bringing the freedom to the talent[53].

The main difference on this platform is that it is only for the B2B market. The platform ensures and proves that all the freelances working in the platform are officially registered as freelance workers in their residence countries. As this platform knows the biggest pains of being a freelancer, it has the compromise of making the life easier for them offering them a set of tools to get rid of the laborious paper work. Invoices are done automatically, tax payments are calculated automatically, and it is possible to control the project costs and incomes with a tool. But the major benefit of using Malt.es is that all the invoices are legally checked, and that the contracts are check by the Malt staff too to avoid the false-subcontracting crime. In addition to this, it exists the possibility of negotiating the copyright of the work or designs done by the freelancers.

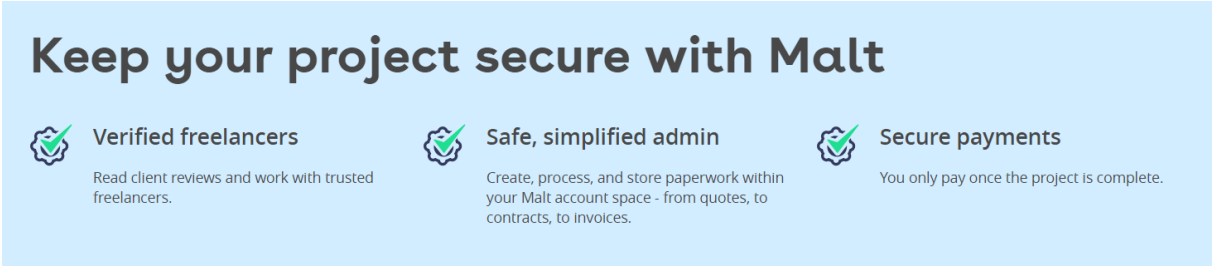

Figure 28 - Main view of the Malt platform – Malt.es

Within the benefits of working with Malt is that they offer an insurance in case something goes wrong or simply the project fails and does not succeed. Malt has a collaboration with the insurance company AXA and every project is covered until 9M€. This particular benefit gives a big tranquility and confidence to customers and freelancers because they know that even something wrong happens, their back is always covered, in both sides. Again, this extra feature from Malt helps a lot the users to stay in the platform and to continue working in future projects.

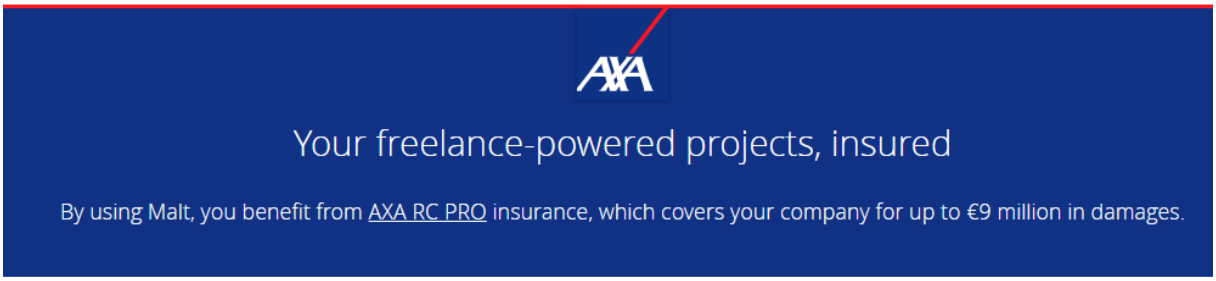

Figure 29 - Insurance offered by Malt

[53] https://help.malt.com/l/es/article/fissv1ytqy-cmo-naci-malt

In addition to this strategy for freelancers to stay in the platform is the marketplace´s tariff strategy. There is the possibility of working alone trying to get contacts from customers, or another way is to be part of the freelancer's pool that is ready to work with big corporations that has a partnership agreement with Malt. For these cases, the first contract with a customer is free of charges, but any subsequent job with the same customer will be charged with 2% from the net price.

The contracting process very is similar to Fiverr´s system; only the payment is a little bit different because the customer has to deposit money on his Malt account, and from this account the freelancer is payed 48 hours after delivering the job. But the payment goes through the platform indeed.

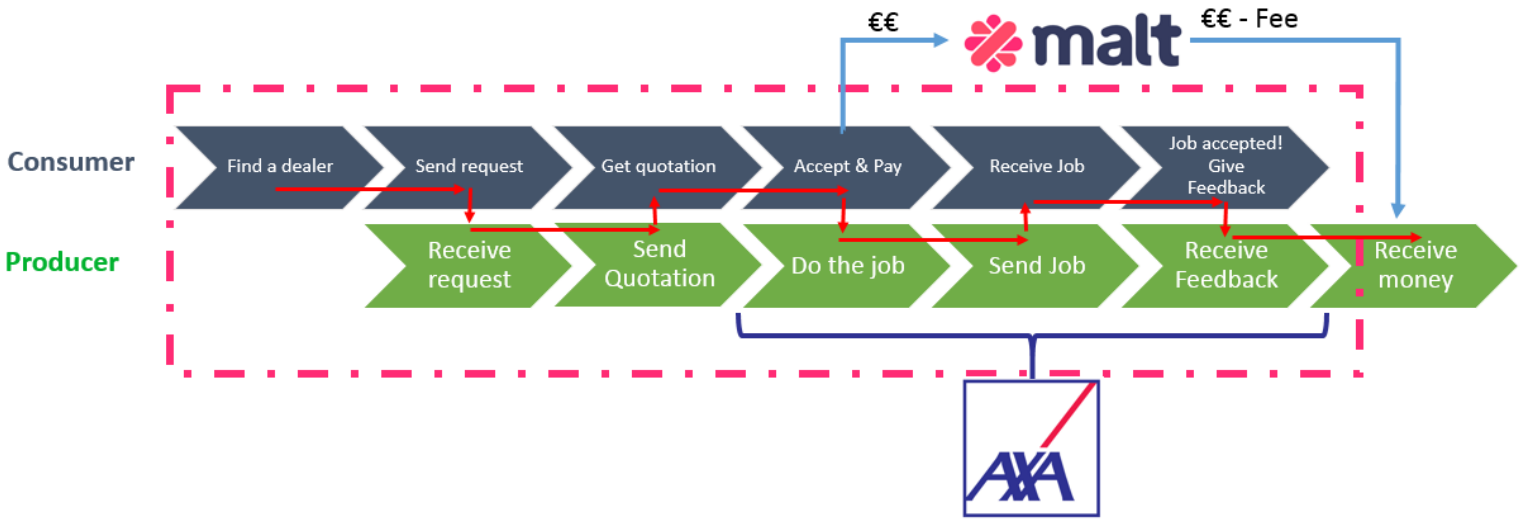

Figure 30 - Process Diagram used by Malt; Own representation

Once again, to summarize the most important criteria from this business model and from its value proposition, let's use the table with Osterwalder´s most important segments to define a business model:

BLOCK	DEFINITION
Value proposition	For Customer: Biggest verified professional freelance community For Freelance: Work easy and safe, without any paperwork effort
Key activities	Secure marketplace for freelance and customers interaction
Customers segments	B2B
Revenue Stream	Fee; % /Job
Cost structure	Website, server, staff, programmers
Customer relationship	User experience, direct mailing, call service
Channels	Mouth to mouth, advertisement, social media
Key Resources	Programing, marketing, legal advisory
Key Partners	Internet searching companies, Insurance company

Table 17 - Osterwalder´s Canvas model applied to Malt business model

6.2.2.3 The Friend Theory

Leaving the marketplace and the platforms for technical support or services, The Friend Theory platform was spotted. The creators found out that many people would like to travel around the world to visit it, but this is very expensive and not everybody can afford it, especially accommodation. This why they decided to solve this problem launching in 2018 “The Friend Theory” platform. Their value proposition is “Travel cheaper, and safer using your friend´s network”, but how does it works?

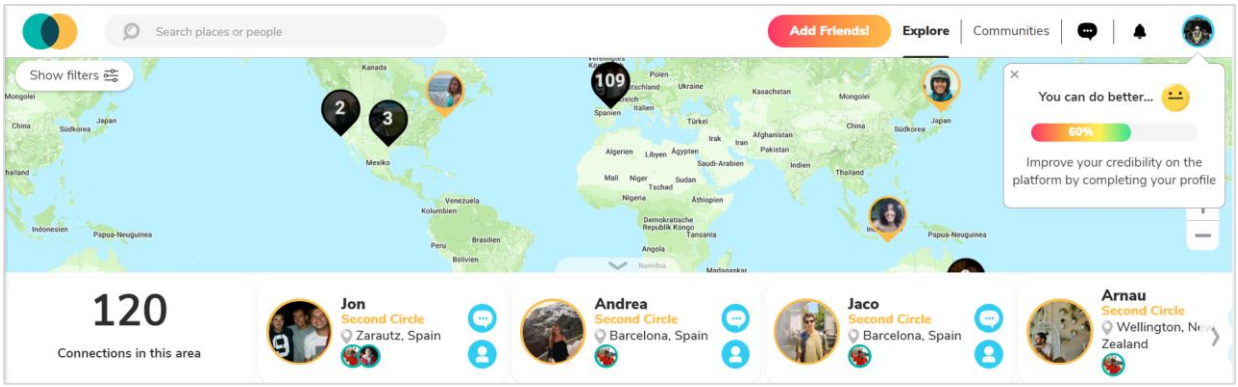

Figure 31 - Main view of the Friend Theory platform – Friendtheory.com

Nowadays Facebook is the largest social media by far, and almost everybody has a Facebook profile with lot of friends. Being almost everyone user from this platform, it is very easy to connect people and grow the network. The platform allows anyone to connect with people living around the world who is in the second connection circle; this means, it is only possible to connect with friends of friends to ask them for a place to stay, and obviously for free.

Using this rule, any user will have higher possibilities to travel and to find an accommodation if his network is bigger. Therefore any user interested in traveling will invite his friends to the platform to increase their network with his friends’ connections. Even if it sounds very difficult to do it, with every 100 friends in Facebook it is possible to reach on average 27500 people in a second circle[54].

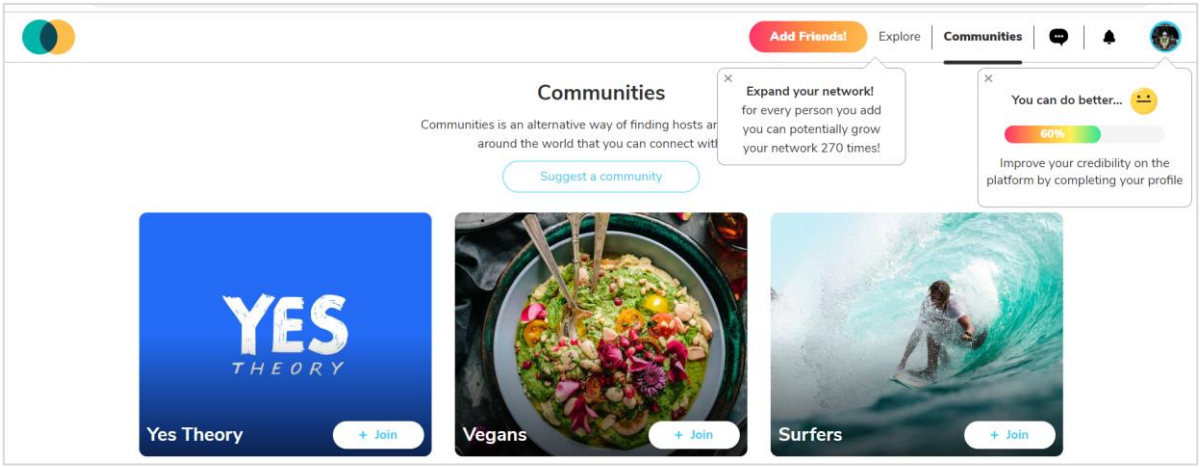

Figure 32 – Friend theory communities – Friendtheory.com

The platform offers a direct chat communication and a filter set to find out from the network the more interesting profiles of users that suit better to the trip that want be done. In addition to this, every user has

[54] https://friendtheory.com/landing

to complete his profile explaining where he leaves, which kind of accommodation he can offer, and which kind of information and activities he likes and can offer to the host. And if someone has a strong profile or a hobby that he really likes to do, it is possible to take parts in the different communities that the platform offers.

As every connection is a friend of friend, it is very easy to trust in these people, and the fear feeling of going to a stranger´s house without knowing how he is disappears, because you know your friend, and you can expect which kind of friends he has. And in any case, it is always possible to ask your friend for references. In the end, it makes safer to travel alone and makes more fun knowing more people.

Currently the platform is facing the most critical phase, which is trying to get as much as possible active users in the platform, therefore it is surviving thanks to the investors and business angels. The platform is absolutely free for the users (host and travelers), but for the future, once the platform gains some visibility and users, shop and restaurants advertisements will be implemented targeted to the specific users, which will give the revenue to the company. The freemium business models for users is very useful to reach the critical mass; but once the revenue model is defined, it is almost impossible to change it in the future; Any user will understand why he should start paying for something he had free until this day. This problem happened with WhatsApp. Even they wanted to charge only with 1€ per year to the users, the users could not understand this change, and therefore WhatsApp declined the idea as the number of users started to reduce.

For last time, to summarize the most important criteria from this business model and from its value proposition, let's use the table with Osterwalder´s most important segments to define a business model:

BLOCK	DEFINITION
Value proposition	Travel cheaper, and safer using your friend´s network
Key activities	Social platform for travelling
Customers segments	C2C; private
Revenue Stream	Free
Cost structure	Website, server, staff, programmers
Customer relationship	Website interaction, help and support
Channels	Mouth to mouth, advertisement, social media.
Key Resources	Programing, marketing.
Key Partners	Facebook.

Table 18 - Osterwalder´s Canvas model applied to the Friend Theory business model

6.2.2.4 Results evaluation:

The platforms analysis has brought very good insights of how platforms working in different industries design and define their attributes in order to capture the value and to keep people using the platform. The Friend Theory is the only platform from the group which does not exchange any value, or at least is not a

tangible value like a good. The Friend Theory´s vision is to provide a better method to travel safer and cheaper for free, and therefore to charge the users for this application would be an error. This revenue model helps a lot to increase the users and to grow in size quite fast, but requires from very big pockets to survive until the platform starts being profitable.

Fiverr has its own ways to capture the value and tools to avoid being bypassed as explained before. The most remarkable attributes in this case are the “smart chat” and customer protection in case of disputes. On the other hand, it does not protect too much the freelancers, as they are always depending from the feedback given from the customer.

On the other side, even being a platform for freelancers too, Malt is focused on providing a good service to both sides. The platform is focused on the B2B business, but it try to give a solution to the biggest problems faced on both sides. For freelancers the paper work and contracts are done, and even they have an insurance when they are working, which is something very unusual. For customers they offer a very good pool of verified professional freelances, and as they are well supported from the website, customer know that they are fully concentrated for the work.

PLATFORM	PRO	CONTRA
Malt	Freelances well supported Quality is secured Freelance Insurance feature	Only for B2B
Fiverr	Big Freelance pool Professional service with validated freelances B2B & B2C	Big effort to keep and capture value
The Friend Theory	Business model permits a fast growth. Very scalable	Difficult to monetize

Table 19 - Evaluation of the analyzed three platforms – Own representation

6.2.3 Users Analysis

On the previous chapter the types of business models and platform types has been explained and analyzed with their key points, and in this one, to close the loop and test the models with the potential users some profiles must be created. Once again, as the model is based on a platform, not only the customer must be defined; for a correct functionality producers must be taken into account too! In this first approach, the consumer profiles will be defined using the Personas method, and the target user will be small companies, stat-ups and private users as defined at the beginning.

For the personas methodology is known that the best approach to define the customers is to use real profiles or real cases, but if no data is available, the users profiles can be defined thinking on how they would look like. In this case, the user profiles are based on real cases that I meet in the last years, and from internet research; but to make it anonymous, the name and some geographical data will be change for this master thesis.

6.2.3.1 Consumers:

The consumers are the users who will request the services from the other side of the platform; the producers. They will post the project or parts they want to get on the platform in order to receive quotes from the different producers. The selected profiles are a technological start-up which builds prototypes, a small company with machined parts needs, and a private user that uses machined parts for own projects.

Smart-Water; IoT Start Up

Markus is 32 years old, and he is setting up his first start-up in the IoT industry with two other colleagues, related to water quality and pumping equipment monitoring to predict and detect potentials problems and failures.

On his daily duty, Markus tries to develop new systems for the customers they have. As they are in an early starting phase, they try to get as many user cases as possible to offer them a tailored solution for each problem. This big variety of problems and cases requires a fast engineering analysis process to detect and find a solution for each problem. In some cases, the problems are solved with a new management plan; but in some of them, hardware modifications is required to correct the systems failure.

For these cases, new attachments, pump blades, pipes and other metallic hardware is needed. Therefore, to produce them they need machining capabilities which they do not have, leading them to depend on a local workshop. The order usually consists in 1 or 2 parts from each prototype, which has a very low priority for the workshop over their daily work, and consequently the IoT Start-up does not receive the parts immediately.

Markus is fighting very hard to boost his start-up as much as possible. Having access to machined parts is currently the bottle neck, for this reason, he is trying to find a machining service which could accelerate this process and enhance the situation of the company.

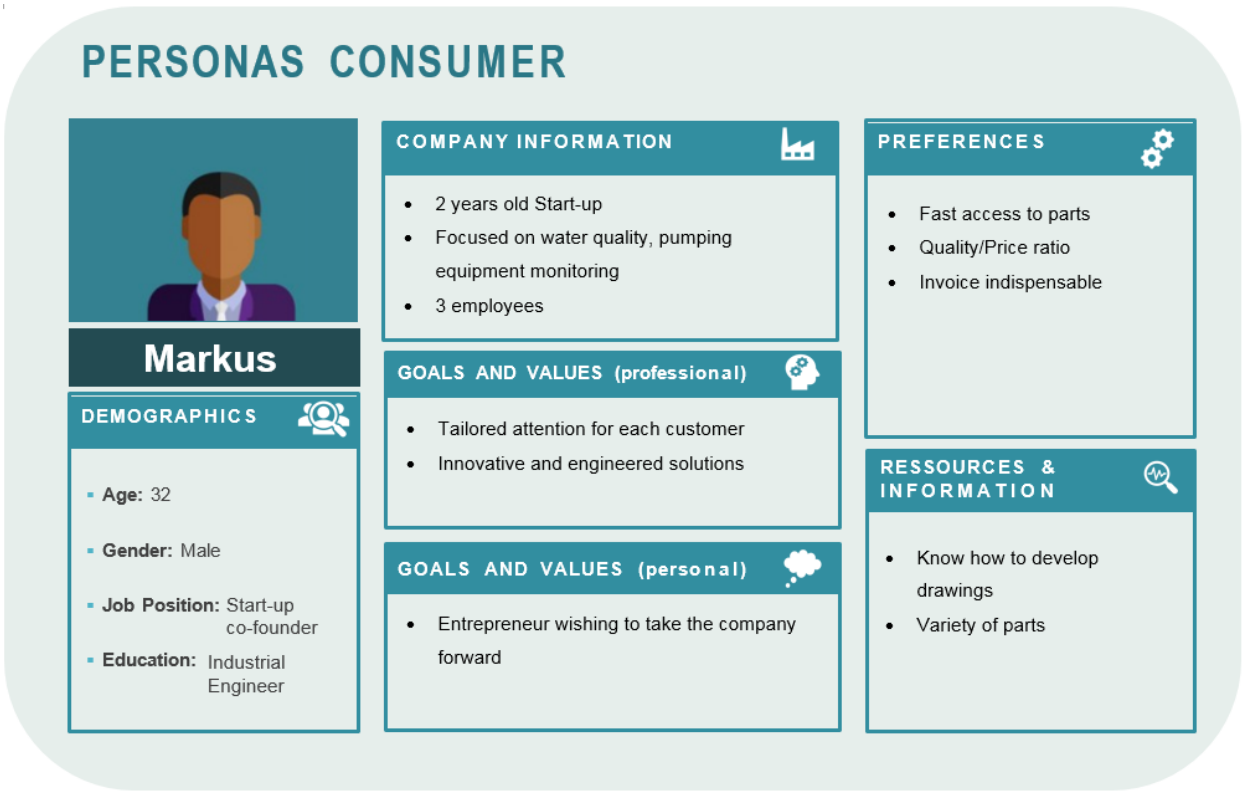

Figure 33 - Personas Consumer - Own representation

Bike Racer; bicycle rims producer

Bike Racer is a small/mid-size company producing carbon fiber rims for road racing bicycles. They sell around 2000 rim sets per year and they export their production worldwide, but their main market remains in the European countries. The rim production is relatively a very manual operation, and almost all steps in the production are done by employees.

Philip is 29 years old, he is the productions planning engineer, in charge of designing and defining every production step. He is very conscious about the effect of a wrong production planning on the final production costs. Therefore, to keep the costs as low as possible he is always trying to optimize every purchase on material or tools for the production. His goal is to maximize the profit margin from each rim by ensuring the best quality expected by the customers.

For the production Philip requires some machined tools which normally get damaged after several applications, leading to their replacement. To machine these tools, they work together with a local company. However, the alternative that allows them to get a competitive price is the amount of parts per order. The local workshop only works with minimum orders, forcing Philip to request much more parts than needed. Thus, they need more space for the storage of these parts in the warehouse, and at the end too many resources are reserved in the warehouse waiting to be used.

To solve the problem, Philip is searching for a production system, which provides him the possibility to compare different offers at the same time, gaining flexibility in terms of minimum quantity and ensuring a competitive price per unit.

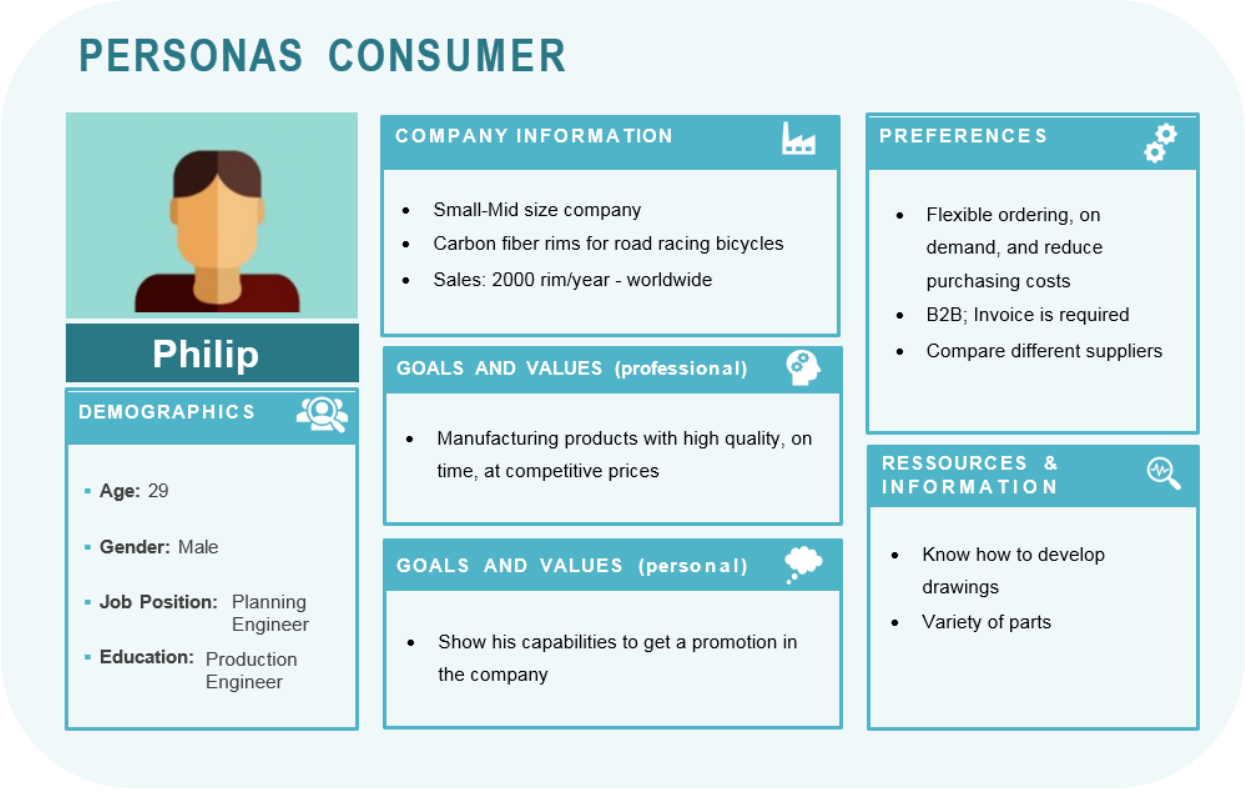

Figure 34 - Personas Consumer - Own representation

Private user

Mike is a car enthusiast who works as an automation engineer in a factory. Normally he works in the morning shift, which means at 2 o'clock in the evening he finishes at the company. He is 32 years old, single and he likes to spend his free time practicing sport or modifying his car at the garage.

Together with some friends he shares a garage where he can tune his car and prepare it for track days. Some of his friend's race in amateur hill climb categories, and he likes to help them improving the cars. Part of the upgrades are made with performance parts available at the market, but some of them are custom parts, like seat adjustment parts, steering adjustment adapters and so on. To get these parts, Mike has a friend working in a company which has a turning machine, therefore he gives him a small drawing for the part he wants to manufacture.

The main problem is that his friend makes the parts during his free time, leading him to stay longer in the company. As Mike consumes around one part per month, the situation has started annoying his friend and becoming uncomfortable.

To avoid the possible loss of their friendship, Mike wants to find a way of getting the parts in a cost reasonable way without needing to send a CAD Sketch.

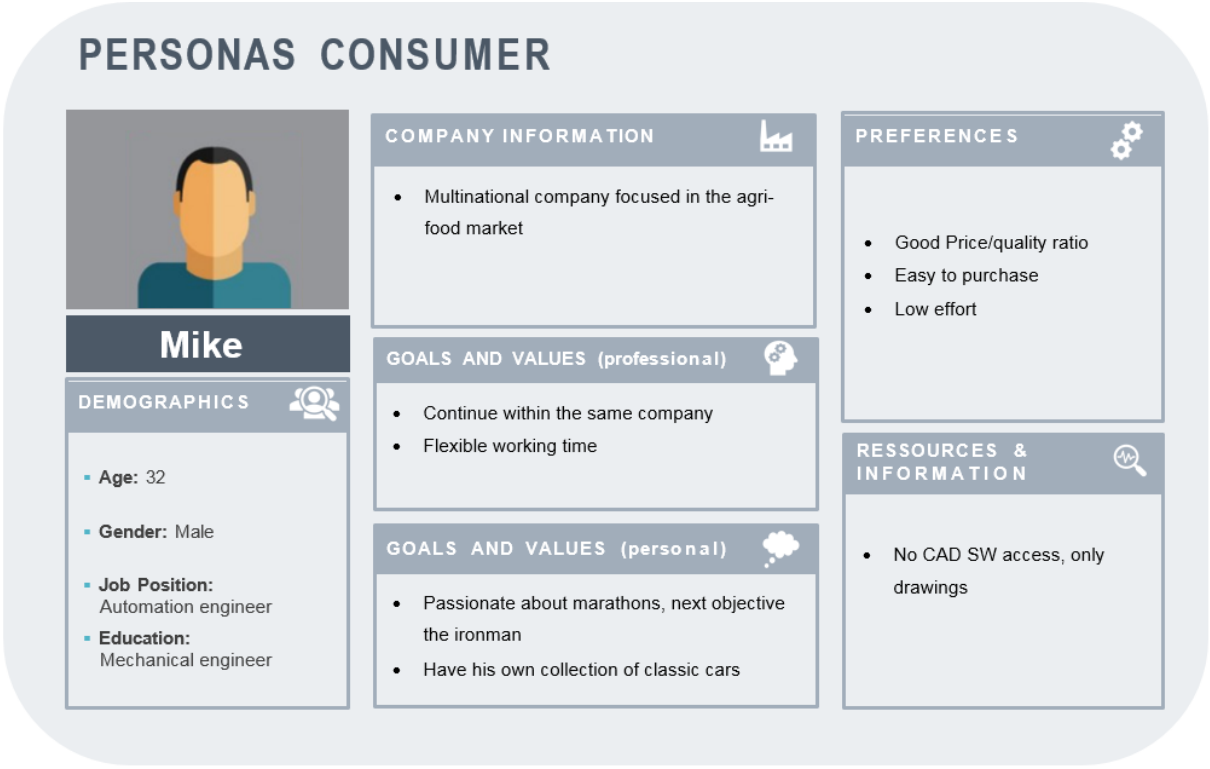

Figure 35 - Personas Consumer - Own representation

6.2.3.2 Producers:

They represent the other side of the platform; the users that provide parts to the consumers. In this case, three type of producers has been selected at the first approach to be the platform´s producers. The selected profiles are a traditional machining company, a small company with machining capabilities but out of its main duty; and a private person/user with machining capabilities. Based on these profiles, the personas cases have been generated.

Motorbike Workshop:

"The Racing Factory" is a motorbike workshop specialized to superbike and off-road motorcycles. The company was set up ten years ago by its owner John (39), who is a former semi-professional bike rider. After finishing his rider career, he decided to use his network and engineering know-how to offer this special service to people who likes to ride bikes on track in an amateur level.

To provide a good service oriented and tailored to every customer, he uses to modify the bikes with help from his employee to adjust each bike to its rider. Sometimes the aftermarket parts provided by racing companies available on the market do not satisfy the performance level expected by the riders. Therefore, 5 years ago John decided to purchase a 3 Axis CNC machine on the second-hand market for his workshop. The reasons for this purchase was the necessity of new parts production, and modification of existing ones. The production of new components was relatively easy to solve, but the modification required from more than one attempt to adjust them properly; which took lot of time and effort, as he had to go every time to the closest workshop which was only 3 km away from his company.

He realized that the machine he bought was only used 5% of the time per week, thus the machine worked 2 hours per week out of 40 hours. As the machine cost him 45k€, he would like to get a bigger profitability from it, but he does not how. He would like to find small projects or prototypes to produce, that could suit to his machine size and characteristics, but he does not have access to this market. On the other hand, he is involved in other personal projects and does not have time and motivation to start advertising himself on websites or forums, and he do not want to spend time answering emails and refusing projects because of his machine´s performance. **In summary, John wants to find a flexible and easy way to get access to more projects without any extra time cost.**

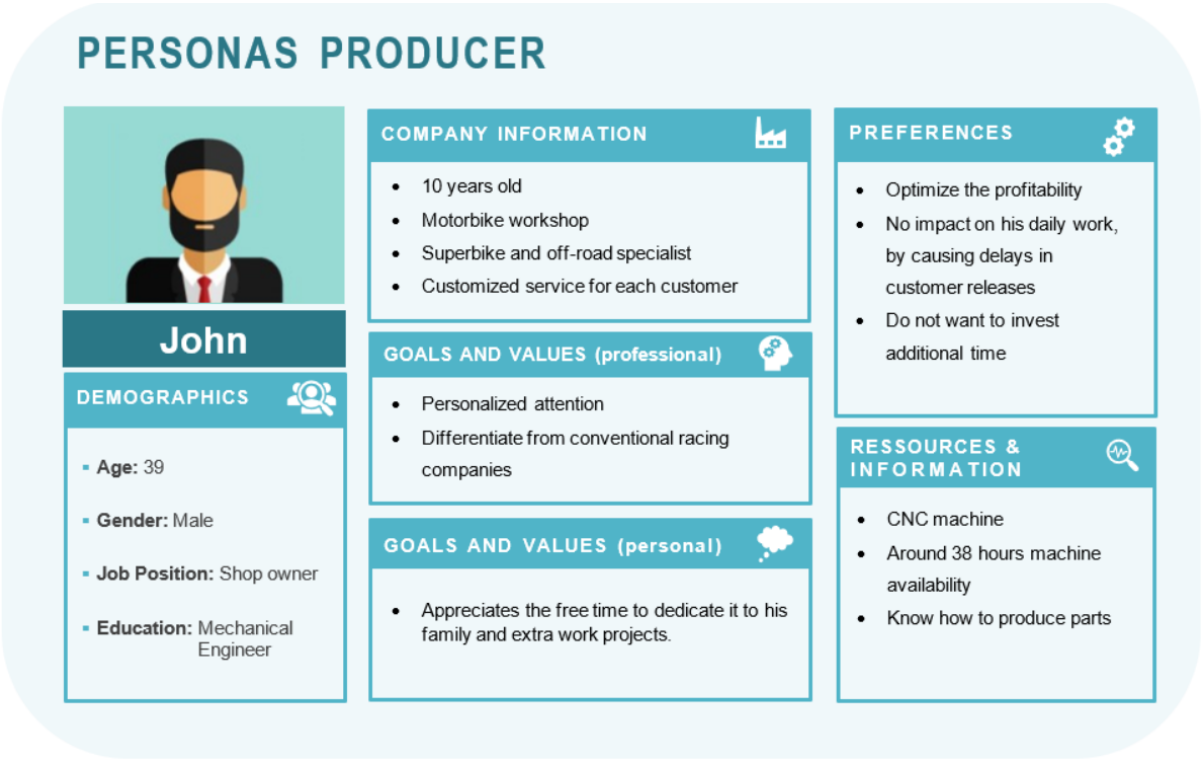

Figure 36 - Personas Producer - Own representation

Machining workshop:

Marc is 45 years old and runs a small familiar machining workshop, which has 5 employees in total; 3 employees, his brother and himself. Both brothers inherit the workshop from their father 15 years ago, and they started to increase gradually the turnover by getting more contracts and jobs from the industry placed in their region. To satisfy the industry's needs they started adapting their capabilities to produce small series and short productions.

Therefore, they avoid the most difficult jobs, the parts reparation. Over the time they started to lose know-how and competences. The main reason was that they were mainly focused on small productions.

In the last years, the work load has slightly reduced, and they are facing some underload phases, where they have considerably dead times between productions. At the beginning, they decided to use this time to make machines maintenance, nonetheless it is still not sufficient to cover the dead times. The work load can currently be covered by 3-4 employees, but both brothers do not want to fire any employee.

To solve this problem Marc spends lot of time trying to reach new markets or new customers, but as they work in the "analogic" world and they do not have resources to open a competitive online shop, he keeps fighting to get more customers by knocking company doors.

In conclusion, Marc's main objective is to find an easy way to reach more customers.

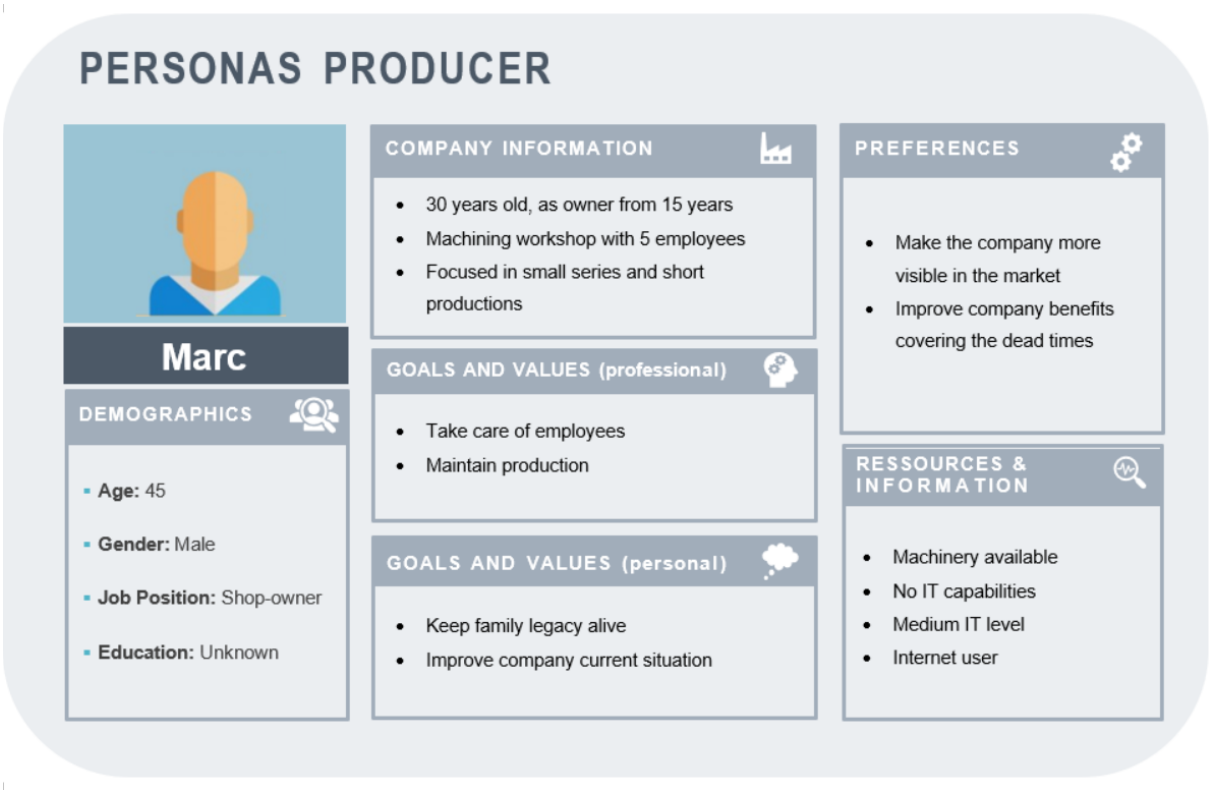

Figure 37 - Personas Producer - Own representation

Retired:

Joe is a pensioner who got retired 5 years ago. He spent his working life in a tire manufacturing company at the production line. Nowadays, he has plenty of free time to spend it going for a walk by the seaside with his wife and building aircraft and ship RC models; his big passion. He started with this hobby 20 years ago, and he builds his own models from scratch. This hobby requires a lot of time and patience, something that transmit him a very peaceful feeling.

To produce his parts in his cellar, Joe has a small turning machine for the small custom parts, and for the most complicated parts where milling is required he uses a friend's workshop. He utilizes it to machine some custom parts which cannot be found in the market or to modify existing parts. Joe is very curious and open minded, but until he got retired he never thought about the opportunity to hire his machine or about giving an extra usage to it.

Now, Joe is figuring out how he can find an alternative to offer his machining services, to cover the expenses of his hobby.

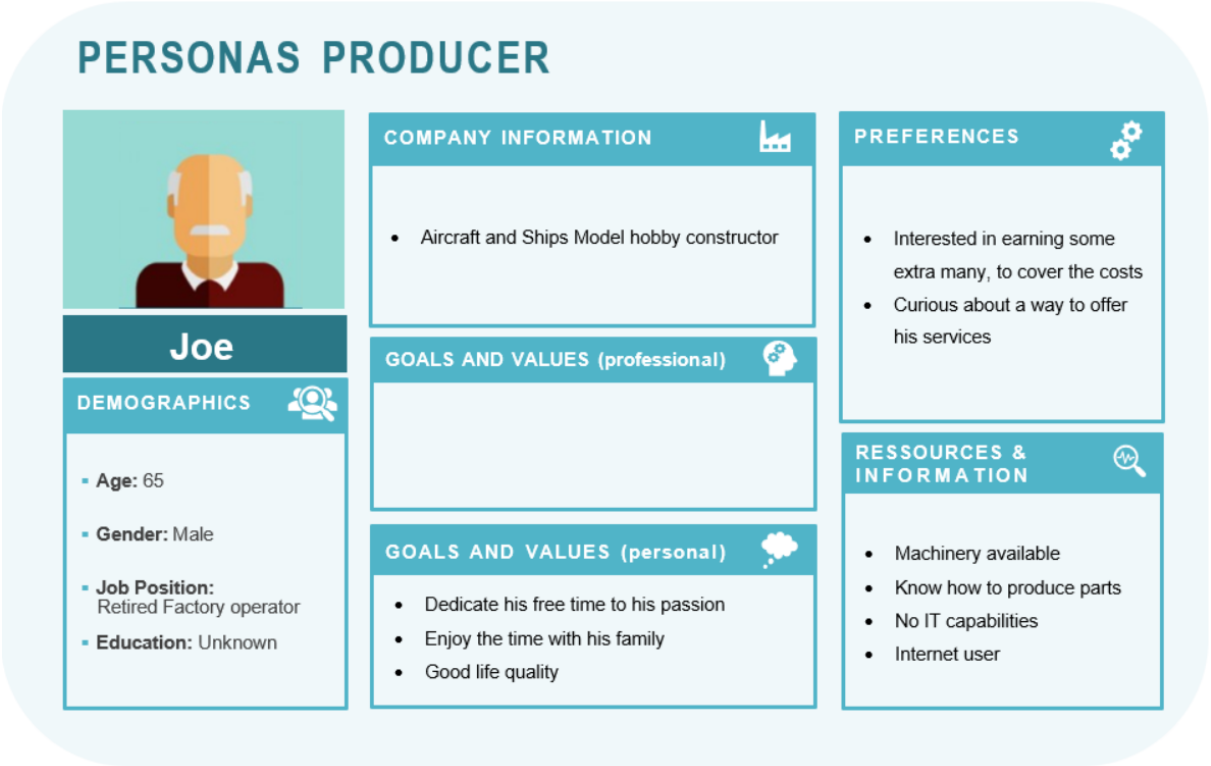

Figure 38 -Personas Producer - Own representation

Double users:

After defining the user profiles there are two of them that could have a double profile. These interesting profiles are the motorbike workshop and the retired figure. Both have some limited production capabilities and they consume machined parts too. This means that they could use the platform as user to request some parts they cannot produce by themselves. This situation enriches the platform community, as this double profile can work in both sides and in consequence can be more active users.

To summarize the user's chapter, it is important to collect in a table the most important goals and targets that each user wants.

TYPE	USER	GOALS	CHARACTERISTICS
Producer	**Machining Workshop**	• Find more customers • Fill production gaps	• No IT capabilities • Mid IT user, normal Internet user • Easy to use system
Producer & Consumer	**Motorbike Workshop**	• Find projects for his machine • Project flexibility	• No time for advertisement • Does not want to spend extra time • Easy to use system
	Retired	• New income capability	• Free time • Machining know-how • Easy to use system
Consumer	**Start Up**	• Fast access to parts • Quality/ Price ratio • Invoice needed	• CAD software access
	Rims Company	• Reduce purchase cost • Flexible ordering, on demand. • B2B; Invoice • Compare different providers	• CAD software access
	Private user	• Good Price/quality ratio • Easy to purchase • Low effort	• Flexible time • No CAD access; drawing

Table 20 - Summary of Goals and Characteristics of each user – Own representation

6.2.3.3 Testing

Previously in the chapter it has been talked about the customer profiles and about the different type of existing business models to get machined parts. Some of them are oriented to determinate user group, and other models suit better to another user group. Until now, the user's profile has been already designed, and the different business models has been analyzed too. In order to compare the customer profiles with different business models, it is necessary to get some objective data in to compare them fairly. But how is it possible to compare them without testing them? Without feeling the users experience from the point of view of a hobby mechanic who wants to produce a part for its race car?

Therefore, to get objective data a test has been performed divided in two phases:

First of all, to test the different models fairly, a CAD Model from a part has been created and sent to the producers that has been listed in the previous chapter. Obviously, as in the user group are private person included too, all the B2B services like Orderfox has been discarded because they cannot be used by private persons. Therefore, the tested production ways have been:

- Traditional workshop
- Online Shop (Weerg, 3D hub, Rapidfacture & Mecanizado online)
- Social media (Facebook)

This part could be integrated in the benchmark chapter, but as the user profiles were not defined until now, it has been decided to make the comparison here.

Secondly, to see which pains the future platforms user's faces while using this production methods, the "customer journey map" method has been selected for this pourpose. This means, that each user will have a customer journey map with the different production methods that has been tested in the first point.

Model Test:

To compare fairly the different systems that could be used by the platforms potential users, the same part has been submitted to the different production options described at the beginning of the testing chapter. In all the request submitted it was desired to have an aluminum part, with standard tolerances and a delivery time of 10 days. The benefit from this test is that having objective data available, it is possible to use this information later with the personas profile for the customer journey map to have a neutral comparison.

To measure the properties from the production ways, following parameters has been selected.

- **Interaction numbers:** How many times was necessary to use their process or exchange an email until ordering the part?
- **Price:** How much does it cost?
- **Delivery time:** How many days were necessary to get the part?
- **Time to order:** How much time was necessary until ordering the part?
- **Commodity:** Was it possible to do it remote (Internet)?
- **Re-machining**: Is it possible to send the part back for and adjustment?

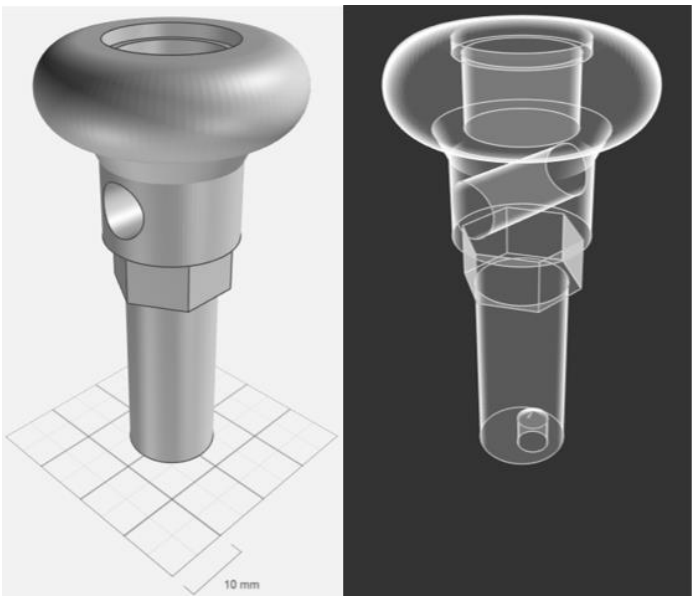

Figure 39 – CAD part for the testing phase

All parameters have the same level of importance in this case. The goal from this comparison is to try to analyze from the customers point of view, but with objective criteria. For each user in the customer journey map, some of these criteria will have more relevance than other. And in case that a future pain reliever must be

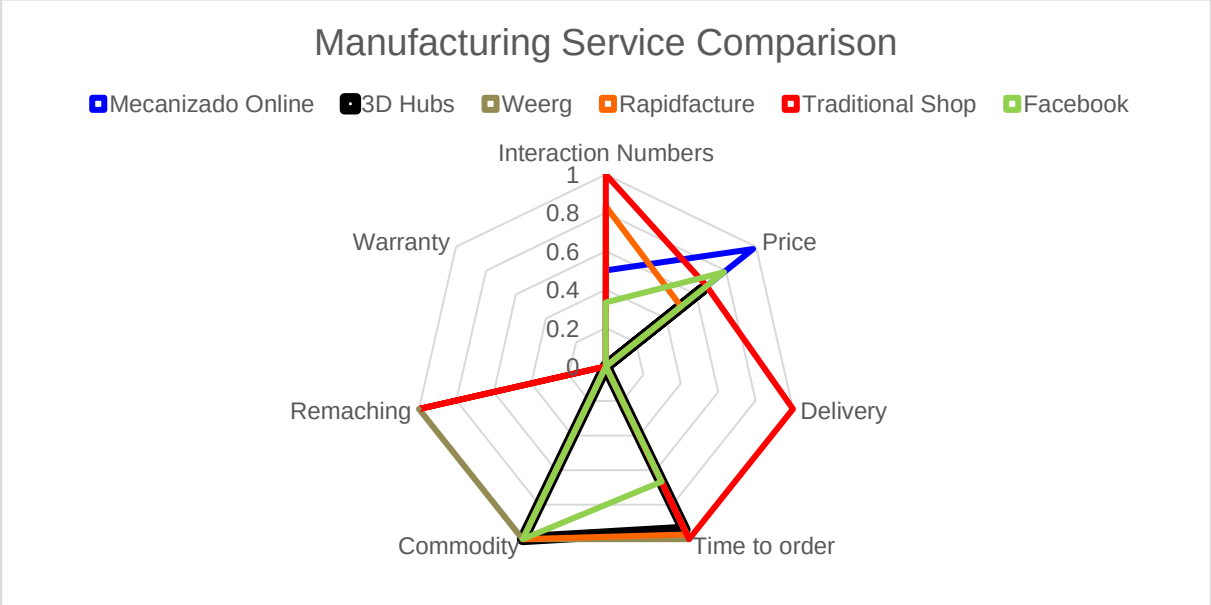

Figure 40 - Manufacturing service comparison diagram

The scoring for each property has been normalized between 0 and 1. This means, that the best result in each category will get 1 point, whereas the worst result will get 0 points. The results in the middle will get points between 0 and 1 using a lineal interpolation method.

Making the sum of the points, this is ranking result with neutral weighting (all criteria has the same relevance):

1) Weerg: 4,83/7
2) Traditional Shop: 4,67/7
3) Rapidfature: 4,30/7
4) Facebook: 3,78/7
5) 3D Hubs: 3,58/7
6) Mecanizado Online (Traditional online shop) : 3,48/7

May be this result/comparison is not very relevant for the final result, but thanks to the data obtained making this research, it will be possible to make a more accurate customer journey map to identify from it the principal pains.

6.2.3.4 Customer Journey map

The main goal from the customer journey map is to detect the pains and problems the customers are facing before, during and after using the different system for parts manufacturing. The Journey map must take in consideration the feelings and thinking at every single step to understand the customer's emotions and explore potential solutions, pain relievers and gain creators.

The customer journey map in this occasion must be done for both platform´s sides; for consumers and producers. It is important to understand the needs required on both sides, because if any of these are not working properly, the other side will not work.

- **CONSUMERS**

Mike; Private User

While making the customer journey map through Mike´s profile view, it was possible to identify that he is facing many fears and problems with the different systems, and the most relevant ones are commented here:

- **Part design:** Mike does not have access to CAD software, and this is a big inconvenient because not all of the methods can be used without a CAD designed part. Therefore, he has to make a drawing manually for its part. But the designing feature from Rapidfacture, is a very powerful tool to help Mike, and provide him a complete service. On the other hand, companies like Weerg or 3D Hub only allow the CAD drawing to make the quotations through the automatized software, which is not an option for Mike.
- **Provider contact:** The most annoying part for Mike is to spend a lot of time searching for a workshop in his area and to make a route to contact them. This cost lot of time and it is really frustrating. On the other hand, Facebook offers the possibility to post a job that many users analyze. In consequence, Mike is able to receive many offers from interested producer without searching for them.
- **Discuss details:** The benefit of being directly at the workshop, is that it is possible to discuss every detail in 5 minutes with the operator; but as seeing in the benchmark test, the worst way to discuss the details is via email with the online shop, taking a couple of days for it.

- **Get quotation:** The benefit of receiving many offers at the same time is that it is possible to analyze and chose the best provider.
- **Payment and delivery:** This is a very important part for Mike. If he is ordering the part with some private producer from Facebook, he must make a private payment, but he does not have any refund warranty if the part dos not fulfil his, or if the part even never arrives. The trust must be very big in this case, but the fear and uncertainty are for sure extremely high.
- **Pick up:** This stage is again not the best one for the traditional workshop. Mike has to go again to the workshop to pick up the part, which implies that he has to spend time for it. In comparison to that, the other options offer the delivery service, which is more comfortable.
- **Mount & Test:** The crucial part from the process to get the customers satisfaction is this last stage. In this one the part must fit and fulfil the speciation's, otherwise, the customer will not be happy even he has done a designing failure. Therefore, the manufacturing options with better solutions are Weerg and the traditional workshop. Weerg offers a re-machining service paying an extra amount, and for the workshop it is possible to return there to modify the part.

Analyzing the customer journeys map it has been possible to understand the feelings and pains that Mike is facing while trying to get his parts through the existing methods that has been tested, and in consequence, the pains and gains has been listed:

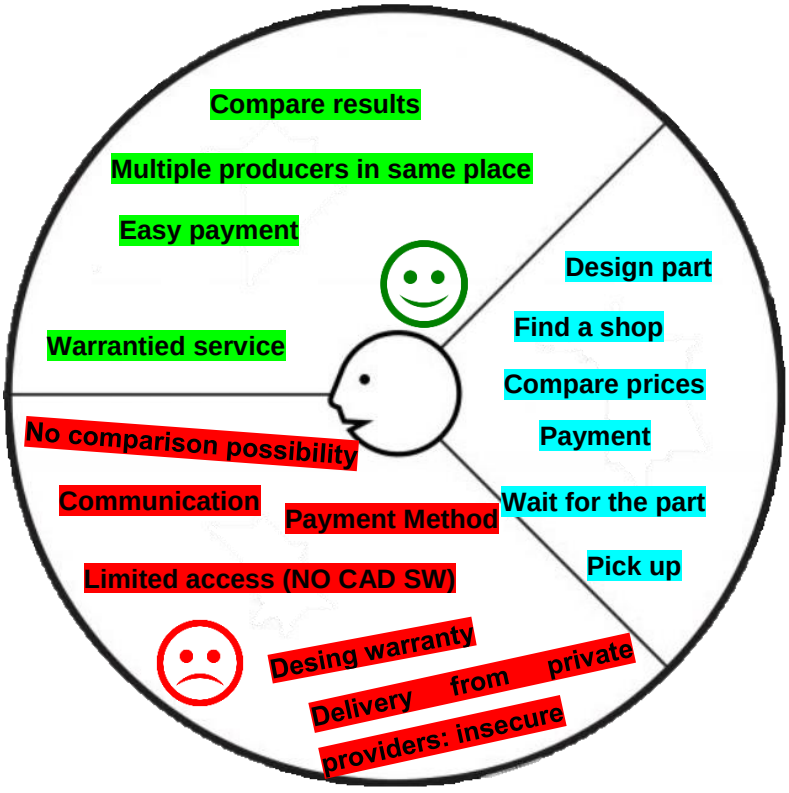

Figure 41 - Pains and gains, User 1 – Own representation

Mike
(Private user)

- Age: 32 years old
- Profession: Automation engineer
- Status: Single

- Good Price/quality ratio
- Easy to purchase
- Low effort
- No CAD SW access, only drawings

Figure 42 - Customer journey map, User 1 - Own representation

Philip:

Bases on Philip´s personas characteristics, the results from the customer journey map are slightly different.

- **Part design:** Philip´s Company uses a CAD software to design and manufacture the rims and tools; and as the engineers are used to it, to design the required pats for machining is not a problem.
- **Provider contact:** This a uncomfortable situation for him because in Facebook he does not know when he will receive a new offer, and on the other hand, with Weerg or3 DHubs he only has one fast provider. In addition to this, the drawing sent to the providers are confidential, and the delivery of this kind of documents without any control is a very dangerous topic for Philip.
- **Get quotation:** The benefit of receiving many offers at the same time is that it is possible to analyze and chose the best provider like on Facebook, and in opposite side, the shops only can make one offer.
- **Pick up:** This stage is again not the worst one for the traditional workshop. Philip has to go again to the workshop to pick up the part, which implies that he has to spend time for it. In comparison to that, the other options offer the delivery service, which is more comfortable.
- **Mount & Test:** Compare to the pickup station, to have a traditional close to him and to work with them helps to have support after getting the parts in case that machining was not as expected. This gives a good feeling of safety**.**

From this customer journey map there are this result coming out. The most relevant results are, that the biggest pains are related with the confidentiality and data protection, because the parts Philip is ordering could show the competitors the way how he produces the parts.

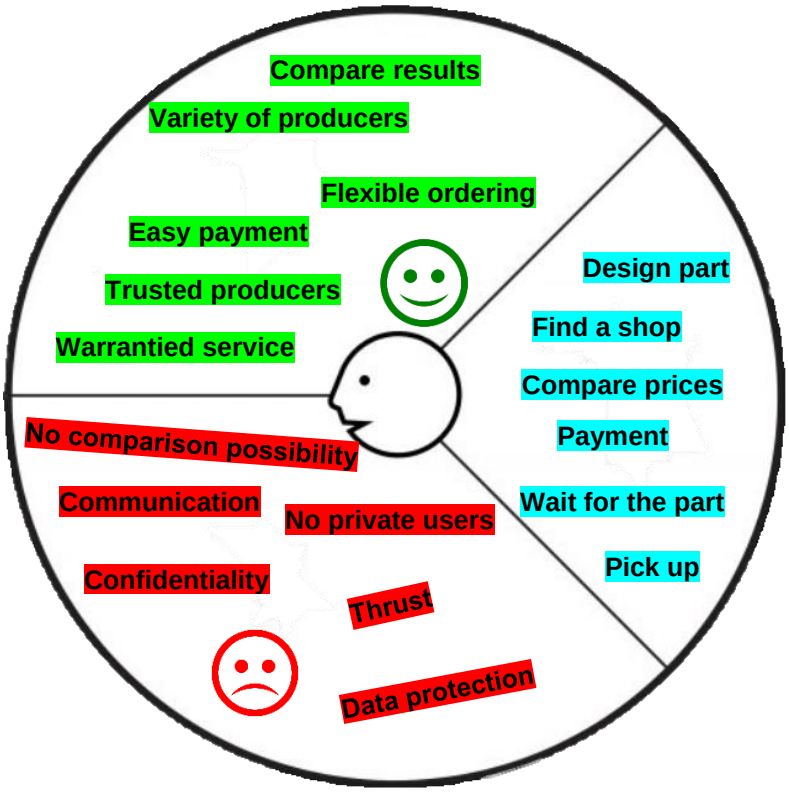

Figure 43 - Pains and gains, User 2 - Own representation

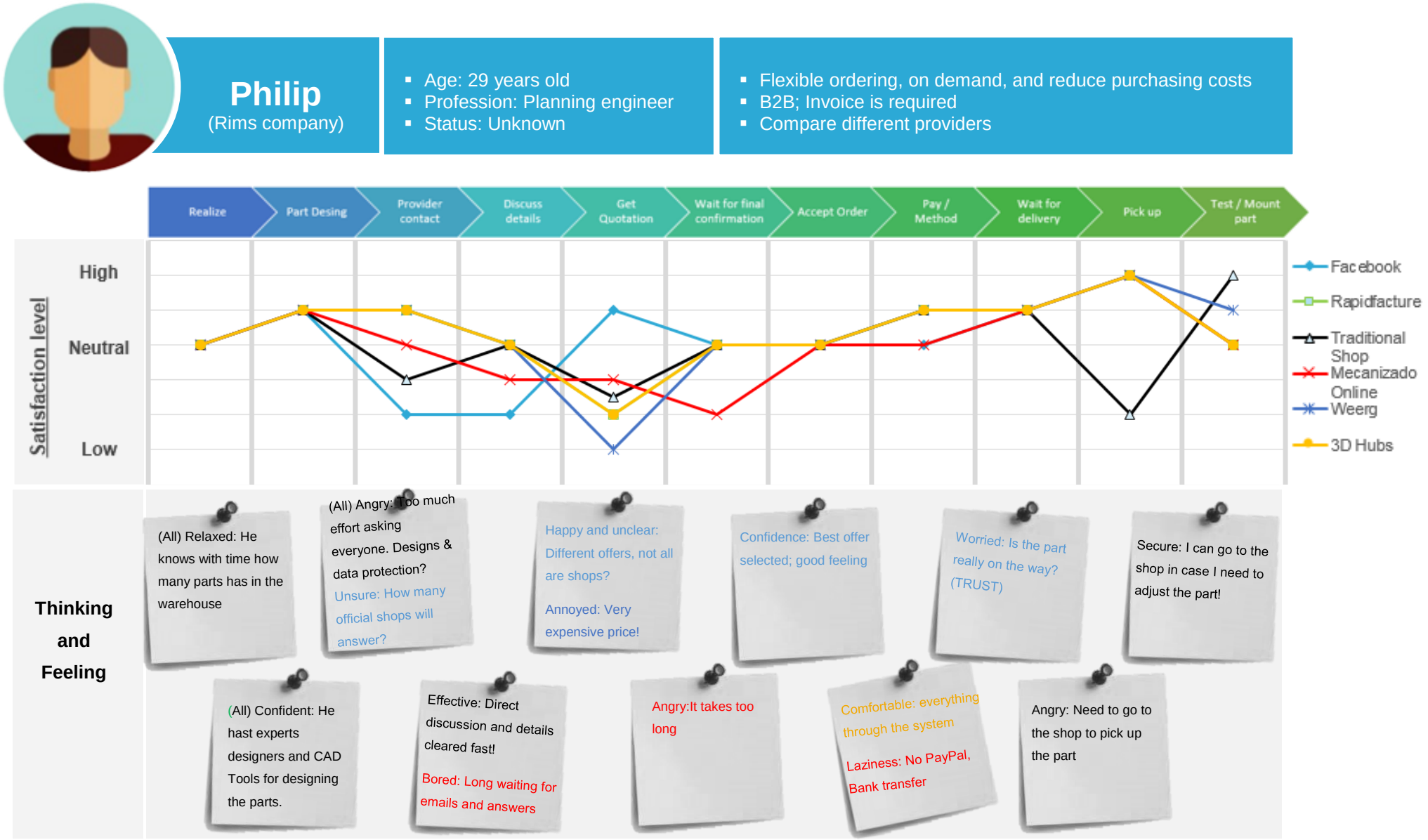

Figure 44 - Customer journey map, User 2 - Own representation

Markus:

For Markus one of the most important criteria is the velocity at he receives the parts, and in consequence, this are the biggest pain points that is possible to find for this case:

- **Provider contact:** Once again, Facebook creates the biggest uncertainty due unknown waiting time until getting a quotation. In The second place is in this case the traditional shop, due to the effort of going to the shop. For all of them, Markus is unsure if his designs will be spread out or if they can be used for other customers without his permission.
- **Get quotation:** The speed of getting the quotation is the best one with Weerg and 3D Hubs, but the price is very high; in comparison to this, in Facebook it is possible to compare and to get more options to find a good price/delivery time balance.
- **Pick up:** Waiting at the delivery time without knowing when exactly the part is coming is a very anxious situation for Markus.
- **Mount & Test:** Once again, the opportunity of having the part re-machined in case of a design error is very appreciated by Markus, who can make easily an error working under stress.
- Markus has different problems and targets compared to the other customers due to his specific profile as machined parts user. And this is why he has these slightly different pains compared to the previous users:

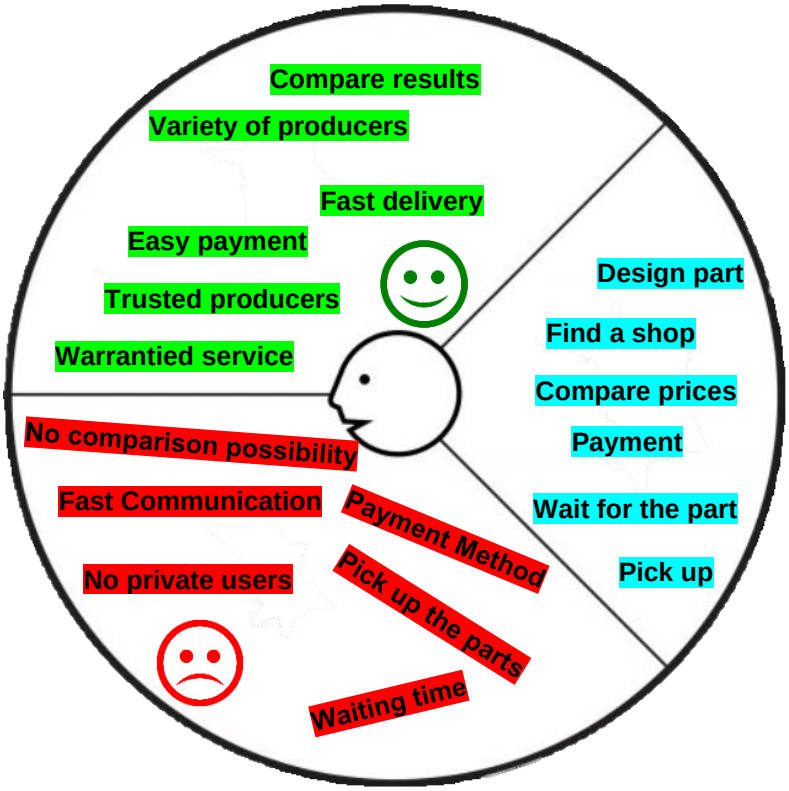

Figure 45 - Pains and gains, User 3 - Own representation

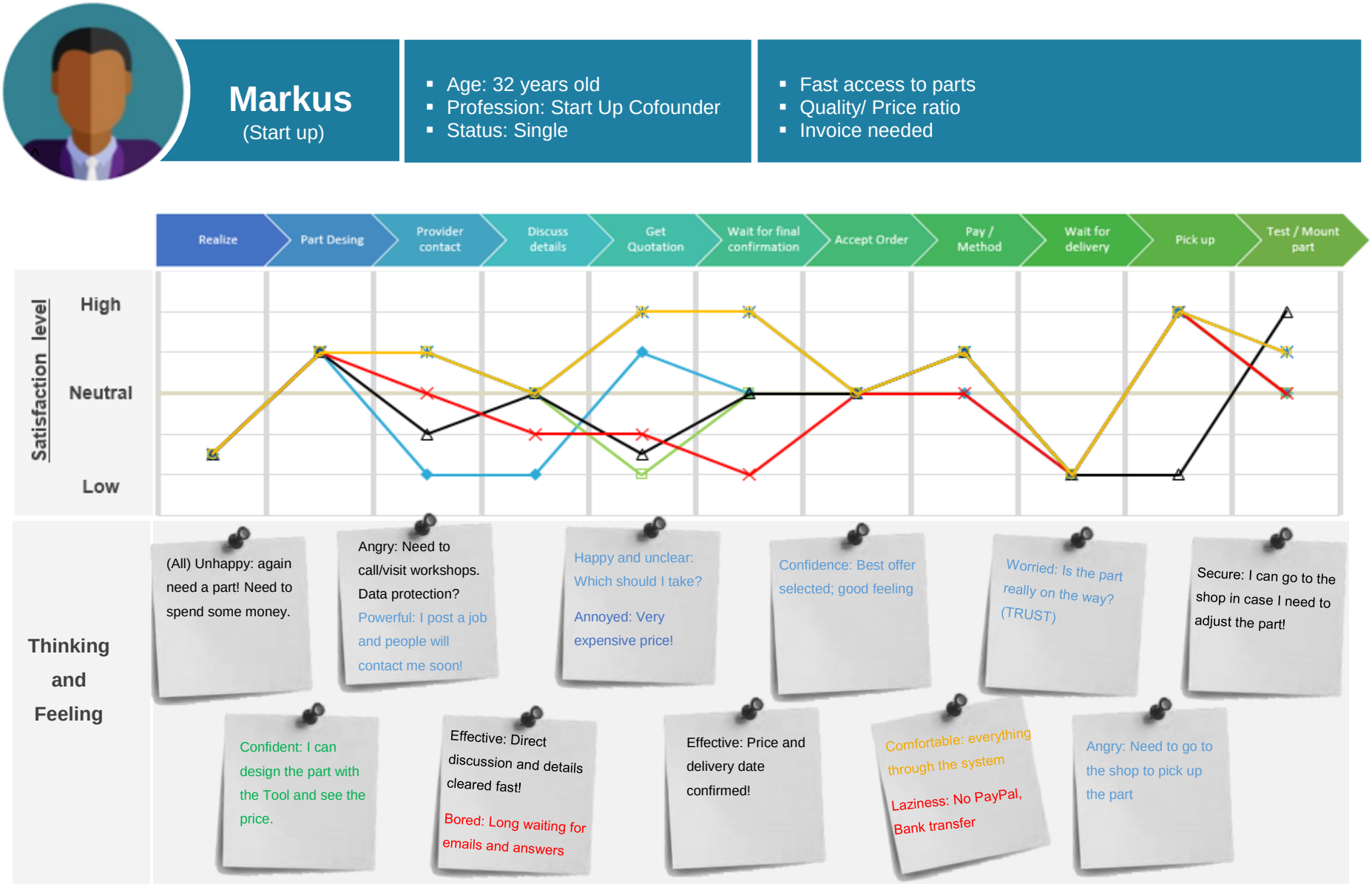

Figure 46 - Customer journey map, User 3 - Own representation

- **PRODUCERS**

Joe:

As retired man, Joe has a lot of free time that wants to spend making some money producing some parts. But due to his personal situation this are the most important problems he is facing.

- **Notification:** Working with 3D Hub, he knows that every notification he receives is suitable for his production capabilities described in his profile, whereas in Facebook he as to check every post for something interesting, which leads to a waste of time.
- **Send offer:** In case that he is not possible of doing the request from the 3D hub platform, he as to counterbid the request and kame and offer. In case that the platforms algorithm does not find his offer interesting any more, he will lose it and in consequence his rating will be lower. Therefore, Joe has a fear feeling.
- **Payment:** Joe is not very good negotiating and feels a little bit unsure on how to get paid in Facebook with private customers, whereas through the 3D Hubs system, everything goes to his account, being charged of a commission for the service offered.
- **Get Material:** This is always a problem, because normally is not possible to get small amount of material at good price.
- **Delivery:** Very frustrating for him is to prepare the box, go to the post office and send the packet using Facebooks system. Whereas 3D Hubs, offer an integrated delivery system.
- **Recycling:** The last step at any machining process is to clean the workshop and to recycle the rests of material. Normally the big companies get money for it, but private small users through it to the bin because of the effort of accumulating around 20kg to bring it to the recycling center to get some money back.

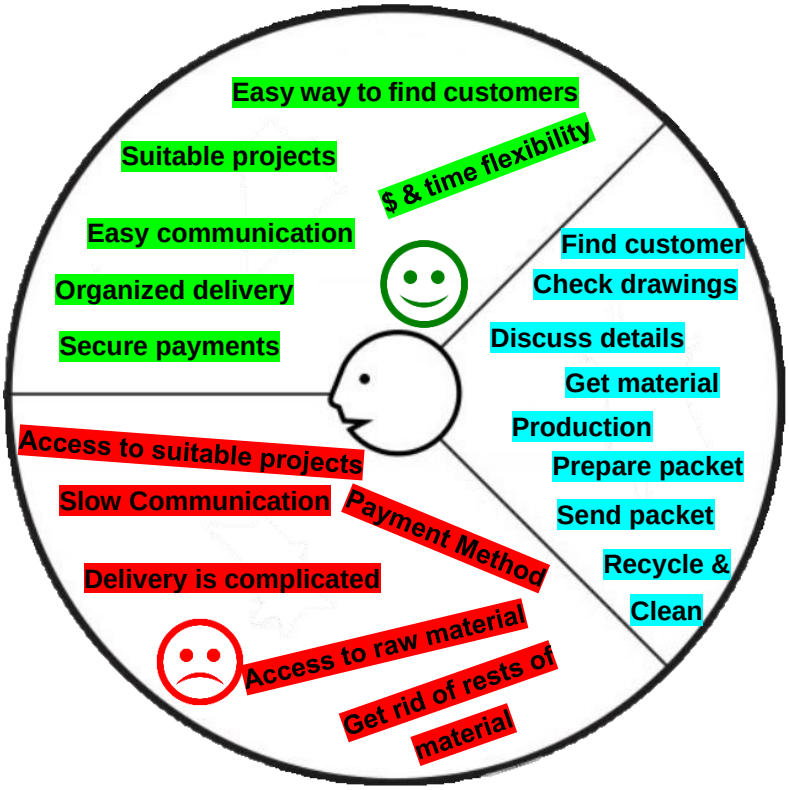

Figure 47 - Pains and gains, User 4 - Own representation

Joe
(Retired)

- Age: 65 years old
- Profession: Retired Factory Operator
- Status: Married

- Aircraft and Ships Model hobby constructor
- Interested in earning some extra money
- Would like to get an easy way to offer his service

Figure 48 - Customer journey map, User 4 - Own representation

Marc:

As shop owner, Marc needs to get more customer to fill productions dead times. Thereby, the pains from the customer journey map where the following ones:

- **Notification:** The same as for Joe, 3DHub provides him only with suitable jobs for his production capabilities described in his profile, whereas in Facebook he as to check every post for something interesting, which leads to a waste of time.
- **Details discussion:** Marc does not have the time to check Facebook constantly to reply the unprecise requirements. But in the opposite side, the fixed proposal from 3D Hubs does not let him some freedom to give his opinion about the machining unless he makes a counterbid.
- **Send offer:** Again, the risk of counterbidding is to lose the project because 3D hubs has another producer and in consequence to lose some raking positions.
- **Payment:** Very important point for Marc. He needs a bill to justify the money he earns, and an easy system that does not give him extra work.
- **Delivery:** Very frustrating for him is to prepare the box, go to the post office and send the packet using Facebooks system. Whereas 3D Hubs, offer an integrated delivery system.

From this point of view it is possible to deduce the pains that Marc suffers at his workshop while trying to attract more customers:

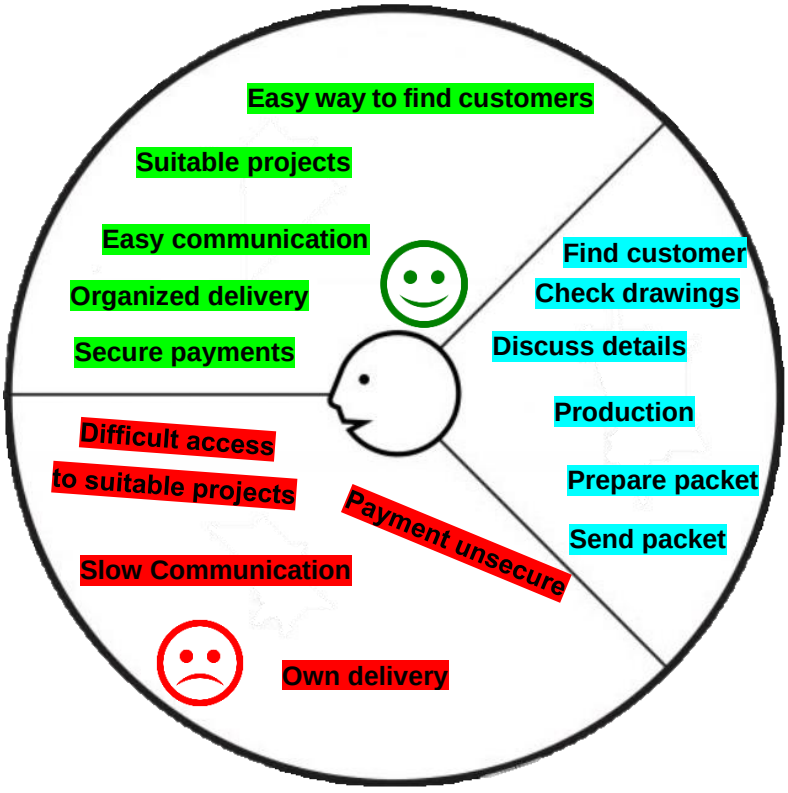

Figure 49 - Pains and gains, User 5 - Own representation

Marc
(Machining workshop)

- Age: 45 years old
- Profession: Shop Owner
- Status: Single

- Find more customers to fill production gaps
- No IT capabilities
- Mid IT user, Internet user

Figure 50 - Customer journey map, User 5 - Own representation

John:

Having a 3 Axis CNC machine without any capability allows John to accept a wide range of jobs, but as he does not have any pressure to fill the capability, he has the freedom to choose which parts he wants to produce.

- **Notification:** Working with 3D Hub, he knows that every notification he receives is suitable for his production capabilities described in his profile, whereas in Facebook he has to check every post for something interesting, which leads to a waste of time. The counterpart from 3D Hub is that he might receive parts he can physically produce with his machine, but that he does not find interesting.
- **Send offer:** In case that he is not possible of doing the request from the 3D hub platform, he has to counterbid the request and kame and offer. In case that the platforms algorithm does not find his offer interesting any more, he will lose it and in consequence his rating will be lower. Therefore, Joe has a fear feeling.
- **Payment:** This step is more comfortable with 3D Hubs, because thanks to its system, it is possible to pay through the system without any extra step and getting an invoice to declare the money.
- **Get Material:** Even he is possible to store some material in his shop, this is something he want to avoid because this are resources that he cannot use at any time.
- **Delivery:** Very frustrating for him is to prepare the box, go to the post office and send the packet using Facebooks system. Whereas 3D Hubs, offer an integrated delivery system.
- **Recycling:** The last step at any machining process is to clean the workshop and to recycle the rests of material. Normally the big companies get money for it, but private small users through it to the bin because of the effort of accumulating around 20kg to bring it to the recycling center to get some money back.

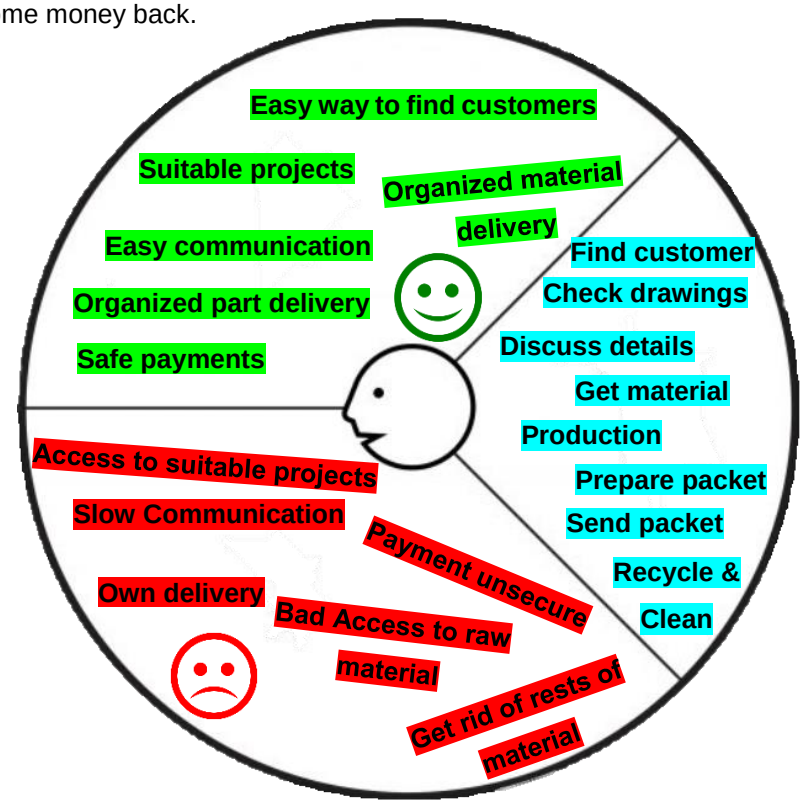

Figure 51 - Pains and gains, User 6 - Own representation

John
(Bike workshop)

- Age: 39 years old
- Profession: Shop Owner
- Status: Single

- Find projects for his machine
- Project flexibility – No impact on daily work
- Does not want to spend extra time

Figure 52 - Customer journey map, User 6 - Own representation

6.2.3.5 Results evaluation

As it has been analyzed in the previous chapters, the pains and gains from the user groups are different between them even if they have a same goal in common: Produce or buy machined parts. Of course, pains can variate when using the different option for purchasing and production that has been listed previously, but to have a complete picture about the pains produced by the other competitors, it is necessary to include all of them in the pains list that the platform must cover and solve; or at least relieve.

Once again, the platform has one group of users, and one group of producers therefore it is necessary to do two separate pain list to define them properly:

USERS

- No comparison possibility (x3)
- Thrust (x3)
- Unsecure payment method (x2)
- Confidentiality (x2)
- Data protection (x2)
- No private users available (x2)
- Limited access (No CAD software)
- Waiting time
- Slow communication (x2)

PRODUCERS

- Access to suitable projects (x3)
- Fast communication (x3)
- Payment method (x3)
- Delivery is complicated (x3)
- No access to raw material (x2)
- Get rid of rest of material (x2)

The users also wish to have some gains, which are more than just the opposite to the pains. The gains are the characteristics that define the service´s profile that the customer would like to have, in fact, the gains describe positive outcomes from the jobs when they are getting done. In the same way as with the pains, the gains have been listed for producers and consumers:

USERS

- Compare results (x2)
- Easy payment (x3)
- Variety of producers (x2)
- Trusted producers (x2)
- Warrantied service (x2)
- Fast delivery
- Flexible ordering

PRODUCERS

- Easy way to find customers (x3)
- Receive only suitable projects (x3)
- Payment method (x3)
- Easy communications (x3)
- Organized material delivery (x2)
- Get rid of rest of material (x2)
- Organized part delivery (x3)

Conclusion:

- Very interesting fact is that some of the pains faced in the producer side are suffered in the consumer side too; which means that the pain reliever must be designed very carefully to fulfil the expectations on both sides.
- The thrust or confidentiality are two big problems really critical for the platform to increase and develop. Therefore, these 2 key factors must be really well solved, otherwise the platform will not expand as fast and wide as desired.

6.3 VALUE PROPOSITION

This chapter has a notorious importance for the platform and business model development, because the main proposition to the users will be defined. Depending on the value proposition, the platform will have specific characteristics that will affect to its development and expansion. Therefore, it is important to keep in mind that the platform is a new concept that will be launched soon to the market and that is trying to reach the minimum amount of users to start expanding by itself.

For any user entering the platform for the first time, it is very important to transmit him a very good user experience, therefore, the platform must be easy to understand and must transmit thrust and effectiveness feelings.

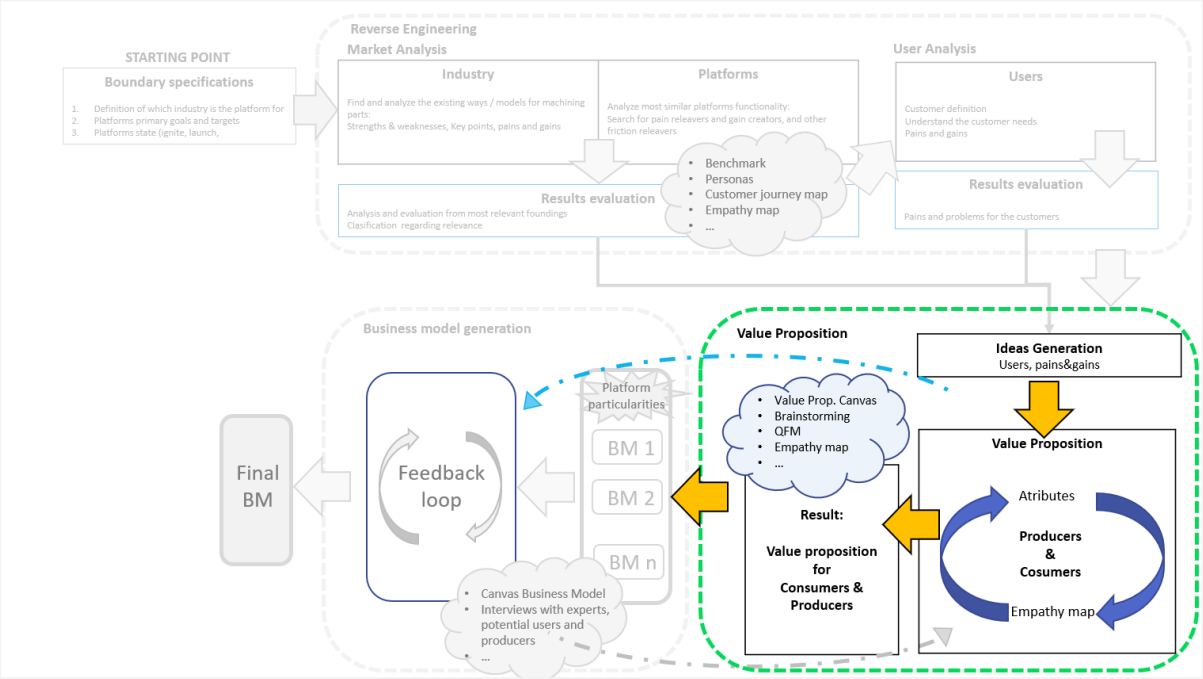

Figure 53 - - Proceeding model for the business model generation - Value proposition

6.3.1 Ideas generation

To start generating pain relievers, the brainwriting method has been used. In this case, as much ideas as possible has been tried to generate for each of the pains listed in the results evaluation list. Pains appearing more than once has a bigger relevance because they affect more than one user group at the same time, therefore they have a higher priority for being solved.

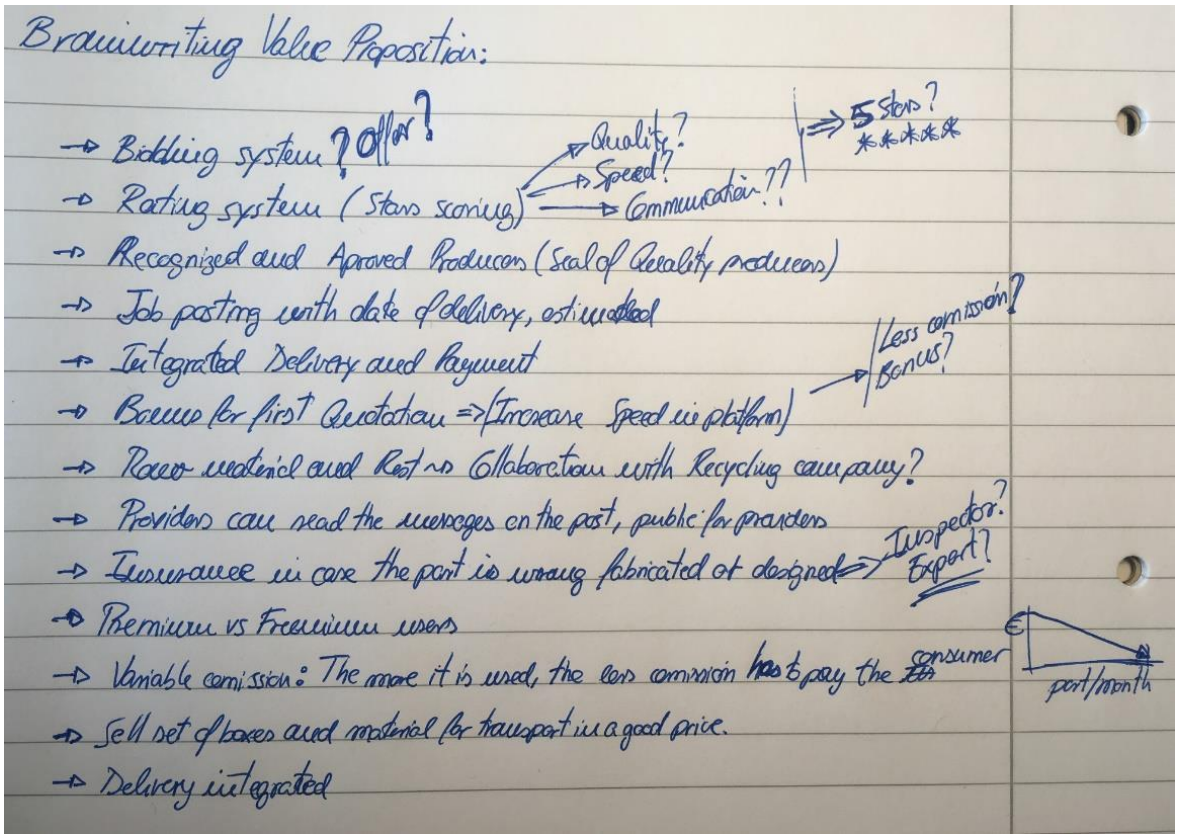

Figure 54 - Ideas generation, brainwriting method - Own representation

6.3.2 Attribute definition

Helped by the brainwriting results, the core ideas for the value proposition has been worked and developed, having as a result the following concepts:

6.3.2.1 Job posting and bidding system

This first concept is the most relevant one because defines the platform´s soul and functionality. In addition to this, it defines the way how users interact between them to exchange their values. Therefore, it is explained in detail how it works:

Any consumer who wants a part must Fill a form with the most relevant data about the desired part; such as dimensions, details, material , maximum size, delivery address, the desired delivery time and a of course a drawing or CAD file in attachment.

Only when all personal and delivery data are filled, it is possible to post the job in the jobs pool, where all the producers has access.

To accelerate the “bidding” process, the consumer has to define the maximum time he is willing to wait. In consequence, a time counter will start counting down until time out is reached. This method is in Ebay

for the bidding process too, but in this case, the difference is that if nobody makes an offer in this period of time, the bidding process will not close until one producer makes an offer.

As the job is visible for all producers, unless a certified producer is required by the consumer, any producer can ask directly in the post for details, and for instance, make an offer fixing a price and a delivery date.

One of the benefits of this system is that the user must only post once and wait until the producers make their offers. This system permits the user to receive and compare many different offers and allows him to choose the best one for him.

The major benefit from this system is that for every posted project there will be always an adjusted offer based on the producer's needs and capabilities, which will ensure the consumer always a competitive price.

6.3.2.2 Public messages

To improve a fast communication and to avoid the consumer to repeat the same information more than one time, all the messages will be written in the main post and will be visible for all producers. Private messaging will not be possible.

6.3.2.3 Filters and searching engine

A precise and effective filter system is very important to target the jobs to the wright producer. With this filter set, each producer can adjust the type of jobs he is interested in and also activate an automatic alert that notifies him in case a new suitable job for him has been posted. Filters can be set based in technical aspects or specific requirements. In this way, the producer is not worried checking every 5 minutes the jobs pool to see if any new post has been posted.

6.3.2.4 Payment method

The payment can be sometimes a very uncomfortable step if no warranties are available or if the consumer feels insecure.

The platforms proposal to avoid the problem is to charge the money in to the user in order that the offer can be accepted, and the production started. The platform will keep the money as long as the finished part is received by the consumer.

An extra benefit from this idea is that any private user can provide a service for a company, because the service is contracted directly with the platform, and the bill is delivered from the platform itself. In this way, a private user has the possibility to access to the B2B market, and the companies have access to more producers. In fact, it could be said that the platforms hire the producers, but in the end the consumer is who selects with which producers wants to work.

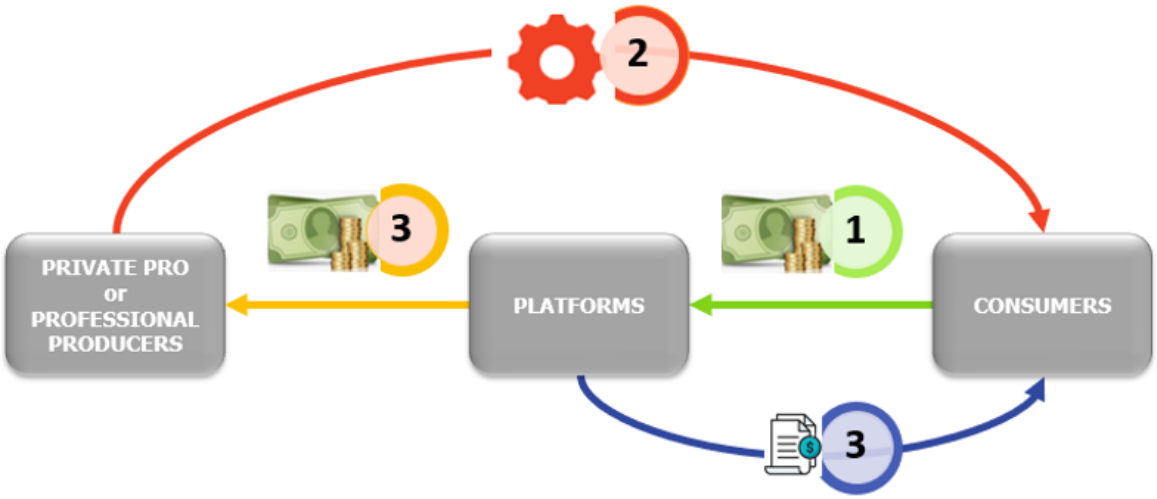

Figure 55 - Payment method of the model - Own representation

6.3.2.5 Delivery

This pain point is common in all users, and it must be solved with a good solution that relieves all the difficulties and make the process easy for everyone. To get rid of the shipment, the platform will have a service with a transport company that will pick up the part directly at the producers address and bring it to the consumer. Of course, the shipment ordering is automated in the platform and the consumer only will have to print out a ticket to glue it on the box. The tracking number will be used by the platform to check when the order has been delivered.

To offer more comfort to the producer, it will be possible to purchase some boxes, envelopes and material to prepare the shipment through the platform. For the service the platform can charge an extra money that can be used to increase the revenue. This kind of services are offered by companies like DHL or UPS using their web-pluginn.

6.3.2.6 Incentives

A platform is valuable depending on its network effects and on how many users it has. But another important parameter that gives an idea on how good a platform is, is the number of transactions. If the platform users are very active and lot of transactions are done, the platform will be more valuable, and more users will participate, growing the network effect.

And just for this reason, to encourage the transactions and to reduce the first contact time, every producer being the first one sending an offer to the posted job will have a bonus that will permit him having an advantage over his competitors. For example, the platforms fee will be reduced by 80%, which will help him to have a more competitive price compared to the other competitors.

Continuing with this idea, the users can have an incentive if they use the platform very often. A benefit for a usual user is that they get part of the transaction fee back to their account, to use it in later transactions.

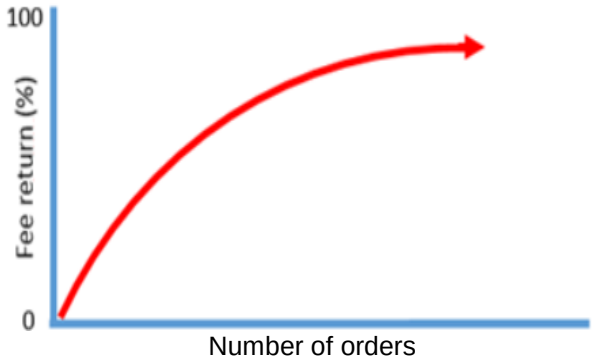

Figure 56 - Relationship between Transactions and fee returns

For example, If the fee is from 15€ and a certain consumer has a discount from 60%, he will get 9€ back to his account to use them in the next purchase.

6.3.2.7 Material Service

This extra service is conceived for the producers with difficulties to get small amount of raw materials and also difficulties to get rid of the valuable production waste. Until now, small amounts of waste have been always thrown to the bin because the minimum amount of production waste to get a refund in recycle centers was too big for small and private producers.

Developing this idea, the service could be done making a partnership with a company that buy small amount of metallic production waste online. This kind of websites reach a lot of small customers and also, they have access to metallic waste from big companies that could be used as raw material for small producers.

One of these companies is “Schrott24.de”, which provides a collection service for small to big amounts of waste. The collaboration form could be a plug in in the platform that enables the waste collection from small producers, whereas at the same time delivers the necessary raw material to them. Of course, depending on how much waste material is collected, a price discount will be done on the raw materials price.

Figure 57 - Schrott24 main view of the website – Schrott24.at

6.3.2.8 Certified users

Privacy and data protection are nowadays very important key factor for any company that handles relevant documents, information and files. Some of the users have sensible drawings that that ending up in wrong hands, could lead to major problems and in a loss of competitiveness.

To avoid this uncertainty, the platform provides a group of verified and certified producers that works with the latest ISO norms for production and confidentiality, guaranteeing the maximum security for their designs and drawings.

6.3.2.9 Thrust

This aspect is one of the platform's main column, and without having the customers thrust from the early beginning it is almost impossible to have a successful launch.

One preventive measure to ensure the quality, competitiveness, and thrust is the possibility of reviewing and scoring the provider after receiving the part. The reviews are not possible to remove, and only with this mechanism is possible to gain thrust.

This method can help the consumer to have an idea on how the producer works and how good he is accomplishing his work. For more details, the consumer can enter to the producer´s profile to read his experience and to see which projects he already did.

In case the consumer is not satisfied with the received part and a dispute between them opens, it is possible to distinguish 2 possible scenarios:

- User makes a designing error:

  The part is correctly manufactured by the producer, but the consumer complains because the part is not fitting where it should be mounted. For these cases the part must be sent to the platforms headquarters to be analyzed by the expert, and in case the part is matching to the documentation attached in the post; the user will lose the dispute.

- Producer makes a mistake:

  If the producer does not check the part after producing it to ensure the quality that the user is asking, probably a defect part will be sent to the consumer. In this case again, the user has to send the part to the headquarters to if the part is wrong machined. If the part is considered defective, the insurance will refund the money to the user back, and the producer will get a bad rating from the platform´s administrator.

If it was not enough, the user can hire an insurance for the part paying some extra money. The insurance can be used in case that the part is not fitting in the place where it should be mounted due to a designing error. If this would happen, the user has to send the part back to the platforms headquarter in order to get the money refunded from the insurance.

Value proposition for consumers

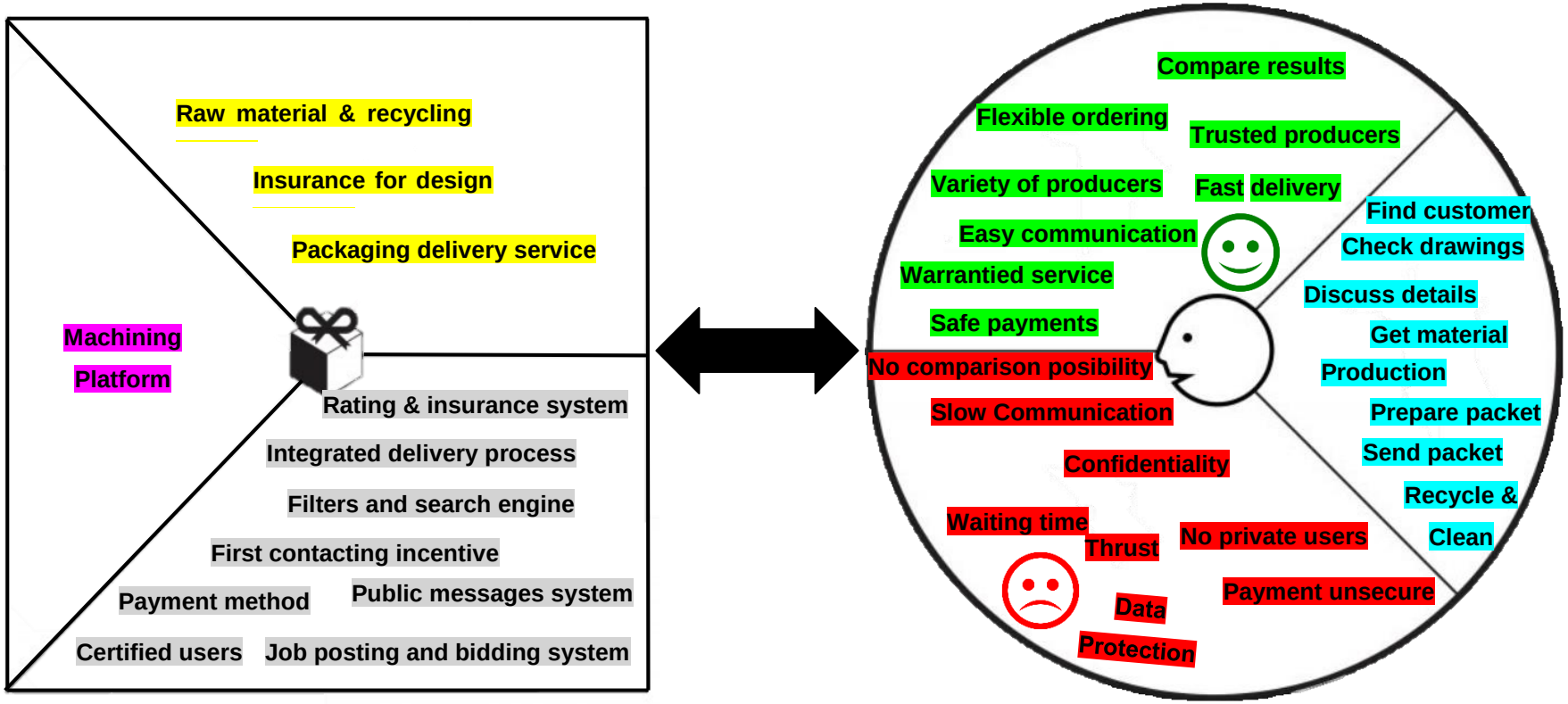

Figure 58 – Global Value Proposition view for consumers - Own representation

Value proposition for producers

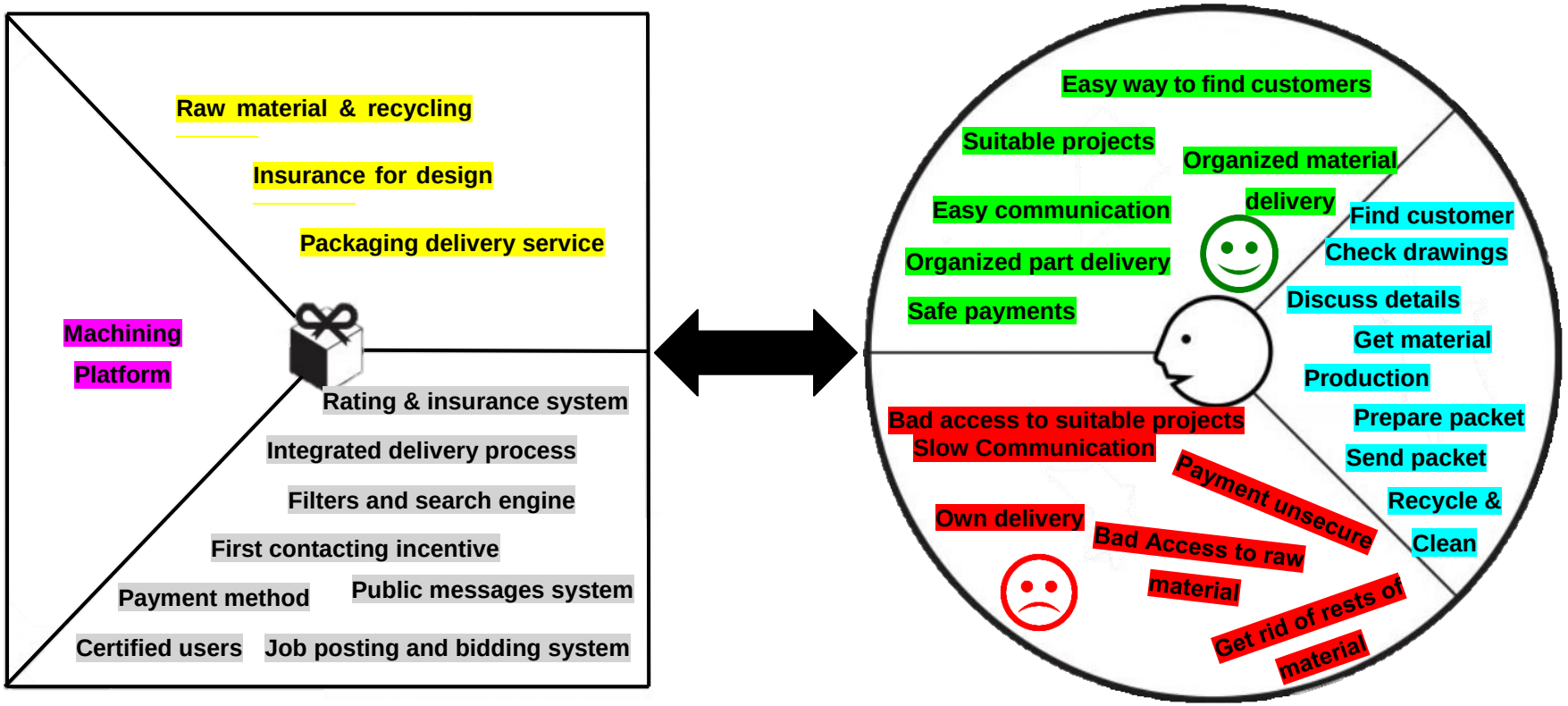

Figure 59 - Global Value Proposition view for consumers - Own representation

6.4 BUSINESS MODEL GENERATION

This is the last chapter in which all the concepts analyzed in the master thesis must be combined to create the end result; the business model. Until now almost all the important parts from the business model like the value proposition or the customers segment has been defined and analyzed in detail, but it is necessary to put everything together and to find the best combination for the platform´s strategy.

For this last step, the Canvas business model from Alexander Osterwalder will be used as a guide to explain and define each of the 9 blocks that compose this business model layout. Before putting all the information together in the map, each sub chapter will be explained to list the different potential variants.

Before starting with the analysis and explanation from the subchapters it is necessary to remember that:

- The platform is a new concept that is in the early starting phase
- Is trying to reach the critical mass
- The business model must support the launching strategy

6.4.1 Business model ideation

The first sub chapters being explained from all of them will be that ones that will not change or variate, which are the customer segments, customer relationship, channels, key activities and key resources.

Customer segment:

This information is very well known already because it has been explained in one chapter, and the personas to represent each customer group has been analyzed in detail. On one hand there are the consumers, and on the other hand there are the producers. To find more information about the user group, the specific chapter can be read again.

- Consumers: Private users, startups and small companies without machining capabilities.
- Producers: Private users, machining workshops, companies with machining capabilities.

Value proposition:

The value proposition for the user's segment has been already explained in previous chapters, so it can be read again to have refresh the concept in detail. But the proposed key points for the value propositions is:

➔ For consumer: Find your optimum machining partner for every project fast and in a secured way
➔ For producer: Find machining jobs for your current machining capabilities.

Customer relationship:

Defines the way how the platform interacts with the users. As the customer segment and the value proposition are already defined, it is easy to define how the platform will interact with the users. The

main relationship will be online, based on the platforms supporting help instructions, and if a dispute is opened, the user will have an E-mail relationship with a staff member.

Channels:

How do I contact my users? To solve this question is necessary to understand who my customers are and what kind of personal taste they have. As the personas are already define, it is easier to focus the advertisement campaigns for them; this is why the following channels are proposed:

- Social Media: Facebook, Instagram, etc.…
- Online advertisement: YouTube, technical websites and forums
- Discount bonus to attract new users
- External platform, if a partnership with key partners exist (Schrott24.de)

Key activities:

They are the essential activities that platform does to achieve the value proposition. In this case, the activities are:

- Web development and programing
- Data bases programing
- Product development
- Customer support
- Advertisement and marketing

Key resources:

Key resources are the essential and minimum resources needed to develop the business activity. Resources can be from human skills to location, production machinery or any other thing crucial for the business work. As the platform does not operate any machine to produce the parts, it only has to stablish the online marketplace in order the users can interact. Therefore the key resources are:

- Web developer and programmer
- Data bases programmer
- Product developer
- Customer support – CAD expert
- Marketer

Key partners

This point is very interesting because is a result from the value proposition´s development. For the gain creators 3 attributes has been defined, whereas for the pain reliever one service has been defined where an external partner is required to offer the service:

- **Payment/transaction company**:

The payment is another step that must be integrated in a very smooth form in the purchasing process. It must be like in any other online shop where a good is sold and a PayPal or credit card tunnel opens to transfer the money with warranty. For this purpose, companies providing these services must be included as key partners.

- **Insurance:**

To offer the service, an insurance company (like AXA for Malt) must be a partner. The service must be at a competitive price and offer the necessary coverage to run the platform ensuring the promised gain creator. The benefit for the insurance company is that it can access at a very early stage in a new market, and of course increase its revenue.

- **Packaging company:**

To offer a good service and reduce the producer's pain while getting the packaging, the platform is offering the service of packaging selling directly on the website. There will be different packaging sizes and it will be sent through the transport company direct to the users address.

- **Raw material and recycling company:**

For offering a service where raw material is delivered directly to the producers and the production waste collected, a company like "Schrott24.de" is required. As explained before, Schortt24.de is a startup that buys metallic waste also in small amounts from any kind of users. It can be a private user or a company. This partner could develop an extra service to deliver the raw material based on their key activity. And the good point for it is that they could add a new service capable of increasing the revenue.

- **Transport company:**

The last key partner required for the platform´s correct functionality is a transport company that enables a fast delivery and a plug-in system to integrate the shipping service into the platform ordering processes. This partner is especially important because it has the duty of delivering the packaging material and raw material to the producers, as for these two services the transport company is required.

A good example is the transport company DHL, which offers a plug-in solution to implement the delivery service in any kind of online selling website.

Cost structure

To be able of defining the cost structure for the platform it is necessary to know which services and key activities the platform is offering; and due to this fact, the cost structure definition has been left to almost the final point.

The following list contains the total cost that the platforms would have by offering al the services that has been explained at the value proposition:

- Programmers
- Web hosting cost
- IT infrastructure
- Marketing
- Transport service
- Packaging service
- Insurance service
- Raw material service
- CAD expert person
- Product developer
- Accountant
- Office rental and material

This cost is in general the main costs that the platform has, but of course they can variate depending on the amount and type of resources needed.

Revenue Streams

This block has been left for the end because it has a major impact on the user's relationship with the platform and on the platform´s launching strategy. In addition to this, it is almost impossible to make the revenue model without knowing which value proposition the platform is offering and which pain relievers and gain creators exists for the users. Therefore, before starting with the revenue models it is necessary to clarify which features the value proposition offers to the users:

	Consumer	**Producer**
Pain reliever	Rating with insurance system Integrated delivery process First contact incentive Payment method Public messaging system Job posting and bidding system	Filters and search engine Integrated delivery process Payment method Public messaging system Job posting and bidding system
Gain creator	Insurance for designs error Certified users	Packaging delivery service Raw Material delivery and Recycling service

Table 21 - Features offered by the value proposition to the users

Pain reliever are the minimum features that supports the platforms minimum functionality, which means that all of them must be always available for any user.

Some of the pain relievers are services provided by other companies. In this case, the insurance, the delivery system, and the paying tunnel are services provided by external companies that must be paid. Therefore, at least the total payment amount for a service will be:

Total Amount = Part price + Delivery + Basic insurance + Payment cost

On the other hand, there are two pain relievers that require from a fee charge to make the incentive system feasible. The incentives for consumer and producers are possible if the platform has some money from the fee to return back. Of course, this pain reliever to promote the activity in the platform will determine which kind of revenue system can be used.

In addition to this, there are gain creators that also cost money. The packaging delivery, raw material and recycling service, and the design insurance are extra services that also have to be paid separately in case any user or consumer wants to get a benefit of them.

In the platform curiosities chapter, 4 revenue models for platform´s has been explained with their positive and negative points, but in order to get the maximum combination possible, a proposal to know how the different revenue models would look like has been done.

1. Trial period

This method is used for early stages to attract as much users as possible. The main problem is that the incentives system cannot be applied. And the worst part is that normally few users really stays in the platform if they know that the same services that they are using for free will be charged in the future.

2. Free

Free platforms have to catch the value with additional services or users. In many cases they offer a service for free for some users in order to attract as many as possible of them. The goal with this strategy is to attract another user group that will be charged that will pay for joining the platform. For example, advertisers are going to platforms like YouTube to advertise their products.

Applying the method to the platform, the pain relievers would be offered for free, without any incentives, with the goal of attracting external users like advertisers to cover the platforms costs. The complicate part would be to involve a third user like advertisers to capture the value and cover the platforms costs.

3. Transaction fee

This is the most common system used to capture the value at platforms and online services where a tangible value is exchanged. Normally, a fee is charged for every transaction, and in exchange all users have the possibility of using the features.

In this case, the service can be used by paying a fee for every transaction, but services like the raw material delivery and packaging delivery are additional services that must be paid. With the fee, it is possible to cover the maintenance costs.

4. Freemium and premium

As the pain relievers and gain creators are very well defined, it is very easy to apply this revenue model to the platform. A Freemium user can use the pain relievers for free but not the gain creators, whereas the premium user can have access to all the features by paying a fix amount every month. The problem is that the incentives to accelerate the platform´s usage cannot be applied with this revenue strategy because the fee is not existing.

To sum up all the positive and negative points for each revenue model, following table has been prepared.

TYPE	Positive	Negative	Characteristics
Transaction fee	• Easy to capture value • All relievers can be applied	• Gain creators difficult to monetize	• Transaction fee • Advertisement
Free	• Free, easy market entrance	• Very difficult to capture value • Big number of users to cover the costs	• Advertisement • Third users offering services
Trial Period	• Free, easy market entrance	• Difficult transition to monetization	• With advertisement • Changing the revenue model after reaching a big number of users.
Premium [€/Month]	• Value can be captured by offering extra features	• No incentives can be applied	• Charge users for gain creators • Pain relievers for free
Freemium	• Easy market entrance • Easy growing potential	• No incentives can be applied • Difficulties to capture value	• Only pain relievers for free

Table 22 - Summary of each revenue model - Own representation

After analyzing and seeing the merits and demerits from the different revenue models, the best revenue model combination suitable for the launching strategy has been designed to be tested in the first platforms concept. As the goal is to keep in first instance all the pain relievers, it has been decided that the fee must exist to permit the incentive system be part of the pain relievers.

Therefore, to ensure this service the trial period and the free system has been discarded, remaining only the freemium/premium and Fee models for the revenue model.

Considering the advantages from the Fee and Freemium/premium model, following revenue model proposal has been decided:

Fee:

Every consumer without a premium account has to pay a fee for every transaction. As the occasional user will not have the premium account, which means that he does not participate frequently in the platform, it will be possible to inactivate him to use the platform again by refunding him part of the fee back. In counterpart the consumer is free to use all the pain relievers proposed at the value proposition

To motivate the producers to participate with the fee system, the benefit of getting partially rid of the fee is offered to the first producer making an offer that is later on accepted by the consumer. Like in the consumer case, the producer is able to use the services offered by the pain relievers.

Premium:

Every consumer having a premium account does not pay any fee, and he has the benefit of using the gain creators, which in this case are the design insurance and the certified producers. But this means that user can chose between posting the jobs for normal producers, for certified producers, or for both producers group. The negative part is that the incentive feature will not work for this user, but this is not a problem because a premium user is a very frequent user and the platform does not need him to motivate to use the platform.

The producers will have the packaging and Material&recycling services included in the premium membership price; which does not mean that they get the material for free. They have access to this service, but they have to pay for what they order. In addition to this, a producer who becomes premium has to be validated by the platform and will have access to the premium consumers. Again, the producer will lose the incentive benefit, but as he is frequent user, it is not necessary to motivate him to participate at the platform.

In conclusion, this revenue model combines two types of revenue streams which could be known as freemium & premium model.

6.4.2 Feedback loop

The best way to test the very first concepts for the platform´s business model is to discuss it directly with experts and potential users from both sides. From these interviews and talks new potential ideas could be gained, and the value proposition´s concept can be tested with the real potential users. Therefore, eleven interviews have been performed with different people and profiles, to share with us their experience and insights regarding the milling parts production and the platform business models.

From these talks, the followings recommendations and most important points has been collected:

Value proposition:

Limit the number of bids to 3 (for example) or limit the bidding time, to enhance the platforms activity and users engagement. Too long bidding processes could lead to stress the users and demotivate them due to the big amount of effort and attention payed for just one operation.

Revenue model and strategy:

The benefit from this concept is that there is a transaction between two groups of users where some value can be captured for the platform. Therefore the feemium and premium combination is a good compromise for this purpose.

One of the trickiest part from a platform is to change the revenue model, especially when the transition is based from a freemium to a fee model, because users don't want to spend money for something that they were using for free. Just because of this reason, the recommendations are to start with the feemium & premium revenue model, and use some attraction or bonus strategies to gain more users.

With a fixed revenue model, the launching strategy must be chosen. This decision will depend mostly on how much funding the platform will have for the launching period. Depending on the available money, the marketing, publicity and incentives can be designed to gain users in a sustainable way.

7 CONCLUSIONS AND NEXT STEPS

With the previous chapter the aim from this master thesis has been accomplished and the goals stablished at the beginning from this document has been achieved.

Anyway, even the most relevant points has been analyzed in the process, there are several points that need further investigations and a deeper understanding to continue with the project and finally launch the platform.

7.1 LESSONS LEARNED

- A platform model is a method that can be implemented to almost any traditional industry, but there is not a standard solution for all of them. Each of these implementations require a tailored solution that understands the industry/area and the different user groups interacting there. Probably, a solution designed for a specific platform will not work for another one, even if the business model is almost to 100% equal.

- As used in the concept phase, there are a lot of methods, processes and tools that help a lot specially analyzing and understanding the consumer's problems and needs. This helps to find solutions and to innovate in a structured way following some logic steps, but to judge the entire concept including the business model, there is a non-rational feeling that decides if the designed solution is good enough or needs some more improvement iterations.

- This topic has been mentioned earlier in this document, but it is relevant enough remark it again: The business model must be designed and linked for a specific strategy. Furthermore, the strategy in a platform changes depending on the platform´s state and goals that want be achieved. Therefore the business model must be adapted as fast as possible to support the strategy and to accomplish the goals and objectives.

7.2 NEXT STEPS

The natural development from this master thesis would be to carry on with the topic started, and to validate and make deeper investigations in the assumptions used and defined for this concept phase. This is why following with the idea, these steps are suggested to continue developing the idea until bringing it to the market.

- The value proposition defined in this master thesis must be designed in detail, and of course, it is necessary to find the correct partners that would cooperate to make them feasible for the platform. In addition to this, a detailed costs breakdown is necessary to make the real costs approach to define the fee and tariffs.

- A deeper investigation in the user group is required to define the market size and the amount of potential users. Only knowing this data it will be possible to adjust the pricing model.

- To reach a high level of maturity it is required to design the platforms architecture to offer a good user experience. In this step, it is necessary to test the platforms functionality in every situation and combination to offer a robust solution without any bug or problem. This is a very laborious and long process that has a major relevance for the platform's success, because it will be the interaction between the value proposition and the users. The result from this step will be a "minimum viable product" that can be tested in a beta phase with a closed group of users that can give their feedback and propose changes and improvements.

- To finish the chapter, the launching strategy must be designed according to the minimum viable product and funding available in this moment.

8 ANNEX

8.1 INTERVIEW 1

INTERVIEW: Business model generation Expert	
Date	01-04-2019
Subject	Discussion: Platform business model for machined parts
INTERVIEWED INFORMATION	
Name of interviewed	Mikel Peral
Short description	*Senior associate (Ecommerce expert) at PwC Madrid*

N°	Content
	Introduction to problem 1. Problematic 2. Users 3. Value proposition 4. Key partners 5. Revenue Streams
0	**What do you think from this concept?** The first impression is that the solution is quite complete. I don't have experience with the machining industry, and this topic is not one of my strengths; therefore, I would need more time to analyze it deeper to have a rough idea if this concept would work as it is thought.
1	**What do you think about the pain relievers** The relievers from both sides are quite complete. I would change the auction functionality. Limiting the maximum offers to 3 for example, will increase the interest from the providers, without having the need of giving the economic incentive and without having the need of checking the bidding process all the time. It could be possible to maintain both systems or offer the limited version only in the premium functionality.
2	**What do you think about the gain creators?** Offering an extra service for material delivery and recycling is a very good idea. Combining different services, it is possible to cover almost all necessities. This idea needs a deeper development to test it in the market.
3	**What do you think about the key partners?** These three key partners are a new combination that provide very good usability. The problem is to reach a good price for the service. As for the insurance this business is

	completely new, it will be a bit difficult at the beginning to find a correct price in my opinion. But I think that the fist concept should be a little bit simpler to have the first contact with the market.
4	**What do you think about the revenue model?** In this case it is quite easy to capture the value because a money transaction is done, therefore the Feemium and Premium concept is a good revenue model. Freemium could be a better option to increase the users, but in this field, it is really complicated (almost impossible) to attract so much traffic to the platform that permits cover the cost only with advertisements income.
5	**Would you change the revenue model?** As told before, I would keep the revenue model and test it like it is to check the feasibility; but the concept should work; another question is to know how big the fee should be.
6	**What is the most important part from the business model in your opinion?** The most important is to ensure that user is getting the correct value for the money he is paying. The entire user experience must give him a comfortable and confidence feeling that makes him repeat. It does not matter how many tricks the platforms has; if this one is not working, the user will not come back.

8.2 INTERVIEW 2

INTERVIEW: Business model generation Expert	
Date	01-04-2019
Subject	Discussion: Platform business model for machined parts
INTERVIEWED INFORMATION	
Name of interviewed	Marian Ibarrondo
Short description	*SPRI Group, Head of Enterprise Investment; Industry Innovation expert.*

N°	Content
	Introduction to problem 1. Problematic 2. Users 3. Value proposition 4. Key partners 5. Revenue Streams
0	**What do you think from this concept?** It sounds powerful, and it could be implemented in my opinion to improve the productivity from small machining companies in the Basque Country.
1	**What do you think about the pain relievers?** It looks like the solution offered is very complete and tries to solve the biggest fears. The concept is good, but it needs a good implementation.
2	**What do you think about the gain creators?** The insurance is a new concept that I never heard before for this kind of works; and the material delivery I think it only would work with small companies. I think it will be challenging to find the correct partner to offer this service.
3	**What do you think about the key partners?** As said before, the insurance company is a new player that may be interested in participating; being a foreign market a new opportunity.
4	**What do you think about the revenue model?** For enterprises a monthly fee could be interesting. For private users the fee is a good solution capture the value.

5	**Would you change the revenue model?** As told before, I would keep the revenue model and test it like it is to check the feasibility; but the concept should work; another question is to know how big the fee should be.
6	**What is the most important part from the business model in your opinion?** From my experience I can say that an innovative business model must work and bring an advantage over the rest of competitors, therefore must offer some extra values that the don not have.

8.3 INTERVIEW 3

INTERVIEW: Business model generation Expert	
Date	05-04-2019
Subject	Discussion: Platform business model for machined parts
INTERVIEWED INFORMATION	
Name of interviewed	Santi Costa
Short description	*Co-Founder "The Friend Theory"*

N°	Content
	Introduction to problem 1. Problematic 2. Users 3. Value proposition 4. Key partners 5. Revenue Streams
0	**What do you think from this concept?** Interesting, I never thought about it before. It could be even better if you had the workshops available capabilities to organize the jobs; but then it is another concept.
1	**What do you think about the pain relievers** In a first approach, the relievers you explained me suit with the user group you; thought I think. But the trickiest part is to verify if this need is really existing, and how big the demand is.
2	**What do you think about the gain creators?** I really like the ideas of including new solutions from other fields. The Problem I see here is that it is just a matter of time to be copied from the competitors; therefore, it is very important to grow as fast as possible to create a user barrier: The more user your platform has, the more difficult will be to the competence to gain market share.
3	**What do you think about the key partners?** Key partners are always very important. In your caser they have a major role because without them it is not possible to offer the gain creators and some pain relievers either.

4	**What do you think about the revenue model?** From my experience, at the launching stage the revenue model has to go by hand with the launching strategy. In the friend's theory case, it is difficult to capture the value because one of the visions is to offer a cheaper way of traveling, which make no sense with charging the user for using the service. We need to grow up fast in order to attract as many users as possible to attract service companies who want to advertise their shops in the platform. With these advertisements it is supposed to cover the platforms cost. Write now we are reaching investors to support us with this problem. The launching strategy depends also on how many investors your idea attracts, and how much money you get at the financing rounds. In your case, as the service you offer really costs money, it should not be a problem to charge a small fee to cover the costs. In addition to this, it is necessary to have a lot of active users to get the amount of advertisements that can cover the costs. Only the biggest platforms are capable of doing it.
5	**Would you change the revenue model?** As said before, I think in your case is a good method, but you have to define the pricing. A low pricing will help you to expand, as it is a smaller barrier. But this you have to figure it out knowing how many resources you have to launch it; there is not a magic formula for it.
6	**What is the most important part from the business model in your opinion?** From my experience, the business model must be compatible with the service you are offering, and with the launching strategy. It must permit grow up the number of users, and if it is possible, capture the value; which I think in your industry is not really complicated.

8.4 INTERVIEW 4

INTERVIEW: Business model generation Expert	
Date	11-04-2019
Subject	Discussion: Platform business model for machined parts
INTERVIEWED INFORMATION	
Name of interviewed	Xabier Garmendia
Short description	*Private consumer and Water Monitoring Start up co-founder*

N°	Content
	Introduction to problem 1. Problematic 2. Starting point 3. Pain Relievers 4. Gain creators 5. Revenue model 6. Premium
0	**How often do you need mechanized parts?** Almost every week, to adapt pumps and hardware to tailored projects.
1	**How do you get them?** Normally I go to a friend's company, where I have access to machining capabilities. If it is not possible, I have two providers who I work with.
2	**What do you think about the process?** Looks very comfortable, clear and easy to use and safe if they work as they are designed. The features are very cool!
3	**What do you think about the pain relievers?** Very complete. The best one is the insurance that returns the money in case the part is wrongly machined. Sometimes I had the problem, and it is very annoying to discuss with the shop owner.
4	**What do you think about the premium options? Would you pay for them?** Yes, in my case I think I should use the premium user, but not because of the verified producers. The best feature is the designing mistake insurance that returns the money if I am not satisfied.

5	**Would you change something?** No, at the moment I don’t have any recommendation. I have to use it and test to give you an opinion.
6	**What is the best one for you?** By far the best feature is the insurance in case the producers make an error, or if I make a drawing mistake in the premium version.
7	**Would you use it?** Yes of course, I think is the best option I ever heard, and the price competitiveness is guaranteed. Why not use it? If it would exist, I would try it!

8.5 INTERVIEW 5

INTERVIEW: Business model generation Expert	
Date	11-04-2019
Subject	Discussion: Platform business model for machined parts
INTERVIEWED INFORMATION	
Name of interviewed	Andoni Olazagirre
Short description	*Private consumer*

N°	Content
0	**Introduction to problem** 1. Problematic 2. Starting point 3. Pain Relievers 4. Gain creators 5. Revenue model 6. Premium
0	**How often do you need mechanized parts?** It depends, but on average I would say that 2 per month to modify some cars.
1	**How do you get them?** I have a friend who produce the parts for me, but it is tricky to find a suitable time for him to produce them.
2	**What do you think about the process?** For being a first idea it has some potential, looks interesting. I think I would try it.
3	**What do you think about the pain relievers?** The idea of paying a fee is not a problem for me if the insurance feature is included. I think this is very useful.
4	**What do you think about the premium options? Would you pay for them?** No, I don't think I need any premium user, because the parts I needs are not so difficult or confidential to get the benefit of them
5	**Would you change something?** I do not have any suggestion right now.
6	**What is the best one for you?**

	May be the insurance and the possibility of comparing offers. At least from my point of view these are the best ones.
7	**Would you use it?** If I don’t have the possibility of getting the parts from my friend, I could give it a chance.

8.6 INTERVIEW 6

INTERVIEW: Business model generation Expert	
Date	10-04-2019
Subject	Discussion: Platform business model for machined parts
INTERVIEWED INFORMATION	
Name of interviewed	Ander Guerrero
Short description	*Kide Group; Mechanical Engineer working in a engineering company*

N°	Content
0	**Introduction to problem** 1. Problematic 2. Starting point 3. Pain Relievers 4. Gain creators 5. Revenue model 6. Premium
0	**How often do you need machined parts?** Every week we have to order new parts for our projects. Most of the parts we need are molds for producing carbon, plastic, or any synthetic materials; but we also have to produce some parts for prototype products which must be tested at our customer.
1	**How do you get them?** We have our own resources, but sometimes we need special capabilities that we don't have, or just simply don't have the material we need. In these cases, it is easier to outsource the production to our partners. Furthermore, we just have machines to produce prototypes and unitary parts; to make small productions we require always from external support.
2	**What do you think about the process?** Looks very comfortable, clear and easy to use and safe if they work as they are designed. The features are very cool!
3	**What do you think about the pain relievers?** Very complete. Normally we don't have any hurry by getting the parts, therefore I don't think that the first contact incentive would have any benefit for us. Anyway, the benefit of comparing different proposal by just posting one time is very comfortable, because normally I ask two or three companies for some quotations, which takes almost halve a

	day long. I really would like to compare more, but it is so annoying that normally I just ask two or maximum 3 providers. And normally, if a provider for a part is chosen, he has the contract until the projects end to avoid repeating the same process. A very interesting feature is the insurance. We have quite often the problem of receiving wrong parts, which still are possible to use, but that they do not look like the drawings from our engineers or customers. In these cases, a huge discussion starts between providers, final customers and our company; and most of the time, we lose the money and have to repeat the part. This feature would save a lot of problems and discussion time!
4	**What do you think about the premium options? Would you pay for them?** Yes, in my case I think I should use the premium user, but not because of the verified producers, we do not produce until now any part which is secret or critical for any project. The best feature is the designing mistake insurance that returns the money if I am not satisfied.
5	**Would you change something?** Write now I don't have any proposal for you. It seems to be a complete concept.
6	**What is the best one for you?** The possibility of comparing offers at the same place is very comfortable, and of course, the benefit of using the insurance in case of troubles.
7	**Would you use it?** Yes, at least I would try it! If the solution would exist; I think it would be interesting to test it.

8.7 INTERVIEW 7

INTERVIEW: Business model generation Expert	
Date	10-04-2019
Subject	Discussion: Platform business model for machined parts
INTERVIEWED INFORMATION	
Name of interviewed	Ander Fraile
Short description	*Engineer at Virgin Racing, Formula E – Amateur kart racing driver*

N°	Content
0	**Introduction to problem** 1. Problematic 2. Starting point 3. Pain Relievers 4. Gain creators 5. Revenue model 6. Premium
0	**How often do you need machined parts?** I don´t really use machined parts, because in daily wok I do not have contact with mechanic design. In my private live, I would use machined parts to adjust the sitting position from my kart, because due to my big size, I need to adjust everything.
1	**How do you get them?** The parts that I get to adjust the seat and steering position in my kart I buy them in the shop, but even these parts are not giving me the best position. I thought about designing the parts by myself, but it is very complicated to search and find someone who do this for a good price. I don't want to waste my precious free time between races and testing with this topic.
2	**What do you think about the process?** Good, really good. It sounds to be the ultimate solution for occasional users like me.
3	**What do you think about the pain relievers?** They cover more problems than I ever thought I could face while purchasing a machined part online.
4	**What do you think about the premium options? Would you pay for them?**

	In my case the adapters I have to do are very simple and it is almost impossible to make a mistake there; even designing nor producing the part; but the insurance is a new concept that I never thought before. I definitely would pay it in case of doubts.
5	**Would you change something?** Write now I don't have any proposal for you. It seems to be a complete concept.
7	**What is the best one for you?** The idea of guaranteeing the best price by offering the "bidding" process.
8	**Would you use it?** Yes, why not. I f it would work, it would be a good option for me.

8.8 INTERVIEW 8

INTERVIEW: Business model generation Expert	
Date	10-04-2019
Subject	Discussion: Platform business model for machined parts
INTERVIEWED INFORMATION	
Name of interviewed	Jon Hausher
Short description	*La Factory Racing; Workshop owner*

N°	Content
0	**Introduction to the platform proposal** 1. Problematic 2. Starting point 3. Pain Relievers 4. Gain creators 5. Revenue model 6. Premium
0	**How often do you produce machined parts?** Normally I have to produce one part per week, or at least one every two weeks.
1	**How does your normal process work? What is you experience?** I usually produce the parts for my customers, to adapt the bikes for them. Normally I have a small stock in the workshop, which I buy from a bigger machining workshop. I also go sometimes to this workshop if I have a very complicated part to produce. But most of the time the machine is not used, because the machined parts demand is not so big, and nowadays it is possible to find a lot of adjustable aftermarket parts for almost any bike.
2	**What do you think about the process?** The bidding process could be a little bit annoying if I have to check all the time how my proposal is placed compared to the rest. I do not want to be checking constantly how does the process goes. On the other hand, the rest of pain relievers are very well thought I think. Sounds good!
3	**What do you think about the pain relievers for the producers?** For sure the material service would be interesting for me. If they would offer new materials, I could even offer them to my normal customers in the shop.

	The packaging delivery and is something that I need if I want to use the service, because this extra work to find the boxes etc.…is something I would not do.
4	**What do you think about the premium options? Would you pay for them?** In the way how you have explained me, yes. The gain creators are very powerful, and to have the access to the packaging is in my case a must to join the platform.
5	**Would you change something?** I am a little bit afraid of the rating method, because some customers can write a bad comment which does not correspond to the reality. I my opinion the method should be more precise and objective/neutral/measurable.
7	**What is the best one for you?** The insurance is a good feature. I think that it gives a good thrust feeling to the system. At least in my case gives a tranquility and safety feeling.
8	**Would you use it?** I think I would try it at least to see how it works. Depending on the experience I would continue or not. I don't have a big hurry to get more customers for my machine, but if the process is easy without extra problems, I think I would use it.

8.9 INTERVIEW 9

INTERVIEW: Business model generation Expert	
Date	12-04-2019
Subject	Discussion: Platform business model for machined parts
INTERVIEWED INFORMATION	
Name of interviewed	Ibon Arregi
Short description	*Machining Workshop owner*

N°	Content
0	**Introduction to the platform proposal** 1. Problematic 2. Starting point 3. Pain Relievers 4. Gain creators 5. Revenue model 6. Premium
0	**How often do you produce machined parts?** As we are a machining company located in a very industrialized area from gipuzkoa, our goal is to use all of our capability to produce parts any dead time in our production means a productivity loss.
1	**How does your normal process work? What is you experience?** The workshop is 25 years old, and as it was stablished in a very industrialized region, it is normally possible to find new projects. The customer that already knows you, normally call to ask for quotations, and some of them just directly send the production order because they trust the way we work. If the company faces a lack of projects, then we call our customers or other companies to offer our service. We don't have any stablished process to get a regular load of work.
2	**What do you think about the process?** For our case I think it would work. My brother could control the offers from the office, as he is always organizing the production. The payment method and delivery system is for us very important, because we want to keep this extra efforts as low as possible.
3	**What do you think about the pain relievers for the producers?**

	I find all of them very positive, but I do not think we need any incentive to interact. If we have the need of filling the production gap, this will be enough for us to use the platform.
4	**What do you think about the premium options? Would you pay for them?** The packaging delivery system is very interesting for us, because we normally don't have paperboard boxes to send the parts to our customers. We use the palette or some plastic boxes that we get them back. On the other hand, the raw material service is not so interesting for us, unless we can access some rare or unusual material that we don't work with. For the recycling service we already have a company that picks up our production waste; but, if this partner is giving a better price offering this extra material service, it could be a good point to consider using it.
5	**Would you change something?** I do not have any feeling to say if I would change something, because firstly I have to try it. For now, I don´t see any open point for the boundaries you have told me.
6	**What is the best one for you?** In case I would use it, the best combination are the packaging delivery and the insurance system that supports you in case of dispute. Even if we use a process to validate and control the produced parts, it is never too much to have an insurance that covers your production cost in case
7	**Would you use it?** Yes, at least I think I would give him a try, If it is possible to find offers there, it is a good reason to try.

8.10 INTERVIEW 10

INTERVIEW: Business model generation Expert	
Date	12-04-2019
Subject	Discussion: Platform business model for machined parts
INTERVIEWED INFORMATION	
Name of interviewed	Juan Arregi
Short description	*Industrial boilermaking company manager*

N°	Content
0	**Introduction to the platform proposal** 1. Problematic 2. Starting point 3. Pain Relievers 4. Gain creators 5. Revenue model 6. Premium
0	**How often do you produce machined parts?** As a small industrial boilermaking company we produce tailored parts and machine parts for our customers. Every part produced in the workshop a single part normally, and each of them has their own characteristics. We do require quite often machined parts like pipes with very tight clearances or caps. For these kinds of parts, we have two turning machines; a small one and a mid-sized one. For special parts or more complicated parts, we normally go to a machining workshop
1	**Do you face periods of time with low working load? What do you do?** Yes, as every company there are phases where there is not too much to do. We are a subsidiary industry, which means that our capability depends on the demand from the biggest companies. If they have big contracts to do, then there will be more work load for us. As every company, we try to search for extra work load asking to our closest customers or workshops we work with.
2	**What do you think about the process?** I never thought about using my turning machines to offer a machining service. Our capabilities and know how are quite reduced for machining, and we could only offer a very simple type of jobs.

	If the systems work like you describe, with filters and alarms that only alerts you in case a suitable part is uploaded, is something we could use and have a benefit from it.
3	**What do you think about the pain relievers for the producers?** I am not an expert in these technologies and never search an online way to get customers; but thinking in how I would have to proceed to offer the service, the pain relievers are covering all the bad points I would see If I had to do it by my own.
4	**What do you think about the premium options? Would you pay for them?** For our case the raw material delivery would be very interesting, because we work with very limited materials. The industry demands only parts in steel, stainless steel, and rarely in aluminum. This service would allow as to have a small flexible stock of rare or specific material that we normally don't have.
5	**Would you change something?** No, but I could use the platform as a user if some producers would be available to machine parts for me
6	**What is the best one for you?** The best is the possibility of getting jobs suitable for your capabilities, and the service for receiving specific material, that otherwise we never would have.
7	**Would you use it?** Not regularly, because this is not part of our main task, but in case there are some dead time we can use, then, why not.

8.11 INTERVIEW 11

INTERVIEW: Business model generation Expert	
Date	12-04-2019
Subject	Discussion: Platform business model for machined parts
INTERVIEWED INFORMATION	
Name of interviewed	Yosu Perez
Short description	*Degree in Technical Manufacturing.*

N°	Content
0	**Introduction to the platform proposal** <table><tr><td>1. Problematic</td><td>5. Revenue model</td></tr><tr><td>2. Starting point</td><td>6. Premium</td></tr><tr><td>3. Pain Relievers</td><td></td></tr><tr><td>4. Gain creators</td><td></td></tr></table>
0	**How often do you produce machined parts?** I study a degree in technical manufacturing, which means that after studying the theory I have to produce some parts in the workshop to train my skills and validate the theory learned at the lessons. Every week I have around 10 hours access to machining capabilities. I need only in average half of the time to produce the parts I have to present in class.
1	**Do you face periods of time with low working load? What do you do?** --
2	**What do you think about the process?** From my producer point of view sounds very interesting. I could use the rest of time at the machine to produce parts for other people. As the ordering is flexible, I can select only the suitable jobs for me depending on the machine availability I have.
3	**What do you think about the pain relievers for the producers?** It is very comfortable system; the payment is integrated and the delivery too. It is also possible. The insurance is a very good feature, because everybody can make an error, and the insurance is very good for these cases.

4	**What do you think about the premium options? Would you pay for them?** In my case, I don't get any benefit with the premium features, because I get everything from the school; but in case that the school would like to open an account in the platform, it could be a benefit.
5	**Would you change something?** As I do not know how the final usability from the platform will be, I do not have any suggestion. For now it looks good.
6	**What is the best one for you?** The best for me is the possibility of earning some money in my free time using the available capabilities I have. If the system is good and does not cost me to much effort, is a interesting way of getting money while I continue learning.
7	**Would you use it?** Yes, as explained before, I would at least try it to see if it is useful for me.

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10 INDEX SUMMARY

10.1 FIGURE INDEX

10.2 TABLE INDEX