Makeup meets AR

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Management summary

This report provides an analysis, a solution proposal and an evaluation of the proposed solution for makeup. Methods of analysis mainly include opinion mining through the use of open-ended interview questions and formulating hypotheses; a lot of females have trouble with finding the appropriate makeup products, for example. Results of data analyzed point out that testing makeup is an inconvenient, time-consuming and unhygienic process. In addition, the expected result that makeup will give often misfits with reality. Furthermore, the customizability of makeup products is lacking.

The report yields a solution for the aforementioned problems. An application has been designed that integrates augmented reality with makeup products. This enables the user of makeup to create a profile and test makeup without the concerns pointed out by the interviews. Further investigation is required to identify whether the solution expectations regarding the costs meet reality. Recommendations include that all data provided should be approached with cause, since the conclusions made are based on a small sample. Moreover, cost and revenue estimates rest on educated guesses at best, based on information provided by application developers and related products.

The report also shows the limitations of the analysis made. Some of these limitations include that the conclusions drawn are not to be seen as something other than forecasts and might not fully represent the truth. Additionally, the nature of the company supposedly entering the marketing with this solution is not entirely known and the solution should be altered accordingly before utilization of the solution. Finally, the economic circumstances are not taken into account for instance to illustrate that this solution does not provide the ''full package'' since the data used is limited and thus insignificant.

Chapter 1 – Introduction entrepreneurship project

During this project, we are an international team that runs an own fictional AR company. Our aim is to deliver high quality software and applications for the cosmetic industry. In this chapter we will provide the reader with background information about VR/AR as well as information that helps you, as a reader, to understand our problem.

For many years augmented and virtual reality were considered as something that only existed in science fiction. Now, with powerful smartphones powering inexpensive VR headsets and AR software applications, the consumer is primed for new paid and user generated content-driven experiences. One of the industries that has a low level of usage of VR/AR applications and businesses is the cosmetics industry. The cosmetics industry is dominated by a small number of multinational corporations, but the distribution and sale of cosmetics is spread amongst a wide range of different businesses. The target group of this industry mostly consists out of female customers, whom face several problems in the makeup industry.

The first problem women experience is the misfit between the expectation and reality of makeup products. For example, a red colored lipstick looks different when seen in an advertisement (expectation) compared to the look on your face (reality). The consequence will be that the female consumer feels regretful about a purchase and will create a disliked feeling towards the brand. This phenomenon can be described as cognitive dissonance.

Secondly, female consumers experience a lack of customization. Females are the main consumers in the cosmetic industry and are known to spend (a lot of) money for makeup products. As an example we can use a makeup box containing around 12 different types of colors, but the consumer only uses about three or four of them. So, consumers pay more than necessary for the reason that they also pay for the colors that they do not use. Besides, in the cosmetics industry there is a limited availability for the choice of packaging, colors and personalized goods. We see the lack of customization as shortcoming of the brands.

The third problem we perceive in this industry is the waste of makeup goods and raw materials. As mentioned above, average make-up boxes consist of several colors, while the consumer only uses a few. The rest of the colors are a waste for both the consumer and society, since they will not be used and be thrown away. Nowadays, every organization starts to focus their attention to "Corporate Social Responsibility" (CSR). One of the key factors of CSR is to tackle the waste problem. In addition to this, women throw away products/boxes because of a lack of customization. Customization is therefore a highly requested matter.

With the help of AR technology, we, as a virtual company, will try to improve the customer experience of buying makeup products. First of all, the problem needs to be identified by carrying out problem interviews and identifying customer experiences. We will produce a prototype and perform interviews again to see if it matches the identified problem. In the whole process, we use (early) customer involvement to test our hypothesis and solve our main issues. Lastly, we will critically analyze the outcomes to see if there is indeed a market for our solution.

Chapter 2 – Delivery package 1 ''Project initiation''

Chapter 2.1 – Problem identification

When it comes to makeup products, consumers generally want to test it out before they make a purchase. Now, trying on makeup can lead to some problems. First of all, trying on makeup is inconvenient, time-consuming and unhygienic. In order to try out a product, they have to physically drive to a store that carries the product and also offers samples of that same product. Due to space restrictions, not all products can be displayed and sampled on the sales floor, which can lead to lower customer satisfaction if a customer is looking for a particular good. Granted that the makeup store has the product and offers samples, it will then still take up a lot of time to effectively test it out. A customer will have to dedicate at least 20 - 30 minutes to apply the product, and then has to spend time washing it off. Lastly, there is the hygiene factor. In some cases, stores may reuse brushes and pens, which isn't particularly clean. However, there is no better alternative. Yet.

Secondly, the expected result from makeup may vary from reality. For customers unwilling to spend time and effort on testing out products, the only option they have is to take a chance and buy something. The customers rely too much on the brands, and this brand loyalty covers the problems that we mentioned in chapter 1.In most cases, the product will not look as expected or as displayed on the packaging. This misfit, between expectation and reality, can be described as cognitive dissonance. In this case, a customer will have to either return the product or accept the loss, which negatively impacts customer satisfaction.

The third problem is that makeup products lack customizability. Customers usually have little chance to customize packaging or products. For example, pre-made color pallets of 8, 12 or 16 colors generally focus on one shade or tint, for example on blue/green tints. Makeup users do not use all the several colors and these unused products will go to waste. There is also little motivation for customers to buy multiple units of the same product; this is particularly detrimental as one makeup product can last a long time if used conservatively. Besides, we see that every organization starts to focus their attention to "Corporate Social Responsibility" (CSR), but the products and brand in the cosmetic industry walk behind this philosophy.

Chapter 2.2 – Business idea

To offer a commercial solution to the above mentioned problems, we propose an application that integrates augmented reality (AR) with makeup products. This application enables users to make a profile and scan their face to create a 3D-model by using Face ID technology, as currently present in the iPhone X. Users will be able to edit these models and apply a variety of makeup products where and whenever they want it. The model can be consist of different colors of the products, so the customer can check if the color of the product matches with the skin of the user. Additionally, if a user is interested in a particular product, so there is a match, she can click on 'Add to Cart' and go through the checkout process. During this process, customers can also make some slight customizations. These customizations are like changing the color of shell/packaging or have something printed on it, for a small fee. These final activities are helping the customer in the customization process and makes the product personally. The main goal to increase the value of the makeup product and the consequence will be a high(er) customer satisfaction. So, this application completely takes the inconvenience, hygiene and time-consuming factors out of the equation, providing a boost in customer satisfaction and ultimately product turnover.

Chapter 3 – Delivery package 2 ''Problem interviews''

Chapter 3.1 – Interview process

In order to see if the target customers have the problems which we assumed, we made sixteen interview questions. There are two versions of the questions, a Dutch version and an English version. Besides, we inserted pictures in the questions with the purpose to help them to understand the questions. The interviews can be seen as open interviews, whereby the interviewer only asks the questions and the interviewee only answers the questions. We choose these open interview setting, because in this setting the received data will be more valid. It allows the respondents to use their own words to express how they feel or think about the questions. The next step is to find respondents for the open interview. We randomly interviewed fourteen people in the Netherlands. Our sample of respondents consists of students (without a stable income), adults who were working (with stable income). The interviewees were, besides the level of income, also different in the their ages and cultures. In this case, we can try our best to pursue randomly selected data, minimum bias and keep our data valid. Although we only need ten interviewees based on the requirement, we still interviewed fourteen interviewees in case of some of the interviewee's answer will be conflict and not valid which cannot use. On the basis of the data that we received, we can accept or rejected the hypotheses that we made before the interviews. Below in chapter 3.2, you can find the interpretation of the hypotheses.

Chapter 3.2 – Hypothesis interpretation

Hypotheses 1: A lot of females have trouble with finding the appropriate makeup products.
According to our interview, most of the females said they do not have trouble with finding appropriate makeup products. Some respondents told us that they will watch makeup tutorials online and get the information from the makeup artists in the tutorial videos. If the products applied on the makeup artists' faces look nice, they will consider going to the shop and buy the makeup products. In addition to this, some ladies also have brand loyalty. They usually stick to the makeup brand they bought before and they trust the particular brand. They will go to the shop and go directly to the brand they want. In this case, hypotheses 1 should be REJECTED.

Hypotheses 2: After purchasing the products, it will have a different outlook than expected.
Almost all the interviewees we interviewed suffered different levels of cognitive dissonance. Only one lady answered 'no', because she seldom buys makeup products. The problems are various, such as: the eye pencil is not black enough, the eyeshadow is not the same color as I saw in the tutorial video, etc. Our hypotheses 2 is fully VALIDATED by the answers which the interviewees gave us.

Hypotheses 3: If I am in the store, I will try the makeup products on as if I would do normally at home. Based on the information we received during the interviews, we found out that a large number of females usually try the makeup tester on the back of their hand in the shop. The reasons they gave us are mostly about hygiene problems and they want to keep their skin healthy. Few females who agreed to try the makeup products in the shop are due to some brands, for example M.A.C. By this brand, you cannot try the makeup by yourself, but a makeup assistant will put makeup, in a hygienic way, on your face. They will obey professional makeup orders or the interviewee did not have enough knowledge about makeup and skincare. So, hypotheses 3 could be VALIDATED.

Hypotheses 4: When I am buying makeup boxes, like eyeshadow, I like all the products/colors inside.
For this question, what surprised us is that all of the interviewee said that they never buy this kind of products due to wasting of materials and money. They think they will not use all of the products in the box and do not find it environmentally friendly if they waste them. Therefore, since people do not like all the products inside the makeup boxes, we should REJECT the hypotheses.

Hypotheses 5: People are willing to pay more for the same product with nicer packaging.
Many interviewees are willing to pay a little bit more for the exactly same product with a nicer/customized packaging. Even the females who sometimes use the makeup products will be attracted by a specialized packaging of the makeup. Besides, a few interviewees mentioned that a customized package is a nice present to give away to their friends and relatives. In conclusion, this hypothesis could be VALIDATED.

# Chapter 4 – Delivery package 3 'Recommendation & prototype''

Chapter 4.1 – Recommendations

Based on the data that we received from our interviews, we have concluded that customers find it difficult to try out makeup products, as well as time-consuming and inconvenient. The solution to the problem mentioned above is an Augmented Reality Application (AR) that enables customers to quickly and easily test out makeup products. With the help of AR technology, we, as a virtual company, will try to improve the customer experience of buying makeup products. This app allows the user to create own profile and upload a 3D-model of their face to test out makeup in a comfortable environment like their home. This is the main idea and in chapter 4.2 you can find more detailed information about the application.

Chapter 4.2 – Prototype

The purpose of this application is to enable female customers of all ages and with any level of experience to try out products, without the inconvenience usage. The users can simply download the app and create a personal account, set up a realistic 3D-model of their face by using Face ID technology and the female customer is ready. Once the model is developed, the user can test out a variety of makeup products, colors and styles without leaving their home. Users can access five tabs within the app: home, rewards, store, content feed and start designing.

Home: with this button users are free to test any makeup products from a list of popular products and test out multiple colors by simply clicking the start designing button. Download templates are available in the "Downloads" tab. Templates and designs can be saved and opened again at a later time. Once a design is created the user is asked whether they are interested in purchasing a product or not.
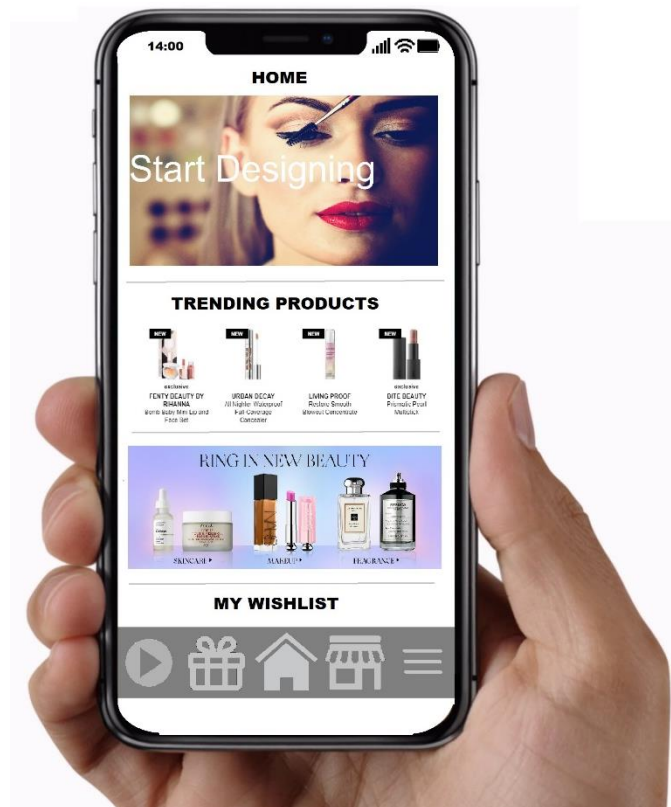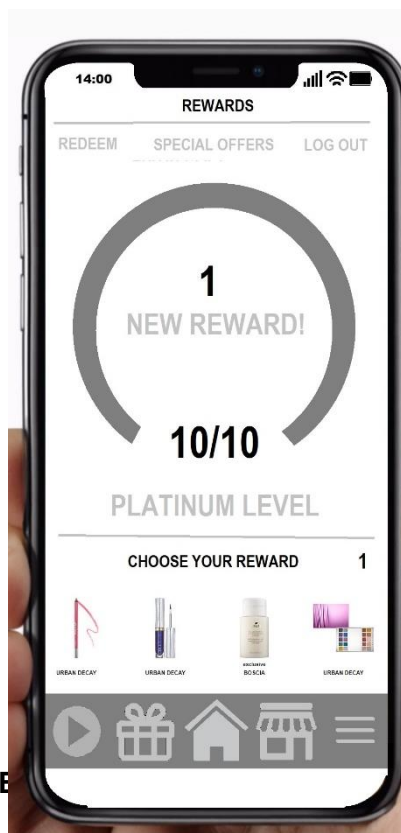
Rewards: in this function users are able to see their rewards level. Our rewards system is based on a points rewards system. Points can be earned by referring a friend, completing purchases, publishing templates or content and by participating in special events. Once a certain amount of points has been achieved the user can make a selection in the rewards or special offers section.

Content Feed: in our content feed we will integrate video tutorials, where people can get inspiration and see which products best fit their needs. Customers can see what it looks like on other people's faces and try products out themselves if they like. The purchase of a product can be done directly in the app, as each video will have a description which lists all the products used in the video. Users can click on these products to buy and see more information. We also want to integrate a customization option for our customers by letting the customer assemble their personalized boxes and choose their own colors and types of products. Such a box can contain different products with different colors.

Store: the store in the app will have the same basic functions as a normal online app has, with added function for users. Firstly, in the video function customers can update their knowledge and buy products directly in the link of the video. This function will provide an easier way for customers to find products. Secondly, the app provides a customization function for boxes. In the store customers can combine the products and colors they want to buy into one box.
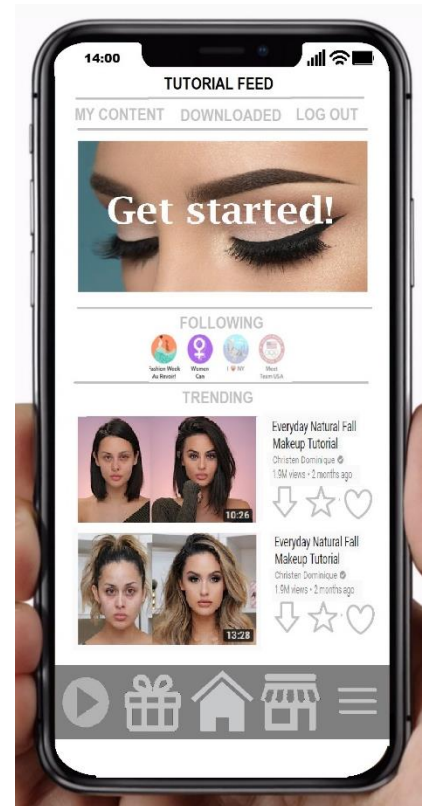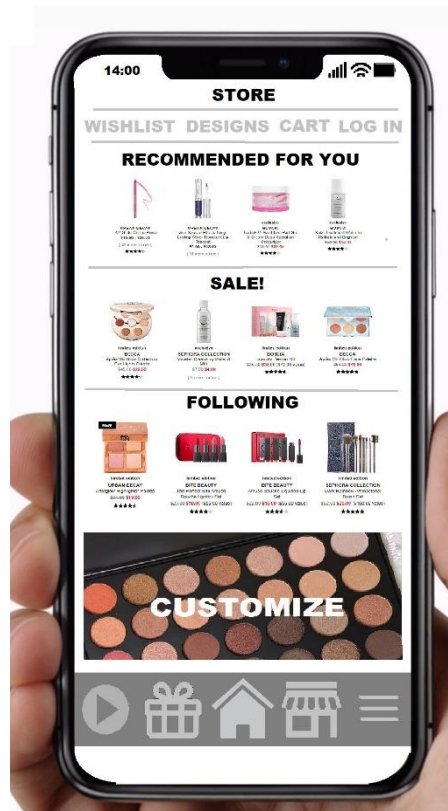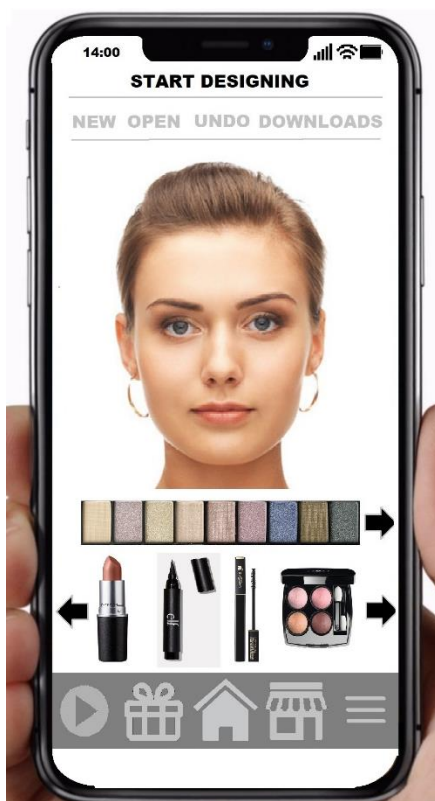
Start designing: this tab enables users to make a profile and scan their face to create a 3D-model by using Face ID technology, as currently present in the iPhone X. Users will be able to edit these models and apply a variety of makeup products where and whenever they want it. The model can be consist of different colors of the products, so the customer can check if the color of the product matches with the skin of the user.

Chapter 5 – Delivery package 4 ''Solution interviews''

Chapter 5.1 – Interview process

From the interviews conducted for delivery package 2, ''problem interviews'', we have concluded that female customers find trying out makeup products difficult, time-consuming and inconvenient. The proposed solution to this problem is an application that integrates trying on makeup with Augmented Reality technology (AR). This app will allow users to create a realistic 3D-model about the face of the customer users will be able to edit these models and apply a variety of makeup products where and whenever they want it. The model can be consist of different colors of the products, so the customer can check if the color of the product matches with the skin of the user.

For this delivery package, we presented ten female interviewees with the aforementioned prototype and asked ten questions to determine its viability and relevance to the customer segment. The interview were again performed in an open ended setting, because in this setting the received data will be more valid. It allows the respondents to use their own words to express how they feel or think about the questions. Our sample of respondents consists of students (without a stable income), adults who were working (with stable income). The interviewees were, besides the level of income, also different in the their ages and cultures. In this case, we can try our best to pursue randomly selected data, minimum bias and keep our data valid. For the interviewees to understand the concept and advantage of using this app we made use of pictures. The pictures of the application can be found in chapter 4.2. Besides, to increase the understandability we show the respondents a video about our application. The video can be found via this link: https://www.youtube.com/watch?v=MSR77aDkcdw

The general impression was positive, as most candidates appreciated the concept and could see a real-life application for this product/service. Therefore, instead of making any radical changes to our business plan and approach, we decided to further reinforce the prototype and integrate changes/services that were requested/recommended by interviewees. Some examples being: 1) renaming "tutorial feed" to "news feed" and offer news/status updates and new products, instead of only video content; 2) an alternative way of selecting makeup products in the 3D-model; 3) adding a 'customizer' button for select products. On the basis of the data that we received, we can accept or rejected the hypotheses that we made before the interviews. Below in chapter 5.2, you can find the interpretation of the hypotheses.

Chapter 5.2 – Hypothesis interpretation

Hypothesis 1: If I want to buy a makeup product, then the makeup tutorial videos will be helpful to me.

Most of the people think that the tutorials are helpful to them. It is a nice way to see what products can be used and what they will look like when applied. Few people think it is not useful, because they do not use makeup products that widely. Hypothesis 1 is VALIDATED.

Hypothesis 2: If I can choose between buying colors separately or buying a makeup box with my own color preferences (customization), I prefer to buy a box.

If the box can be customized and is cheaper than buying all the products separately, they will buy boxes. So, this hypothesis is VALIDATED.

Hypothesis 3: If an application is available on my cell phone that allows me to try on makeup, then I will download (and use) it.

Almost all of the people are willing to the app. Some said that if the app is mature and precise enough they are willing to use it. One is not willing to use it, because she always searches for discounts in different shops and does not want to wait for the delivery time. This hypothesis is VALIDATED.

Hypothesis 4: If a Pro version of the application is made available offering extras/add-ons, then customers would be willing to pay a fee to unlock these premium services.

More than 70% of the people is willing to buy the Pro version if we can make sure that it is functioning well. So, the hypothesis is VALIDATED.

Hypothesis 5: It is attractive to me if I can customize my own packaging for €0.99. For example, engrave my name or a special message.

More than 70% is willing to pay a little extra for customization. They think it is especially nice as a gift for a friend or family. Hypothesis 5 is VALIDATED.

Chapter 6 – Critical analysis of the outcomes

Chapter 6.1 – Critical analysis of the interview outcomes

After we received the outcomes of the first interview, we found out that three out of five hypothesis have been validated and the other two hypothesis were rejected. We interviewed fourteen people, because we were trying to avoid invalid outcomes. If some of the feedbacks turned out to be invalid, we still had some feedbacks as back up. The summary the outcomes can be find in chapter 2 – 5. Since we already received a huge amount of information from the interviewees, we compared the information and updated our lean canvas. You can find the lean canvas development in chapter 6.2.

For the second interview, we interviewed eleven people from different countries, four of them were from turkey, three from China and four from the Netherlands. One of the feedbacks we received from a Dutch girl was invalid, because her answers are inconstant. For this reason we did not take her answers into consideration. During the previous interview, three Dutch girls told us the reason why they think it is easy for them to find appropriate products is, because they always watch the makeup tutorials before they buy products. The makeup tutorials also attract them to buy more products. This feedback inspired us, so we added the makeup tutorials into our hypothesis.

We figured out that all of the Chinese interviewees gave us fully positive feedbacks during the interviews. Interviewees from other countries mostly gave us positive answers, but a few of them were still hesitating. We thought the reason for this might be a difference in culture and buying behavior, so maybe the market in China will be larger. There is one Dutch person who we interviewed for both interviews. We wanted to see our solution will satisfy her problems. Luckily, the answers turned out to be positive. We think the problems are successfully solved.

Chapter 6.2 – Lean canvas development

For delivery package 2, we changed the "problem" section of the lean canvas. Since we conducted interviews we received a huge amount of data from respondents. We compared the information and rejected two hypotheses. We deleted the problem that females might think it is hard for them to find appropriate products, since only a few people face this problem. The problem about waste of mix boxes also has been deleted, since no one bought them before.

The main thing that has changed in the canvas in delivery package 3 and 4 fall under the "Revenue Stream" section. However, minor changes were also made to the "Key Metrics" section and "Customer Segment" section. First of all, we have narrowed down our customer segment to women ages between 18-35 year old, because they are the most popular target for makeup products. This target group is willing to pay (a lot of) money for makeup products. This is a result from our interviews and personal observation in makeup outlets, such a Douglas or ICI Paris. Certainly there will be outliers, such as children wanting to try on makeup or even elderly people who still enjoy these products. Our application is not age-restricted in terms of content, we do have to impose an age restriction of 13 or above, since this is the minimum age for social media platforms, similar to the "news feed" and content sharing capabilities integrated in our application.

Secondly, the way we intend on measuring performance was also adjusted; adding metrics "number of customer orders through app" and "number of products customized." This will enable us to determine whether services are popular and/or actually utilized among users. If, say, only 10% of app users customize their products and proceed to purchase it, this effort may not be worth it. However, if 50% or more of users customize makeup products and buy it, then this indicates popularity and prompts in-app improvements and updates for that service. Via these tools we will receive data for our services, we can change our business strategy according to these data and the consequence will be a ''more user-friendly'' application. The improvement that we made for the customers will increase the app downloads and this will increase our revenue.

Lastly, changes were made in the way we intend on generating revenue. As highlighted in the lean canvas, we intend on charging suppliers and designers for top rankings in the in-app store. Similar to Google's sponsored results, if a user is to search for "eyeliner," two-three sponsored, but relevant products will be displayed above the search query results. We have also decided to follow the "freemium" model, since we are dealing with an application and this model has proven successful for many apps. Users can download the app from their native app-store, for example the Apple Store, for free, but experience limitations. For example, their 3D-model can only be updated once every 48 hours; they cannot *fully* customize products; cannot download/implement makeup templates; and do not benefit from services such as a "makeup genius" recommending products and colors based on the 3D-model. However, for the reasonable one-time fee of 2.99 EUR / 3.99 USD these services can be unlocked. As supported by our empirical data, application users are willing to pay, but only if it provides a significant improvement in service level and convenience. As a matter of fact, 33% of all App users eventually decide to upgrade to an application's pro-version.

Chapter 7 – Final lean canvas

Below, in table 7.1, you can find the final lean canvas of our business model. The lean canvas is an efficient approach for developing a single page business plan that helps us to deconstruct our business idea into key assumptions. The consequence will be that we can better analyze the different sections. Our lean can consist of nine sections; problem, solution, key metrices, unique value proposition, unfair advantage, customer segments, channels, customer segments, cost structure and revenue streams.

Table 7.1 – Final lean canvas of our business plan

Problem	Solution	Unique Value Proposition	Unfair Advantage	Customer Segments
1. Trying on makeup is inconvenient, time-consuming and unhygienic 2. The expected result from makeup may vary from reality 3. Makeup products lack customizability.	AR technology, customizable products and use of realistic 3D-models	Customers can make a profile and create a custom 3D-model using Face ID to test out makeup products The app has a content feed that allows users to view makeup tutorials and download makeup templates to apply to their 3D-model. There is also a store section that allows users to directly purchase the products they tested out	Proprietary software and application, low cost, ease of use, convenience factor	Anybody interested in testing out makeup products; predominantly women between ages 18-35 Minimum age of 13, unless parental consent.
	Key Metrics The number of sales, app downloads, ratings, number of customer orders through app, number of products customized		**Channels** In-store, online, app store, exhibits, fairs and related events	

Cost Structure		Revenue Streams
App development, hosting, advertising, customer acquisition, human resources		Product integration fees, affiliation fees, product advertising and ranking, royalties, premium services, in-app content (i.e. videos/tutorials)

Chapter 8 – Conclusion and recommendation

One key factor determining whether a product or service is financially interesting is to perform a cost-benefit analysis. Based on these analysis, we can conclude if our product is lucrative and interested for the market. The costs and revenue values included are educated guesses at best, based on quotes and estimates from app developers and similar products. In chapter 8.2 we will tell you about the cost estimates and in chapter 8.3 we will show you our revenue estimates.

Chapter 8.1 – Cost estimates

The cost estimates of our application can be found in table 8.1. The initial costs are as follows: first, the application development, the cost are +/- 25,000 EUR, which includes the cost of three developer employees. Second, the yearly hosting cost and fixed app store fees, the cost are +/- 5,000 EUR. Third, the variable app store fees. These are 25% on iOS and 10% on Android from app pro revenue. This type of cost depends on the amount of downloads. The next cost is advertising. The cost will be +/- 20,000 EUR. The customer acquisition is assumed to be included in advertising costs. The next cost are human resources/employee. These costs can be minimized as we can fulfill most tasks ourselves, certain services can be outsourced to temp/at-will workers and consultants. The last type of cost are the in-store app stations: stationing an tablet/iPad featuring our application that enables users and new users to register, create a model and explore the options offered by our services. Since many people likely have not yet purchased a phone with Face ID technology to create a realistic 3D- model, it is crucial that we still provide them with the option to create a model in a convenient fashion. These stations should not cost more than 2,000 EUR each, depending on quantity, designer/store and whether a fee must be paid to store owner. Assuming we will start featuring only in ten stores, approximate costs of startup in the first year equals 70,000 EUR.

Table 8.1 – Cost estimates

Type of cost	Cost indication (EUR)
- Application development	- 25,000
- Hosting cost and fixed app store fees	- 5,000
- App store fees	- 25% iOS and 10% Android
- Advertisement	- 20,000
- Employees, human resources cost	- 0,00
- 3D-model stations	- 20,000

Chapter 8.2 – Revenue estimated

Estimating revenue is a bit more complex than estimating costs, as there is a significant uncertainty factor. The values discussed in this section are educated guesses at best based on current market trends, demand and opinions from specialists and/or experts. The revenue estimates of our application can be found in table 8.2.

Revenue breakdown is as follows: first, the product integration fee will vary per designer, as well-known designers will offer us utility in the form of trustworthiness/reliability, which must be accounted for financially. Therefore, some designers will pay more than others, depending on the amount of products they intend on integrating in our application. Secondly, the affiliation fees; if a designer/supplier wishes to have their own page or section in the store, this can be arranged for a fee. However, charge will vary significantly. Thirdly, the product advertising; if new products are released, this can be displayed in our "Trending/New Products" category in the store section. This will likely be in the form of a royalty, charging a percentage of sales instead of a flat-rate fee. The next source of revenue are advertisements. Advertisements will also be displayed to non-pro users, estimating 500 EUR per month in revenue to start. Our next revenue source are ranking; designers can pay to increase the ranking, up to a certain point. We will not change the natural ranking of results which is based on popularity, but include a "sponsored section" above search results. The next option is to provide premium services / upgrading to pro app. The revenue will be 2.99 EUR per application our estimating will be 100,000 downloads in the first year and assuming that 33% upgrade rate will generate approximately 99,000 EUR in revenue in the first year. The last revenue source is the in-app content; these are the videos/templates created by channels and other users. Users can pay to download a template (for example one EUR per three templates) which is paid to the creator. However, we take a royalty of 10% from these templates. Limited advertising can also be done by content creators, of which we will also take 10%.

Table 8.2 – Revenue estimates

Type of revenue	Revenue indication (EUR)
- Product integration	- Vary per designer
- Affiliation fee	- Vary per designer
- Product advertisement	- Flat rate-fee
- Brand advertisements	- 500 per month
- Rankings	- Vary per product category
- Pro version for the application	- 99,000
- In-app content	- Vary per video/template

Overall, there is a lot of uncertainty and variability in terms of how much revenue will be generated in the first year. However, with our target of 100,000 downloads in one year and in-app advertising options, we estimate the revenue to be about 105,000 EUR. The level of revenue is bigger the amount of cost, so we can state that our business idea is lucrative. Besides, our investment will be recouped within the first year of operating, if all goes as planned.

Chapter 8.2 – Conclusion

In conclusion, we will pivot it to see if there is enough market for us to sell this app, cause future cannot be predicted, but we can control some of the factors which determine the future, pivot would save time and cost if this app is not welcomed enough among the markets as well. Since the time for this project is too short, the database we have is too small, we cannot promise that our app will be fully accepted in all the markets. We also realized that interviewees from different countries have really different buying behavior and thinking ways. However, most of our hypothesis are validated, more than 80% interviewees are interested in our idea, even for the people who seldom use makeup products. This is our first indication and we would like to continue with this business idea. We recommend to pivot our app in one market first, for example China, because all of the Chinese interviewees we interviewed are 100% liked our app and willing to pay for the app.

Chapter 9 – Reflection on the project management plan

First of all, the time estimations we made at the beginning of the module were a bit ambitious in some cases. Table 9.1 shows the project planning that we made before the start of the project. Some tasks took longer and some were done way quicker than expected. Summarizing the findings of the interviews for example took a lot longer. In addition, some group members faced personal special circumstances and could not put as much effort into the project as they wished. This caused the tasks assigned to people to be shuffled around, meaning for some people to do more than the others. Also, we did not work on the project during every single week of the module, like we initially thought we would as can be seen in the project execution table. However, this did not cause a delay of the project and we managed to stay on the critical path. We finished the work before the deadlines and handed everything in on time. Furthermore, we did not have to revise previous delivery packs. We only had to rewrite two out of ten hypotheses, since most of them matched reality. We made some changes to the initial lean canvas as well, but that happens with every start-up. Lastly, the ten weeks of the module are not enough in a real life situation. We only conducted ten interviews for the problem and ten for the solution hypothesis. In reality analyzing the potential customer base takes a lot of time. Table 9.2 shows the project execution. To conclude, this project offered us a nice way to see what it is like to set up your own company. It gave us more insight into the time management of such a process and taught us how to organize and formulate the a business plan.

Table 9.1 – Project planning

Deliverable Pack	Tasks	Assigned to	Duration
1 – initial lean canvas	Brainstorming (business idea/AR or VR) + lean canvas	Everyone	1 day
	Presentation	MM+RL	3 hours
	Customer needs hypotheses	XY+SB	4 hours
	Elaboration on lean canvas	OA+MK	2 hours
2 – the problem interviews	Develop interview questions	Everyone	3 hours
	Interview 10 potential customers	MK+OA	2 hours
	Write down the interviews	SB	3 hours
	Summarize findings of the interviews	XY	2 hours
	Has the customer need hypotheses been validated?	MM	1 hours
	Update lean canvas and elaborate on changes and why	RL	1.5 hours
3 – solution/ recommendation	Develop solution for the customer problem (service/product/business model, etc.)	SB+XY	3 hours
	Present recommendation → picture, short description, short video, etc. (prototype will be used in next DP!)	OA+RL+MK	3 hours
	Update lean canvas + write up solution in hypotheses form	MM	1.5 hours
4 – solution interview	Develop interview questions	Everyone	3 hours
	Interview 10 potential users	MK+OA	2 hours
	Write down the interviews	SB	3 hours

	Summarize findings of the interviews	XY	2 hours
	Has the solution hypotheses been validated?	MM	1 hours
	Based on results of solution interviews, propose a changed solution/recommendation	Everyone	Depends on results (1~4 hours)
	Update lean canvas and elaborate on changes and why	RL	1 hours
5 – the pitch	Presentation of the results of the research-based consulting report - Customer problem - Our recommendation + theoretical arguments - The business (lean canvas)	RL+MM	3 hours
6 – poster	Poster (graphic presentation of the results) → NOT a sales poster, also includes information on the research process - Customer problem - Our recommendation - What is our business?	RL+MM	3 hours
7 – integral project report	Integrate all delivery packages in a final report	Everyone	3 hours

Table 9.2 – Project execution

Period→ ↓ Tasks	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
1	▇	▇								
2		▇	▇	▇						
3				▇	▇	▇	▇			
4							▇	▇		
5									▇	▇
6									▇	▇
7	▇	▇	▇	▇	▇	▇	▇	▇	▇	▇

Chapter 10 – Appendices

Chapter 10.1 – Interview questions delivery package 2

1. When you walk into a makeup store what is your general purpose/goal?
2. If you are looking at a product, how do you determine whether you like it?
3. How do you test out your makeup?
4. Do you think it is hard to find the products you are looking for?
5. Do you try the makeup out like you would if you own it?
6. Do you ever regret buying products? For what reason?
7. Do you think the color looks different from the advertisement if you try it on?
8. How much do you care about the health of your skin?
9. If you buy makeup products, do you mind testing it on your bare skin (without any cream or other caring products)?
10. Have you ever bought a makeup box with multiple colors or a mixed one with different makeup products? Do you usually like all the things/colors inside?
11. For example if you see an eyeshadow box with 10 colors and you really like 3 of them, on what grounds will you decide to buy it or not?
12. For the rest of the colors you do not like, what will you do with them?
13. Do you feel guilty if you buy products you used partially or not at all? Do you think it is a waste of money?

Chapter 10.2 – Interview questions delivery package 4

1. What is your first impression of the app? Why?
2. What functions do you like best about this concept?
3. Are all the functions useful to you? Which ones not?
4. If you would have to purchase this app for 2,99 EUR and unlimited can use, would you be willing to buy it?
5. Would you prefer to use the app or go to a physical shop to try out makeup products?
6. Do you think make up tutorials are helpful for you to choose the right makeup products?
7. Would you prefer to buy a makeup box if you can choose every single product inside for a cheaper price or would you prefer to buy all the products separately?
8. Do you prefer to buy an eyeshadow box where you can choose every single color inside or buy it separately? The cover of the eyeshadow box can be reused, which means you can refill it for a lower price.
9. Would you be willing to pay 0,99 EUR to customize the packaging in any way you want? For example, engrave a message or name?
10. If you would purchase the app to try out makeup, the price of the products will be the same or a little cheaper, would you be willing to buy the products in the app or do you prefer to buy them via other means, like physical stores?