eTryOn - Virtual try-ons of garments enabling novel human fashion interactions

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Pilot Evaluation Report

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Abstract	Report describing the overall deployment and evaluation of the eTryOn pilots through end user testing of trying virtual garments in comparison to physical garments and qualitative evaluations of such by studies of images/photos in juxtaposition.
Keywords	Pilot, evaluation, test, consumer, feedback, questionnaire

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List of abbreviations and Acronyms

Abbreviation	Meaning
VR	Virtual Reality
PM	Product Manager
HQ	Headquarter
AR	Augmented Reality
SME	Small and medium-sized enterprises
DPC	Digital Product Creation
POV	Point of View
M25	Month 25
CRM	Customer Relationship Management
UI	User Interface
MTB	Mountainlike
AI	Artificial Intelligent
XR	eXtended Reality

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1. Executive summary

This deliverable describes the overall deployment and evaluation of the eTryOn pilots through end user tests of trying on virtual garments. It also elaborates on the process of preparation for the pilot, including a step-by-step description of what was happening during each testing session. Collecting feedback follows as the next step. Special part is dedicated to a deep analysis of results collected via questionnaires, which are described in detail in D6.2.

Part of this deliverable is also a comparison to physical garments and qualitative evaluations of such by studies of images/photos in juxtaposition.

Summarizing, this deliverable presents the pilot testing process for each of eTryOn's pilots as a four-step process:

- Preparation phase, steps necessary before starting the pilot.
- Pilot execution, steps undertaken during the pilot.
- Steps after the test itself, collecting feedback.
- Analysis of the feedback.

2. VR Designer App pilots

VR Designer is a VR application targeting fashion designers, facilitating them throughout the creative process of garment design by offering realistic fitting of the digital garments on photorealistic 3D avatars in motion.

2.1. End-user testing process

For the pilot the following things had to be prepared upfront by operators (Michaela Jauk & Ursina Häfliger, further operators only), as described more analytically on D6.2 [1] (section 2.2 Pilot operation requirements and section 2.3 Testing and evaluation protocols).

Steps before starting the test session:

- Participants were provided with an information sheet about the aim of the research project, along with a consent form (Appendix I), which analyzed the research scope and the purpose of the pilot tests as well as the means that will be used in the "eTryOn" project. Upon their consent, an email with the full text of the information sheet and consent form was also sent to them for their reference. All participants reserve the right to withdraw at any time and refuse to participate during the pilot testing. The consent form describes the data collection process, which is in accordance with the personal data protection legislation (EU 2016/679), where the fundamental principles of data processing are observed and all the necessary technical and organizational measures are implemented for ensuring a high level of security, suitable for protecting the privacy of individuals.

- The Oculus headset had to be fully charged beforehand.
- Laptop with Unity and Oculus installed had to be started.
- Either an air link had to be established or a rift cable had to be connected in case that the air link connection was not possible (for example IT restrictions).
- The eye distance of each participant was measured by the Eye Measure app and the lenses of the Oculus headset were set accordingly.
- If the tester had to use dioptric glasses a spacer had to be inserted in order to protect both the headset lenses and glasses of the user.
- Environments for the pilot both physical and digital (guardian) were first set up by operators. All the equipment needed as mentioned in D6.2 had to be deployed. Just one login account was used for all testers.
- The quick release wheel had to be adjusted on each wearer to provide a snug fit.
- The operator had to explain the functionalities of both handles and the guardian space.
- Participant with the headset on and both handles in hands was led by the operator to the middle of the guardian.
- The app was already started previously by the operator and the participant could start to experience the VR space straight away.

Steps during the session:

- The operator first asked each participant to explore the size of the guardian in all 4 directions in order to make them aware of the range of movement.
- Next the user was asked to aim with both handles in order to check their reactivity.
- The testing itself could start at this point. First testers were opening the menu and clicking through each function and testing it.

- Using first the joystick users were moving through the virtual showroom and later on they were also moving physically through the room using their boundary space and joystick if needed.
- As a next step each participant got a task: “Imagine you need to select 3 or 4 garments from the complete collection and those you want to check properly in 3D space and save them on the Assortment tab in order to show them later on to your manager.”
- After completing this task, the participant could have used the virtual exit door icon to finish the session

Steps after the session:

- The headset was released and removed from the user`s head. Also, the handles were stored back into their box.
- The user was asked about their state because of possible dizziness or nausea.
- As the last step, questionnaires were either sent to each participant by email and they filled them in afterwards or if time enough, it was filled in straight away after the session with operator assisting if needed.

2.1.1 Target groups & timing

Testing sessions of the app took place in June and July 2022. Participants had individual sessions with the app operators. They were able to test the VR Designer app for at least 20 min. or longer if desired.

For groups of testers were available. More specifically:

1. Odlo In-house designers.
2. Odlo In-house PMs.
3. Professional designers.
4. University students of Art & Design.

All testers gave their consent to be photographed or recorded.

2.1.2 Pilots at Odlo

The pilots at Odlo HQ took place on the 2nd floor and targeted groups 1 & 2 as mentioned in point 2.1.1.

A space with enough room for walking around (around 36 square meters) was selected. Further steps described in section 2.1 were followed.

Figure 1: ODLO testers for the VR Designer

2.1.3 Pilots at VCR Zurich

Here we targeted the third group of testers as described in section 2.1.1 - external professional designers. The test was executed in 14.7.2022 in their Design studio in Zurich[1].
The only limitation we had was the size of the testing room, which was slightly smaller than required for the test, 20 square meters. We managed to overcome this issue by using the joystick function and moving more often through the space digitally than physically.

[1] https://vvccrr.com/

Figure 2: VCR testers for the VR Designers

The feedback of all participants during the pilot was overall positive. They commented directly on what they were experiencing in the VR space. They liked the virtual Odlo showroom and the fact that they could walk around. Some of them even looked inside of the garment. The handling of the controllers and the menu taskbar was difficult and some were struggling a bit. They also would love to be able to touch, pull or style the digital garments on the avatar and on the shelves with their virtual hands. The possibility of combining outfits by themselves “mix & match” was mentioned several times. The trend detection and the favorite section was not well used and mostly forgotten and not of a big interest.

2.1.4 Pilots in UK Universities

For the needs of the pilots, we also addressed the Art & Design departments in the UK, organizing three pilot sessions along with additional educational and promotional events for the project. We showcased VR Designer in 3 universities in the UK:

- Northumbria University School of Design on October 11th
- University of Gloucestershire, Design Centre on October 12th
- De Montfort University, Art & Design department on October 13th

During the pilots in UK universities, we had a total of 60 participants, in their majority students of Art & Design departments, as well as faculty and teaching personnel who had the chance to try firsthand the initial version of VR Designer and give us their feedback on their user experience.

The data that was collected during the pilots included information such as name, email and professional occupation of participants, as well as the level of technological familiarity with corresponding VR applications and 3D Design software. By answering the final questionnaires after using VR Designer, the participants provided further information for their overall evaluation and the user experience they had.

Figure 3: UK Universities testers for VR Designer

In general, steps described in section 2.1 were followed. Participants were introduced to the platform and were guided for the main functionalities VR Designer provides, along with navigational and usage instructions. Right after, they were provided with the VR headset and navigated themselves in the platform testing all available options it provides to users. After testing VR Designer, users were asked to fill in a special questionnaire. The purpose of collecting data from the specific questionnaire is to better analyze the needs and overall user experience of end users, further analyzed in section 2.3.2.

2.2 Inspecting a garment collection in VR Designer: Virtual garments in comparison to physical samples

In this section we are having a closer look at the virtual garments in the VR Designer app, making visible what the Designers who have tested the app actually saw. It is a comparison between screenshots of the virtual garments in the VR designer app and fitting pictures of the real garments from our development process. The feedback provided in this section is the collected feedback of the designers while they were testing the app. Their comments about the visual appearance of the virtual garments were collected and compared with the physical piece.

Jacket ZEROWEIGHT (313711)

On the left you can see the jacket dressed on the Olivia 36 avatar in the VR designer app. And the image on the right side is the real jacket which the ODLO inhouse model is wearing in size 36. As you can see the super light mini ripstop woven fabric does not look the same in reality as in VR. In reality on the Model, you can see that the fabric is very thin and wrinkling and has a paper similar look. In the 3D VR space, it looks more like a thick midlayer and has no paper similar look at all. This difference of appearance is a bit problematic for a designer. The paradise pink color is on both garments close and looks very similar in 3D and in reality.

T-shirt crew neck s/s ZEROWEIGHT ENGINEERED CHILL-TEC (313731)

The T-shirt on the left in the VR designer app fits similar to the T-shirt from the photoshoot on the right side, which is from the Odlo online shop. The fabric looks very similar. In this case the designer could trust what they see in the VR space as it is very close to the actual real garment. This can be helpful for the design process. Unfortunately, it was not possible to find this T-shirt in reality in the same color as we have it in 3D. In the VR space it has the color American beauty, and the photo shooting picture has the color Paradise pink.

Bralette ESSENTIAL MESH (313791)

The bralette is a very difficult one to compare as in 3D the avatar has no soft tissue and the support of the bra on the breast cannot be simulated. Due to this the fit cannot properly be evaluated and judged in 3D. Overall the 3D garment and the picture from the fitting we can say the bra looks quite similar when we look at the straps and the collar shape for example. Also, here we unfortunately don`t have the same colorways available to judge on the color appearance. The left one in 3D is Loden frost with black and the right one in reality is a black version of that style.

T-shirt crew neck s/s ZEROWEIGHT ENGINEERED CHILL - TEC (313732)

This T-shirt for men is in 3D dressed on the Oliver avatar in size L and in reality, it is worn by one of our male fit models in size L as well. The garment fits very similar in both ways

for example when you compare where the sleeve ends and also the length on the hem is close to each other. Also, the design of the engineered fabric is similar and the drape quite accurate. This would work for a designer to judge the garment in virtual space only. But unfortunately, here we did not have the same colors to make a statement about color accuracy. The virtual one is Loden frost, and the fitting picture is in Indigo bunting.

Tights ESSENTIAL (322982)

Simple black running tights. Both the virtual and the real sample look very similar to each other. Length and how it fits looks very accurate. Only the Odlo logo seems to be a little higher on the leg in the 3D than on the fit model. Black color looks the same.

Pants regular length WEDGEMOUNT (560421)

The fit of the outdoor hiking pants looks very similar between the 3D and the fit model. Pleats in the crotch area are similar and also at the knee where it is a pre shaped knee pattern it looks close to each other. As well the pocket / zipper positions are at the same places on both garments. The color is on both lead gray, but in the 3D space it looks a little brighter than in reality.

Overall, we can say that the virtual garments are close to the real garments in terms of fit and color appearance and logo position with some exceptions. There was no case of a garment which was not recognizable or not useful to the designer.

2.3 End User questionnaire feedback

For the VR Designer pilot, we had 3 different locations where the pilot session took place. The first one was in Hünenberg in Switzerland, the second one in Zurich, Switzerland and for the third one in the United Kingdom. There were 60 testers in the United Kingdom and 41 in Switzerland which is a total of 101 testers. All of them have answered the questionnaire and we got feedback replies for analysis from everyone.

2.3.1 Overall results

A total of 101 participants took part in the study. The results of the questionnaire feedback were analyzed with pie charts and bar graphs. All questions and statements have been answered by all participants. For every statement we have 101 answers for analysis.

2.3.2 Evaluation of user feedback

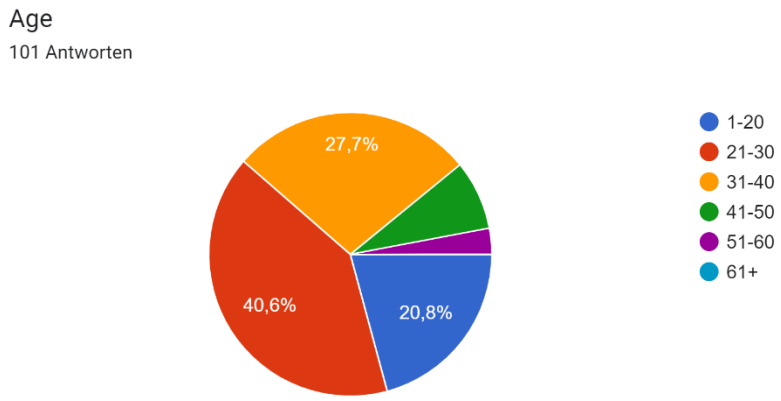


Figure 4: VR Designer - Pie chart of the participant's age

The majority of the participants are between 21 and 40 years old (68,3% / 69 participants). Only a few are older than 41 years (10,9% / 11 participants). Despite that, a fifth of them are even younger than 21 years (21 participants).

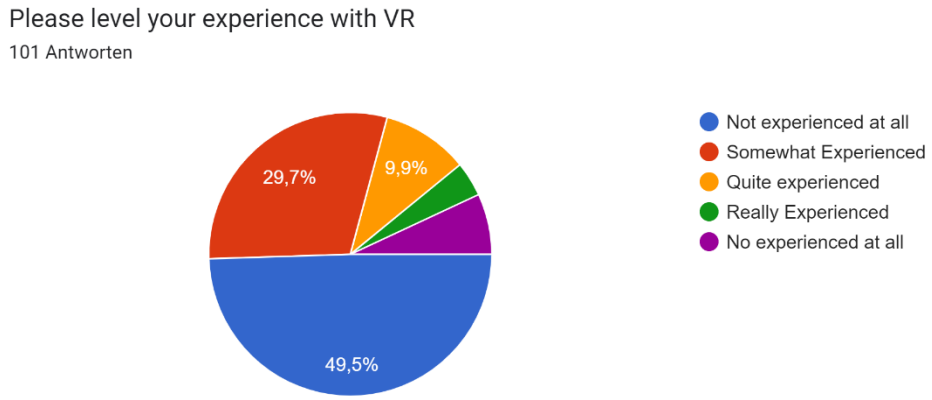


Figure 5: VR Designer - Pie chart of the participants level of experience with VR

In this pie chart we can see that more than half of the participants don't have experience with VR at all (56,4% / 57 participants), which indicates that this is really something new for them. Only 4% / 4 participants are saying that they are really experienced in VR.

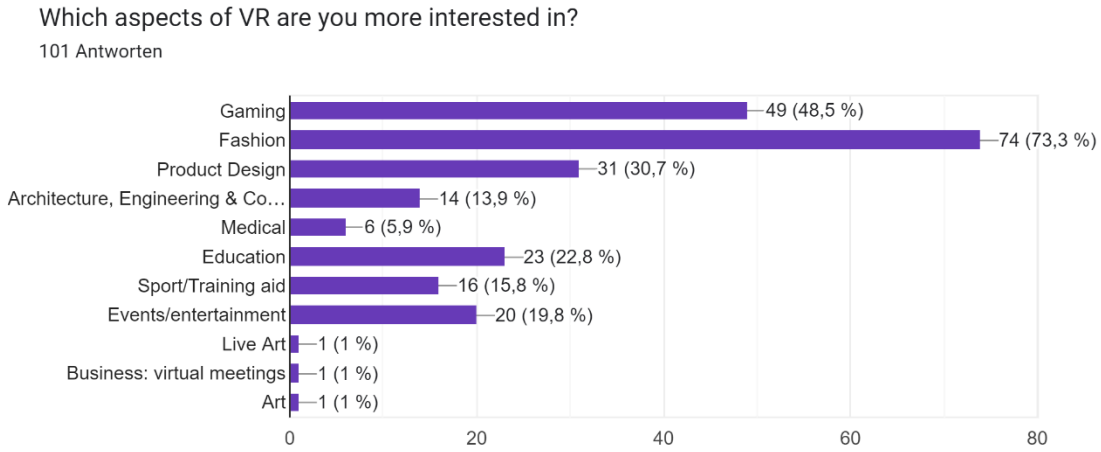


Figure 6: VR Designer - Bar graph of the participants aspect of VR they are more interested in

In this diagram the answers show that the aspects the participants are most interested in is Fashion (73,3% / 74 participants), followed by Gaming (48,5% / 49 participants) and then Product Design (30,7% / 31 participants).
Education (22,8%) and Events/ entertainment (19,8%) are both chosen by a fifth of the designers.

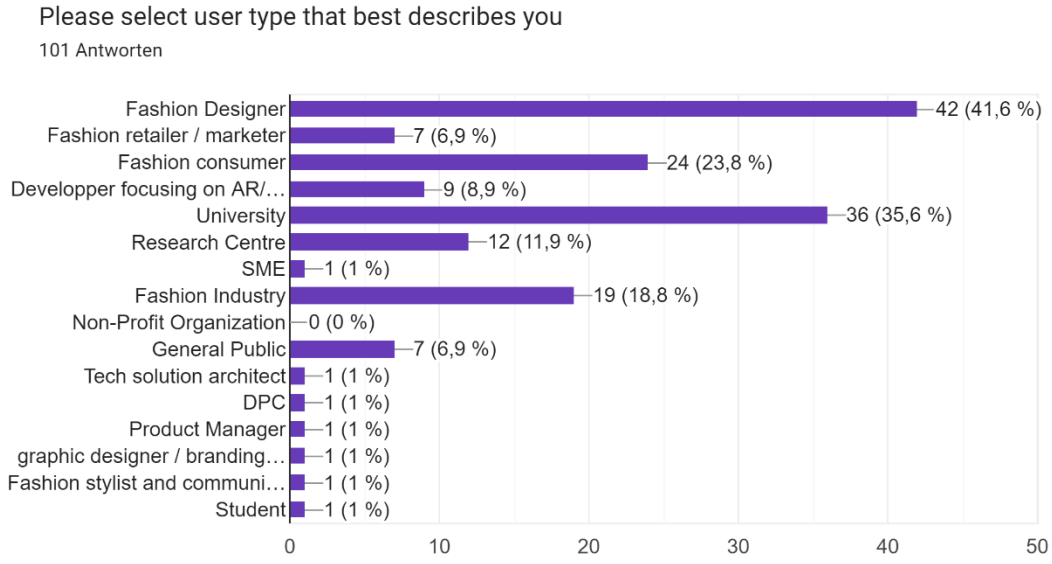


Figure 7: VR Designer - Bar graph of the participants user type that best describes them

Here we can see that most of the participants are in the Fashion business (68,3% / 69 participants). This explains as well why the aspect which most participants are interested in, in the question before, was fashion.

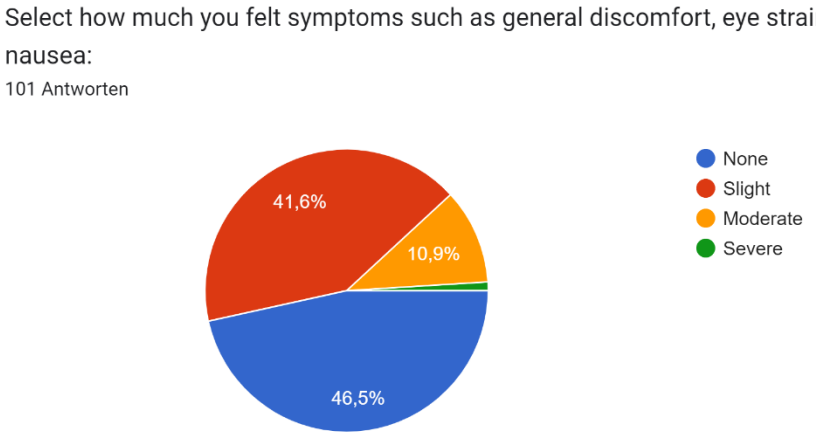


Figure 8: VR Designer - Pie chart of the participants symptoms after the pilot

Most of the participants (88,1% / 89 participants) did not feel any negative effects while testing the VR Designer app. Only 1 person felt severe nausea symptoms while experiencing the VR space in the app.

In a scale of 1-5 mark the answer that best describes your reaction to your experience using the app (1: Strongly disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree, 5: Strongly Agree)

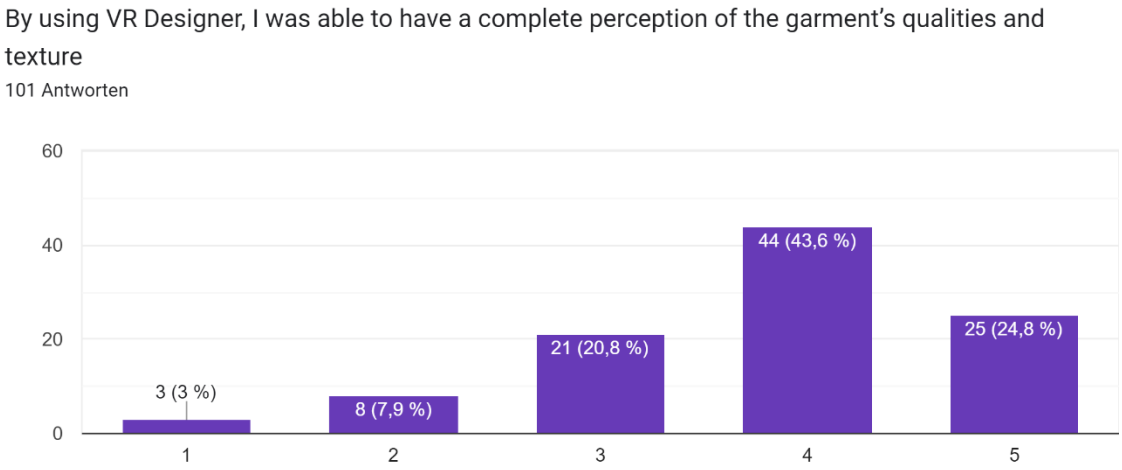


Figure 9: VR Designer - Bar graph of the participants ability to have a complete perception of the garment's qualities and texture

In this diagram we can see that more than half of the participants (68,4% / 69 participants) think that they`ve got a complete perception of the garment`s qualities and texture while testing the app. A fifth (20,8% / 21 participants) neither agree nor disagree. And only 11 people (10,9%) are saying that they don`t think the perception of the garment`s qualities and texture was complete.

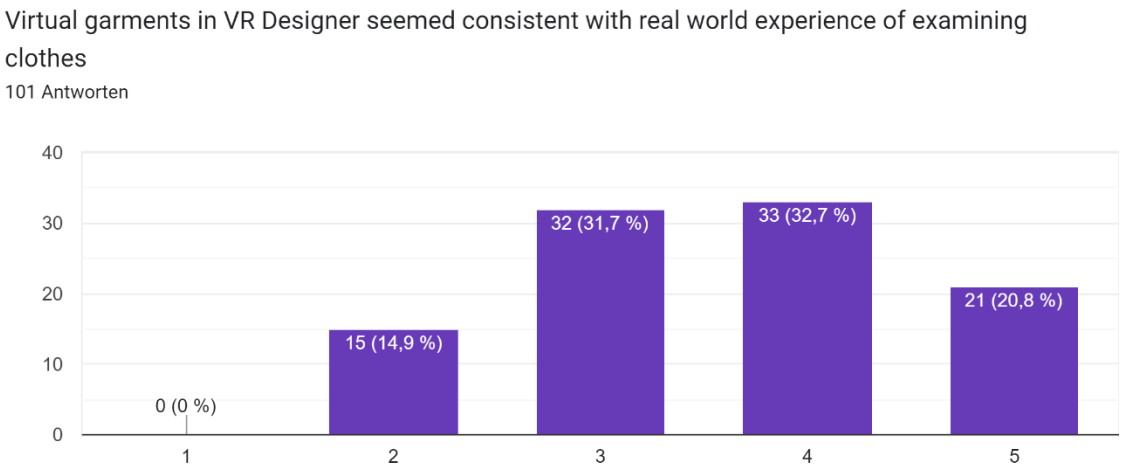


Figure 10: VR Designer - Bar graph of the participants feedback on the virtual garment's consistency with real world experience of examining clothes

The answers here show that more than half of the participants (53,5% / 54 participants) think that the virtual garments in the VR Designer app seem to be consistent with real world experience of examining clothes. But also, a third (31,7% / 32 participants) cannot agree nor disagree. On the other side only (14,9% / 15 participants) disagree with the real-world experience of the virtual clothes in the app. And none strongly disagree.

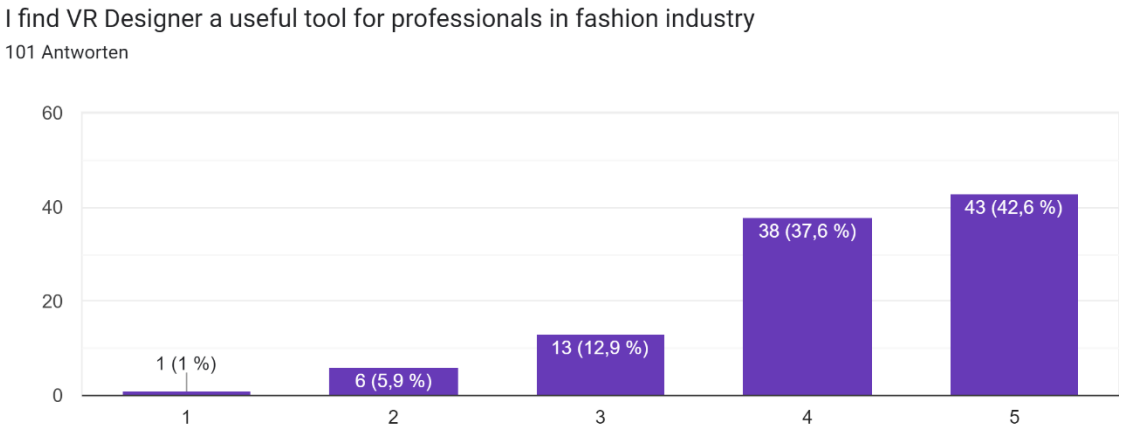


Figure 11: VR Designer - Bar graph of the participants feedback regarding VR Designer as a useful tool for professionals in the fashion industry

This feedback here is very clear. 81 Participants (80,2%) do find the VR Designer app a useful tool for professionals in the fashion industry. Only 1 person strongly disagrees with it.

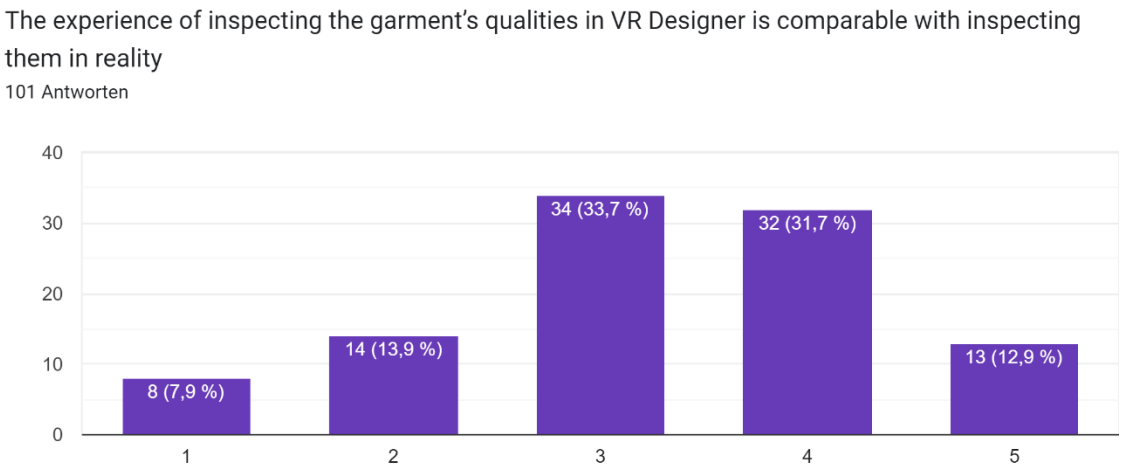


Figure 12: VR Designer - Bar graph of the participants feedback on the experience while inspecting the garments qualities in VR comparable with inspecting them in reality

In this diagram we can see that most of the participants agree or strongly agree (44,6% /45 participants) that inspecting the garments qualities in VR designer are comparable with inspecting them in reality, but also a third of them (33,7 / 34 participants) were not sure and answered either nor. A fifth (21,8% / 22 participants) disagree or strongly disagree with this statement.

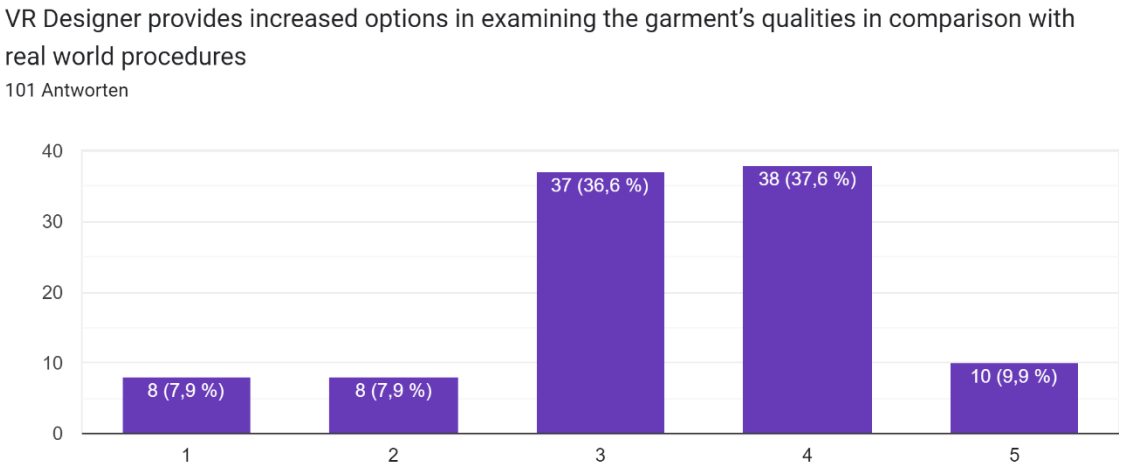


Figure 13: VR Designer - Bar graph of the participants feedback on the increased options in examining the garments qualities in comparison with real world procedures

Almost the same answers as in the statement before. 47,5% (48 participants) agree or strongly agree to the statement that VR Designer provides increased options in examining the garment`s qualities in comparison with the real-world procedure. As well, more than a third (36,6% / 37 participants) are either agreeing or disagreeing and 15,8% (16 participants) disagree with it.

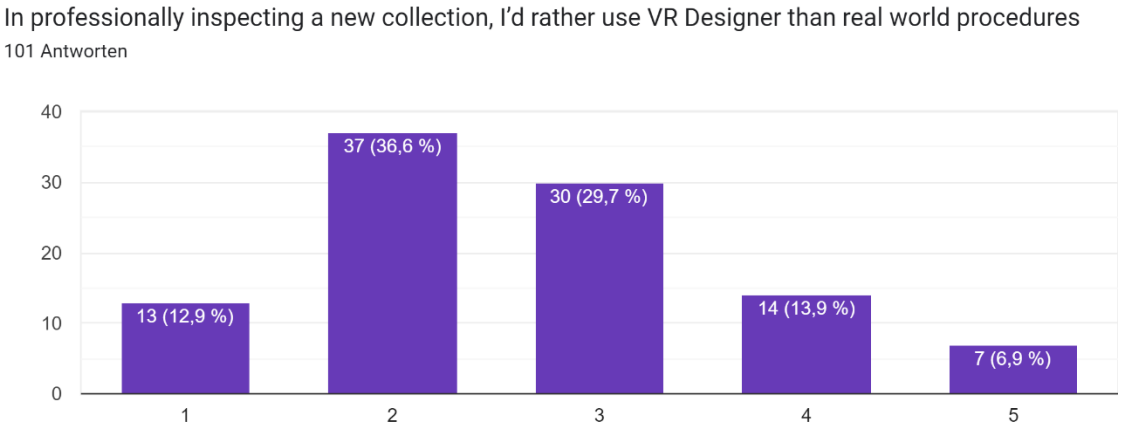


Figure 14: VR Designer - Bar graph of the participants feedback regarding using the tool for professionally inspecting a new collection than real world procedures

This time half of the participants (49,5% / 50 participants) disagree or strongly disagree that inspecting a new collection is preferably inspecting in VR Designer than in a real-world procedure. A third (29,7% / 30 participants) agree or disagree and only 20,8% (21 participants) agree that they would rather use VR Designer to inspect the collection than the real-world process.

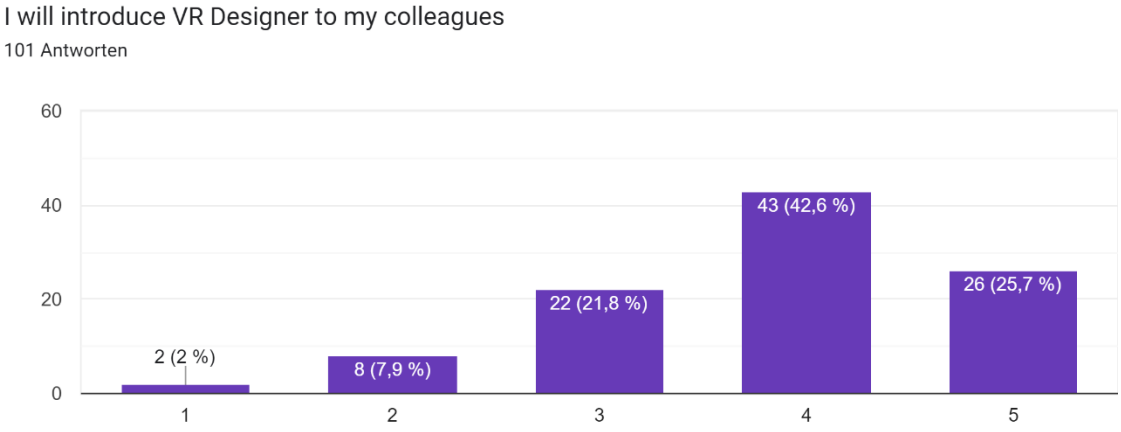


Figure 15: VR Designer - Bar graph of the participants feedback on introducing VR Designer to their colleagues

Very clear feedback, two-thirds of the participants (68,3% / 69 participants) would introduce VR Designer to their colleagues. A fifth (21,8% / 22 participants) neither agrees or disagrees and only 10 participants (9,9%) are saying that they would not introduce it to their colleagues.

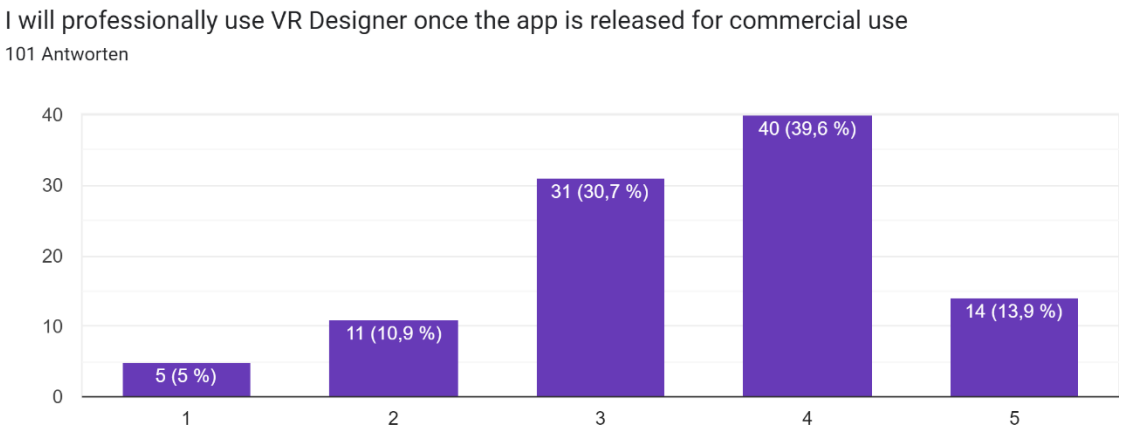


Figure 16: VR Designer - Bar graph of the participants feedback regarding them willing to professionally use VR Designer once the app is released for commercial use

54 participants (53,5%) would professionally use the app when it is released for commercial use. Only 16 participants (15,9%) would not use it.

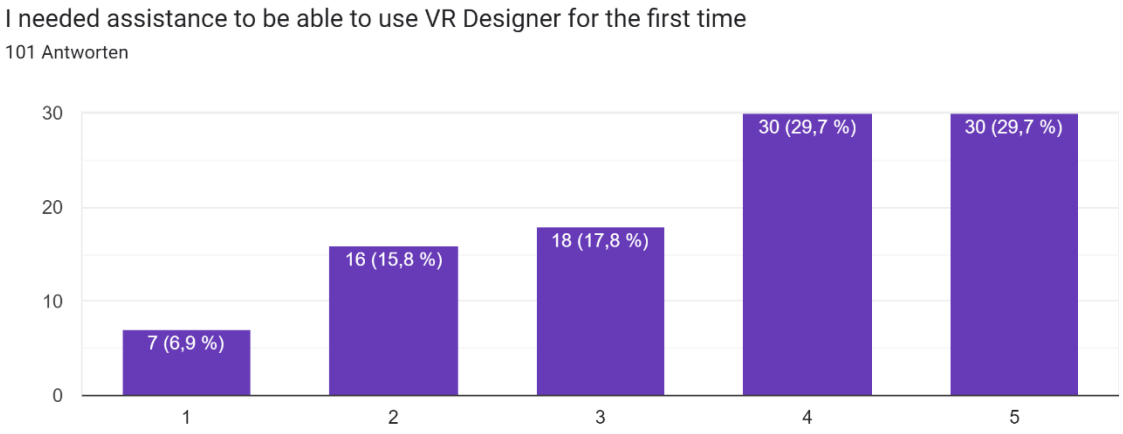


Figure 17: VR Designer - Bar graph of the participants need on assistance to be able to use VR Designer for the first time

It clearly shows that the participants needed assistance to use the app for the first time. 60 participants (59,4%) strongly agree or agree on external help. Only for 7 participants (6,9%) the app was crystal clear, and they did not need any assistance.

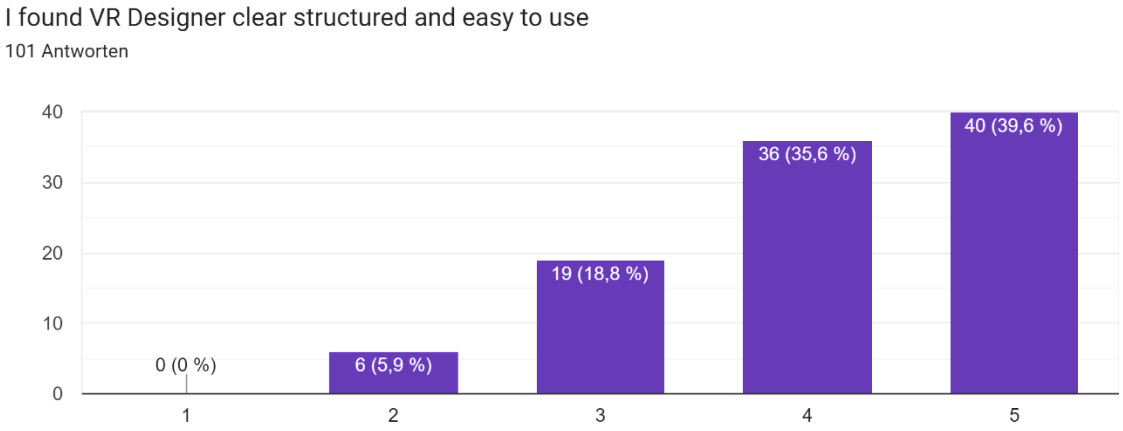


Figure 18: VR Designer - Bar graph of the participants feedback on the structure and usability of the app

It looks like after their first introduction they think the VR Designer app is clear structured and easy to use. 76 participants (75,2%) think that, given the answers they strongly agree and agree. And only 6 participants disagree with it and none of them strongly disagree with it.

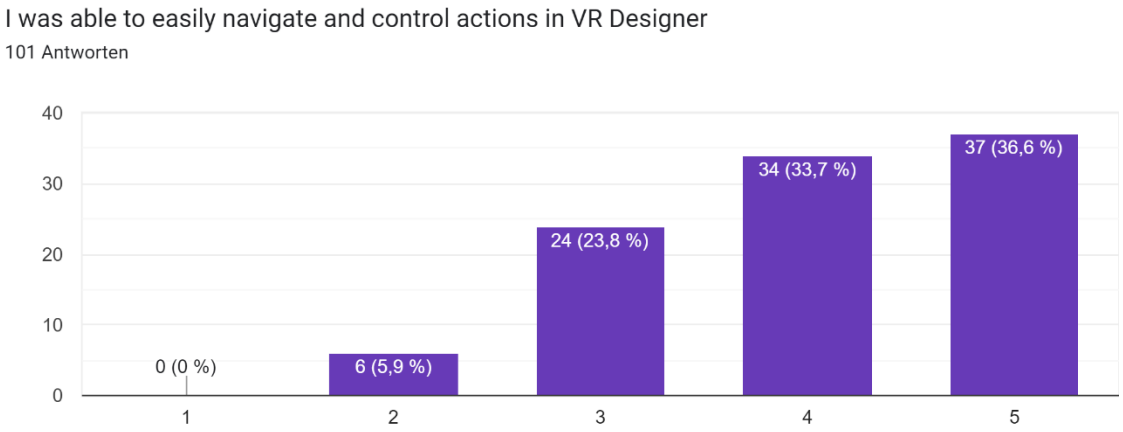


Figure 19: VR Designer - Bar graph of the participants feedback on the navigation and controls

This statement is almost the same as the one before. A strong agreement on the easy navigation and controlled actions in the VR Designer app. 71 participants (70,3%) agree or even strongly agree on it. Also, here only 6 participants disagree and none of them strongly disagree.

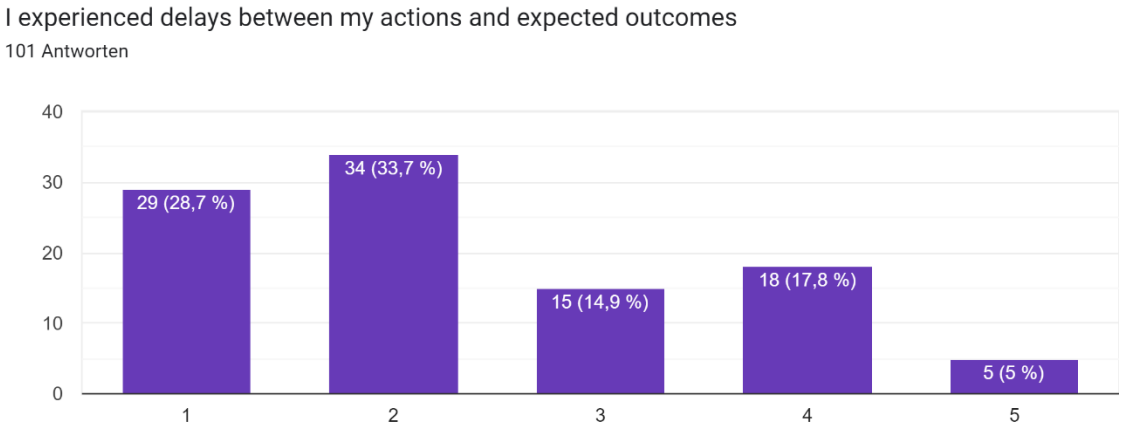


Figure 20: VR Designer - Bar graphs of the participants feedback on the delays of their actions while using the app

Here we can see that more than half of the participants (63 participants / 62,4%) did not experience any delays of actions and outcomes while using the app. Only a very small number of participants (5 participants / 5%) strongly agree on this and have experienced delays.

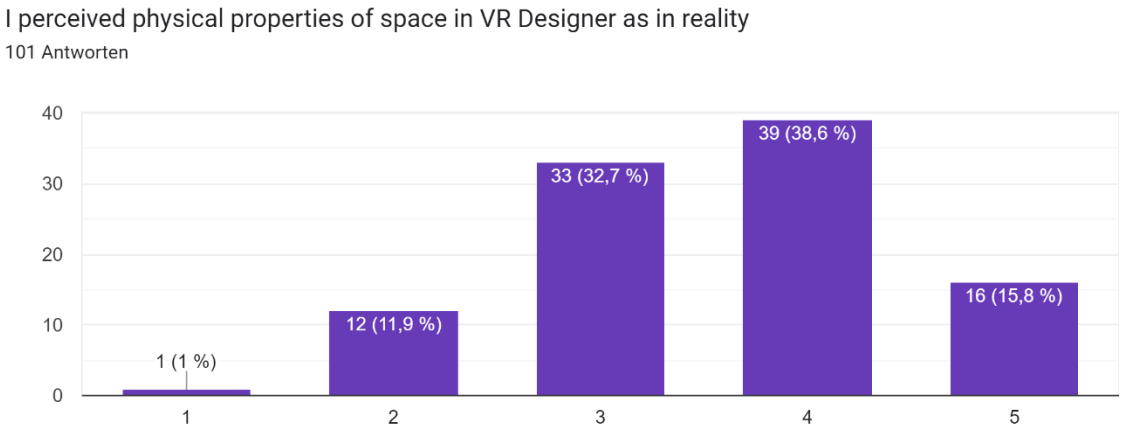


Figure 21: VR Designer - Bar graph of the participants feedback on their experience of the physical properties of space in VR Designer compared with in reality

The majority of the participants (55 participants / 54,4%) agree on the statement that they have perceived the physical properties of space in the VR Designer app as in reality. Only 1 person strongly disagrees, and 12 participants disagree.

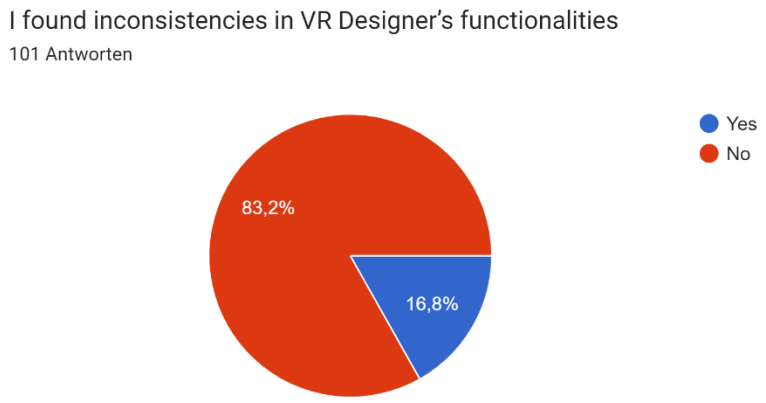


Figure 22: VR Designer - Pie chart of the participants findings of inconsistencies in VR Designers functionalities

In the pie chart in **Figure 22** we can see that a strong majority of participants did not find any inconsistencies in the functionality of the VR Designer app.

In general, the feedback is clustered in three groups. The first group is about functional inconsistencies, the second group about navigation, and the third group about physical properties and the true to life experience. The majority of feedback was about the navigation. The handling of the menu needs a high degree of accuracy, and they would like to be able to get closer to the avatar and the garments. Common feedback was that the garments were blurry and sometimes the clothes were colliding. Which is a demand of higher quality of the garments and animation itself.
Recurring feedback is grouped and listed below:

Functional inconsistencies:

- *"The gender seems to be mixed up when scoring the selected demographic for the clothes."*
- *"Quality of vision from one set to another"*
- *"Selection making"*

Navigation inconsistencies:

- *"The menu should walk with me; I don't see the advantage at this point because I want to touch the Fabric and see the real structure of it"*
- *"Mainly with the aim and selection process e.g., a high degree of accuracy was needed for drop-down selections etc. which was challenging."*
- *"The button was not working"*
- *"The hamburger menu was sometimes too high, difficult to reach."*
- *"the "save" menu was not giving any feedback"*
- *"It was hard to get close enough to the clothes to understand the fabric details. It would be good to be able to feel as if you can lift the fabric to see how it behaves"*
- *"Just because you are at a starting point but as the guy told me you will improve more. But it's a very good starting point. Probably it would be good to give more interaction."*

Physical properties / true to life inconsistencies:

- *"Close up of garments, to look at details, more real-world movement"*
- *"Went slightly blurry at points"*
- *"Pixel in running motion, selecting clothes to be used for the avatar wasn't a feature which I think could be included in next trial, clothes pixelated in some areas by the waist and lower parts, in running motion it's a little pixelated by the neck as well"*

- *“Very blurry.”*
- *“Clothes collision”*

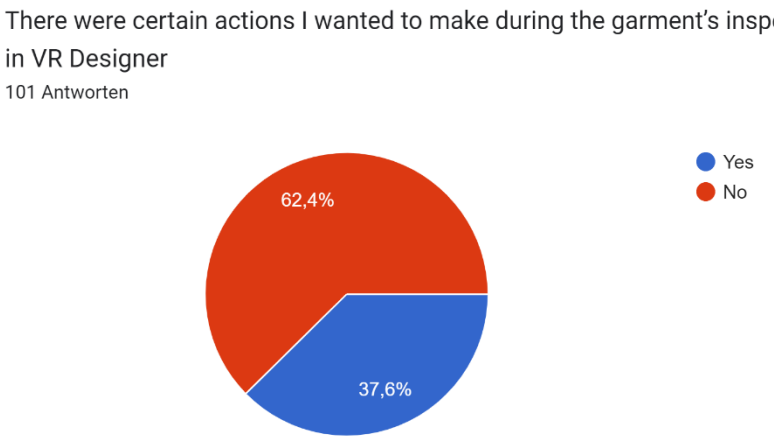


Figure 23: VR Designer - Pie chart of the participants findings on certain actions which were not enabled in the app

One third of the participants think that there were some actions missing as seen in **Figure 23**, which they wanted to perform while using the VR Designer app.

A lot of feedback was provided in this section. We have managed to cluster the feedback into three groups: interaction, navigation and environment. Most of the participants gave feedback about the interaction. They would like to further interact with the avatar and the garments, they want to touch it, move it, pull it, pinch it and combine the garments individually. Also seeing different sizes and making changes to the garments itself, like shortening and lengthening them, changing colors in the app is a wish. There was a little feedback about the navigation, like better zooming in and turning around etc. And the third group was about having different sceneries where the garments can be reviewed, for example being outside.
The comments that were submitted are featured below:

Interaction:

- *“Feel of the garment”*
- *“To be able to interact with the garment (pick it up, pull it)”*
- *“Pull on the garment and see it drape on the body again”*
- *“Move garments around”*
- *“Reviewing size. Enabling more poses”*
- *“I would have liked to change the garments which make up the outfit, in order to check different combinations. or also I could see myself using VR in order to check proportions of a garment, but then I would need to be able to shorten or lengthen the garment or prepare different lengths / design options beforehand which I could then check on the avatar.”*
- *“It would be great if you could adjust the fit”*
- *“Change colors of the garments”*
- *“Mix and match, touching the garment”*
- *"Touch" the fabric, pull the fabric, interact with the garments, to play with fit etc. - It's not very practical, that the menu is at the same place, it would be better to have it move around. -No styling possibilities (e.g., put the t-shirt in the pant) -No sizing possibilities (put a bigger sized t-shirt on the same avatar) -No design possibilities (take the chest pocket off, make hem 2cm lower... etc.)”*

- *"Repositioning of garments on the avatar would have been a cool addition e.g. I would have liked to have been able to lift and reposition a sleeve hem."*
- *"Trying out different outfits on the avatar, changing color of items"*
- *"1. actually, interacting with the garment on the model. touching, pulling. 2. selecting garments from the virtual mannequins instead of from the list. 3. More movement options for the virtual model"*
- *"I wanted to grab the garments from the space around and I was not able to. I also wanted to combine different tops and bottoms and it also did not work."*
- *"Combine different tops and bottoms."*
- *"I wanted to go and grab something hanging on those racks and I could not do that."*
- *"Mix & Match"*
- *"I want to wear the clothes on my own avatar and look in the mirror. In other words, make the avatar into myself"*
- *"More range of movements"*
- *"Take off the garment and look inside for example at seams and how the garment will look and be constructed internally. E.g., French seams feel more comfortable."*
- *"Touch"*
- *"See other angles of garment"*
- *"Opening fastenings such as zip openings to see inside garment"*
- *"It would be good if you could tilt the mannequin and shift them and also be able to look at them from different angles such as above and below. Maybe be able to make marks on the garment and notes as well from a designer point of view that would be great"*
- *"General movement, lifting arms up individually. Lifting legs individually. Very promising start though. :)"*
- *"Choose clothes and to try them on, maybe POV of selecting avatar and seeing clothes on yourself after the 3rd party view, bird view, walk in shops expansion and maybe interacting areas like clothes and what fabric components, maybe shoes or accessories as the next stage and maybe but good start it is."*
- *"I would like to move the avatar. Or even move the garment as if I'm touching the garment in reality as if I'm shopping in real life."*
- *"Touch!"*

Navigation:

- *"Zoom in on the avatar"*
- *"The moving mode high to low was not working"*
- *"Turning with the left stick"*
- *"Bending, turning etc."*
- *"See singular garments at a time"*

Environment:

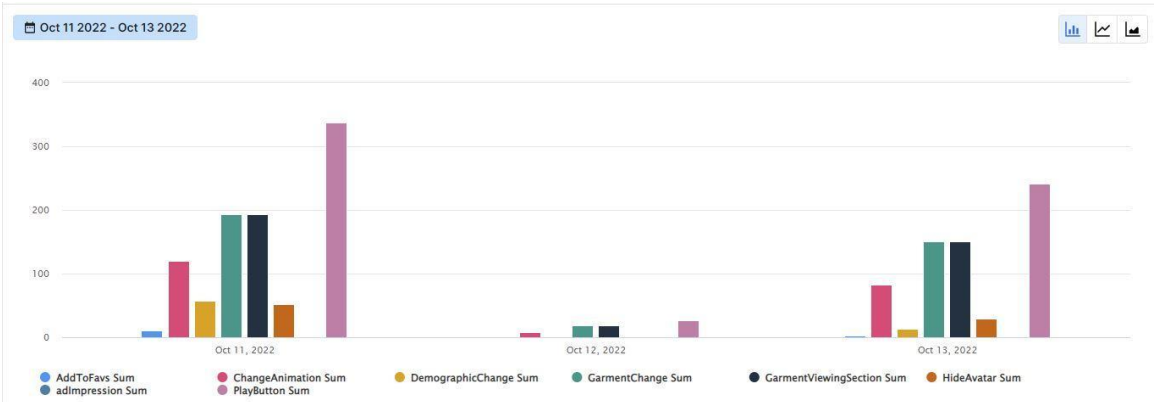
- *"Use a different environment, for example an urban environment or outdoor. That would help to understand better, how the person will look there…"*
- *"Flat lays or on hangers"*
- *"4. Virtual showroom is nice if you can walk through the virtual showroom and pick styles from racks, mannequins, but what would be even better is if you can then place the avatar into a real-life activity situation. I.e., a trail running out fits into a virtual trail running scene or hiking outfit into a hiking scene."*

2.4 Insight analytics from VR Designer in Unity

Unity analytics dashboard enables a better understanding of VR Designer's overall performance and player behaviors. Real-time data collected through the end users while using the app provide insights and visualizations helping to gain valuable feedback on potential improvements that could be necessary to enhance a more compelling and engaging experience for users. In order to track key data for the platform, custom events were placed for flexible reporting, enabling dynamic reporting with SQL data explorer and data visualizations using funnels.

More specifically, through Unity Analytics we are able to track specific events within the platform, by configuring a series of custom events within VR Designer. A specific funnel analysis is created this way, enabling the observation of user's behavior. The list below indicates some custom events we placed in specific actions in order to track user's preferences in the platform:

- **Play button,** pressed to play/pause the avatar animation after the garment's selection.
- **Change Animation,** from the list of available movements displayed by the avatar (walk, run, squat, jump cross, dance etc.)
- **Add to favorites,** when a user adds a specific garment to the list of their favorites.
- **Demographic change,** when a user chooses a specific demographic option (age/gender) for the trend detection functionality.
- **Garment change,** when the user changes the garment displayed by the avatar.
- **Garment viewing section,** showing how much time the user spent "watching" the selected garment.
- **Hide Avatar,** when a user chooses to hide the human avatar and view only the garment movement.
- **Add Impression Sum,** (for future reference) tracking down total impressions of any ads placed



Date	AddToFavs Sum	ChangeAnimation Sum	DemographicChange Sum	GarmentChange Sum	GarmentViewingSection Sum	HideAvatar Sum
October 11, 2022	11	120	57	194	194	52
October 12, 2022	No data	8	No data	19	19	No data
October 13, 2022	3	83	14	151	151	30

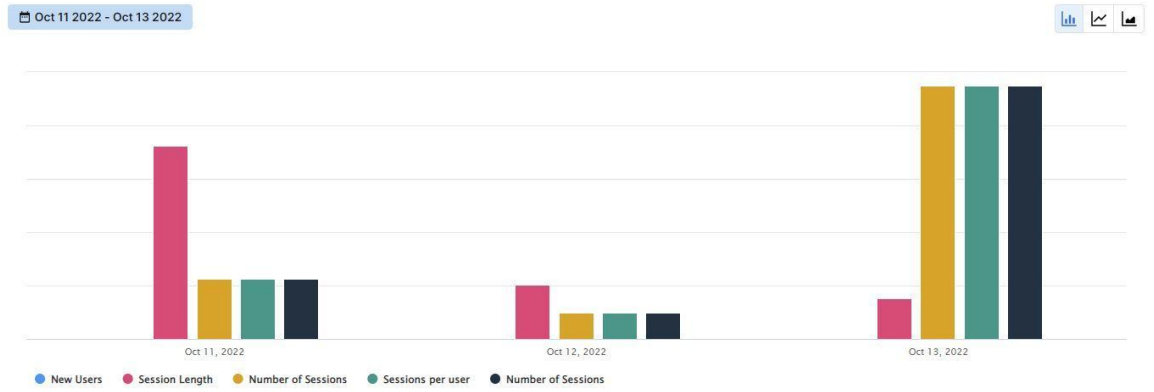
Figure 24: VR Designer - Custom events analytics from pilot testing in UK Universities

The Unity analytics were enabled in VR Designer during M25, meaning the collected data include users from pilots conducted in Art and Design Universities in the UK (60 testers). The figure above shows the most preferred actions made by users for each day of the pilots. The most displayed activities were play, change / view garments and change animation.

In addition to tracking custom events, custom dimensions (dictionary) relating to the events were also passed in the platform. These custom dimensions are primarily useful to know additional specifications about the user at the time the custom event was reached, enabling a more personalized user engagement. More specifically, sessions were added, providing access to the Analytics session information for the current game instance. This class contains static methods for looking up Analytics session information, with cumulative statistics being reset when the player re-installs the app.

The list of main metrics monitored were:

- **Number of new users** practicing VR Designer
- **Session length,** the duration of each practice
- **Number of sessions,** the number of times users entered the platform
- **Sessions per user,** how many times each user entered the platform



Date	New Users	Session Length	Number of Sessions	Sessions per user	Number of Sessions
October 11, 2022	0	24m 7s	9	9	9
October 12, 2022	0	6m 44s	4	4	4
October 13, 2022	0	5m 5s	38	38	38

Figure 25: VR Designer - Metric analytics from pilot testing in UK Universities

The figure above indicates the custom dimensions metric analytics from 60 testers during the pilot testing in Art and Design Universities in the UK. What needs to be mentioned here is that as the pilot testing session was conducted in one PC under the same account registration, where testers were being informed about the platform's functionalities and further use the app, there are no new users cataloged, while the number of sessions here does not depict the actual number of total sessions performed through the pilot testing. This however can serve as an important feature later on for the overall user segmentation across certain user dimensions and characteristics.

2.5 Conclusion

The overall feedback of the VR Designer app was very positive: users showed an enthusiastic response to the platform's functionalities. It is worth mentioning that while most of the users were not familiar with the usage of VR, the majority of them found VR Designer clear structured and easy to use, after been given the initial instructions on navigating in the platform. Most of the users found that VR Designer is designed in a user-friendly way and found no specific difficulties in navigating and controlling their actions in the VR environment.

In terms of user engagement, a high percentage of users claimed that VR Designer is a tool that they would professionally use once released for commercial use.

In regards to garment realism, most of the users found that VR Designer is not yet a sufficient tool yet to overcome real word procedures (e.g., presenting a new collection) and physical garment inspection. What is interesting though is that a high percentage found that the platform provides increased options in examining the garment's qualities in comparison with real world procedures: this can be easily explained as users had the chance to inspect the garment real time in simulated body movements in the platform, further enabling the garment view from a variety of angles, zooming in various poses. Most of the users considered VR Designer as a significant supplementary tool that could be used in current workflow, further facilitating remote collaboration in presenting a garment collection.

In regards to future developments of VR Designer, one of the functionalities most users would like to the platform to include is the ability to try on the avatar simultaneously more clothes (e.g., pants, t-shirt, anorak) instead of the one garment inspection at a time. Moreover, users would like to be able to interact with the avatar and its surroundings, such as choosing a garment from the virtual store environment and directly placing it on the avatar to inspect.

Another interesting feature users claimed they would like to be included is the multipresence functionality, so that more than one user would be able to login in the platform at the same time. This would be a significant tool for professionals in the fashion industry, being able to host meetings inside the application and having the opportunity to inspect and decide on a new garment collection before the stage of production.

3. DressMeUp App pilots

Dress Me Up is a mobile application for fashion consumers and social media users (e.g., influencers), allowing them to virtually change their outfit in a photo by selecting from a pool of digital garments and then uploading it to social media. It is a fun app, which allows you also to virtually try on garments which you can`t buy, for example because they are only available for professional athletes or because the garment does not exist anymore. The quality of the garment in the synthesized photo is supposed to be very high and close to realistic because the virtual try-on process is pre-computed. The synthesis of the uploaded image and the 3D garment takes approximately 30 minutes.

3.1 End-user testing process

This pilot took place online only and the participants had to do all the steps for login in and trying out the app without any assistance from the eTryOn consortium or operators. For this the user journey had to be as easy and clear as possible. For the pilot testing process the following steps had to be taken by any individual participant.

Steps before starting the test session:

The participant has to open the link received either from the newsletter or from one of the several posts on social media.

By clicking on the link provided from the e-mail sent, users must insert their full name and e-mail address to register for the testing of the app, and then they get sent another e-mail containing the DressMeUp app web page link (**Figure 27**).

By accessing the DressMeUp app web page (**Figure 26**) users can sign in either with their Google account or with a 'magic link' by using a valid e-mail address.

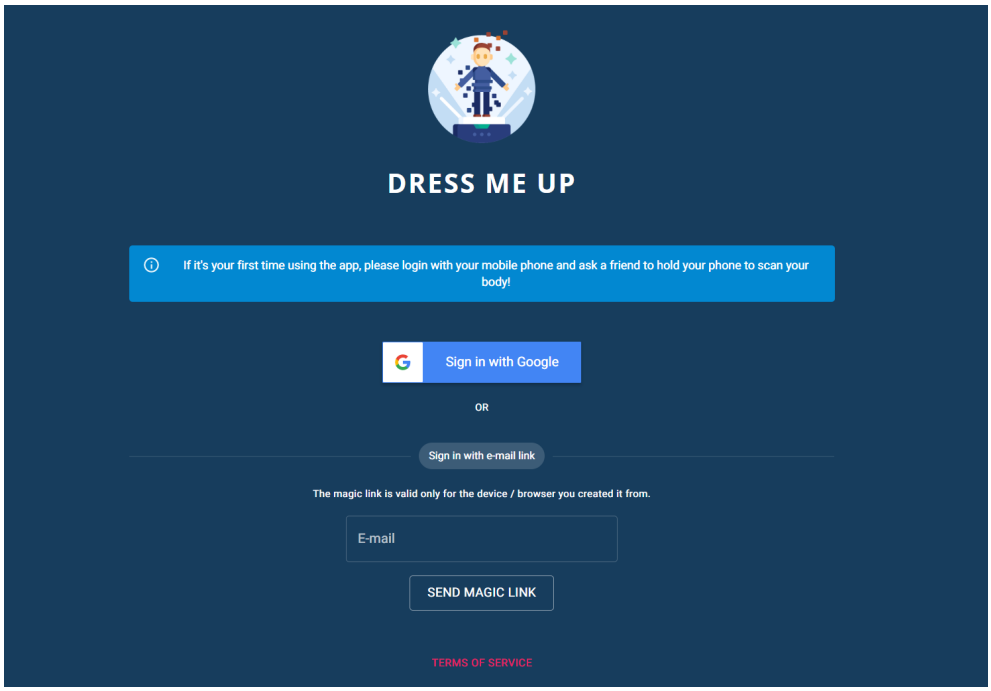


Figure 26: Dress Me Up - Screenshot of the Dress Me Up webpage

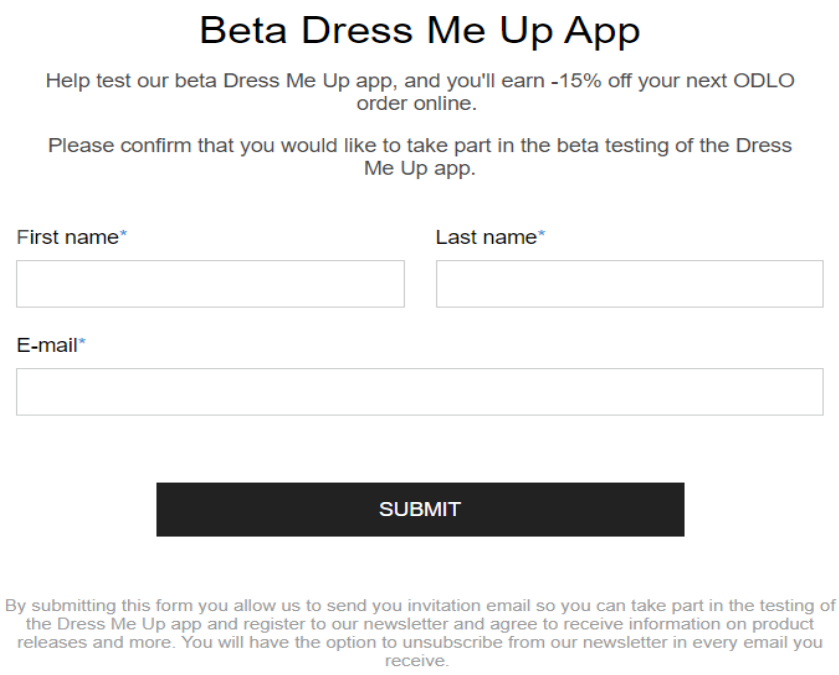


Figure 27: Dress Me Up - Screenshot of the register webpage for all participants

If users already have a Google account, they can straight away log in the app using their credentials. If not, they have to wait for a magic link email to be sent to their mail inbox. In many cases this mail was registered as spam due to various security email filtering. The user must access the magic link from the same device in order for the log in to work.

After successfully logging in the app the user has to provide all needed information, like gender, garment size and his physical height in centimeters (**Figure 29**).

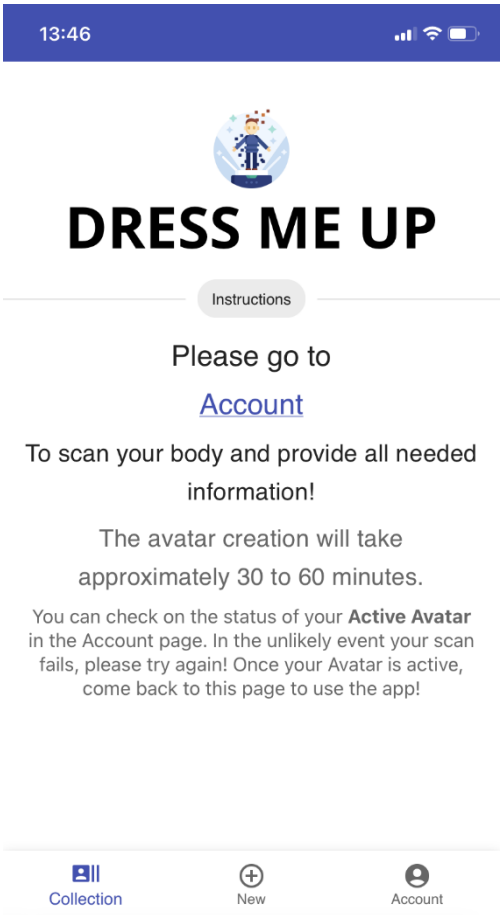


Figure 28: Dress Me Up - Logged in the app, splash messages

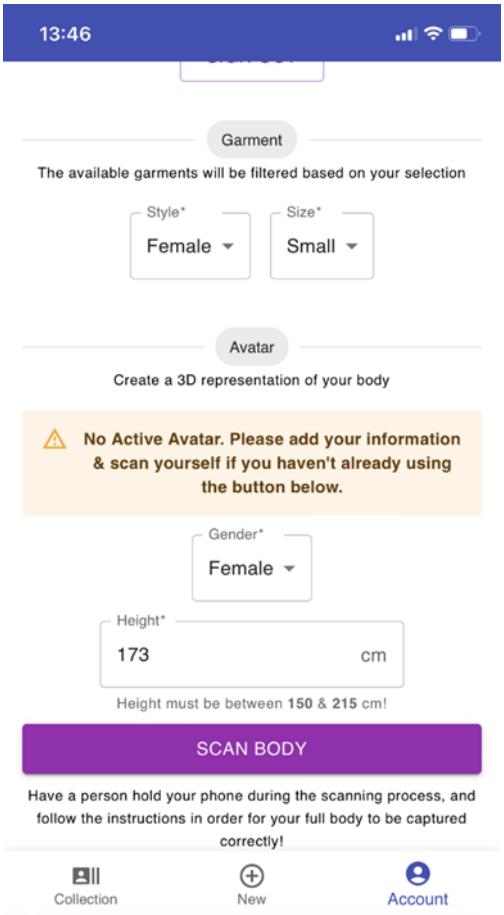


Figure 29: Dress Me Up - Account page

The users have to create their own digital avatar by scanning their body. The UX guidelines in **Figure 31** & **Figure 32** indicate the step-by-step process required by users to perform in order to scan their body. More specifically, another person is required in order to initiate the scanning process and take a photo of the user both in front and side pose. After following the procedure, the user's scan avatar will be ready in approximately 30 to 60 minutes.

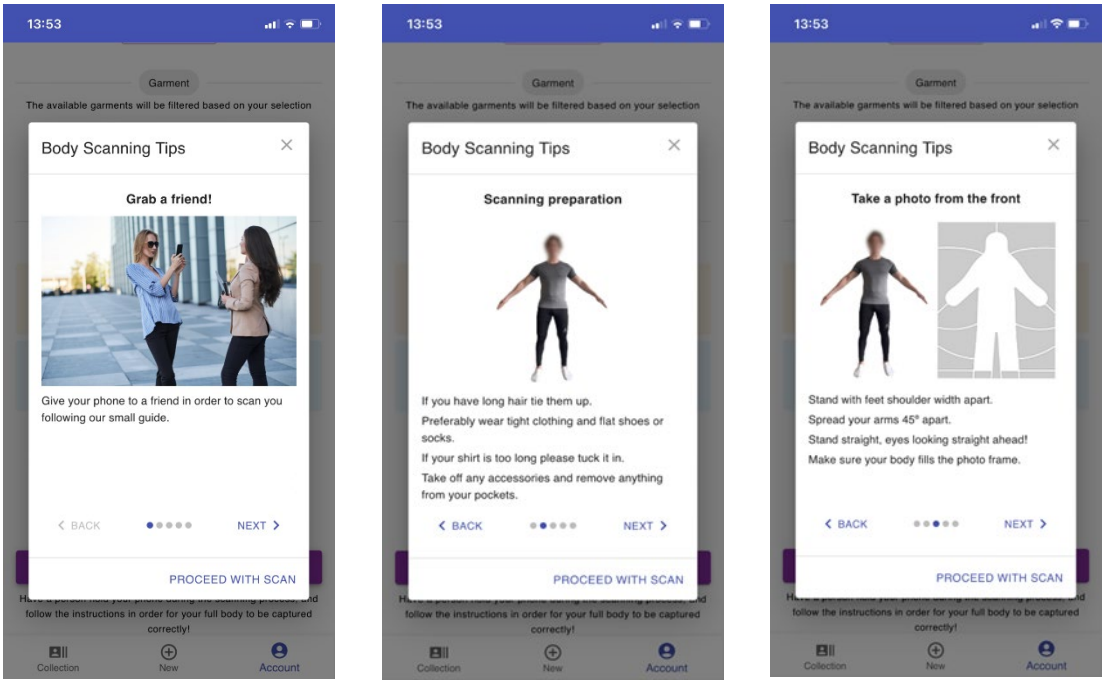


Figure 30: Dress Me Up - Body scan instructions (I)

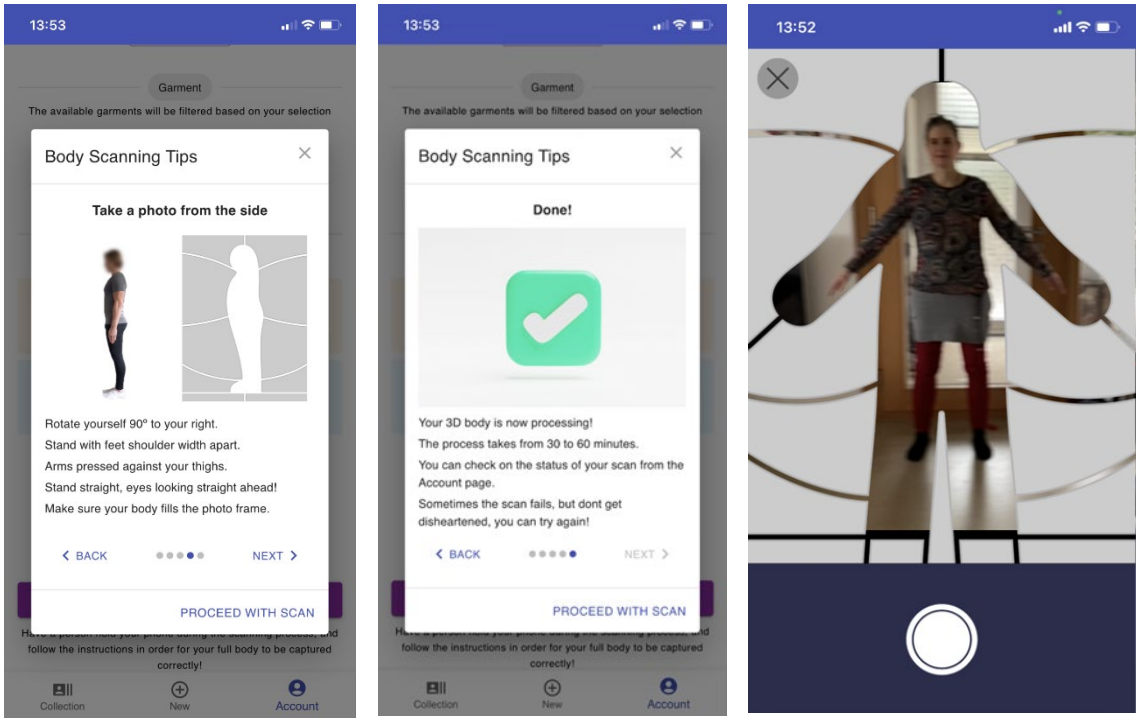


Figure 31: Dress Me Up - Body scan instructions (II), Body Scan front pose.

First, participants must take a photo of themselves in 'A' front pose (with the assistance of another person) as seen in the rightmost photo in **Figure 31**.
Then participants capture a side pose (**Figure 32**) and after the process is complete users must wait approximately 30 to 60 minutes till their avatar is created and ready for them to use in the app (**Figure 33**).

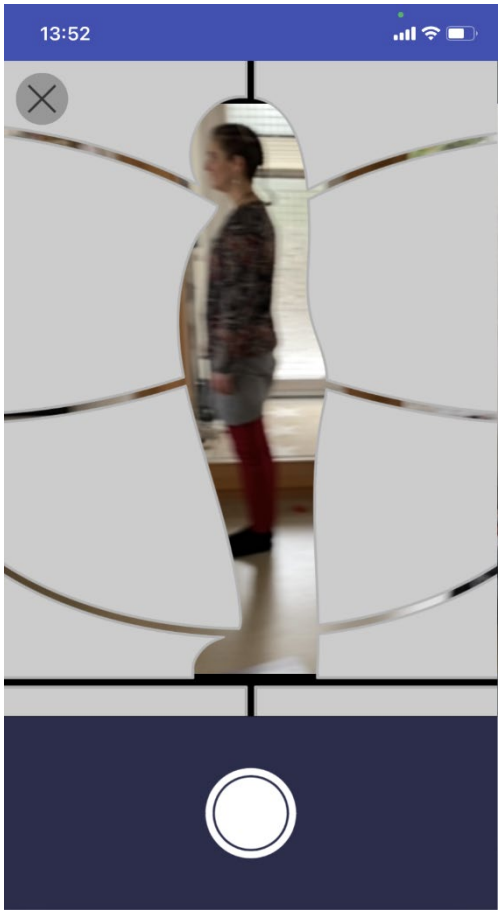


Figure 32: Dress Me Up - Body scan side pose

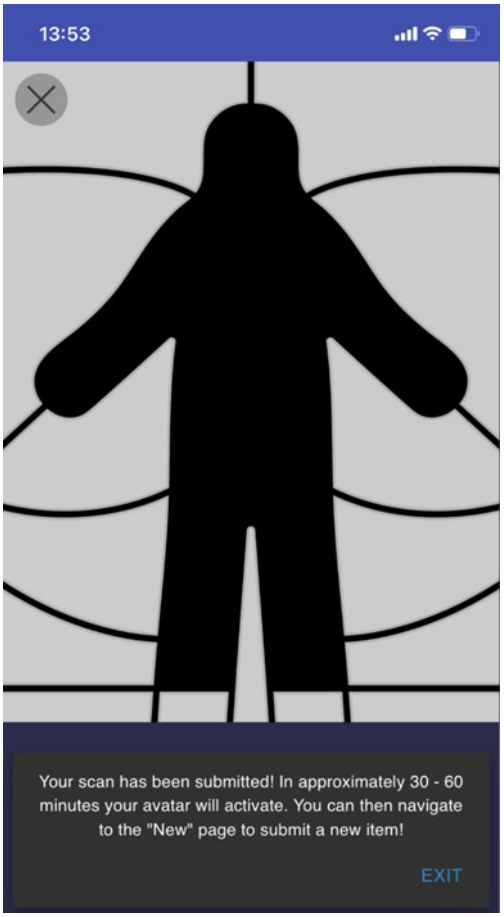


Figure 33: Dress Me Up - Body scan complete

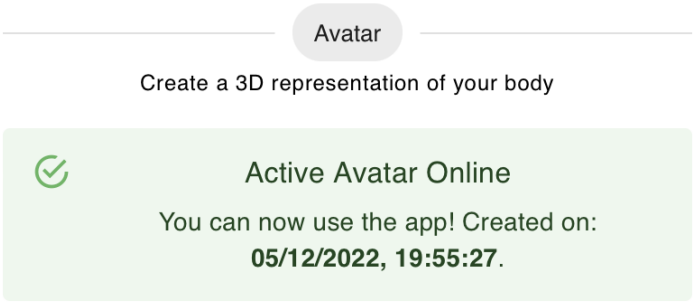


Figure 34: Dress Me Up - Screenshot of the notification about your active avatar

Final note about the steps before starting the session. The login process and creating your own avatar requires a lot of time and patience on the user side. It takes approximately around 2 hours until all steps are complete.

Steps during the session:

After users are successfully logged in the app, filled in all their needed personal data, and created their avatar they can use the app.

Users need to select one of their personal photos either by taking a photo of themselves directly through the app or upload a photo from their personal photo library, while also following the overall tips mentioned in the app as shown in **Figure 35**.

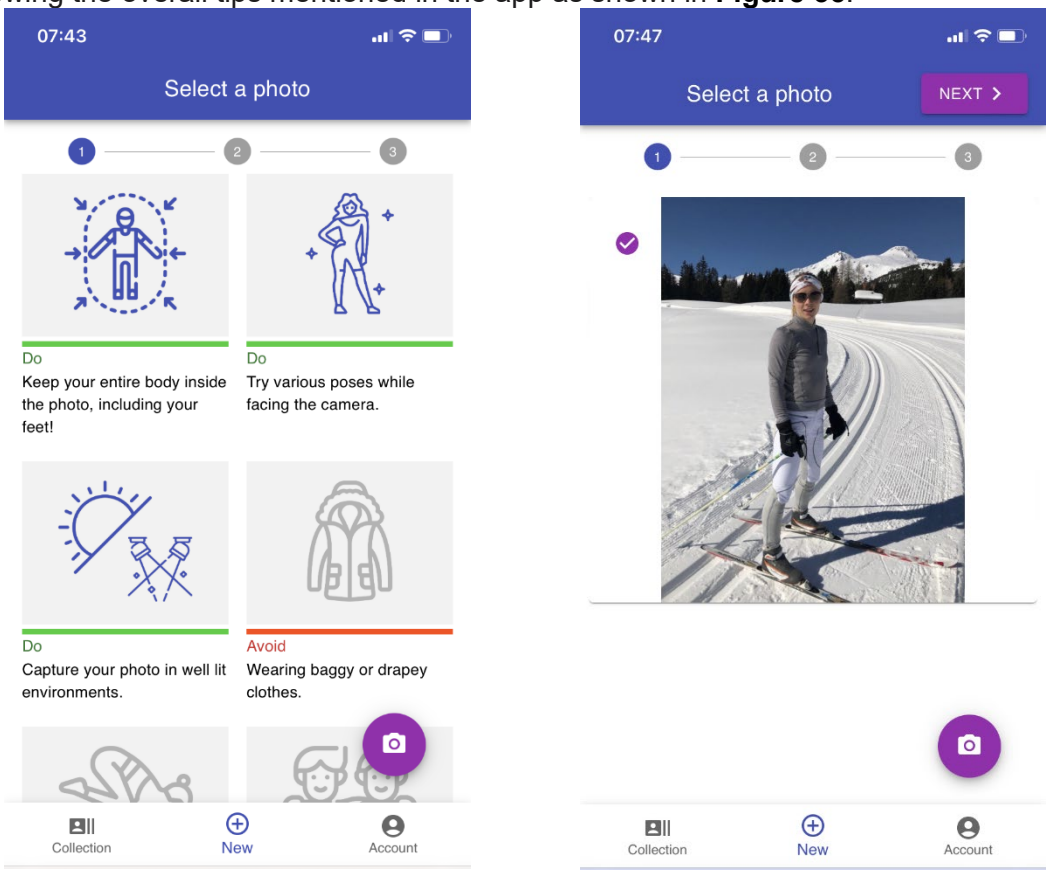


Figure 35: Dress Me Up - Upload a new Collection Item, Photo selection

Now users must select a digital garment from the pool of available garments / outfits in the app as shown in **Figure 36**.

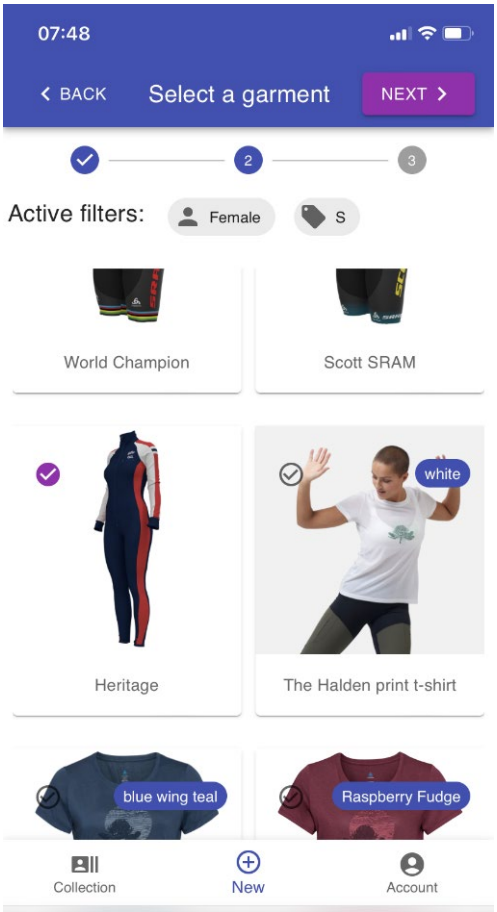


Figure 36: Dress Me Up - New Collection Item, Select a garment

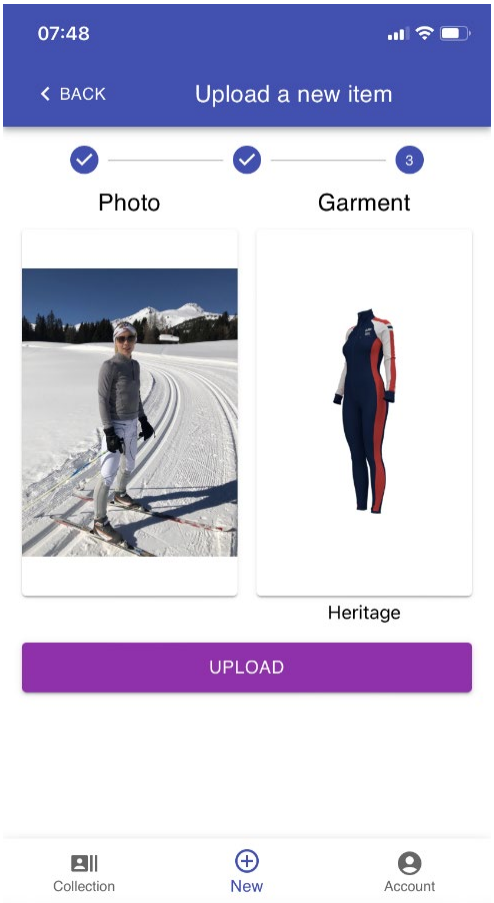


Figure 37: Dress Me Up - New Collection Item, Upload

Then users must click on the upload button to upload their selected photo and digital garment (**Figure 37**).

Their new collection item is now processing, and it takes approximately 30 minutes till it is finished. Users can see the status in the Collection page (**Figure 38**).

After the process is concluded, users can view their new try-on photo in the Collection page, and they are available to download it and share it in social media if they wish (**Figure 39**).

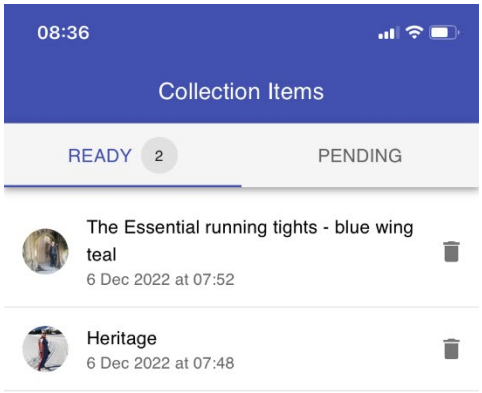


Figure 38: Dress Me Up - Collection Items, Ready items

Figure 39: Dress Me Up - Collection Items, Synthesized photo

Users can create as many images as they want and view all of them in their collection

A demo video was also produced, further showcasing the whole process for the convenience of users (Dress Me Up interface demo (2022) [Captions] - YouTube) and was shared through our contacts and social media.

Steps followed after the session:

Participants can open the link for the questionnaire from the newsletter e-mail they got at the start of the testing process

In the questionnaire, participants can access the information sheet and the consent form and when they fill the questionnaire, they automatically confirm the terms of use mentioned.

In order to attract more users, a discount was offered to participants who have filled the questionnaire, gaining a voucher of 15% for their next Odlo purchase

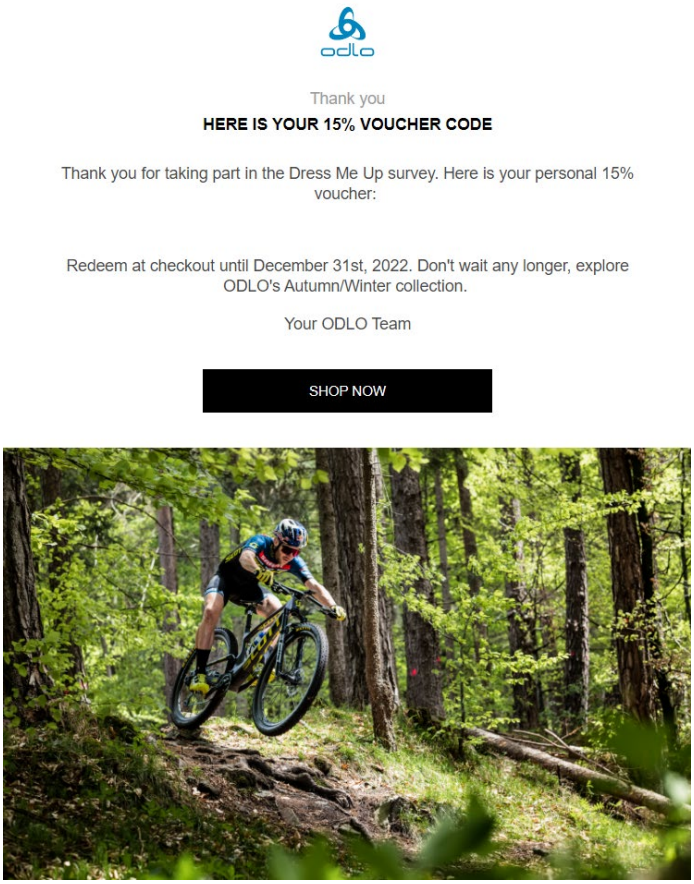


Figure 40: Dress Me Up - Screenshot of the Odlo voucher after the participant has answered the questionnaire

Only for the needs of Dress me Up pilots, the questionnaire was not collected in a Google Forms form but in the Odlo internal CRM system which is Microsoft Customer Voice.

On a final note about the whole user journey when testing the Dress Me Up app: In order to set up the whole process with users creating their own avatar, then selecting a photo and choosing a digital garment from the pool of available garments and then processing this for the digital try-on on the photo until the final image was synthsized, plus answering the survey feedback questionnaire, users had to invest a minimum of half a day of their time for this. This is also depicted in Firebase insight analytics (section 3.4) as there was a great user dropout percentage. More specifically, out of the 281 who visited the app, only 51 actually used it by following all steps to digitally try on garments. Moreover, out of the 51 users, only 25 actually answered the survey.

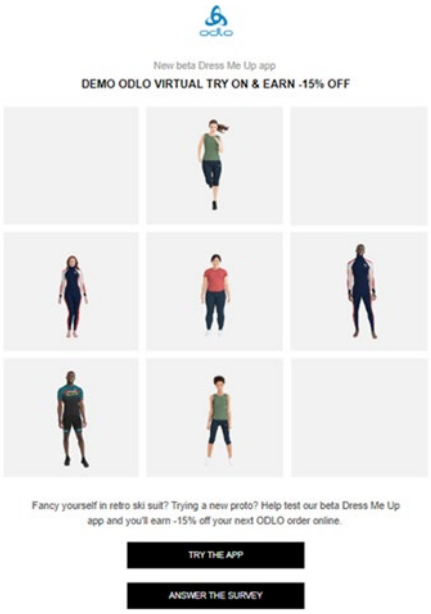
3.1.1 Target groups & timing

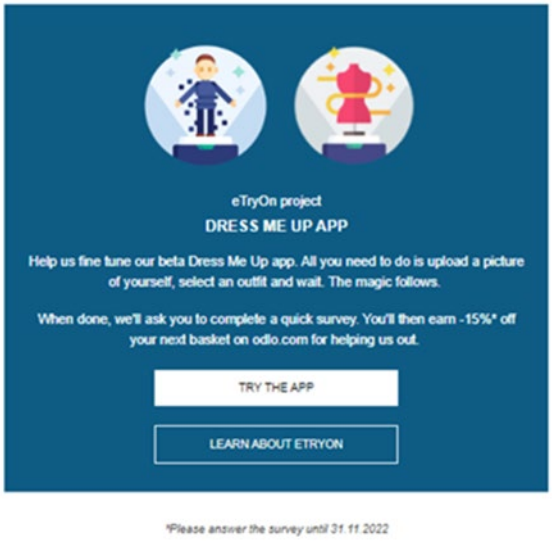
The testing period of this app started in the second half of October 2022 and finished at the beginning of December 2022. Participants had to go through the complete process by themselves as it was an online only campaign. The time required for the test was half a

day of attention as there are long waiting times for the avatar creation and garment- avatar synthesis. The real time actively spent testing the app would be around 1 hour depending on each participant's digital skill level.

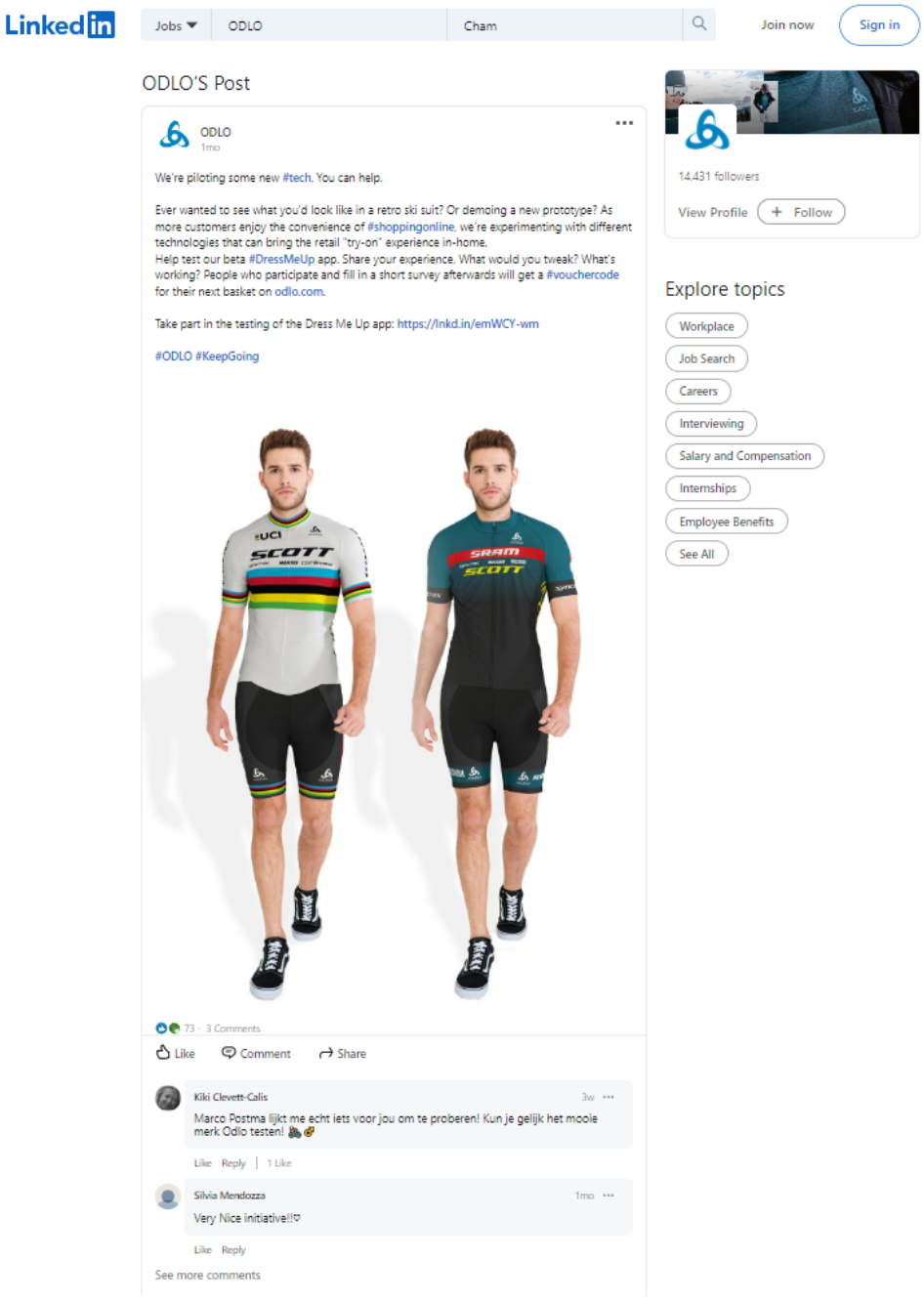
The target group for this app was the overall public. Therefore, we launched several campaigns in following waves:

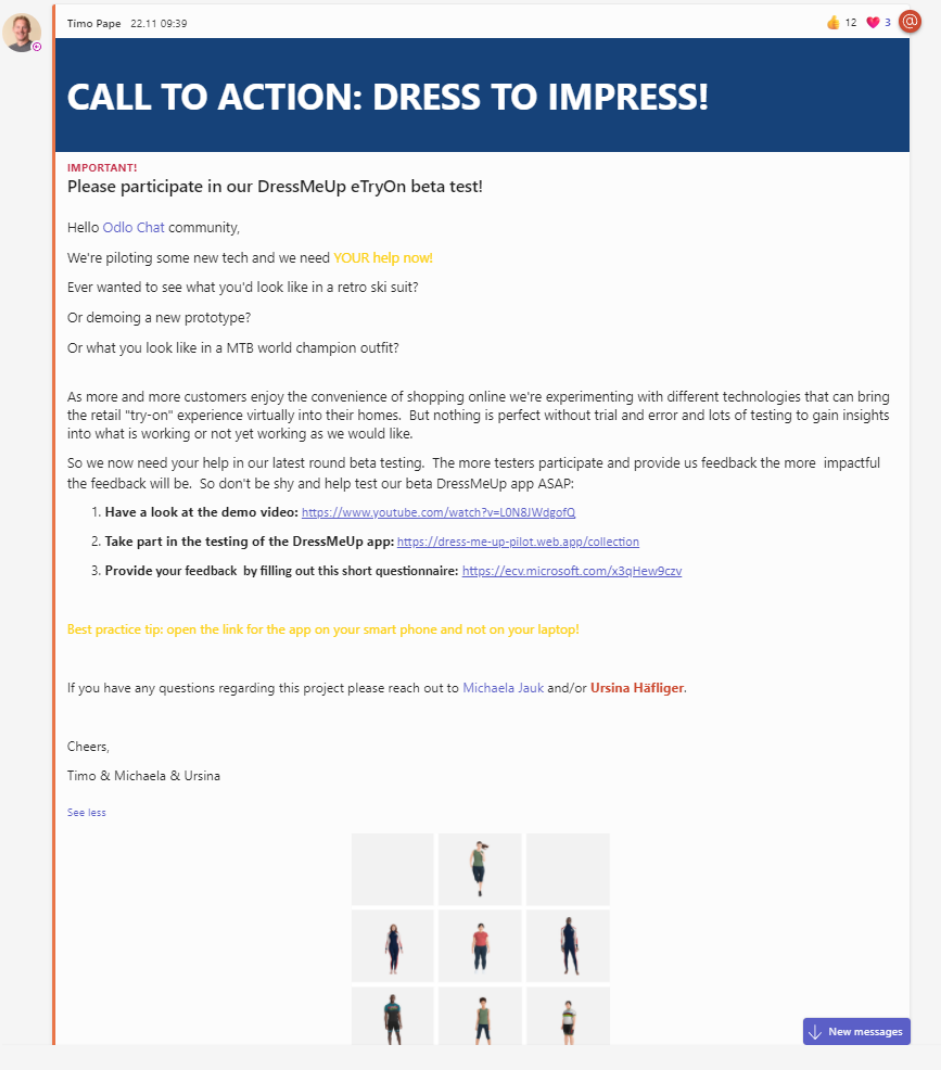
1. 10.10.2022 for Odlo internal testing purpose only.





3. 20.10.2022 Post on Linkedin - promo about the app and the running pilot. The reach was 14.400 of potential participants. ODLO on LinkedIn: #tech #shoppingonline #DressMeUp


LinkedIn
Jobs
ODLO
Cham
Join now
Sign in
ODLO'S Post
ODLO
1mo
We're piloting some new #tech. You can help.
Ever wanted to see what you'd look like in a retro ski suit? Or demoing a new prototype? As more customers enjoy the convenience of #shoppingonline, we're experimenting with different technologies that can bring the retail "try-on" experience in-home.
Help test our beta #DressMeUp app. Share your experience. What would you tweak? What's working? People who participate and fill in a short survey afterwards will get a #vouchercode for their next basket on odlo.com.
Take part in the testing of the Dress Me Up app: https://lnkd.in/emWCY-wm
#ODLO #KeepGoing
73 · 3 Comments
Like
Comment
Share
Kiki Clevett-Calis
3w
Marco Postma lijkt me echt iets voor jou om te proberen! Kun je gelijk het mooie merk Odlo testen!
Like Reply | 1 Like
Silvia Mendozza
1mo
Very Nice initiative!!
Like Reply
See more comments
14.431 followers
View Profile
Follow
Explore topics
Workplace
Job Search
Careers
Interviewing
Salary and Compensation
Internships
Employee Benefits
See All



Total 18.313 of potential participants.

In addition, several networking activities were also made in social media platforms from the official pages of eTryOn's consortium pages as well as the project's social accounts: various professional and fashion industry-oriented groups were approached through eTryOn's social media accounts in Facebook ("DFG Digital Fashion Graphics", "Solitary Cycling" and "Fashion") and LinkedIn, each having a high number of members:

- IACDE 3D SUMMIT FORUM
- BIZ, one digital language for fashion
- The Great 3D Fashion Design Debate
- RETAIL and BRAND SPACE DESIGN
- Dream Designers
- 3D FASHION NETWORK
- A CAD Community Connection
- DeFINE: Your European Fashion-Tech Network
- Productivity & Technology - Fashion

- C2C Fashion and Technology
- Fashion Marketing & Digital Media Group (FMG): A Meeting Place for Fashion & Marketing Professionals

These activities helped reach out to more than 15K people on social media platforms.

3.2 Inspecting a garment try-on in Dress Me Up: digital try-ons in comparison to physical

Heritage Outfit (men)

Figure 41: Dress Me Up - Comparison virtual heritage suit with real heritage suit

On the left side you can see the digital heritage outfit simulated on the body of the person in the photo. The right picture shows the real heritage outfit worn by the Odlo fit model size L. Collar, cuffs and cutlines are located in the same places on both photos. The overall fit looks very close to each other and also the colors are matching well. The blue tone is slightly off but this is acceptable and depends also on the different light situations. It is clearly visible that this is the same outfit digitally and in reality.

2 - in - 1 short ZEROWEIGHT 5 INCH (322562)

Figure 42: Dress Me Up - Comparison virtual shorts with real shorts

The left picture shows the shorts worn by a participant of the app and the right picture is a fitting picture of the shorts during the product development process at Odlo. The shorts are worn by the Odlo fit model size L. It is clearly visible that the digital shorts on the left are fitted a bit low on the body. The hem of the inner shorts in red is at the knee height and on the real sample in the fitting picture we can see that the inner short ends up much higher than knee height. Also, a difference is the visibility of the inner shorts in general. In the synthesized picture on the left the inner shorts are more visible than on the real-life sample on the right picture. Even though the inner shorts do not have the same color, the visibility of the inner part on the right picture is very small. The logo position is accurate on both garments.

Tank crew neck F-DRY (550962)

Figure 43: Dress Me Up - Comparison virtual tank top with real tank top

On the left side we can see the tank top dressed on a person in the photo in the app. And on the right side we have a photo shooting picture of the same tank top in reality. Unfortunately, there was no fitting picture available of the tank in the same color. Due to this we cannot judge on the color appearance. Fit wise both tanks look very similar to each other and the collar shape and shoulder width and as well the length of the tank at the hem and the logo position is very close on both pictures. Definitely a good match in terms of fit.

MTB World Champion Outfit (men)

Figure 44: Dress Me Up - Comparison virtual MTB outfit with real MTB outfit

The left picture is the digital version of the MTB world champion outfit, and the right picture shows the MTB world champion Nino Schurter wearing the real outfit. As we can see the designs (colored stripes and sponsoring logos) are placed at the same places on the two bodies and it is clearly visible that this is the same outfit. Only the fabric quality is a little different, while the virtual one is very bold and does not see through at all. The real shirt is transparent and we can see the straps of the bib shorts underneath. Fit wise they are close to each other when we compare the length of the bib shorts the hem ends at the same height above the knee and also the sleeve hem ends plus minus at the same arm position. The colors are also quite accurate.

T-shirt crew neck s/s ZEROWEIGHT ENGINEERED CHILL - TEC (313732)

Figure 45: Dress Me Up - Comparison virtual t-shirt with real t-shirt

Here we can see on the left the digital t-shirt and on the right the real counterpart. Fit wise the t-shirt is on both pictures close to each other. The sleeve hem ends at the same position on the arm and the neckline has a similar shape. Only the hem of the t-shirt seems to end a little higher on the digital version as on the real version of the t-shirt. The logo position looks very accurate on both pictures. The color accuracy we cannot judge as we don't have the same colorway available to compare. But what we can judge is the design of the engineered fabric which looks the same in terms of size and direction. Even if the color is not the same the two garments are clearly recognizable to be each other's counterparts.

2 - in - 1 short ZEROWEIGHT 3 INCH (322561)

Figure 46: Dress Me Up - Women shorts comparison

On the left picture we can see the virtual shorts and on the right picture we see the same shorts in reality worn by the Odlo fit model in size S. As the body movements are very different from each other it is difficult to make a complete statement about the fit but we can see that the placement of the garment in the synthesized photo is quite accurate based on the body pose. As both garments do not have the same colorways either it is also impossible to judge on the color similarity. This example is definitely a more difficult one to recognize similarities.

Tank crew neck F-DRY (550851)

Figure 47: Dress Me Up - Tank top crew neck women comparison

In the left picture we can see the virtual tank top used in the app and in the right picture we can see the same tank top in reality worn by a model. The garment is fit-wise very close to each other, the hem ends at the same hip height and the neckline shape looks on both the same. As well the logo position is at the same placement and the colorway is also the same and similar. As the light setting is much darker in the left picture than on the right one, we can ignore the little difference of the color tone. The tank top is clearly recognizable on both images.

In general, the garments look very similar to each other. They are clearly recognizable as the digital one with their real-life counterparts. There are slight differences in the colors or where it sits on the person but overall, it is quite accurate.

3.3 End User questionnaire feedback

The pilot for the Dress Me Up app took place online only. As analyzed in 3.1 (End-user testing process) and 3.1.1 (Target groups and timing) the link for testing the app was sent or available on social media channels for more than 33,000 potential participants.

3.3.1 Overall results

Out of the 281 who visited the app, only 51 actually used it by following all steps to digitally try on garments. Moreover, out of 51 users, only 25 actually answered the survey after several weeks of piloting.

This poor result is due to the very long-time taking user journey and the long process required from each participant in order to use the app (as described in 3.1 End-user testing process). One major issue was that the mail including the link of the app in many cases ended up in the mailbox spam folder. In addition, there was also the restriction, when using a magic link, of only being able to login while using the same browser. Also, the fact that

body scanning was performed with the assistance of another person probably limited the participants interest in addition to the long waiting time for creating the scan avatar before actually using the app. All these steps and time spent offering in return only a discount of 15% is definitely not attractive enough. For future reference, in order to get more participants, the app has to be faster and easier to access.

3.3.2 Evaluation of user feedback

Age

25 answers

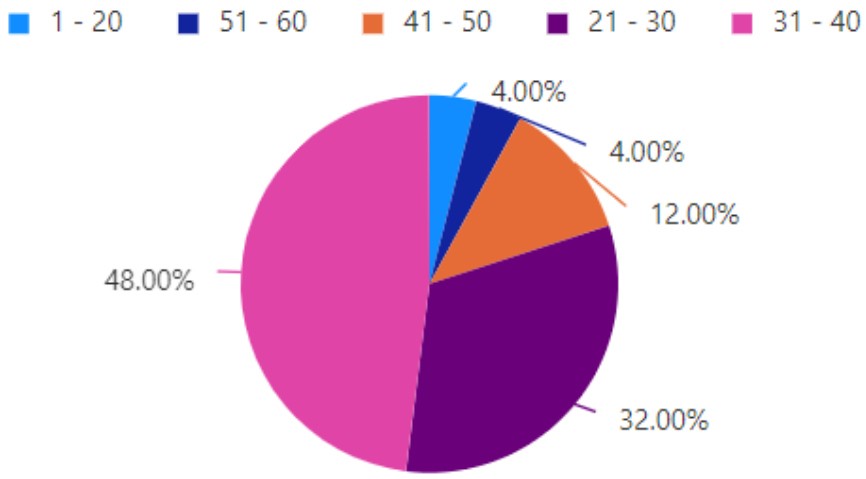


Figure 48: Dress Me Up - Pie chart of the participant's age

The majority of the participants are between 21 and 40 years old which is 80% (20 participants).

Please select your experience with AR / VR applications

25 answers

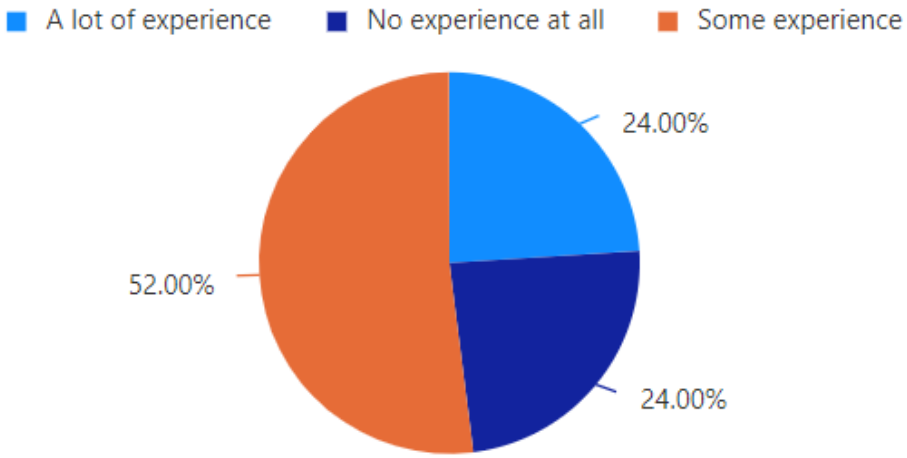


Figure 49: Dress Me Up - Pie chart of the participants experience with AR / VR applications

For this answer we can see very balanced feedback. Half of the participants are having some experience with AR / VR applications and a quarter do not have any experience at

all and the other quarter is saying they have a lot of experience. So, in general this shows that people are having a little experience with AR / VR applications, they know what it is, have tried it maybe a little bit but it is for sure not something they are regularly using and where they have years of experience in it.

Please select the user type that best describes you (pick all that apply)
25 answers

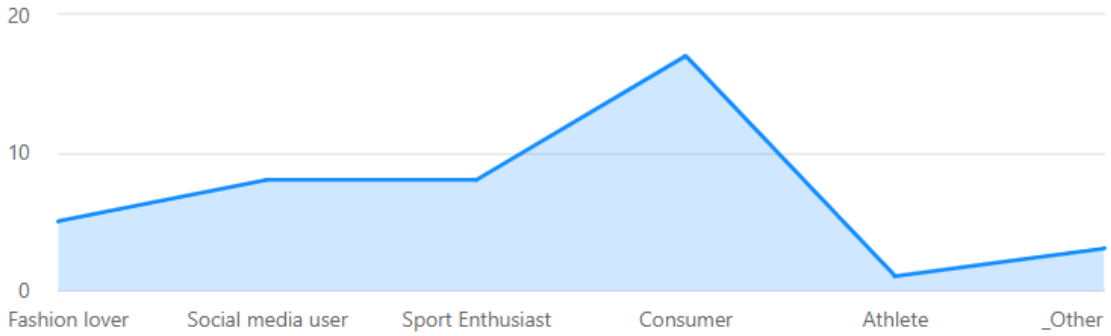


Figure 50: Dress Me Up - Graph of the participants user types

Most of the participants are seeing themselves mainly as consumers (17 participants) followed by Sport Enthusiasts (8 participants) and social media users (8 participants). Fashion lovers got selected 5 times and Athletes only 1 time. For others we got 3 answers.

In a scale of 1-5 mark the answer that best describes your reaction to your experience using the app (1: Strongly disagree, 2: Disagree, 3: Neither agree or disagree, 4: Agree, 5: Strongly Agree)

By using DressMeUp app I was able to have a sufficient perception of the garment's qualities and texture.
25 answers

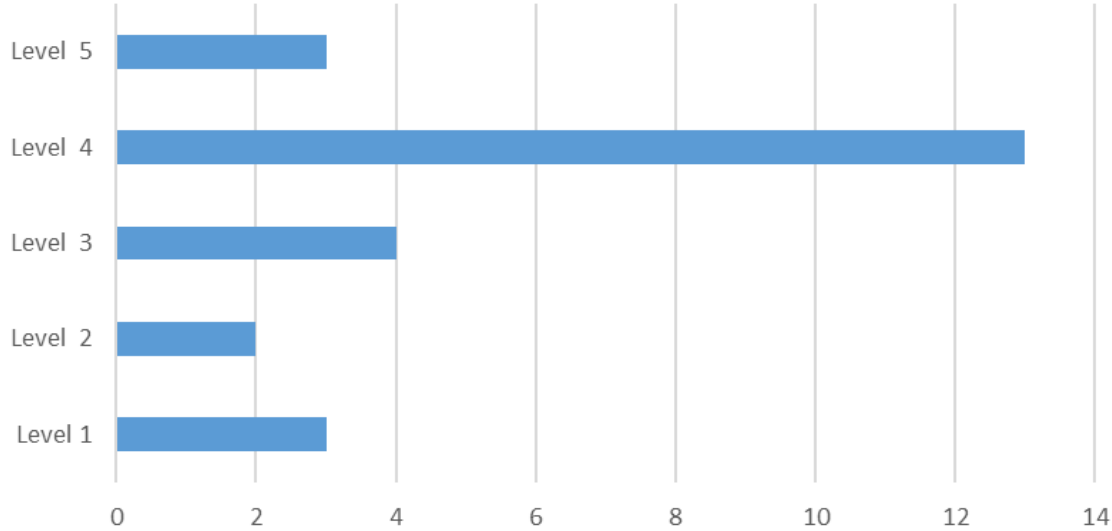


Figure 51: Dress Me Up - Bar graph of the participants feedback on their ability of having a sufficient perception of the garments qualities and texture

Two third of the participants (64% / 16 participants) have answered that they agree or even strongly agree, and they had a sufficient perception of the garment and qualities and texture while using the app. Only 5 participants (20%) disagree or strongly disagree on it.

Virtual garments in the DressMeUp app seemed consistent with real world experience of clothes.
25 answers

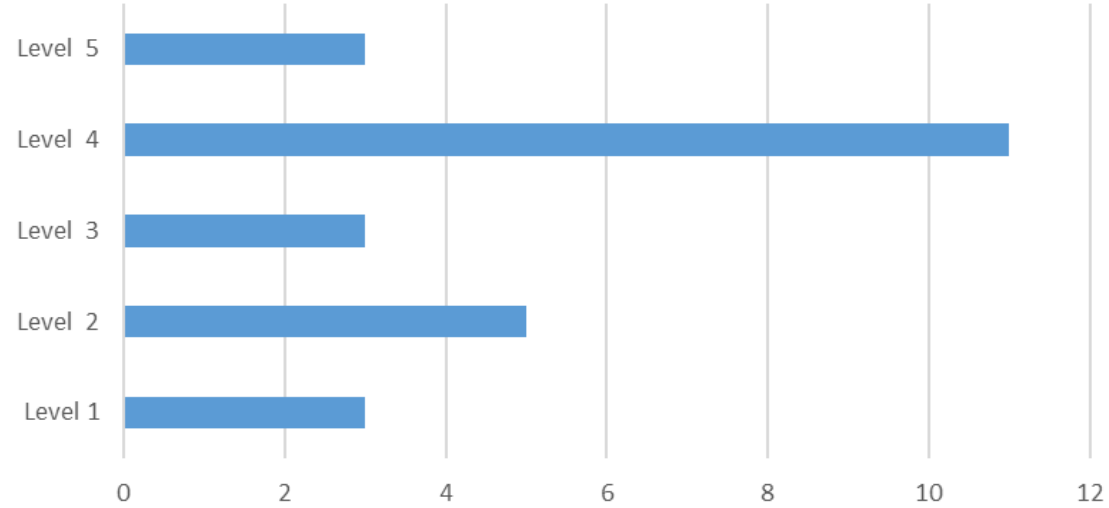


Figure 52: Dress Me Up - Bar graph of the participants feedback regarding virtual garments consistency with real world experience of clothes

More than half of the participants (56% / 14 participants) agree or even strongly agree that the garments in the app seemed consistent with real world experience of clothes. 8 participants (32%) disagree or strongly disagree on this, which is a little more than it was in the question before.

I found the DressMeUp app to be a useful tool.
25 answers

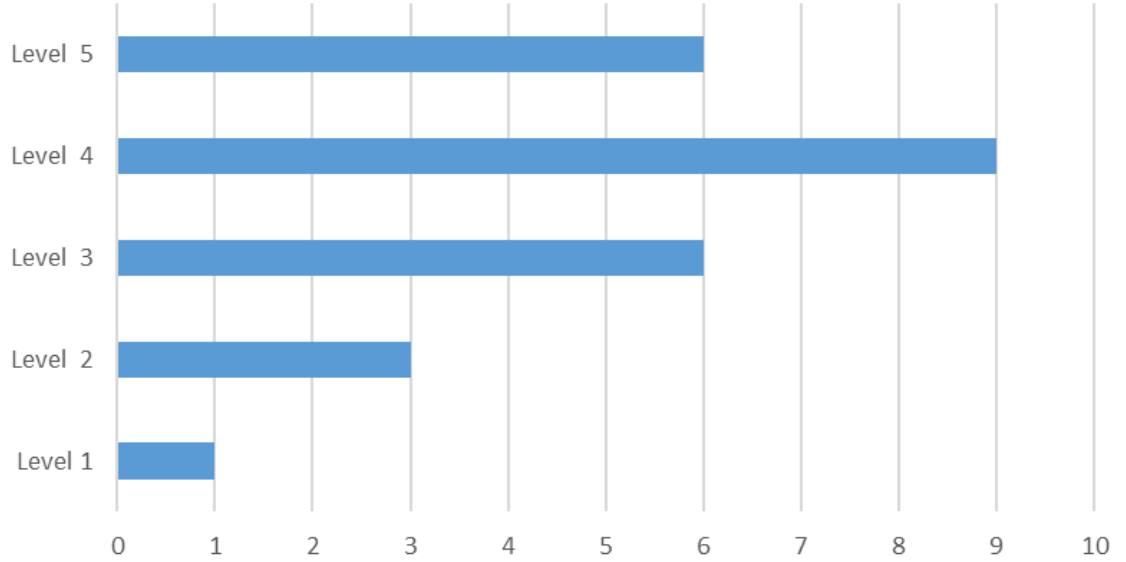


Figure 53: Dress Me Up - Bar graph of the participants feedback on the usefulness of the DressMeUp app

Very clear outcome. 15 Participants (60%) answered that they think the app is a useful tool. Only 4 participants (16%) do not agree on this. And 6 participants (24%) neither agree nor disagree on it.

The virtual garments in the DressMeUp app gave me an adequate view of the way real garments would physically fit on me.
25 answers

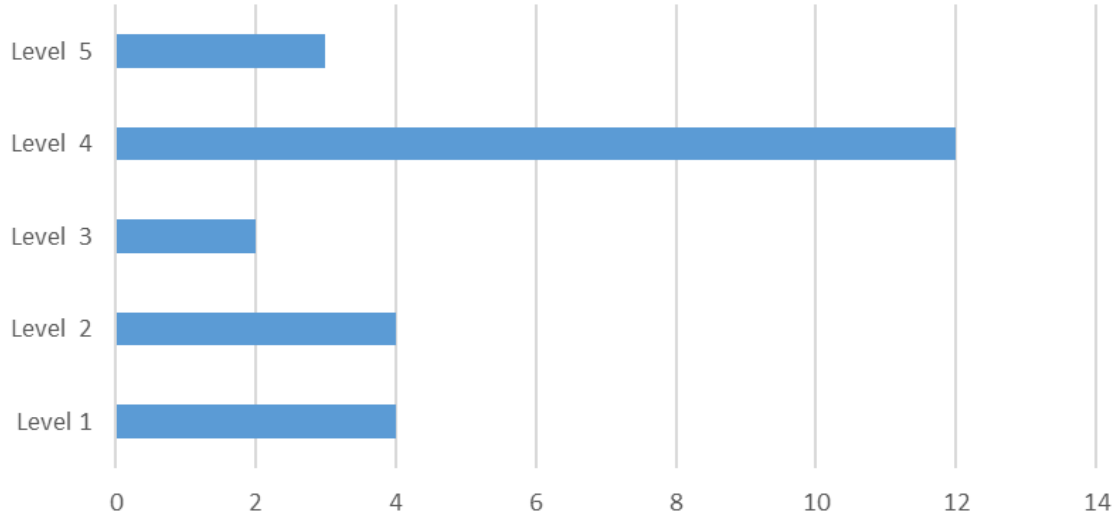


Figure 54: Dress Me Up - Bar graph of the participants feedback on the adequate view between the real garments and virtual ones in terms of fitting

Two third of the participants (60% / 15 participants) agree or strongly agree that the virtual garments gave them an adequate view of the way real garments would physically fit them. A third (32% / 8 participants) disagree or strongly disagree on this. And only 1 person answered neutral.

I will introduce the DressMeUp app to my friends.
25 answers

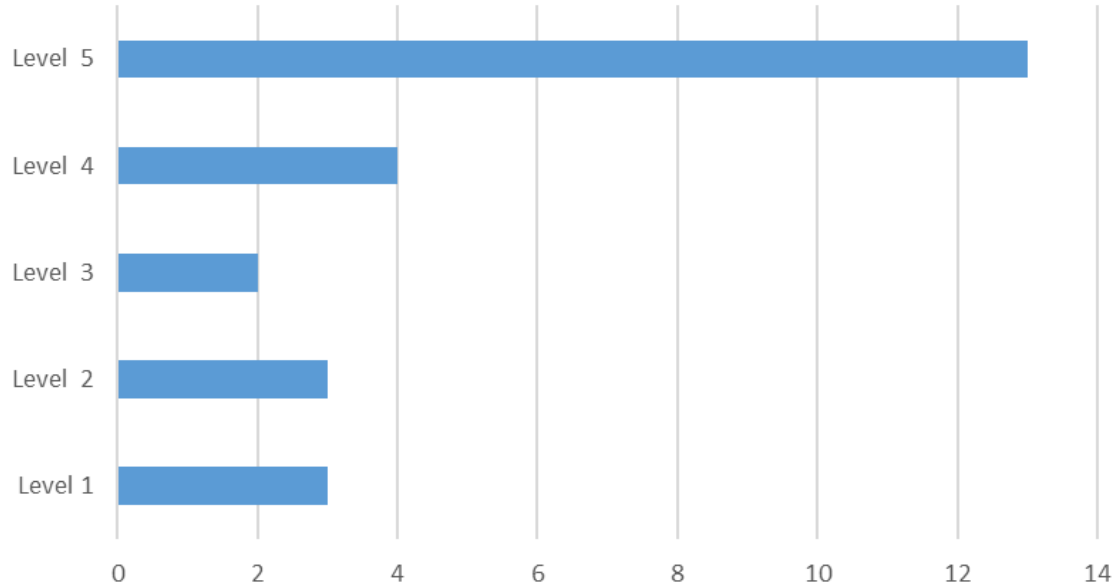


Figure 55: Dress Me Up - Bar graph of the participants feedback on introducing the DressMeUp app to their friends

Very clear feedback here. Half of the participants (52% / 13 participants) strongly agree that they would introduce the app to their friends. Another 4 participants (16%) agree on this too. Only 6 participants (24%) would not recommend this app to their friends. And only 2 participants answered neutral.

I will use the DressMeUp app once the app is released for commercial use
25 answers

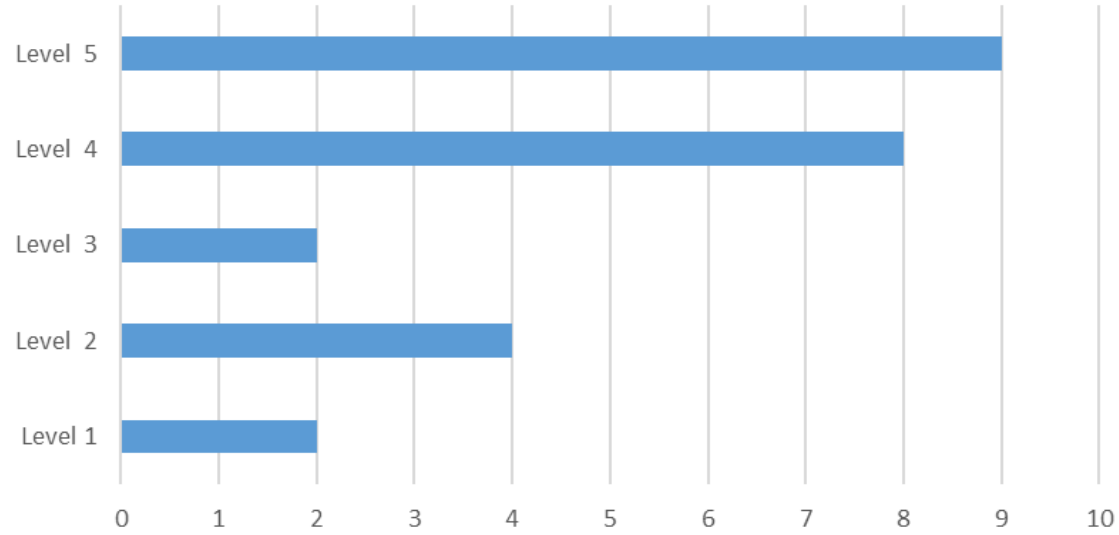


Figure 56: Dress Me Up - Bar graph of the participants feedback on their willingness to use the app once it is released for commercial use

Again, very clear feedback. 17 participants (68%) do agree or even strongly agree that they would use the app for commercial use when it is released. 24% (6 participants) disagree or strongly disagree on this and would not use the app when it's released. Only two participants kept their answer neutral.

I needed assistance to be able to use the DressMeUp app for the first time
25 answers

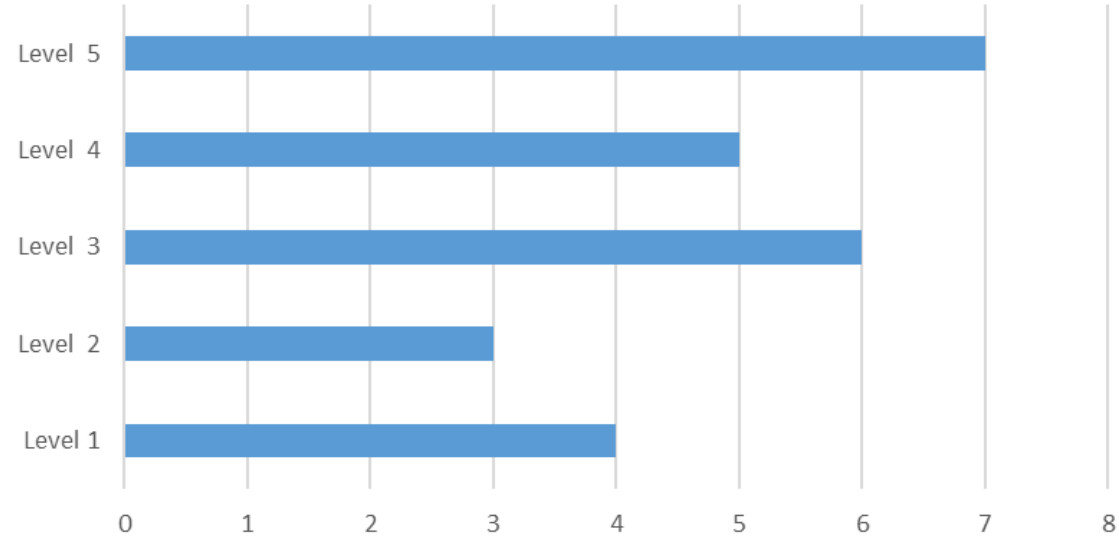


Figure 57: Dress Me Up - Bar graph of the participants feedback on their need for assistance to be able to use the app for their first time

Almost half of the participants (48% / 12 participants) needed assistance to be able to use the app. 7 participants (28%) did not need any assistance and 6 participants (24%) answered neutral. This chart shows that complicated and time lasting user journey and that for the participants it was not crystal clear. Which is one of the main reasons why we did not get enough answers.

I found DressMeUp app clear structured and easy to use.
25 answers

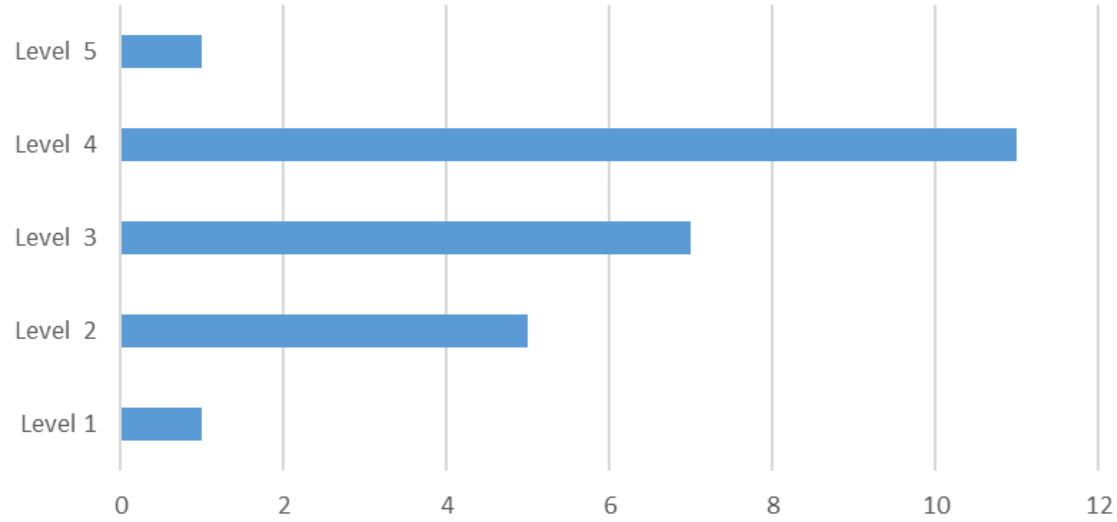


Figure 58: Dress Me Up - Bar graph of the participants feedback on the clear structure and usability of the app

Only 1 participant answered with strongly agreement on the clear structure and easy to use app. 11 participants (44%) did agree on that, which is good but still not fully convincing. This would mean that there are still some parts in the app which are not fully clear structured and easy to use. 6 participants (24%) disagree or strongly disagree and did not find the app clearly structured and easy to use at all. And 7 participants (28%) kept their answers neutral.

I was able to easily navigate and control actions in the DressMeUp app.
25 answers

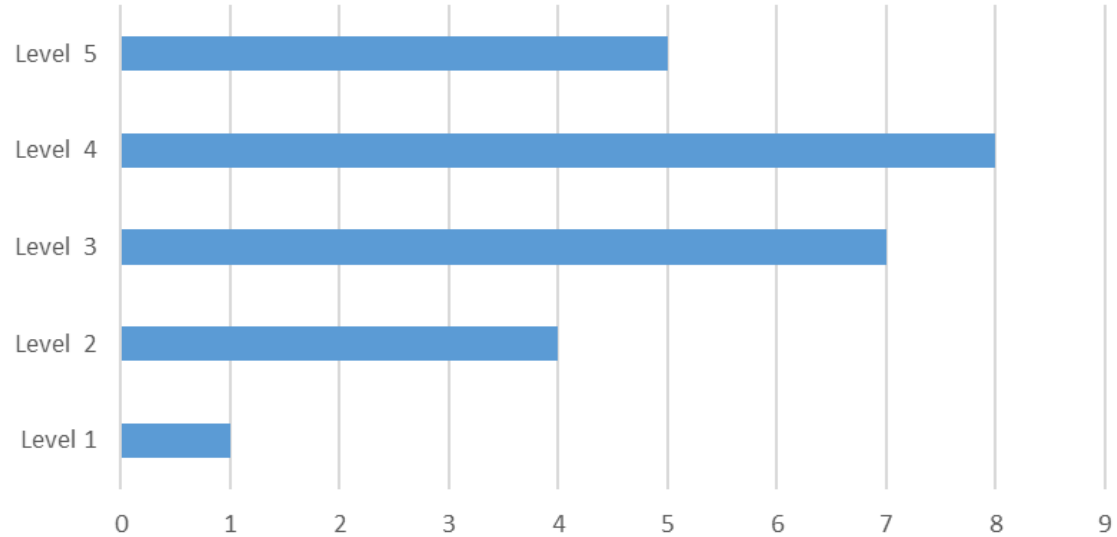


Figure 59: Dress Me Up - Bar graph of the participants feedback on the navigation and actions in the app

More than half of the participants (52% / 13 participants) agree or even strongly agree that they were able to easily navigate and control actions in the app. Only 5 participants (20%) disagree on this, and 7 participants (28%) kept their answer neutral. This clearly shows that in the app the actions and navigations are clear and easy to understand. It is more

the work before using the app, the login process and setting up everything like your profile and the avatar is not self-explainable and not clear to the participants.

I experienced delays between my actions and the reaction while using the app.
25 answers

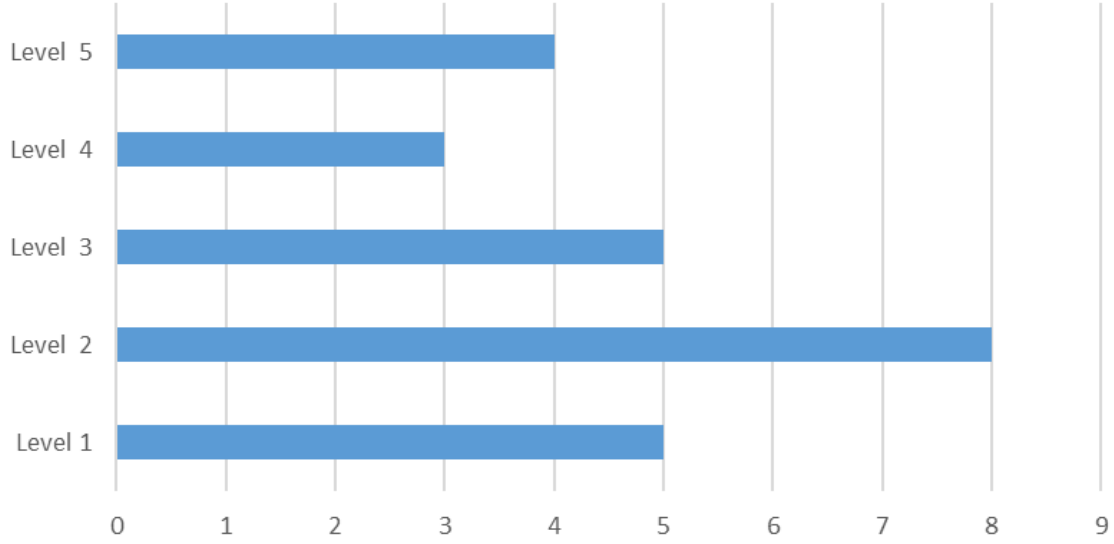


Figure 60: Dress Me Up - Bar graph of the participants experience on delays between actions and reactions while using the app

9 participants (36%) agree or even strongly agree that they have experienced delays between their actions and the reaction of the app. More than half of the participants (52% / 13 participants) disagree or even strongly disagree on this, and they have not experienced anything like this. 5 participants (20%) kept their answer neutral.

What would be the maximum amount of time you are willing to wait for your desired outcome (video / image)?
25 answers

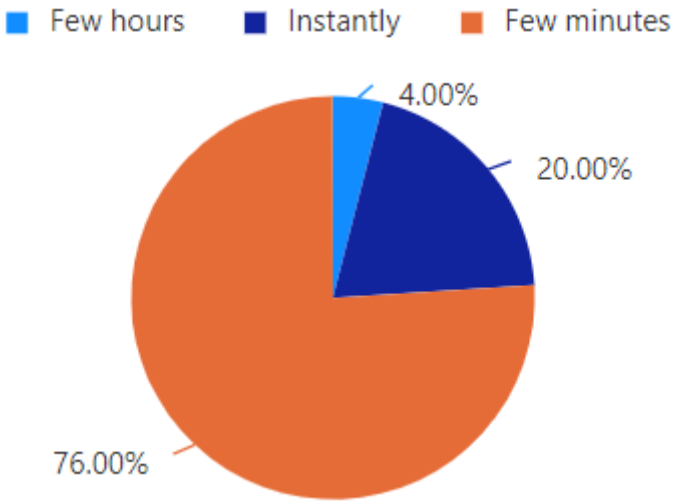


Figure 61: Dress Me Up - Pie chart of the participants feedback on the maximum waiting time

Very clear feedback. While 76% (19 participants) are only willing to wait a few minutes till they receive their desired outcome only 1 participant (4%) has enough patience to wait for this for a few hours. As the current generation wants to have everything all the time

immediately it does not surprise that 5 participants which is 20% of them want to have their desired image or video even instantly, and not waiting any time for it.

I found inconsistencies in DressMeUp app`s functionalities
25 answers

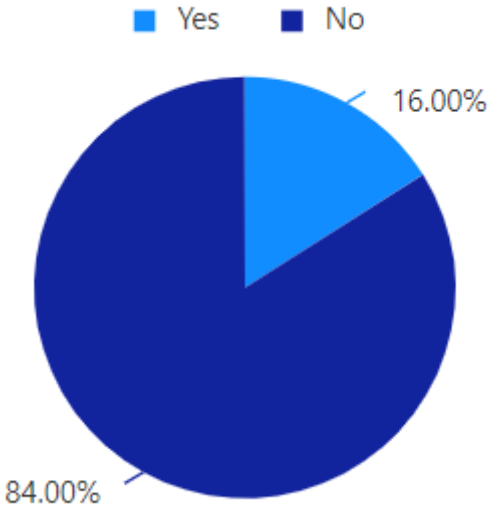


Figure 62: Dress Me Up - Pie chart of the participants feedback on the inconsistencies in the apps functionalities

21 participants did not find any inconsistencies while using the app. 4 participants answered with yes. Let's have a look at their detailed answer:

- *"The clothing didn't really line up with my body. Wrist, ankle and crotch were the worst areas. For the avatar scan I had to stand in A pose, but for the clothing try-on it said to try different poses, but I believe a non-standard pose made it difficult for the AI to match the clothing to the body. It was a bit confusing to have two separate photo sessions to use the app. I think visual instructions or explainer videos would help explain how the whole process works from start to end."*
- *"My initial picture from the scan is not saved. I have to take a picture a second time in order to use the app."*
- *"It mentioned that the creation of the avatar will take 30-60 min could also easily mean I need to invest that time…"*
- *"Unfortunately, the avatar was never created, even though I uploaded the photos correctly"*

Looking at the individual answers we can see that the feedback is very diverse. The first answer does criticize that the body matching is not very accurate especially at the wrist, ancle and crotch. And the participant found it confusing that he needed to take first pictures to create his avatar and then also while using the app he needed to take another picture of himself. Probably this user was testing the app in the early pilot stages when not all the explanation manuals and user tutorial on YouTube wasn't available.
The second participant also did not understand why the picture from the scan to create the avatar is not automatically saved and can be used for testing the app.
The third answer is about misunderstanding the sentence of the duration of the avatar creation and that this is not meaning the participant has to actually invest his time of 30 - 60 minutes. It is automatically happening in the background because he can do something else. And the last feedback is about the avatar creation which did not work. Here we cannot tell if the participant has not taken the pictures correctly or if it is really a dysfunctionality of the app.

There were certain actions I wanted to make while using the app which were not enabled.
25 answers

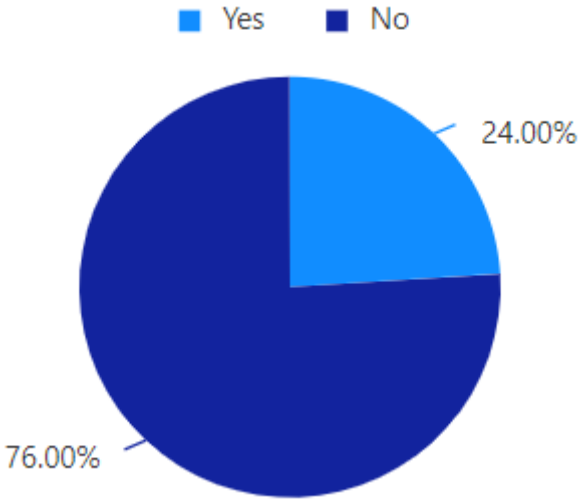


Figure 63: Dress Me Up - Pie chart of the participants feedback on certain actions they wanted to make while using the app which were not enabled

19 participants did not find any actions they wanted to make while using the app, which weren`t enabled. 6 participants answered with yes and we will have a look into their individual answers:

- *"I would have liked to see the resulting 3D avatar from the body scan, to check if it seemed accurate. And then I think the recommended size should be derived from the body scan, not just from my answer of what size I think I wear, since this can vary from brand to brand. I also would like a mode to take photos by myself. Other apps allow this. It is sometimes inconvenient for someone to help take photos and if you have to wait for assistance, it prolongs the time to use the app."*
- *"Get to my avatar, the scan was confusing if you can't use it. Should be better specified. I couldn't upload a photo before my avatar was uploaded which took over an hour. I also got constantly logged out which made me resend a magic link to my email. If I didn't have to wait 3/4 hrs to dress myself up, I think it would be a great tool to have."*
- *"See the avatar"*
- *"Currently, there is the ability to upload pre-existing photos only from PC; it would be great if it was extended to mobile as well."*

3 out of 4 answers are about the avatar scanning outcome and that they would have liked to see the avatar from themselves to judge directly if this avatar does look like the participant. Also, it would be nice if a size recommendation feature was available based on the measurements of the avatar. Also, one answer is about the possibility to take the photos by themselves and not being dependent on a second person which restricts the usability of the app. And one feedback is also about the time it takes to login and set everything up, which the participant experienced as whey too long. The last feedback is not valid anymore as it is now possible to upload pre-existing pictures also from your mobile.

3.4 Google Firebase Insight analytics

Google Firebase Analytics was used in Dress Me Up in order to gain a better understanding of how people use the app during our pilot testing. Through Google

Analytics, the SDK automatically captures a number of events and user properties, defining specific custom events to measure user behavior as well as additional user data in regard to demographic details and user acquisition. Visualized insights provide detailed insights from summary data such as active users and demographics, to more detailed data such as identifying the most selected options and functionalities in the app.

The section below presents basic insights from the pilot testing of Dress Me Up.

3.4.1 Events and User activity

A number of 381 users were enrolled in testing Dress Me Up during the pilot session, with an approximate 3-minute engagement time on average. It's worth mentioning though that the average engagement time alleviates the actual engagement time duration difference from actual users, as in many cases users navigated in the app for a longer period of time, while other users bailed out after the first visit. User activity by cohort figure indicates that the majority of users used the app during the first week of their enrollment, with only 2% revisiting and using the app during the next days. One possible explanation for this is the indicative number of garments uploaded for the initial version of Dress Me Up, which can be easily explored and tested by users during the course of a few days.

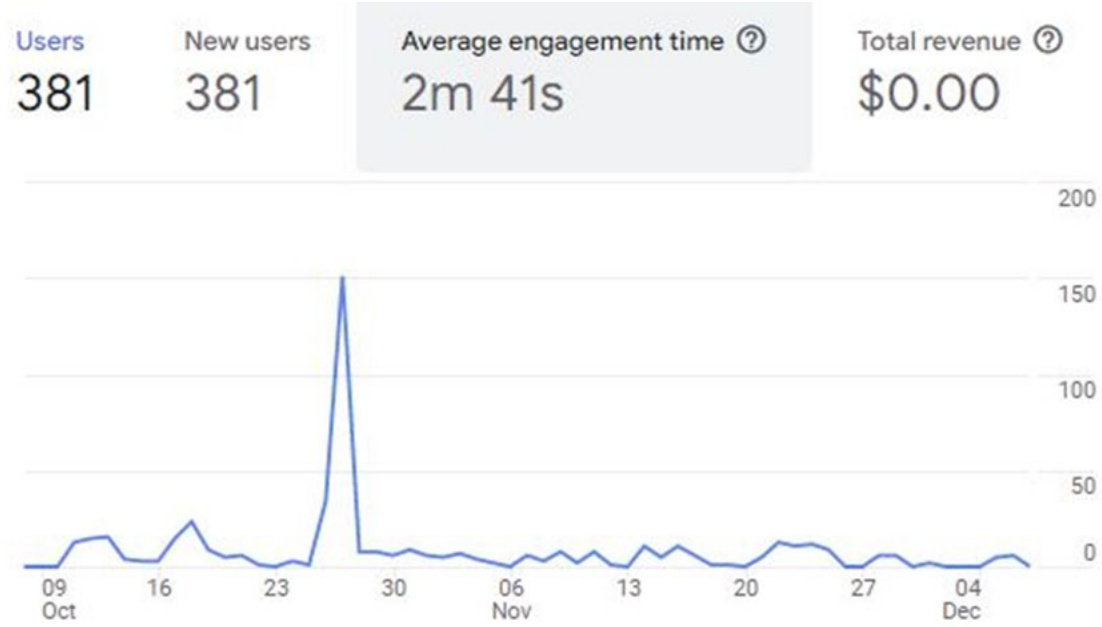


Figure 64: Dress Me Up - User and average engagement

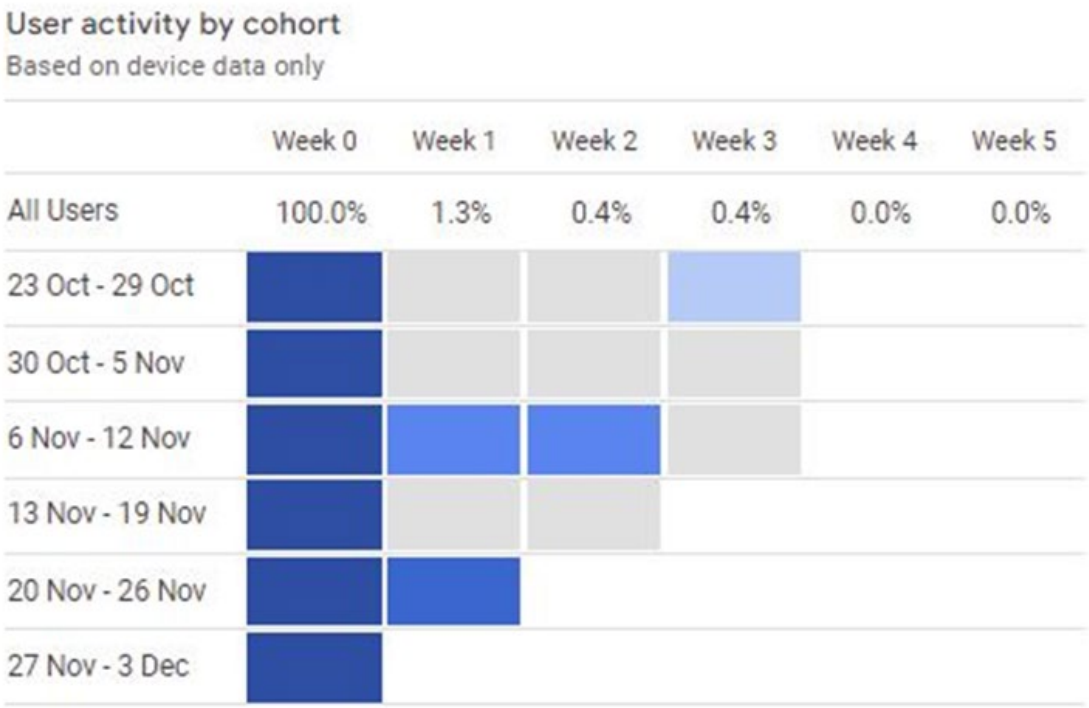


Figure 65: Dress Me Up - User activity by cohort

Tracking down events in Google Analytics collects data on the specific interaction's users do in the app. By monitoring those events over time, valuable insight is gained into Dress Me Up's users' behavior and further learn what is working on the app and what could be improved. Event count diagram shows the most preferred actions made by users during pilots (events). A total number of more than 5K events were tracked. Among the most displayed activities selected by the users were: Page views, tracking all views in Dress Me Up - also counting reloads after reaching the page (2,199), engaging with the platform (1,502), user login (835), initiating the avatar creation process (86) and uploading a garment from the existing available collection of clothes to test its digital fit on their personal avatar (121).

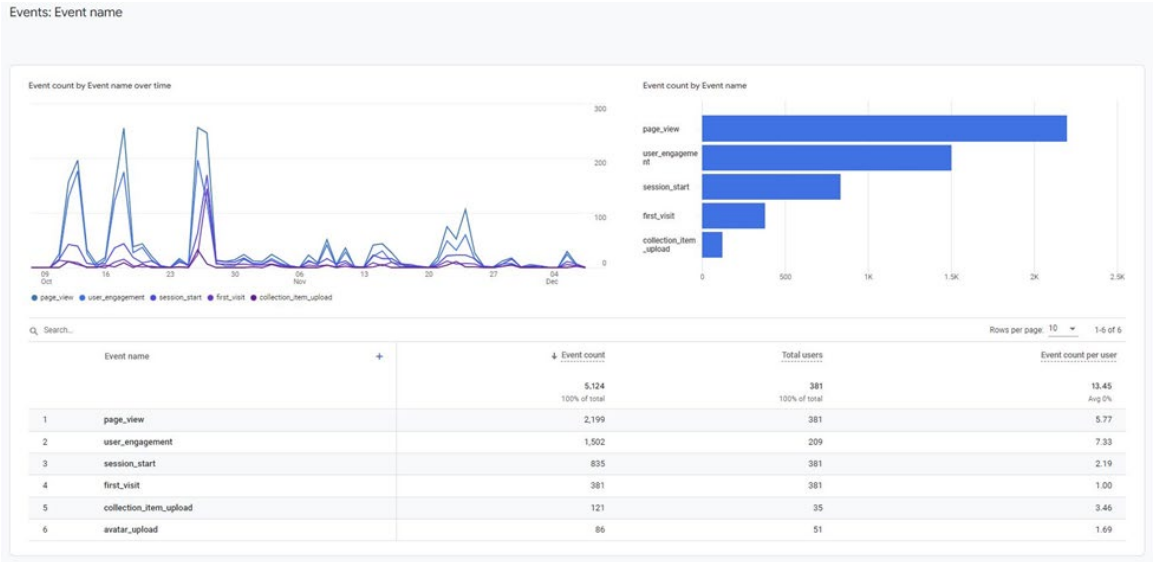
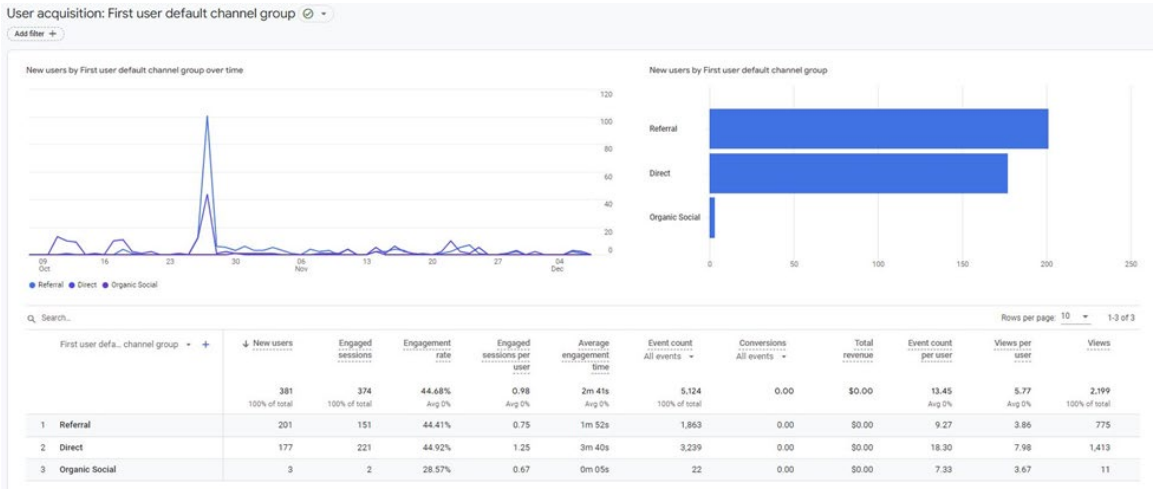


Figure 66: Dress Me Up - Event Count

3.4.2 User and traffic acquisition

In addition to tracking custom events and user activity, user and traffic acquisition is also detected in google analytics, providing additional details about the user's entrance source. More specifically, user acquisition tracks down data about where new users come from. The traffic-source dimensions in this report include the prefix "First user" to indicate that the dimensions are about new users: for users having multiple sessions, it tracks the very first session and data related to that.

The referral acquisition channel is addressed to any number of traffic sources as long as the medium of the traffic resources is 'referral': when a visitor follows a link from one website to another, the site of origin is considered the referrer. These sites can be search engines, social media, blogs, or other websites that have links to other websites. 201 out of the 381 users of Dress Me Up where driven to use the app through referral sources, as shown in figure below. Direct traffic categorizes visits that do not come from a referring URL, grouping all traffic that does not have an explicit source, such as links sent in a 1:1 email or manually typed into the browser. 177 out of 381 users were driven through a direct source, as a result of the email newsletter send in the context of eTryOn's marketing campaign. Organic social media refers to the free content (posts, photos, video etc.) that all users, including businesses and brands, share with each other on their feeds - a small percentage of traffic acquisition to Dress Me Up was also driven through shared posts in social media.



	First user defa... channel group	New users	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count All events	Conversions All events	Total revenue	Event count per user	Views per user	Views
		381 100% of total	374 100% of total	44.68% Avg 0%	0.98 Avg 0%	2m 41s Avg 0%	5,124 100% of total	0.00	$0.00	13.45 Avg 0%	5.77 Avg 0%	2,199 100% of total
1	Referral	201	151	44.41%	0.75	1m 52s	1,863	0.00	$0.00	9.27	3.86	775
2	Direct	177	221	44.92%	1.25	3m 40s	3,239	0.00	$0.00	18.30	7.98	1,413
3	Organic Social	3	2	28.57%	0.67	0m 05s	22	0.00	$0.00	7.33	3.67	11

Figure 67: Dress Me Up - User acquisition: New Users by first user default channel group over time

3.4.3 Tech details

Google Analytics can also serve as a quick and free way to measure tech details such as devices and the browsers visitors are often using. In regard to the browser, Chrome, Safari and Edge were among the ones mostly preferred by users.

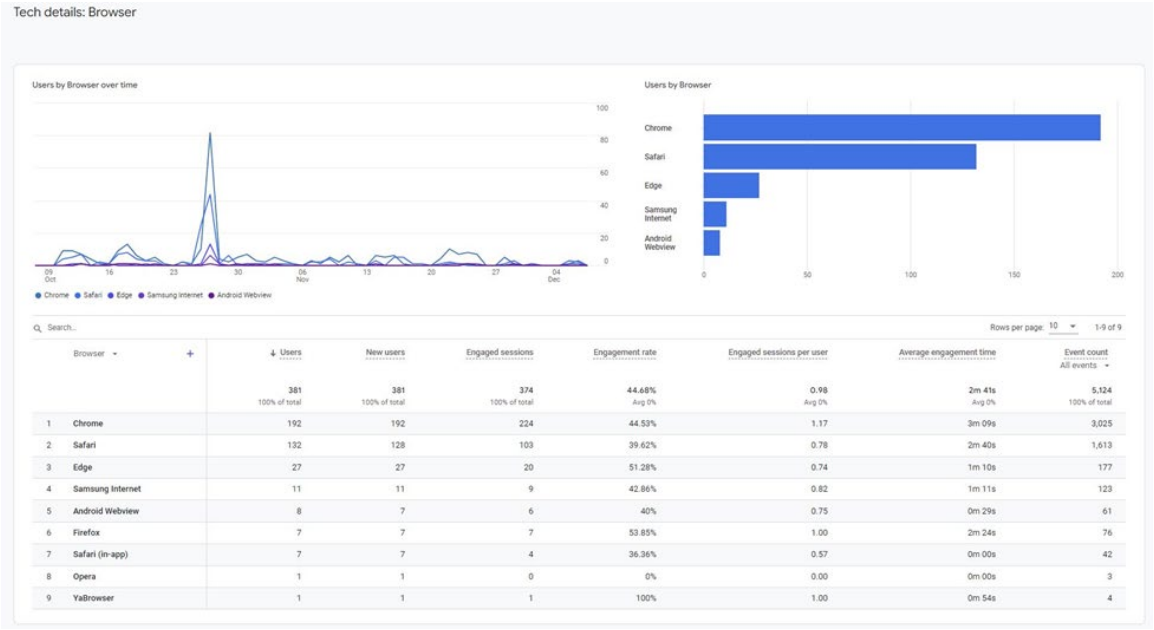


Figure 68: Dress Me Up - Users by browser over time

3.4.4. Demographics

In regard to demographic details, the figure below indicates the number of users by each country. Switzerland, where WP6 leader Odlo is located, is among the countries that used the application the most, followed by Greece, United States, UK and Belgium.

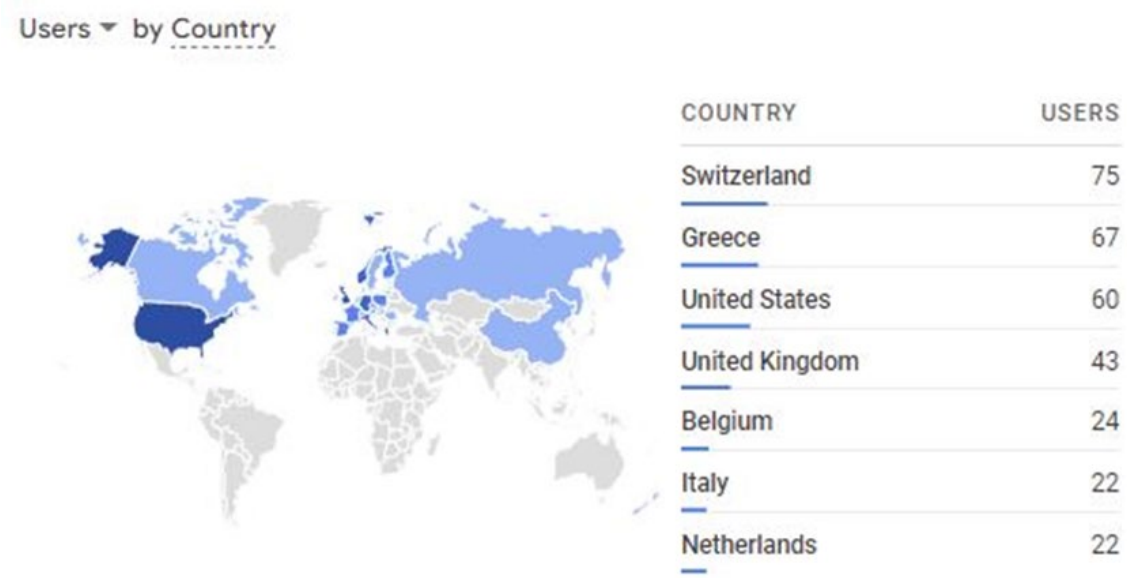


Figure 69: Dress Me Up - Users by country

Event count by country also provides interesting insights in comparison to users by country analysis: for Dress me Up, users mostly engaged in using the app were allocated in Greece, Switzerland, Belgium and UK. In 'Users by country over time' figure also indicates that the highest rate of visits was made during the Dress me Up pilot launch at the end of

October, also adding Italy, Netherlands and Norway among the countries users are allocated.

3.5 Conclusion

Throughout the project's duration, we were constantly sharing details on the functionalities and the overall developments in Dress Me Up in eTryOn's social media accounts as well as the various events that the consortium members participated in: the reactions we received were quite enthusiastic from fashion industry professionals, as well as consumers.

In comparison to VR, AR & digital try-ons are a field that most users are more familiar with, considering the recent uprising of relevant developments in Snapchat's AR try on filters during the past two years. Moreover, Dress Me Up is a web-based app accessible from devices users are accessing in a daily basis (e.g., smartphones, Personal Computers), so there were no technology familiarization obstacles to overcome: indeed, most of the users claimed to already have experience with relevant apps.

However, in Dress Me Up the overall procedure required a several step process for users to take, which caused a decline of participant engagement from users visiting the app, using it and finally answering the feedback questionnaire.

The majority of users were consumers and people who love fashion and sports fashion items. Most of the users claimed they were able to have a sufficient perception of the garment's qualities and texture, founding the app's virtual garments seeming consistent with real world experience of clothes. Most of the users found Dress Me Up app to be a really useful tool which they would use once released commercially and also introduce it to their friends.

In overall, the UX manual guidelines provided in the app proved to be a useful guidance to users in their step-by-step procedure to scan and create their avatar, select a garment and proceed to its digital try-on. However, the necessary delays for processing the scan and the digital try-ons during each step was recorded as a constraint in the app's usage: the majority of users claimed they would not be willing to wait for more than a few minutes for this process to be completed, valuable feedback to also be considered for future developments of the app.

4. Magic Mirror App pilots

Magic Mirror is a mobile-based AR application enabling virtual try-ons of garments during online shopping that aims to recreate at home the experience of buying clothes from a physical store.

4.1 End-user testing process

For the pilot steps below were followed by operators, referencing the 4.2 Pilot operation requirements and 4.3 Testing and evaluation protocols from D6.2.

Steps before starting the test session:

- In particular, before the pilot testing, the participants were provided with an information sheet about the aim of the research project, along with a consent form (Appendix I), which analyzed the research scope and the purpose of the pilot tests as well as the means that are used in the "eTryOn" project. Upon their consent, an email with the full text of the information sheet and consent form was also sent to them for their reference. All participants were informed that they reserve the right to withdraw at any time and refuse to participate during the pilot testing. The consent form describes the data collection process, which is in accordance with the personal data protection legislation (EU 2016/679), where the fundamental principles of data processing are observed and all the necessary technical and organizational measures are implemented for ensuring a high level of security, suitable for protecting the privacy of individuals.

- The Samsung 43” LS05T The Sero 4K Smart TV 2020 enabling a portrait mode and connection via air link had to be placed into the testing room. The minimum space in front of the screen was 2 meters, but we had a perimetric space of 5 meters.
- Apple iPhone 13 Pro (the app only runs on Apple devices) had to be fully charged and set to Wi-Fi and air link connection enabled.
- The app is using the back camera of the iPhone. Due to this limitation the handy had to be placed backwards in a dedicated handy holder centered on top of the Samsung screen.
- We did not want to allow the tester to touch the iPhone and remove it from the handy holder while making the settings and selection of garments. That’s why we additionally used a presenter mouse (HP Elite Presenter), which was connected via Bluetooth to the screen. The tester could navigate through the app using the presenter mouse only without touching or removing the iPhone.
- A stable WIFI connection was important for this test. This part was very tricky for the internal Odlo IT team, as they usually do not allow any outside devices to connect to company computers and devices for security reasons. For this reason, we bought a “company” iPhone, so that testers do not have to connect with their private devices.

Steps during the session:

- For each user a unique username and password had to be created. The reason for this is, that gender and usual size has to be entered while creating the profile and the app is then offering garments based on gender and it is fitting directly the preselected size. The size can be changed later on if needed.
- After logging in participants explored all possible functionalities of the app.

- Each participant got a task: select 1 top and 1 bottom, which you like most. Imagine you want to buy those garments and you want to fit all available colors. Check if you like how the preselected size fits on you, if not, try smaller or bigger size.
- In this favorite garment each user had to turn around and do different movements in order to explore the fit and a life simulation.

Steps after the session:

- User had to be signed out of their account.
- As the last step, questionnaires were either sent to each participant by email and they filled them in afterwards or if time enough it was filled in straight away after the session with operator assisting if needed.

4.1.1 Target groups & timing

Testing sessions of the app took place in July 2022 and October 2022. Participants had individual sessions with the app operators while they were able to test the Magic Mirror app for at least 5 minutes or longer if desired.

The target group for this app is the overall public, consumers and people who love fashion.

We had 2 groups of testers:

1. All Odlo employees were invited through the intranet post to come and test the app. The reach of the post was 253 of potential participants. 36 participants were interested.

2. University students, as well as faculty and teaching personnel, 74 participants.

All persons featured gave their consent to be photographed or recorded.

4.1.2 Pilots at Odlo

The testing sessions took place at Odlo HQ in Hünenberg on the 4th floor in the company's private cafeteria, where all Odlo employees were invited and could test the app. Around 36 persons have tested the app from 05-07-2022 to 14-7-2022.

In the photos below are some of the testers that participated.

4.1.3 Pilots in UK Universities

In October 2022 three pilot sessions were organized in Art and Design Universities in UK, along with additional educative and promotional events for the project:

- Northumbria University School of Design on October 11th
- University of Gloucestershire, Design Centre on October 12th
- De Montfort University, Art & Design department on October 13th

During the pilots we had a total of 74 participants, in their majority students, as well as faculty and teaching personnel who had the chance to try firsthand the app's initial version and give us their feedback comments.

The data that was collected during the pilots concerned information such as the name, email and professional occupation of participants, as well as the level of technological familiarity with corresponding XR applications. By answering the final questionnaires after using the app, the participants provided further information for their overall evaluation and the user experience they had.

Figure 70: Magic Mirror: Photos from MagicMirror pilots in Art & Design departments in UK

The steps described in section 5.1 were followed. Participants were introduced to Magic Mirror's functionalities along with navigational and usage instructions. Right after, they were provided with the iOS phone device which had pre-installed the Magic mirror app and navigated themselves in the app testing all available options and functionalities.

After testing the app, users were asked to fill in a special questionnaire[2]. The purpose of collecting data from the specific questionnaire is to better analyze the needs and overall user experience of end users, further analyzed in section 5.3.2.

4.2 Inspecting a garment try-on in Magic Mirror: digital try-ons in comparison to physical

In this section we have a closer look at the Magic Mirror Screen how the virtual garment fits the tester and compare this image with a real fitting picture of the same garment, but this time physically fitted on a fit model during the development process.
As already mentioned as feedback from the testers, the accuracy of the fitting and correct size per person is poor. In some cases, the garment does not wrap around the body and is floating in front of the person on the screen. The detection of the body joints is not very accurate. Also, while moving the garment reacts with a delay to the movement of the person, having a substantial latency that breaks the experience.

[2] https://forms.gle/jSVUbrhJqC8RxFmp9

Tights ESSENTIAL (322981)

Figure 71: Magic Mirror - Women essential tights comparison

The tights on the app are difficult to fit to the leg of the real person. In the left photo we can see that the fit is not entirely correct, although it's taken from a behind pose, it looks like the software is struggling to fit the tight correctly. From a front pose the results are usually better as we can see in other photo examples below. The color of the garment looks realistic enough.

Tank crew neck F-DRY (550851)

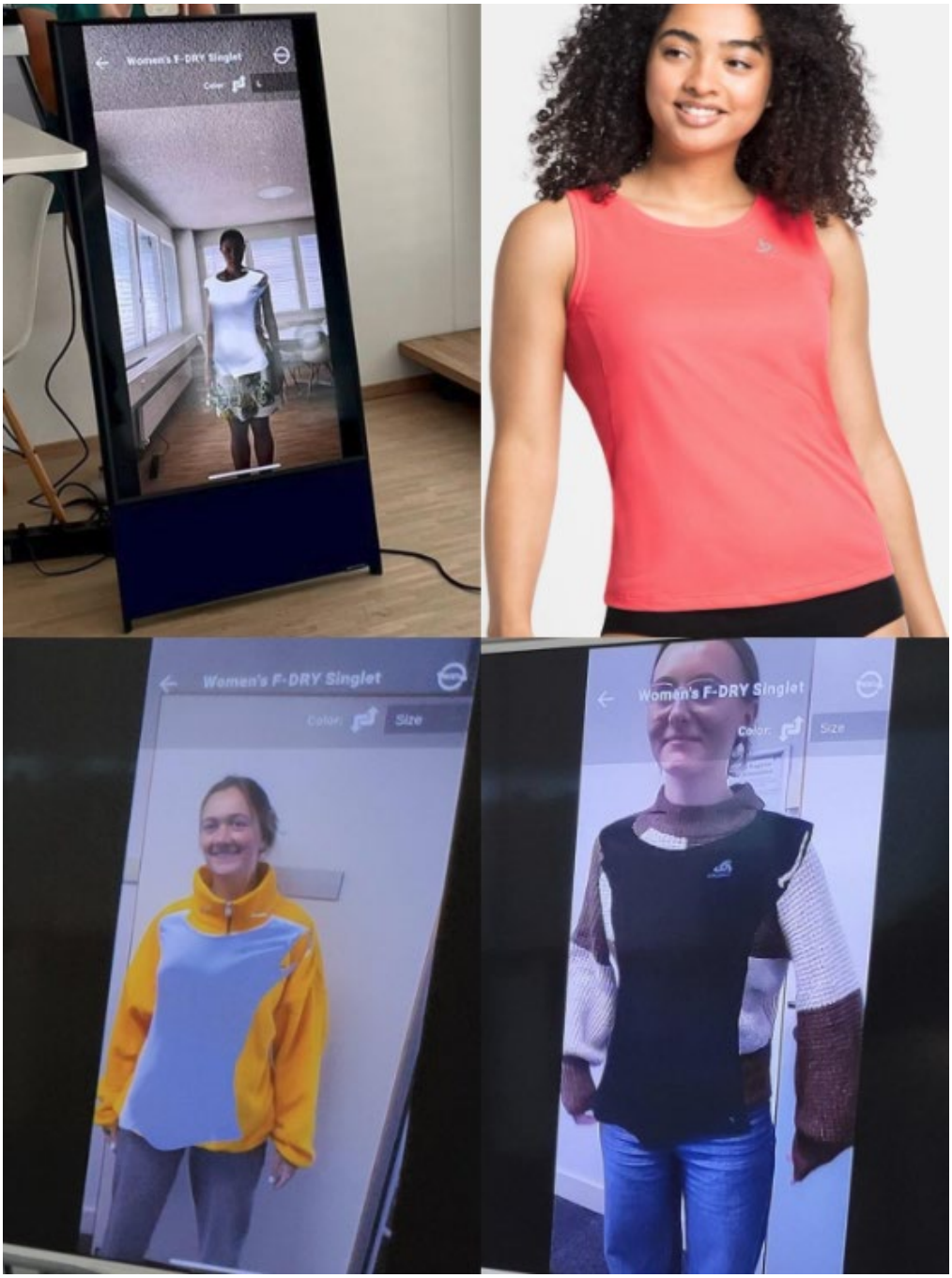
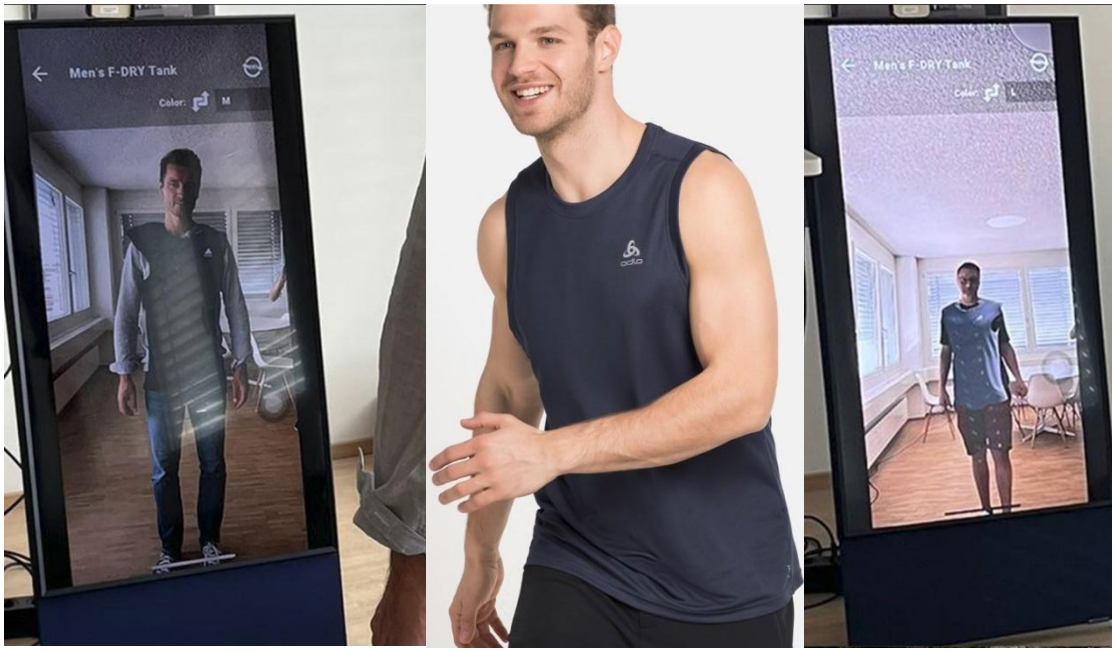


Figure 72: Magic Mirror - Comparison virtual tank with real tank

As we can see from the photos, the thank top fits the woman in the top left better than the other two below. This is because there is no automatic size fitting, and the user must select between fit sizes. There are some issues with the torso and the neckline that are accentuated from a wrong size fit.

Tank crew neck F-DRY (550962)



For the men's tank, the results are similar to the women's as analyzed above. The shape of a real person is not realized 100% in three dimensions in the application. Armhole and side seams are not perfectly matching their body shape. The garment model is accurate but it doesn't follow the human shape in real time successfully.

4.3 End User questionnaire feedback

Despite the fact that the pilots of the Magic Mirror app took place physically, in our case on 2 different locations, the first one in Switzerland and the second in the United Kingdom, the testers had to physically visit a location at a specific time. This made it less flexible as users could not perform the test at a time they chose at home or on the go. In spite of this limitation 36 people have tested the app in Switzerland and 74 people in the United Kingdom, which is a total of 110 testers.
All of them have answered the Magic Mirror Questionnaires and we collected 110 answers for analysis.

4.3.1 Overall results

The results of the questionnaire feedback were analyzed as pie charts, bar graphs and descriptions. All questions and statements have been answered by all participants. For every statement we have 110 answers for analysis.

4.3.2 Evaluation of user feedback

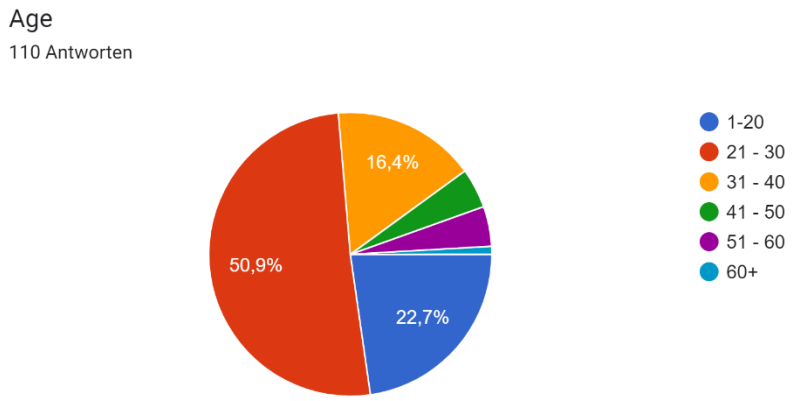


Figure 73: Magic Mirror - Pie chart of the participant's age

When we look at this pie chart, we can see that 90% of all participants are younger than 41 years. 5 participants are between 41 and 50 years old and another 5 participants between 51 and 60 and only 1 person is older than 60 years. We can say we have quite a young focus group.

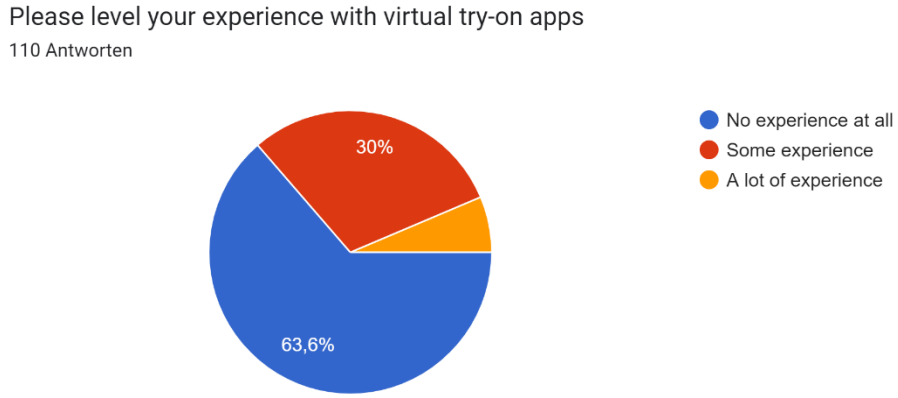


Figure 74: Magic Mirror - Pie chart of the participants level of their experience with virtual try-on apps

Two thirds of all participants have no experience at all with virtual try-on apps. A third is saying they have some experience and only 6,4% have a lot of experience. This shows that virtual try-on apps are something very new for the general public.

In a scale of 1-5 mark the answer that best describes your reaction to your experience using the app (1: Strongly disagree, 2: Disagree, 3: Neither agree or disagree, 4: Agree, 5: Strongly Agree)

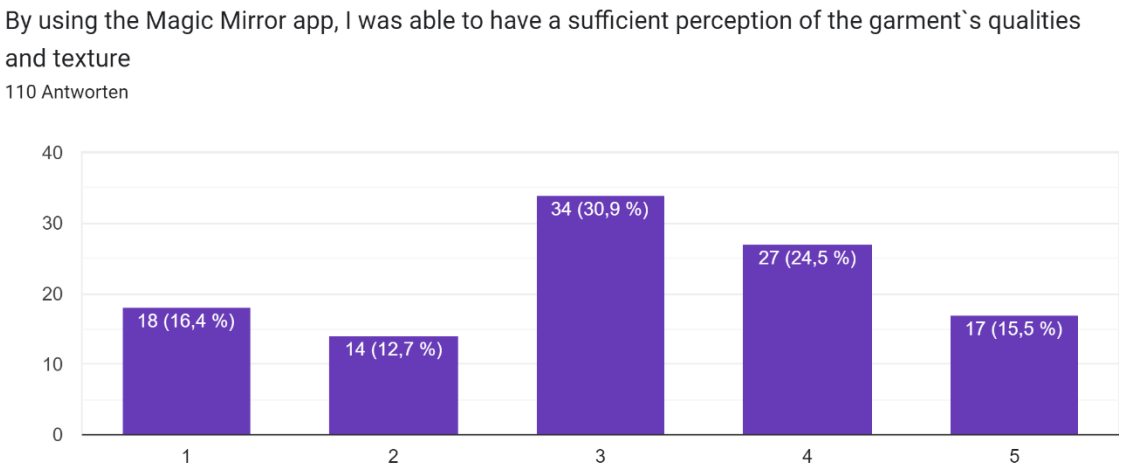


Figure 75: Magic Mirror - Bar graph of the participants feedback on their ability to have a sufficient perception of the garment's qualities and texture

40% of all the participants strongly agree or agree with having a sufficient perception of the garment`s qualities and texture while almost a third (29,1%) strongly disagrees or disagree with it. Another third (30,9%) does not either agree, nor disagree.

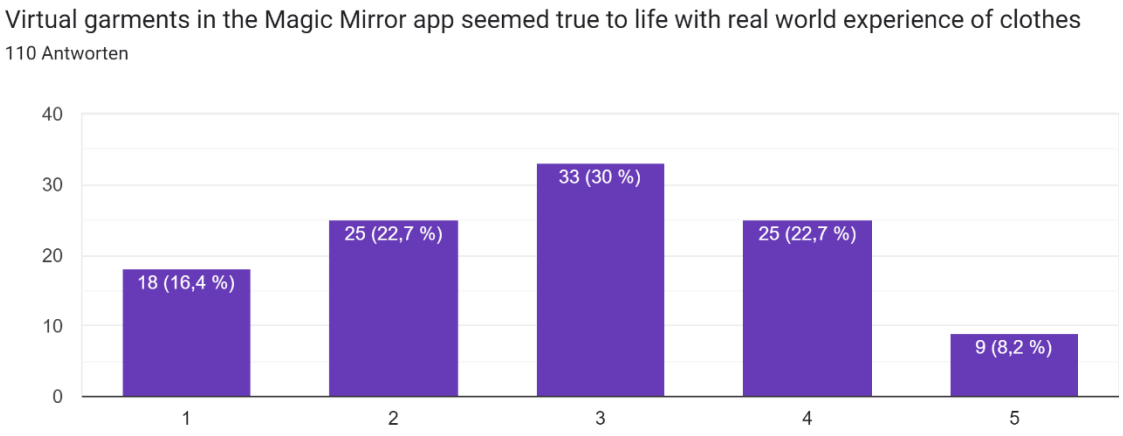


Figure 76: Magic Mirror - Bar graph of the participants feedback on the virtual garments seemed true to life with real world experience of clothes

Here we can see that only a third (34%) of all the participants do agree or strongly agree with the statement that virtual garments in the app seemed true to life with real world experience of clothes. Another third (30%) does neither agree nor disagree and 39,1% disagrees or even strongly disagrees with it.

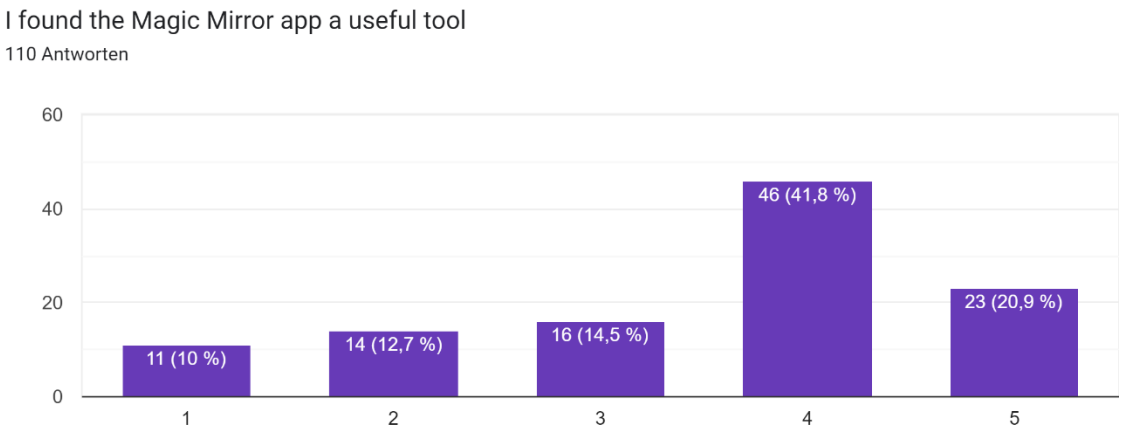


Figure 77: Magic Mirror - Bar graph of the participants feedback on the usefulness of the app

Despite the fact that almost 40% of the participants disagree with the true to life experience from the statement before, more than 60% (62,7%) found the app a useful tool. Only a few (22,7%) think that the app is not so useful to them.

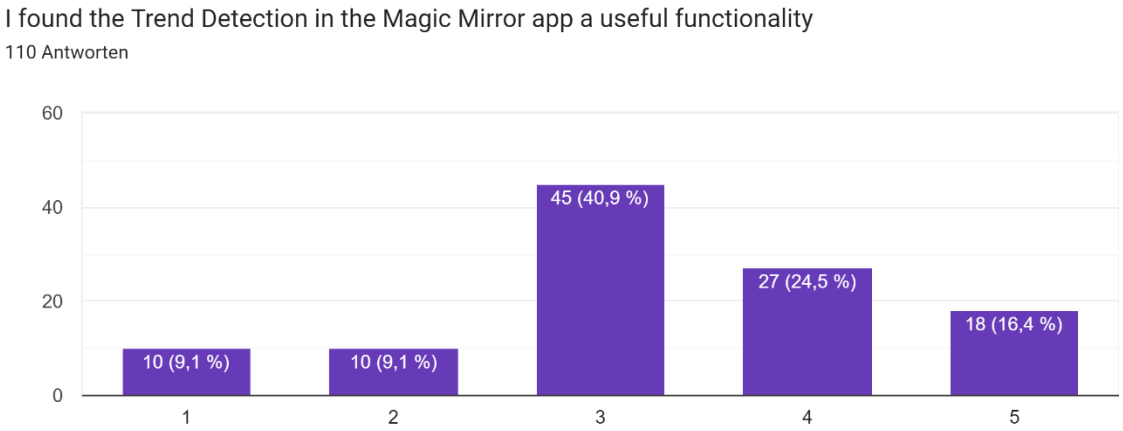


Figure 78: Magic Mirror - Bar graph of the participants feedback on the Trend Detection in the app

40,9% (45 participants) find the Trend Detection in the Magic Mirror app a useful functionality. The same number of people (40,9% / 45 participants) do neither agree nor disagree. And 18,2% (20 participants) do not find it a useful tool.

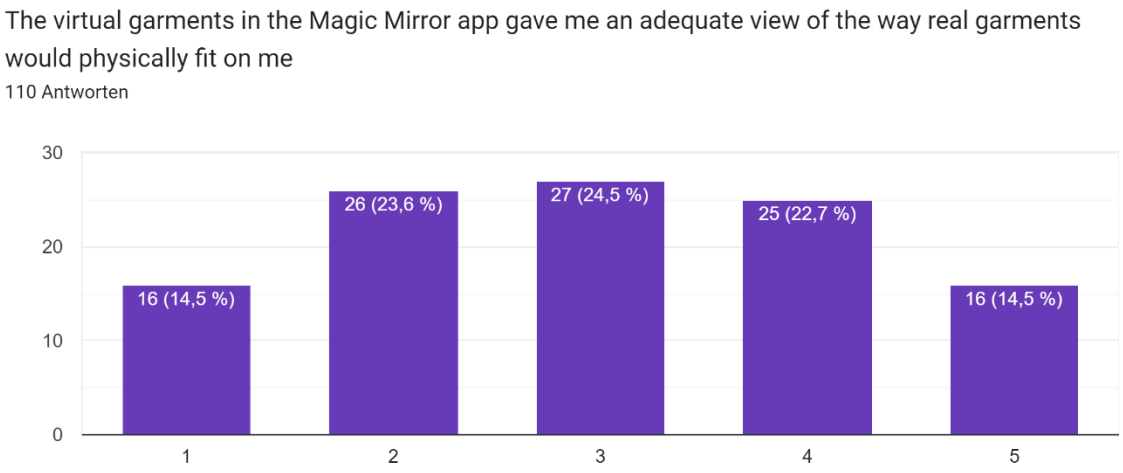


Figure 79: Magic Mirror - Bar graph of the participants feedback on the adequate view of the virtual garments compared with the real garments in terms of fit

Very balanced feedback in this chart. 16 participants strongly agree with the statement that virtual garments in the app gave an adequate view of the way real garments would physically fit and also 16 participants strongly disagree with it. 25 participants agree with it, 26 disagree with it and 27 neither do agree, nor disagree.

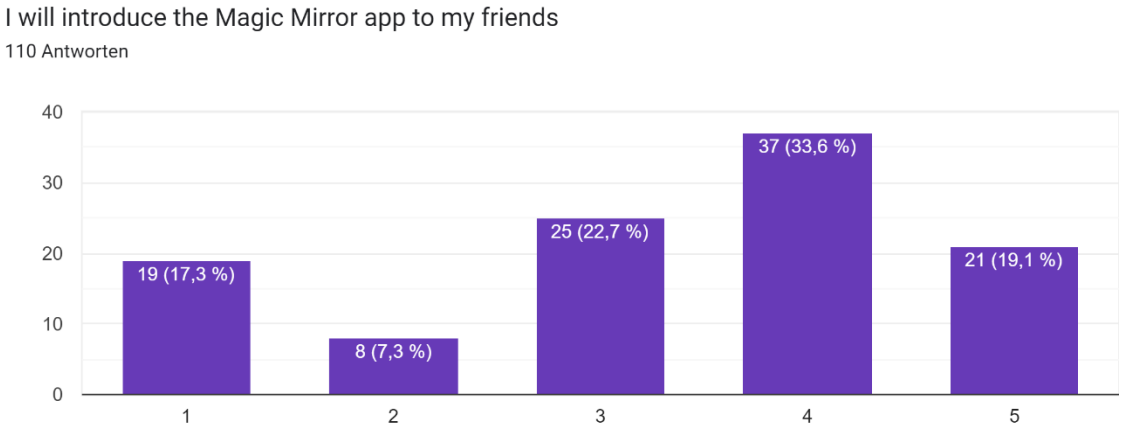


Figure 80: Magic Mirror - Bar graph of the participants feedback on the willingness of introducing the app to their friends

Half of the participants (52,7%) would introduce the Magic Mirror app to their friends. 24,6% would not introduce it and 22,7% neither would nor would not introduce it.

Figure 81: Magic Mirror - Bar graph of the participants feedback on their willingness to use the app to shop clothes

45,5% of all participants would use the app to shop clothes. 30,9% would not use the app to shop for clothes and 23,6% does neither nor want to use the app for shopping clothes.

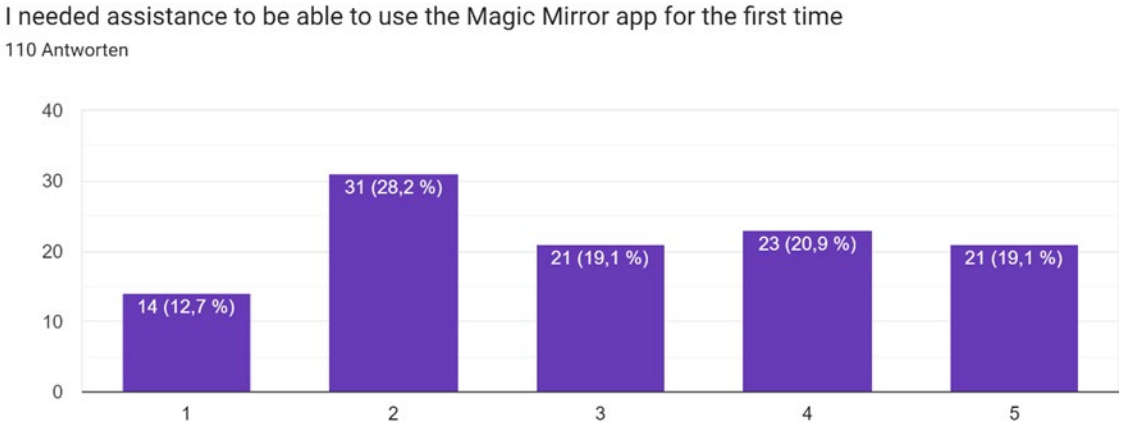


Figure 82: Magic Mirror - Bar graph of the participants feedback on the need of assistance to be able to use the MagicMirror app for the first time

Answers on the required level of assistance needed are also very equally distributed 40,0% agreed on the need for assistance while using the app for the first time, while 40,9% are saying that assistance is not necessary.

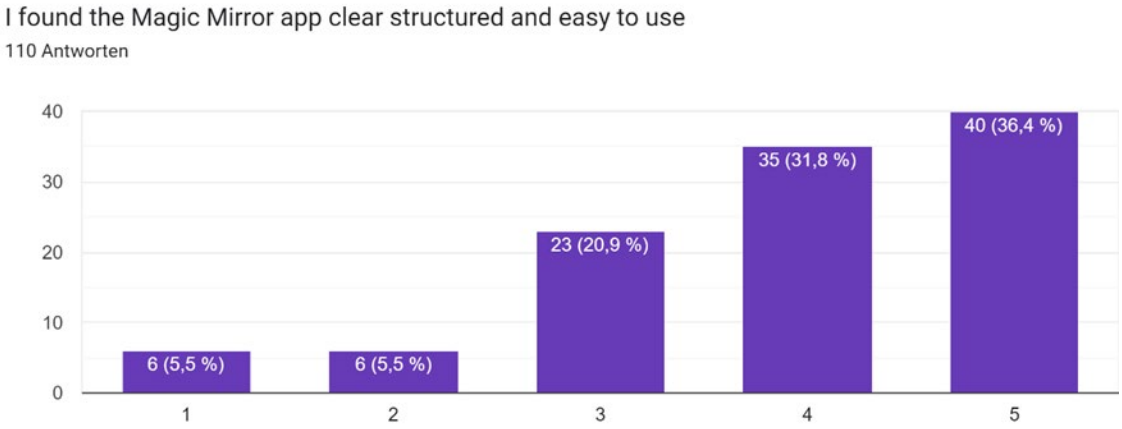


Figure 83: Magic Mirror - Bar graph of the feedback on the clear structure and easy usability

Very clear feedback. 68,2% of all participants agree on the statement that the app is clear structured and easy to use. Only 11% disagree.

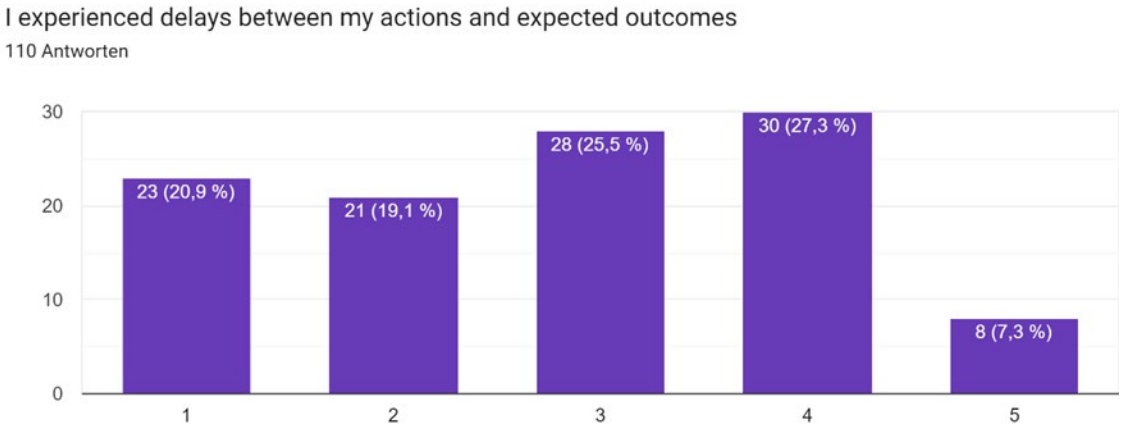


Figure 84: Magic Mirror - Bar graph of the participants feedback on their experience on delays between their actions and expected outcomes

40% (44 participants) disagree that they experienced delays between their actions and expected outcomes while using the app. Only 7,3% (8 participants) are strongly agreeing that they have experienced delays and 27,3% (30 participants) are agreeing that they experienced delays.

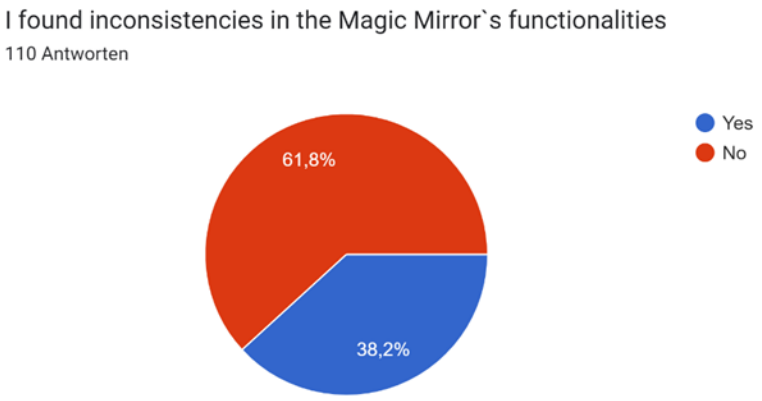


Figure 85: Magic Mirror - Pie chart of the participants feedback on inconsistencies in the app`s functionalities

Two thirds are saying that they did not find any inconsistencies in the app`s functionalities. And one third did say yes, they found inconsistencies. Let's have a look at their answers:

Functional inconsistencies:

- *"I thought that the garments were never truly frontal. It seemed that it was always a bit off center."*
- *"The shorts were displayed incorrectly, too high above the hips. The test was good, but I think that the experience would be much better and with more accurate results if I would have tested in underwear."*
- *"clothes were showing in front of me not on me"*
- *"The concept is great but the positioning of the garment on the body was well off."*
- *"garment set on wrong position and wasn't showing completely as it got distracted by the cloths which I actually was wearing in reality"*
- *"The back of the garment was always visible. I got the impression that the shorts were floating in front of my lower body."*
- *"The back of garments was visible."*
- *"Garments looked odd, the back side visible, and the waistline was much higher."*
- *"A: better camera option B: All clothes should be tested"*
- *"It didn't always link to the body"*
- *"Just slight lags in time etc but nothing major"*
- *"Doesn't feel real comparison to other apps I have used"*
- *"A little bit of lagging"*
- *"the garment moved around slightly"*
- *"App is easy to use. But the clothes don't wrap around the body."*

Fit and sizing / size recommendation inconsistencies:

- *"The garment was offset; it did not follow my body movement. It seemed to be 1 size smaller."*
- *"The app could not have been trusted to auto select a size for me. The sizing was totally off."*
- *"when we changed the size of the garment it visually didn't make any difference"*
- *"The clothes seemed to be 1 size smaller than my regular size."*
- *"The sizing was weird, somehow off. It did not follow my movement."*
- *"yes the clothes were too big"*
- *"Minor Fit issues"*
- *"Didn't fit like normal clothes would"*

- *"Clothes didn't quite fit right"*
- *"body configuration is to a standard size as opposed to the users body type"*
- *"Of course it is its initial trials, however I would say sizing wasn't true to size as well as it kept crashing when trying to navigate to the home page"*
- *"Positioning and Sizing of the 3D Garment slightly off. (E.g. Neckline of the Tank too low or Waistband of the Short to high. The long tight has too short legs, more a 3/4 instead of a full tight. Could be that it doesn't recognize all the body joints (Shoulder, Hips, Ankles)"*
- *"The waist for women was too high when you tried on pants, which resulted in inaccurate size recommendations."*
- *"It just didn't fit well in the Magic Mirror´s APP"*
- *"Clothes too big or too short"*

Navigation / movement inconsistencies:

- *"The garment was behind, when I was moving."*
- *"3/4 tights and long tights had difficulties to follow the position of my legs when I turned around. The legs were disconnected from my real legs and went backwards at 45°. I was wearing rather slim cargo trousers."*
- *"Movement detection was poor. I think the potential of the app is awesome and we'll get there soon, but right now the tool is still really raw and hard to judge due to that."*
- *"The garment got stuck sometimes in a certain position and it did not want to follow my movement."*
- *"I wanted to check the recommended garments, but it showed no results. The clothes did not follow my body"*

General feedback:

- *"As the woman said, it needs to develop more, and it will take more two years to develop everything but it's a very good idea and interesting. I like all that is digital, so I appreciate to see garment on me by a video camera"*

We got a lot of feedback but there are several answers with the same meaning. A lot of answers are about the digital clothes not really fitting on the person, they were more floating in front of the participant and also not on the correct body placement e.g., too high or too low. The garment did not follow the movement of the test person properly and size recommendation was not correct at all and also did not make any visual difference when changing.

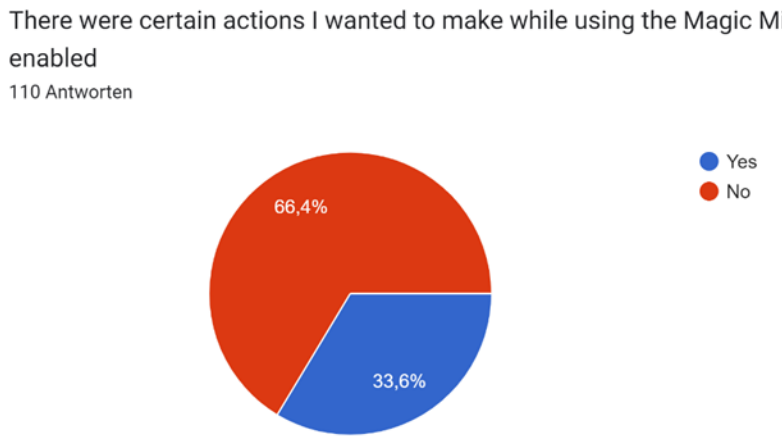


Figure 86: Magic Mirror - Pie chart of the participants feedback on certain actions which were not enabled while using the app

Two thirds of the participants are saying no, there were not certain actions not enabled. One third is saying yes, there are actions not enabled and we will have a look at their specific answers:

Navigation / movement:

- *"Moving around was sometimes difficult to track and then perform via app."*
- *"It doesn't work well when you are moving. Clothes don't cover everything even with the right size"*
- *"turn to both sides - the top only followed when I turned to the right"*
- *"Movement was limited to real world"*
- *"Side view of garment"*

Outfit / more available options:

- *"outfit combinations"*
- *"Testing an outfit (top + bottom)"*
- *"I could not combine a shirt with any pants."*
- *"try on different styles and colors"*
- *"The selection of garments was very restricted mostly to black and white garments. No other colors were available to try."*
- *"I wanted to combine pants and shirt and it was not possible."*
- *"Combinations"*
- *"Mix & Match"*
- *"Yes, I wanted to try different types of clothes. The option to select multiple clothes was not available"*
- *"being able to try a full outfit on"*
- *"dresses & coats"*
- *"Limited choice"*

Fitting

- *"The garment didn't feel on me at all. I think the idea is SUPER good; and if it works for the purpose that has been created, then it is super great. But the problem is that still it doesn't reach the goal (in my opinion). My feeling was that there is still a lot of work to do for the customer to have a good feeling of the textures, qualities, colors, fitting etc...But again, the idea is SUPER GOOD."*

- *"Different waist to bust size"*
- *"variation in body type/size"*
- *"Clothes don't wrap around the body. I can't feel the fabric and imagine how it would actually feel in real life."*
- *"The fit seemed to not fully take into account my body shape. The shape shown seemed like the automatic shape build into the garment"*
- *"I thought that the garment fix better on me but probably you are already working on it"*

Functional inconsistencies:

- *"In general, I like the idea of a magic mirror. I just feel like the technology presented here is not ready for market yet. The biggest size available was size M, which did not fit me at all (I am usually somewhere between L and XL). Therefore, testing was not really possible. Also, I was wearing dark clothing, which meant that the dark clothes I tried to put on blended into the clothes I was wearing and therefore were not really visible."*
- *"I wanted to see the garment from the back, it looked like the garment was floating in front of the body so that I could look inside of the garment. Seems like the App did not identify/ align the two rotation axils (Body and Garment) properly."*
- *"It only allowed me to select the main garment on the model. But I actually wanted to try the secondary garment because it looked interesting. but I was not able to do it."*
- *"When the app is further developed to include a body scan, to enhance visualization of the garments actual fit."*
- *"front camera to work, so I don't need someone to hold the phone for me"*

Interaction with the magic mirror:

- *"Do actions on the mirror with my hands (accessing a color wheel or size selector for example)"*
- *"Design in 3D"*
- *"Add makeup and hair"*

There was a lot of feedback but some things were mentioned several times. The garments did not wrap around the bodies and were more floating in front of the participant. The sizes did not match the participants actual size and also when changing a size, it did not make a visual difference. While turning around, the garment did not follow the body or it did but not in real-time. The selection of garments was very restricted, and the participants would like to be able to change the colors of the garments and create outfits. The feedback was that they like the idea behind the app, its purpose is useful but the technology is not there yet. It is not ready for the market.

5.4 Google Firebase Insight analytics

Google Firebase Analytics were used in Magic Mirror in M25, in order to gain a better understanding of how people use the app during our pilot testing. Through Google Analytics, the SDK automatically captures a number of events and user properties, defining specific custom events in order to measure user behavior. Captured data are visualized in the Firebase Analytics dashboard, providing detailed insights from summary data such as active users and demographics, to more detailed data such as identifying the most selected options and functionalities in the app.

The list below indicates the customized events tracked in Magic Mirror through google analytics:

Initial events through the app's usage:

- **Login** (login)
- **Sign Up** (sign_up)
- **First Open** (first_open)
- **Session Start** (session_start)

AR Events– in main app

- **Recs requested** (recs_requested) – number of times users requested to be shown the recommended garments
- **3D requested** (threed_selected) – total number of 3D garment inspection
- **AR requested** (ar_selected) – total number of AR garment inspection
- **Visited shop** (visit_shop) – total number of visits to the eshop through the app

AR events in camera

- **Changed color** (change_color_ar) – number of times users changed the garment's color
- **Changed size** (change_size_ar) – number of times users changed the garment's size

In addition, certain events location in app are also detected, enabling a clearer understanding of the way users behave and navigate through the app's functionalities, enhancing further performance optimization:

Garment selected location in app

- **From favorites** (garment_selected_favs) - number of times users selected a garment from their list of favorites
- **With recs enabled** (garment_selected_recs) – number of times users selected a garment from the requested, recommended garments
- **After scrolling** (garment_selected_scroll) number of times users selected a garment after scrolling in the garment section

Updated Preferences location in app

- **Catalogue** (updated_prefs_catalogue) - number of times users updated their preferences (gender, size), when they were in the catalogue area of the app
- **Favourites** (updated_prefs_favs) - number of times users updated their preferences, when they were in the favourites area of the app
- **Splash** (updated_prefs_splash) - number of times users changed their preferences, from the relevant function found in the first scene after logging in

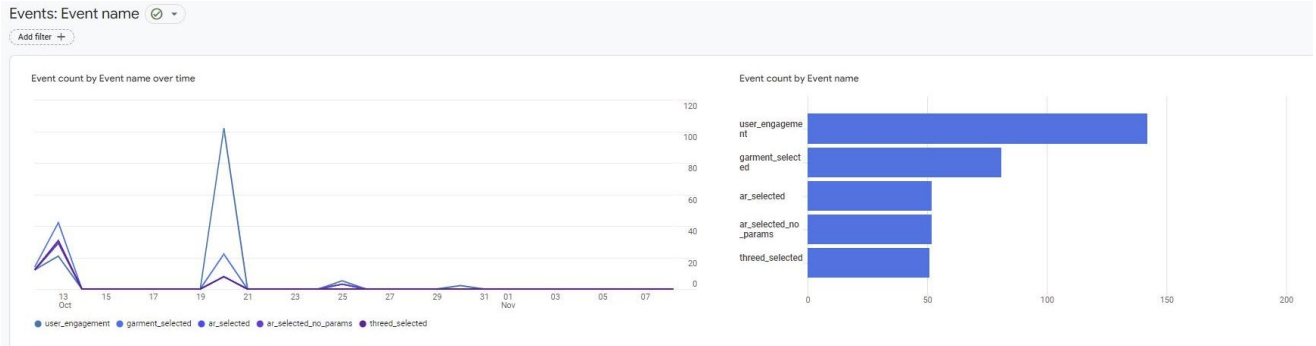


Figure 87: Magic Mirror - Custom events analytics from pilot testing (I)

Search...

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	Event name	Event count	Total users	Event count per user	Total revenue
		522 100% of total	3 100% of total	174.00 Avg 0%	$0.00
1	user_engagement	142	3	47.33	$0.00
2	garment_selected	81	2	40.50	$0.00
3	ar_selected	52	2	26.00	$0.00
4	ar_selected_no_params	52	2	26.00	$0.00
5	threed_selected	51	1	51.00	$0.00
6	threed_selected_no_params	51	1	51.00	$0.00
7	updated_prefs_splash	29	1	29.00	$0.00
8	screen_view	15	2	7.50	$0.00
9	garment_selected_scroll	14	2	7.00	$0.00
10	recs_requested	9	1	9.00	$0.00
11	login	8	1	8.00	$0.00

Figure 88: Magic Mirror - Custom events analytics from pilot testing (II)

The figure above shows the most preferred actions made by users during pilots. Among the most displayed activities were garment selection, AR inspection and preferences update. In addition to tracking custom events, custom event count is also detected in Google Analytics, providing additional details about the users. More specifically, event counts are detected by user, country, date and session, enabling a more personalized in-depth visualization of our audience and user engagement.

4.5 Conclusion

Magic Mirror was also an app that was highly promoted in eTryOn's dissemination activities, receiving positive feedback from consumers and professionals in the fashion industry.

In comparison to Dress Me Up, Magic Mirror provides a real time AR garment try-on inspection to users, providing a fun and engaging experience. However, the real time process offers a less realistic outcome, due to the overall technical issues of current state of the art technology solutions (existing skeleton tracking technologies in Unity and ARKIT), further described in D2.2 [3] and D2.4 [4].

Indeed, many users claimed that the AR try-ons through the Magic Mirror app faced several misalignments in their overall fit. However, the majority of users were positive in using the app, claiming that Magic Mirror app seemed true to life with real world experience of clothes, with AR clothes following their body movement in close to real time, providing them with an adequate view of the way real garments would physically fit on them.

Moreover, the majority of users claimed that once the app is commercially released, they would use Magic Mirror to try on and purchase the clothes they like: more than 60% of the participants found the app a useful tool and more than half of them would recommend the app to their friends.

In regards to future developments, the capabilities in AR body tracking and cloth simulation of Snap Lenses render it to be highly considered among the consortium in order to overcome current technology obstacles in skeleton tracking, and further fulfil the user's feedback remarks regarding the size accuracy and garment fitting. In overall though, Magic Mirror was considered a useful, clear structured and easy to use app.

5. Overall Conclusion

The overall feedback on VR Designer, Dress Me Up and Magic Mirror is considered rather positive: the majority of users claimed that they regard the apps as useful tools which they would use, once commercially released, as well as recommend them to their friends. Specific comments in regards to the overall functionalities and usage of each app are further analyzed in the deliverable.

The positive feedback from the pilots gives the consortium confidence that the desirability risks of each app is considered comparatively low, as further elaborated in D7.4 [5]. In VR Designer, users liked the virtual showroom and the ability to virtually walk around and experience the outfit inspection in a more immersive way. There are however, reminders about the competition provided by the main existing alternative for users – namely, physical garment samples, as most users would rather use VR Designer as a complementary tool to the physical process. In regards to future developments, an interesting feature to be included would be the multi-presence functionality, enabling professionals in fashion industry to have a meeting in VR, inspect and decide on a new garment collection before the stage of production.

In comparison to VR, AR and digital try-ons is a field that most users are more familiar with, considering the recent uprising of relevant developments during the past two years. For Dress Me Up and Magic Mirror, most of the users claimed to already have experience with relevant digital try-on AR filters. In comparison to Dress Me Up, Magic Mirror provides a real time AR garment try-on inspection for the users. In Dress Me Up however, there are certain delays in the process which provide an advanced result in regards to the overall accuracy of the digital try-on. However, pilots revealed that users struggled with the user journey for the Dress Me Up app, the steps involved and the time required, as depicted in the initial number of visiting the app in comparison to the percentage of them concluding the whole process up to answering the feedback survey. Valuable feedback to also be considered for future developments of Dress me Up is that the majority of users claimed they would not be willing to wait for more than a few minutes for this process to be completed. Future developments for Magic Mirror include further developing the app using the 3D body tracking and cloth physics simulation in Snap's Lens Studio in order to achieve better results in terms of try-on accuracy.

No matter the aforementioned constrains though, the overall feedback was considered rather positive, with pilot participants finding value in the experience and willing to further use the apps when released. In addition, positive feedback was also received in terms of user experience and layout, with most participants finding Dress Me Up and Magic Mirror useful, clear structured and easy to use.

6. References

[1] D6.2, Pilot plan and evaluation plan, June 2022

[2] D5.4, Final version of the eTryOn interaction systems (upd), December 2022

[3] - D2.2, First working version of the avatar-garment simulation software, December 2021

[4] - D2.4, Final version of the avatar-garment simulation software and final garment collection for the pilot (upd), December 2022

7. Appendix

7.1 Appendix I

Information Sheet and Consent Form

Title of the Project:	eTryOn - Virtual try-ons of garments enabling novel human fashion interactions
Website:	https://etryon-h2020.eu/
Coordinator:	CERTH-ITI

Leading Local Investigator: Michaela Jauk & Ursina Häfliger

Programme:	Horizon2020
Contract Number:	951908 - eTryOn
Project Duration:	27 months
Start - End:	October 2021 – December 2022

The following generic content will constitute the indicative terms and conditions of use between eTryOn and designers and customers that will use the three applications that will be developed in eTryOn: DressMeUp, Magic Mirror and Designer app. The content will be translated to the local language of the pilot site.

This Agreement is entered into as of ……. by and between …….., under the Swiss law, having its principal place of business at ……, and eTryOn, as represented by …….....

The study described in this document is part of the research project *"eTryOn"*. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 951908.

In consideration of the mutual promises and covenants contained in this Agreement, the parties hereto agree as follows:

A. Purpose of the study/project

1. General background

This study has been set up by the CERTH – ITI in Greece and is carried out by researchers across various research centres in Europe. In Switzerland, this study is coordinated by Odlo. The study is funded by European Union's Horizon 2020 research and innovation programme under grant agreement No 951908. In total, 150 study participants will be included in this study. This study has been approved by the Research Ethics Committee of the eTryOn.

With eTryOn, the use of interactive technologies will become mainstream in the fashion industry, focusing on three distinct fashion experiences that target both fashion designers and consumers: i) creative experience: while the creative process of garment design has changed over the past years from 2D sketches to using 3D design software, the visualization capabilities are still rather limited to just fitting the garments on grayscale predefined still avatars without considering the response of the garments during movements; ii) social experience: while the social experience of fashion has changed with the wide adoption of platforms like Instagram, it is still limited to just uploading images of people wearing physical clothes; and iii) shopping experience: the online shopping experience is essentially the same whether people buy clothes or electronics (i.e. they look at a few images of the items and their specs).

2. Purpose

This study has the following purposes:

The designer pilots: The designer Pilots aim to evaluate the **VR Designer** application that was developed in eTryOn for assisting fashion designers in the garment design process. The Pilots' outcome will be employed to refine and evaluate the eTryOn system.

The consumer pilots: The consumer pilots aim to evaluate **Dress Me Up** application for social media use and the **Magic Mirror** application for supporting online shopping. Both target the fashion consumers.

All participant's data are essential for the needs of the research for evaluating eTryOn services and further studying user's needs and behavior through the application testing. Your data will be used in the context of this study from eTryOn's consortium partners strictly for the needs of the research. All research groups involved in this study are approved by the project and follow the same regulations in regards to data protection and security.

3. What your participation involves

Before participating the pilots, you will have the opportunity to ask any additional questions you might have about the study and discuss your participation with leading local investigators. If you agree to participate, you will test one of the applications and provide information about the user experience you had by answering a questionnaire.

Prior to pilots, you and the researcher will both sign the informed consent form. When informed consent form has been signed, the pilot testing can begin. In **Appendix B** you can see a copy of the informed consent form that you will be asked to sign.

4. Data Processing

During the pilots, your personal data will be collected, used and stored for this study. This concerns information such as your name, address and information about your professional occupation and level of technology familiarization. It also includes your comments and feedback you provide us through the questionnaires, regarding your user experience from the application. The collection, usage and storage of your data is required to answer the research questions of this study. The data processing procedures do not include any existence of an exclusively automated decision-making (i.e. without human intervention) process. We will ask your permission for the use of your data in the Consent Form (Appendix B).

4.1 Confidentiality of your data

To protect your privacy, we will follow the guidelines of the EU General Data Protection Regulation. Your data will be given a code. Any information that can directly identify you will be omitted. Data can only be traced back to you with the encryption key. All data will be stored centrally on a digital platform developed specifically for the eTryOn project. This way, your data will only be shared with other researchers within the eTryOn project. All data collected from you testing the app will only be made available to researchers within the eTryOn project who undergo specific data protection training. We will not share identifiable data with other researchers. The encryption key remains safely stored at the eTryOn Gdrive. The data cannot be traced back to you in reports and publications about the study.

4.2 Access to your data for verification

Some people can access all your data at the (eTryOn Gdrive). This includes the data without a code. This is necessary to check whether the study is being conducted in a good and reliable manner. Persons who have access to your data for review are: the data protection committee that monitors the safety of the study. They will keep your data confidential. We ask you to provide your consent to this access.

4.3 Storage and use of data for other research

Your data may also be of importance for other scientific research in the field of digital fashion. To this end, we would like to store your data for 5 years. You can indicate on the consent form whether or not you agree to this. If you do not agree, you can still participate in this study and your data will only be used for the needs of current study.

4.4 Withdrawing consent

You can withdraw your consent to the use of your personal data at any time. This applies to this study and also to the storage and use of your data for future research. The study data collected until the moment you withdraw your consent will still be used in the study, unless you specifically ask for their deletion. In this case, researchers within the eTryOn project with access to the encryption key storage database will trace your info, delete all your data and officially inform you about this process.

4.5 More information about your rights when processing data

For general information about your rights in regards to the processing of your personal data, you can consult the website of the **Federal Data Protection and Information Commissioner**, Switzerland.

If you have questions or complaints about the processing of your personal data, we advise you to first contact a researcher from the eTryOn site. You can also contact the Data Protection Officer of the eTryOn site (see contact details in Appendix A) or the **Federal Data Protection and Information Commissioner**, Switzerland.

4.6 Registration of the study

Information about this study is included in a list of virtual try-on scientific studies which can be found at eTryOn site. This does not contain any information that can be traced back to you. After the pilots, the website may display a summary of the results of this study.

4.7 Data Collection and Protection

ETryOn will ensure that your personal data will be:

(a) processed lawfully, fairly and in a transparent manner in relation to the data subject (‘lawfulness, fairness and transparency’);

(b) collected for specified, explicit and legitimate purposes of eTryOn and not further processed in a manner that is incompatible with those purposes; further processing for archiving purposes in the public interest, scientific or other research purposes or statistical purposes shall not be considered to be incompatible with the initial purposes (‘purpose limitation’);

(c) adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed (‘data minimisation’);

(d) accurate and, where necessary, kept up to date; every reasonable step must be taken to ensure that personal data that are inaccurate, having regard to the purposes for which they are processed, are erased or rectified without delay (‘accuracy’);

(e) kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed; personal data may be stored for longer periods insofar as the personal data will be processed solely for archiving

purposes in the public interest, scientific or other research purposes or statistical purposes in order to safeguard the rights and freedoms of the data subject (‘storage limitation’);

(f) processed in a manner that ensures appropriate security of the personal data, including protection against unauthorized or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organizational measures (‘integrity and confidentiality’).

5. Rights

ETryOn aligns with the GDPR EU legislation 2016/679, providing you with the following rights regarding your personal data:

- The Right to Information
- The Right of Access
- The Right to Rectification
- The Right to Erasure
- The Right to Restriction of Processing
- The Right to Data Portability
- The Right to Object
- The Right to Avoid Automated Decision-Making

6. If you do not want to participate or you want to stop participating in the study

Participation is voluntary: It is up to you to decide to participate in the study.

If you do participate in the pilot, you can always change your mind and decide to stop at any time during the pilot. You do not have to provide a reason. You do, however, need to tell the investigator immediately if you want to stop your participation. The data collected for the study up to that point will be used for analysis.

If there is any new information about the study that might impact on your desire to continue participating in the study, the investigator will inform you as soon as possible. You will then be asked if you want to continue with your participation.

7. Any further questions

If you have any questions, please contact the investigator. If you would like any independent advice about participation in this study, you may contact your local independent expert. He/she knows about the study but is not directly involved in it.

If you have any complaints about the study, you can discuss this with the investigator. If you prefer not to do this, you may contact your local complaints officer. All the relevant details can be found in Appendix A.

8. Contact Us

If you have any feedback, questions or comments about the Services, please contact our Research Team:

Email: etryon.project@gmail.com

Please be sure to include in any email or postal mail your full name, email address, postal address, and any message.

B. Terms and Conditions of Use

Welcome to eTryOn. By using eTryOn's applications : DressMeUp, Magic Mirror and Designer app and services, you are agreeing to all the terms below.

ETryOn and its applications (DressMeUp, Magic Mirror and Designer app, collectively referred to throughout as eTryOn) offer a variety of services aiming to transform the current HFI experiences (i.e. creative, social and shopping), efficiently tackling the needs of both the consumers and the fashion industry..

These Terms and Conditions of Use ("Terms") govern your access to and use of our Services. Please read the Terms carefully before using our Services, as they are a legally binding contract between you and eTryOn. Your access and use of the Services (regardless of whether you create an account with us), constitutes your agreement to these Terms and our Privacy Policy, which is incorporated into the Terms. Stated alternatively, you have the right to disagree with any part of the Terms and not use our Services.

Please feel free to contact us if you have any questions or suggestions by sending an email to etryon.project@gmail.com.

1. Use of the Services and Your Account

(a) Who can use eTryOn and for what purposes

ETryOn aims to revolutionize the interaction between users (i.e. fashion designers, lovers and consumers) and fashion items, by researching and developing technologies that allow virtual try-ons of garments.

In order to participate in the application's pilots and use eTryOn services you must be above 16 years old and either be professionally involved in the fashion industry (design, retail etc) or be interested in fashion as a consumer with an active social media presence (influencer, blogger, vlogger).

DressMeUp can be used by customers, influencers and designers: in the application you will take a photo or video of yourself with a smartphone and upload it to the eTryOn cloud

software, where your 3D avatar will be created and you will be able to select from a list of available clothes for the one that you want to virtually try on. The garment will be automatically rigged and skinned on your avatar and you will be able to see yourself in this outfit in various poses and animations and share this through your social media accounts. Magic Mirror also addresses customers, influencers and designers: you will be able to see yourself either in a real time digital mirror setting or in a virtual room with pre-computed animations, and virtually try on the garments you choose from the included list. Designer App is mainly targeting fashion designers. This tool can be used from the early stages of the garment design process up until the final presentation of the collection. The designer will be able to work on and design new clothes in a VR environment and check out the results on a virtual avatar, inspect the garment's qualities and make any possible changes that might be needed.

(b) Your Account

You will need to create an eTryOn account to access the Services, and it's important that the information associated with your account is accurate and up-to-date (particularly your email address – if you ever forget your password, a working email address is often the only way for us to verify your identity and help you log back in). For the Designer app, in order to reassure that fashion industry professionals will use the app, you may need to register your professional details in order to proceed to creating your account.

You may need to register for an eTryOn account in order to access or use certain Services. Your account may automatically provide you access and means to use new Services that we create.

When you create an account for any of our Services, you must provide us with accurate and complete information as prompted by the account creation and registration process, and keep that information up to date. Otherwise, some of our Services may not operate correctly, and we may not be able to contact you with important notices.

If you create an account, you are responsible for maintaining the confidentiality of any and all actions that take place while using your account, and you must notify our Support Team right away of any actual or suspected loss, theft, or unauthorized use of your account or account password. We are not responsible for any loss that results from unauthorized use of your username and password, with or without your knowledge.

If you forget your password and have an existing eTryOn account, click on the “Sign In” or “Log In” link at the top of the page. You will be taken to the Sign In page, where you can select “Forgot Password” to create a new password.

You have the right to delete your account at any time by using the relevant section. If you choose to permanently delete your account, the non-public Personal Data that we have associated with your account will also be deleted.

(c) Service Updates, Changes and Limitations

Our Services may evolve to be used by a broader public. Therefore, we need the flexibility to make changes, impose limits, and occasionally suspend or terminate certain offerings. We may also update our Services, which might not work properly if you don't install the updates.

We may from time to time, as we see fit, develop and provide updates for certain Services. This may include upgrades, modifications, bug fixes, patches and other error corrections and/or new features (collectively, "Updates"). Certain portions of our Services may not properly operate if you do not install all Updates. These Updates may include updated versions of our applications, which may automatically electronically upgrade the versions used on your device, as well as updates to apps and other connected products. You expressly consent to such automatic Updates. Furthermore, you agree that the Terms (and any additional modifications of the same) will apply to any and all Updates to the Services.

(d) Service Monitoring and Suspension

We may change, suspend, or discontinue any or all of the Services at any time, including the availability of any product, feature, database, or Content. We may also deactivate, terminate or suspend your account at any time:

(1) if we, in our sole discretion, determine that you are or have been in violation of these Terms or the spirit

(2) if we, in our sole discretion, determine that you have created risk or possible legal exposure for eTryOn

(3) due to unexpected technical issues or problems.

We will endeavor to notify you by email or at the next time you attempt to access your account after any such deactivation, termination or suspension.

(e) Security

We have taken strong measures to protect the security of your Personal Data, User-Generated Content, and account. Please let us know right away if you believe your account has been hacked or compromised.

2. Privacy

By using the Services you consent to the collection, use, and providing your Personal Data, as registered for the purposes of creating your account.

3. Ownership and Use of Content

(a) Our License to You

You are welcome to access and use our content, products and services. In order to do so, you will need to respect our intellectual property rights and only use our Services the way they are intended to be used.

You acknowledge and agree that the Services, any necessary software used in connection with the Services (if any), and the eTryOn Content contain proprietary and confidential information that is protected by applicable intellectual property and other laws. We grant you a limited, revocable, personal, non-transferable, and nonexclusive right and license to access and use the Services and eTryOn Content, provided that you do not (and do not allow any third party to) copy, modify, create a derivative work from, reverse engineer, sell, assign, sublicense, grant a security interest in, or otherwise transfer any right in the eTryOn Content or Services to anyone else.

This license is subject to the Terms, including our Community Guidelines and eTryOn Content. You agree not to modify, rent, lease, loan, sell, distribute, or create derivative works based on the Services, the Services' software, or any eTryOn Content offered as part of the Services (other than User-Generated Content), in whole or in part. Please do not download, copy, or save eTryOn Content, except (i) as expressly permitted by the functionality of certain Services (e.g., sharing virtual try-ons on your personal social media accounts) as provided for in the specific guidelines and/or additional terms applicable to those Services, or (ii) solely for personal use or your records.

(b) Your License to Us

When you post content in connection with eTryOn, it still belongs to you – however, you are giving us permission to use that content in certain ways in connection with our Services and make the content available to others.

We reserve the right to monitor, remove or modify User-Generated Content for any reason and at any time, including User-Generated Content that we believe violates these Terms, the Community Guidelines, and/or our policies.

(c) Your Feedback

We value hearing from fashion industry professionals, and are always interested in learning about ways we can improve eTryOn. If you choose to submit comments, ideas or feedback, you should submit the idea through the relevant section on eTryOn, and you agree that we are free to use the ideas you submit without any restriction or compensation to you.

4. Miscellaneous

These miscellaneous provisions are part of just about every online terms agreement. Basically, they ensure that this agreement between us is enforceable.

You agree that no joint venture, partnership, employment, or agency relationship exists between you and us as a result of the Terms or your use of the Services. The Terms and

any Product-Specific Terms constitute the entire agreement between you and us with respect to your use of the Services.

You may not assign, delegate, or otherwise transfer your account or your obligations under these Terms without our prior written consent.

Our notice to you via email, regular mail, or notices or links displayed in connection with the Services constitutes acceptable notice to you under the Terms. We are not responsible for your failure to receive notice if email is quarantined by your email security system (e.g., "junk" or "spam" folder) or if you fail to update your email address. Notice will be considered received forty-eight hours after it is sent if transmitted via email or regular mail.

Appendix A: contact details for (eTryOn)

Principle investigator:

Spiros Nikolopoulos, senior researcher at the Centre for Research and Technology Hellas (CERTH) in the Information Technologies Institute (ITI) Greece, nikolopo@iti.gr

Other investigators:

Michaela Jauk, Odlo International AG, Project Manager, michaela.jauk@odlo.com

Ursina Haefliger, Odlo International AG, Project Manager, ursina.haefliger@odlo.com

Complaints officer: Ursina Haefliger, Odlo International AG, Project Manager, ursina.haefliger@odlo.com

Data Protection Officer of CERTH: Stella Papageorgiou, spapastergiou@certh.gr

Appendix B: Participant Informed Consent Form

Your participation in this study is only possible if you freely and independently sign this consent to authorize us to use the data you provide. If you do not wish to do so, please do not participate in this study.

☐ I have read the information in this consent or the information has been read to me in an adequate way. All of my questions about the study and my participation in it have been answered. I had enough time to decide if I wanted to participate in this study.

☐ I know that participation is voluntary. I know that I may decide at any time not to participate after all or to withdraw from the study. I understand that I do not need to give a reason for this.

☐ I give permission for the collection and use of my data to answer the research questions of this study.

☐ I know that some people may have access to all my data to verify that this study is performed correctly. These people are listed in this information sheet. I consent to them accessing my data.

I

□ do

□ do not consent to storing my personal data for 5 years and to use such data for future research in the field of digital fashion design and production.

I

☐ read all the information in this form.

☐ The information in this form was read to me by:

Michaela Jauk, Odlo International AG, Project Manager, michaela.jauk@odlo.com / Ursina Haefliger, Odlo International AG, Project Manager, ursina.haefliger@odlo.comAll

□ the questions that I had have been answered by:

Michaela Jauk, Odlo International AG, Project Manager, michaela.jauk@odlo.com / Ursina Haefliger, Odlo International AG, Project Manager, ursina.haefliger@odlo.com

☐ I confirm that I am over the age of 16 and I have read and agreed to the Terms of Use.

☐ I want to participate in this study.

I authorize the use and diffusion of my answers to the entity aforementioned for the purposes above indicated. Signing this consent does not imply giving up to any legal rights. I accept in a voluntary way to participate in this investigation carried out by the eTryOn Consortium. I understand that I have the right of having a copy of this informed consent.

Name and surname of participant:

……
……

Date:

……
……

Signature of participant:

……
……

I hereby declare that I have fully informed this study participant about this study.

If information becomes known during the course of the study that could affect the study participant's consent, I will inform him/her of this in a timely fashion.

Name of investigator

Michaela Jauk, Odlo International AG, Project Manager, michaela.jauk@odlo.com

Ursina Haefliger, Odlo International AG, Project Manager, ursina.haefliger@odlo.com

Signature:

Date:__ / __ / __

The study participant will receive the full information sheet, together with a signed copy of the consent form.