

UX Challenge Report - Group 4

Agnese Gualandi

s1614827

a.gualandi@student.tue.nl

Daisy O'Neill

s156069

d.oneill@student.tue.nl

Eline Renne

s1624407

e.p.f.renne@student.tue.nl

Andra Tanasa

s152048

a.i.tanasa@student.tue.nl

INTRODUCTION

With this report we demonstrate our learning and report on the User Experience (UX) Challenge assignment for the course User Experience Theory and Practice - DDM150. We reflect on the new insights we have gained through translating our theoretical UX knowledge into practice during our assigned challenge, and the challenges of our peers. This report documents our process, as well as the methods and tools we implemented. We learned to look critically and broadly at different UX challenges, deepening our understanding of what UX can be and how we can design the best possible experiences.

There were 3 different group UX challenges that were worked on; (1) Mirabeau – investing using chatbot technology, (2) Philips – emergency department waiting room experience at the hospital, and (3) Essense – airport departures experience. We were involved in the first challenge pitched by Mirabeau to support young adults in investing using chatbot technologies.

In this challenge, we focused on young adults' motivation, expectations and needs when investing. To transform the client brief into a meaningful user experience, we had to quickly become experts on the topic, synthesizing our new knowledge into a design and translating the theory we have learned into a solid foundation for our design choices. Since chatbots are an emerging technological trend, we also had to think about how to design and improve user experience for a relatively new and undefined innovation area.

Individually, we used our own UX portfolios to guide our roles and development, and we learned from implementing new practical tools and digital design methods. The rapid pace and high expectations we experienced was a comparable experience to working

in a real world Research and Development position, solidifying our choice for becoming members of the RDD track and preparing us for our future careers.

TARGET CHALLENGE

Our UX Challenge, pitched by Mirabeau, was to design for a Nordic financial services company who wanted to attract new customers and increase sales using conversational artificial intelligence (AI). Their target market was young adults who were interested in investing but did not know where to start. To appeal to this audience, as well as improve around-the-clock customer service, the company was interested in implementing a chatbot based solution. The design requirements included that the proposed design educated young customers about investing, provided financial advice and allowed for personalization (figure 1). It was especially important for the company that the solution aligned with their sustainable vision by supporting customers to invest in ways that contribute positively to society and the planet. It was also a priority that the design convinced young investors to choose to invest with them, and that it could be easily integrated with their existing digital products.

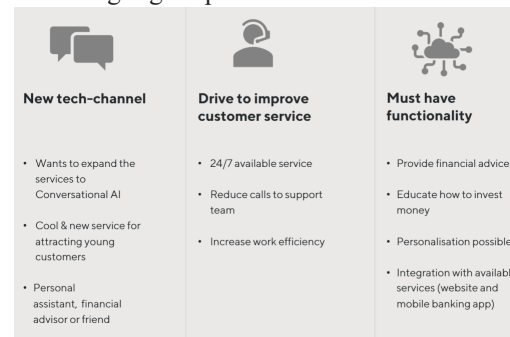


Figure 1: Design requirements from Mirabeau [25].

After reading this challenge brief, we knew that it would be essential to quickly become knowledgeable on the topic if we wanted to design a successful user experience. Since most of the group were not familiar with the topic of investment or chatbots, we began with in-depth research related to these topics.

First of all, we deepened our knowledge of chatbots and how they work. Only after understanding the possibilities of chatbots as design material could we make a judgment whether they were appropriate for the brief. We learned that “chatbots are computer programs that interact with users using natural languages” [32]. Their benefits include being able to provide immediate responses to customer questions 24/7, reducing customer service costs and that chatting is a familiar interaction for many people, lowering burden. We also learned about the three distinct chatbot structures (1) decision tree based chatbots, (2) chatbots using natural language processing and AI and (3) hybrid chatbots which combine both (table 1).

Flow chatbot (decision tree-based)	Provides fixed answers based on the questions that are already in the database. It drives the customer in a predefined way through buttons, keywords and catchphrases [14].
Chatbots with AI	Are able to update their knowledge based on previous choices made by the customer and their user experience [14]. The customers are more free in interaction and can type their own text which is understood using natural language processing.
Hybrid chatbot	Chatbots that combine the Flow and AI structures of chatbots. It can communicate and understand the client, “but remains in the pattern determined by the developer” [14].

Table 1: Types of chatbots.

Since none of us had any meaningful experience with investing, our next step was to dive into the topic to

learn as much as we could. Using various newspapers, we read more about why our fellow millennials usually do not invest. According to an Ally Financial survey [6], 66% of people aged 18 to 29 (and 65% of those 30 to 39) say investing in the stock market is scary or intimidating. For many of the respondents, the barriers were reported as fear of stock-market risk and that they think they do not have enough money [9].

Since we would need to overcome this barrier with our design we then researched the risks involved with investing and how people experience and react to them. While the primary goal of investing is to make money, it is impossible to generate a return without taking on risk [30]. In the world of investing, risk generally relates to uncertainty. The size of potential returns depend on the time frame and the amount of risk exposure needed to achieve the investor's goals. A person's ability to withstand investment risk is referred to as "risk tolerance" and is as important as the risk of the investment itself. Important for our design is understanding that people can be "risk tolerant" or "risk averse" and that risk tolerance will likely change over time depending on their evolving needs and goals [30]. We also found that this does not differ among gender [23].

To bring this closer to our target user group, we tried to understand *what* young adults today tend to invest in, as well as the emerging investment trends. We found that currently, a new generation of investors is changing the financial investment landscape because when they invest, they also want their investments to matter. An example of this is "socially responsible investing": an investment strategy "based around an ethical framework that assumes the investor has an obligation to act for the benefit of society" [11].

Technology is also transforming the investment industry, "allowing investors and traders to execute trades instantaneously and smartphone technology has allowed investment activities to become faster, more flexible and transparent" [4]. To benchmark current innovations, we researched some existing companies for inspiration

on how they approach young people. The Robinhood platform [5], for example, allows easy, commission-free investing on a range of stocks and other investments. Their way of communicating and explaining the basics of investment to young people impressed us (figure 2) and demonstrated that supporting and educating young investors is integral in their approach to attract young consumers. This is done through easily digestible bites of information, a fresh and modern aesthetic, and the use of simple language suitable for young people who enter the world of investing for the first time.

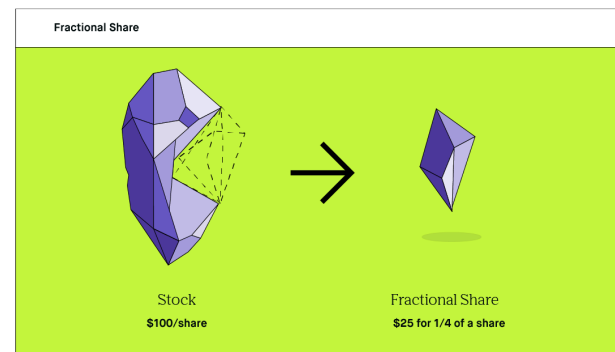


Figure 2: Example of educational material from Robinhood [5].

To understand if our literature-based findings were representative of the current situation, and to empathize with our target users, we distributed a survey among young adults between 18 and 25 years old (Appendix A). It was useful to understand the investing experiences of others in our age group, as well as their expectations, wants and needs. The starting question asked was if the participant had ever invested before. Then based on the answer (Yes, I currently have money invested; Yes, I have invested in the past but have no current investments; No, I have never invested) respondents were asked questions about their experiences, choices, motivations and learning methods. Finally, we asked about their previous experiences with chatbots and how they perceive them.

Analysis of Questionnaire

The questionnaire was completed by 37 participants, and

the results can be found in the Appendix B. Since user experience is about how products and services enable us to perform meaningful activities by fulfilling our basic needs, we translated the insights from the questionnaire into needs of our target user during the analysis. For example, it emerged that 62,2% of respondents had never invested. Within this group, 85,7% attributed this to not knowing where to start, while 28,7% mentioned that it requires too much effort to get started. These insights show that we must consider a low-effort threshold for young customers to get started, and demonstrate a need for education among the target audience.

Here, we identify two psychological needs from our participants: to build their *competency* and support their *autonomy*. Hassenzahl suggests that autonomy, competency, relatedness, stimulations, meaning, security, popularity and physical strivings are universal psychological needs and important constituents of experiences [16]. Competency is also described in the top-ten psychological needs of Sheldon et al. (2001) as "feeling that you are very capable and effective in your actions rather than feeling incompetent or ineffective" [33]. With our design we want to support competency building increasing users' knowledge so that they can invest effectively, gaining confidence in their capabilities to manage their own financial assets. Autonomy is described as "feeling like you are the cause of your own actions rather than feeling that external forces or pressure are the cause of your actions" [33]. Based on our questionnaire results, we consider it fundamental for young investors to achieve a level of autonomy and independence when investing using our design.

Competency and autonomy are also two of the three basic psychological needs stated by the Self-determination Theory [10]. Self Determination Theory states that the feeling of competence, autonomy, and relatedness are universal necessities and "provide the nutrients for intrinsic motivation and facilitate internalization of extrinsic motivation" [10]. Intrinsic motivation involves people doing an activity because they find it interesting and derive spontaneous satisfaction from the activity

itself. Extrinsic motivation requires an instrumentality between the activity and some separable consequences such as tangible rewards, so satisfaction comes to extrinsic consequences and not the activity itself [10]. When designing for the User Experience of our solution, we want to encourage a shift from amotivation (the lack of intention and motivation) towards intrinsic motivation; creating interest and enjoyment in investing for young people.

From the analysis of the survey, we also discovered two important insights about the factors which young people find important when investing. The first is the “stability and size of the company/currency” which mirrors what we learned about comfort with risk among the age group. The other, and most interesting for our design, confirmed that young adults are especially interested in socially responsible investing. They indicated that they would consider “the ethics of a company, their sustainability and environmental practices, if they are locally/nationally owned and their diversity and equality practices”. This is an example of the broader shift among younger generations towards the mindset of the Transformation Economy, which prioritizes “providing meaningful context-specific propositions built with long-lasting profitable, ethical, and fair business based on multiple stakeholder collaboration and value sharing” [3]. Based on these findings, we know that our design will need to allow young adults to invest in ways which align with their ethical values, and positively affect change in the world.

The questionnaire was very useful to gain insights and validate not only the wishes of the client and the desk research we did, but also to generalize our personal experiences. Since we are part of the target group, we were able to use our intuition from our experiences when addressing this challenge. To do so, we adopted a first person perspective which meant that as designers, we were both “part of the system and an actor in the design context” [34]. Smeenk (2019) legitimizes the use of first person perspective, encouraging the use of informal autobiographical reflection in designing to

bring inspiration to the design. Doing so provided us with unique insights.

Based on our experiences and the data gathered from the survey, we built a persona. Since “personas are distilled essences of real users” [37], we used it to build empathy with target users and focus on their needs, experiences, behaviors and goals. The profile of our persona can be found in the Appendix C. Once we defined the persona, we explored how she could experience possible chatbot based investing services, using a customer journey map [19]. It was a useful research tool to also imagine how the user could move from amotivation to an intrinsically motivated investing experience. The customer journey can be found in Appendix D.

TRANSLATING INSIGHTS INTO DESIGN

We then began to translate our insights into a design focused on a conversational agent. The conversational tone of a chatbot is extremely important since “a match in personality between a chatbot and the user will have a positive effect on the user experience” [35]. We began to tailor our chatbot’s personality towards our target audience based on the questionnaire responses and persona. The personality development can be seen in figure 3.

During the personality development, we also conceptualized how we could offer user’s multiple personalities to choose from, each with different expertise areas (figure 4). To decide between using one personality or multiple, we reflected on the theory of satisficing vs maximizing [31]. If we had three chatbot personalities, one might feel that they were “missing out” on information or opportunities provided in the ones which were not chosen. This could lead to choice fatigue, regret, and overall lower satisfaction. We therefore decided to continue designing with only one personality.



Figure 3: Development of the chatbot personality.

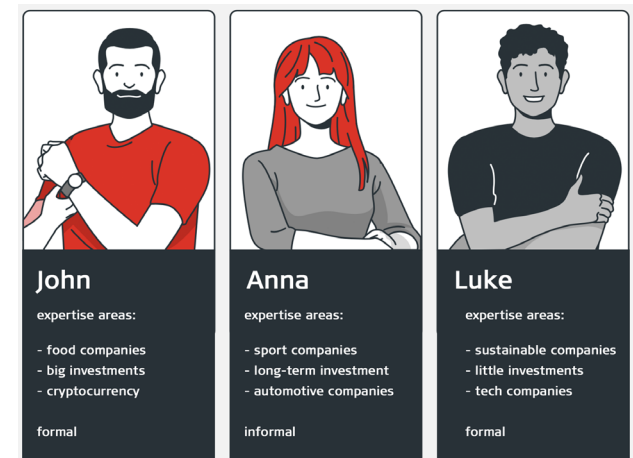


Figure 4: Our ideas for multiple chatbot personas.

Design Requirements

Next, we outlined design requirements and ideated on how we could deliver this functionality through a conversational interface. Our requirements included:

Users must learn about investing in an accessible way

To keep learning accessible for beginners, we found it was important to create educational content that was initially jargon-free and progressively onboarded users by introducing them to the language of investing over time. McDonnell et al. (2015) found that using technical jargon intimidates beginners and impedes their learning [24]. We must also tailor educational content to the financial situation of young investors; for example, using examples of investments lower than \$100. We would deliver this content through learning modules as seen in figure 5.



Figure 5: Investing 101 learning module in the app.

Users must be able to set personalized and meaningful goals

In the chat, users can either choose an example goal or set their own. Reflecting on Locke & Latham's (2006) goal-setting theory [22], we chose realistic and challenging, yet tangible goals for the examples such as buying a car or saving for the down payment on a house (figure 6). By setting meaningful goals, investing becomes contextualized for the user.

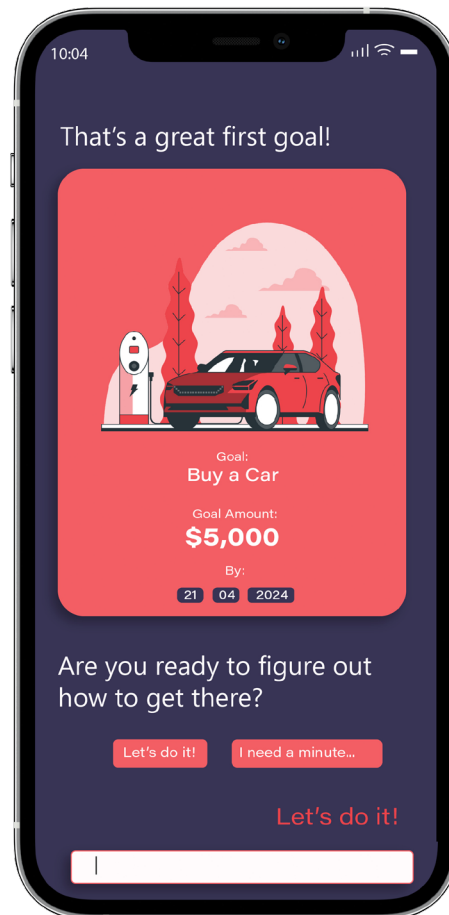


Figure 6: Setting personal investing goals in the chat.

Users must be able to receive investing advice based on their personal values

Personal values were found to be a top priority for the respondents of our questionnaire. Within the chat, young investors can choose which values are non-negotiable for them, and the chatbot will only suggest investments which align with them (figure 7). The app provides information about companies based on customer values (e.g. a customer for whom sustainability is important can ask the app how sustainable a company is in its production and decide whether or not to invest in it). By introducing, or even better, *encouraging* the possibility to invest based on personal values, young people can secure and influence more inclusive value networks, and ethical value exchanges in the shift towards the transformation economy [3]. This also provides young adults with a way to make a meaningful contribution while still working towards individualized financial freedom.

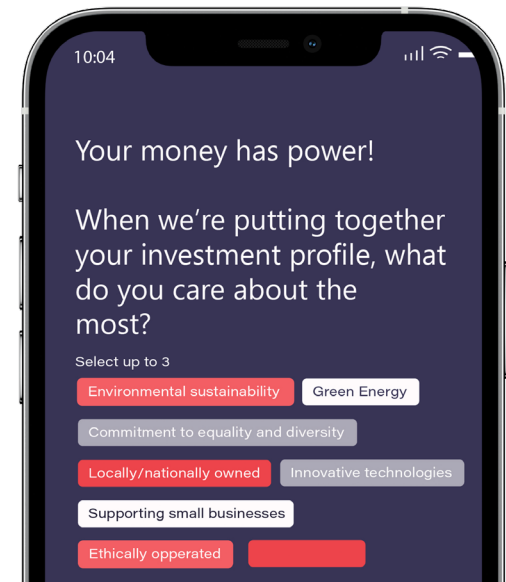


Figure 7: Choosing personal values in the chat.

The service must allow tailoring of the user profile

From our research into investing, we learned that not only what a person invests in, but their general attitude towards investing is important. Since a person's comfort with risk determines the types of assets they should invest in, our design had to allow them to specify this. By asking simple questions, such as the time frame in which they want to see a return and their feelings about risk, the design can tailor the suggested investment portfolio more closely to the personal traits of the user (figure 8).

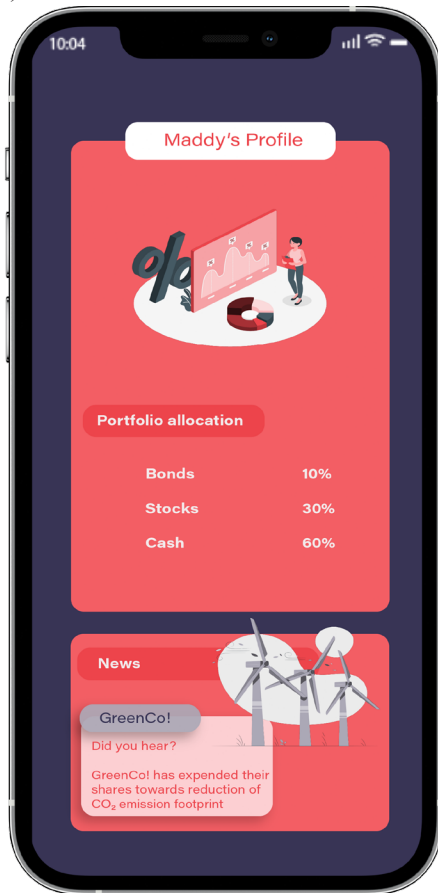


Figure 8: Recommended investment profile in the app.

The interface should be aesthetically pleasing for the target group

Aesthetics are extremely important for our target group. Young users consider the aesthetics of their digital experiences as extensions of their own aesthetics. During our benchmarking, it became clear that many existing investing applications have an extremely technical and intimidating appearance. The successful applications which also aimed at young investors such as Robinhood [5] or WealthSimple had a much cleaner and modern aesthetic. We used this in our design by creating a modern chat interface with a full-screen chat box and a variety of inline scrolling and button options (figure 9).

When creating the look and feel of the chatbot interface, we chose to use a hybrid chatbot, combining menus and buttons with natural language processing. While natural language processing is an exciting option, it can quickly become burdensome and lead to user frustration [1]. Especially when learning new information, it can be difficult for the user to even know what to ask. Using the buttons allows us to guide the user through the process, reducing the room for error as well as lowering the burden and barriers to using the chatbot.

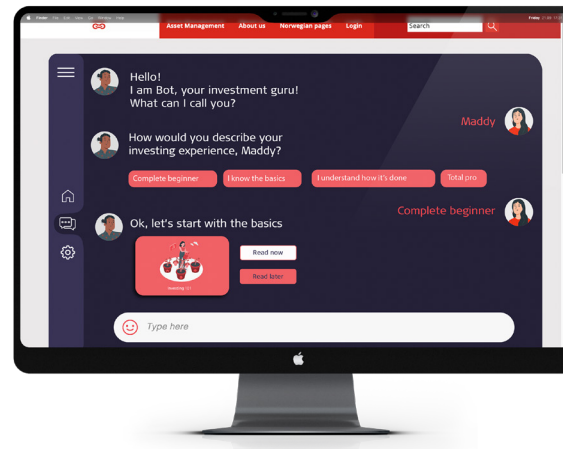


Figure 9: Modern aesthetic of the chatbot.

With the ideation finished, we then worked on creating mockups that looked as realistic as possible and creating a clear presentation to pitch our idea to the client. Our mockups gave the client an accurate impression of the look and feel of the chatbot application, and using storytelling in our pitch brought the client into the story with us.

Reevaluating our process

To reevaluate our process, we look at what supported us in arriving at a successful design pitch for the client, and what we can do better in the future. One of the strongest points of our process was that we reached out to target users using a questionnaire during the empathize stage of our design process. However, the questionnaire could have supported our design process even better if we had dove deeper into the user group's experience with chat bots. From the responses, we understood that young adults had previously poor experiences with chatbots, however in future we would include more questions to clarify which features lead them to having a positive or negative experience.

We also noticed during analysis that we touched on two of the three universal needs of self determination theory [10]. We could have better researched and supported our design decisions for intrinsic user motivation had we asked more about relatedness as well, such as how their friends and social norms influenced their investing behaviour. If this were for a real company, we would also collect demographics of the respondents to better support personalization, as well as to ensure the we designed from a diverse and representative sample.

To further improve, we would also perform a thorough evaluation of the chatbot, both during our design process as well with the final pitch version. During the empathize stage of our process, we would have used the value flow model [7] to uncover the deeper potential of our design. In our current design, we focused primarily on the values of the individual user as the stakeholder, however we could have uncovered opportunities for new value exchange for the financial company as well

as other relevant social and economic actors if we had mapped the ecosystem. In this way, we could have also evaluated whether our proposed design offered a balance in values between the stakeholders. In the prototyping phase of our process, we would have also implemented A/B testing to test whether one or multiple chatbot personalities were preferred.

To test whether our solution was well received, we would use a questionnaire to evaluate if users increased in competency and feelings of autonomy after using the design. We would ask questions to see if they built knowledge about investing, and how confident they felt before and after to invest on their own. We would also use the User Experience Questionnaire [21] to evaluate the overall experience of the digital product. To test the usability, we could use the System Usability Scale [18], however, since the SUS is evaluated with more traditional software systems, we would supplement it with Holmes et al.'s (2019) Chatbot Usability Questionnaire [17] which is tailored to assess conversational user interfaces.

OTHER TWO CHALLENGES

Philips UX Challenge

In addition to the challenge given by Mirabeau as described above, there were two other UX challenges proposed by Philips and Essense. The challenge proposed by Philips was “how can we manage patient’s expectations about waiting times (at the hospital ED), while staff should be able to focus on high acuity patients that might come in unexpectedly?”. The five student groups that were challenged to answer this question presented design proposals of both physical and virtual interfaces that would come to the aid not only of the patient but also the medical staff.

The groups presented concepts including color coded pain registration of the patients and assigning them to corresponding color coded areas; a device that indicates the waiting time of the patient using light intensity; a robot that aims to do part of the triage upon the patient arrival; a chatbot that keeps the patient informed and engaged during the wait, and “rating” cards with a

digital installation on the wall that shows the amount and priority of the rating cards (figure 10).

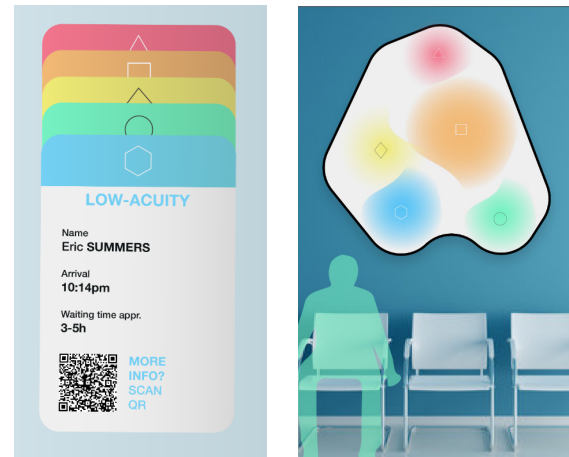


Figure 10: Rating cards and wall installation from group 6.

The most suitable concept according to the peer voting was the separated areas corresponding to the different color coded triage. This concept had the potential of being further developed and eventually integrated in the hospital environment, having as a strong trait of “shielding” the information delivered to the patients with a different triage color code. This refers to the fact that for example, the patient who is assigned with a red card based on the triage procedure will head towards the red room for their waiting time, whilst patients who received a green card will have to wait in the green room. The only information that these patients will see and receive will be based on the room that they are in. In this scenario the room is acting like a “shield” blocking all the information regarding the patients and waiting times of those from the other rooms.

All the concepts shown in this challenge had one UX consideration in common: the empathic approach towards the patient. Even though it was presented using different forms, all groups focused on an empathic approach using the insights from Zaki’s (2014) paper

to design from and include empathy in different ways in their concepts. They also framed their designs using the fundamental questions within UX; the *how*, the *what* and the *why* as presented in the Encyclopedia entry on User Experience and Experience Design paper by Marc Hassenzahl (2011).

During the discussion afterwards, segmentation [13] was a recurring feedback point for this challenge. In design, segmentation is most commonly done based on demographics, however, during this challenge the designs would have been improved by segmenting users based on their needs and benefits. Doing so “groups people in accordance with category-specific motivations, perceptions, requirements, and barriers” [13]. Alongside this, groups also missed performing a market segmentation in their presented concepts. This remark was based on the fact that all the groups aimed in resolving the challenge as a whole, without having a clearly defined market strategy or taking into account the many different stakeholders involved.

While watching the presentation session ourselves, we have also noticed missing factors that we would have taken into account. In the Robot concept for instance, the robot was addressing the pains of the patient, but on the other hand it was adding onto the workload of the medical staff. Had they mapped the stakeholders, taken multiple perspectives and thought about the value flows when analyzing the user journey they could have incorporated this during the design process.

Another UX opportunity that we feel the groups missed in this challenge was to apply the theory of peripheral interaction [2]. More groups could have addressed different levels of attention by focusing not only on the focused interaction, but also on the peripheral interaction and implicit interaction. For example, in waiting rooms, patients often occupy the time by checking their phones or reading magazines and since, as Bakker (2016) shares, “one can only look at one visual object at the time”, there is an interesting opportunity to design for a peripheral interaction here. Groups could also have

explored “calm technology” as defined by Weiser and Brown, “which engages both the center and the periphery of our attention, and in fact moves back and forth between the two” [36].

Essense UX Challenge

The challenge proposed by Essense was “how to improve the passenger experience at an airport through customer-centric collaboration across different departments?” As in the previous challenge of Philips, there were five student groups who worked on this challenge and presented their design proposals, taking both physical and virtual approaches. Among the concepts were: an app to improve the traveling experience of the passenger at the airport by displaying a user’s personal customer journey map on their mobile device, a hideout pod for families/ groups travelling together (figure 11), a locking tray and virtual queue system addressing the insecurities of the security check (figure 11), and a puck shaped device that focused on insecure passengers travelling alone.

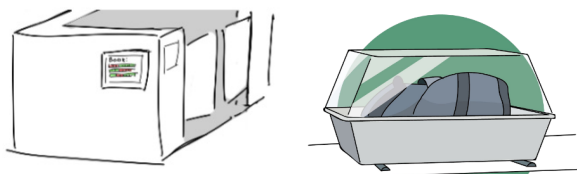


Figure 11: Group 12 hideout pod & Group 13 Locking Tray

Contrary to the Philips challenge where one concept was preferred over the others presented, a combination of pitched solutions was found to be the best for the Essense UX challenge. The tops of each concept were considered and proposed into a new system focused not only on the passenger’s wellbeing but also on the communication between the different services existing within the airport environment. The decision to mix the briefs for a final solution takes into account the various user profiles (demanding, insecure, etc.) and areas of the airport (security, restaurant, etc.) which the groups were

assigned to at the beginning.

The groups applied the Service Blueprint [8], a tool presented and used by Essense in their design process (figure 12). Using this tool, the designer is capable of tracking all the factors that are influencing the design process “behind the scenes”. The groups used Montañó & Kasprzyk (2008) integrated Behavioral Model [26] as an extra layer over Essense’s Service Blueprint to gain insight into the needs and pains of the customer, offering a more indepth user perspective to their designs. They also applied the timespan of the UX mentioned in the paper of Roto et al (2011), focusing on momentary UX, “a specific change of feeling during interaction” [29] and how users experience it.

Compared to the previous challenge, where the focus was clearly on empathy and the design considerations addressed to highlight this in their UX, we noticed this aspect in just a few of the Essense groups. Even though this challenge had a more business orientated goal, we do believe that the designs proposed should have had an empathic approach. By using the insights gained from Smeenk (2019) the teams could have adopted a mixed perspective approach in their designs, giving greater value to the design by implementing different points of view during the design thinking process.

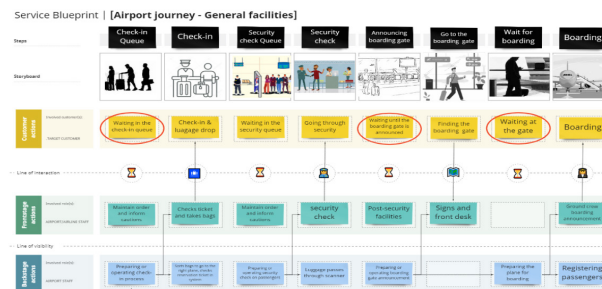


Figure 12: Service Blueprint made by group 14.

GENERAL REFLECTION

Differences Between Challenges

The three UX challenges were situated in three distinctly different contexts, while still having some similarities running through them. The Mirabeau challenge differs from the Phillips and Essense challenges for a couple of reasons. For Mirabeau, the goal of the client was to collect design proposals focused on informing and stimulating interest in investing among young adults; a very specific target group. However, in the Philips and the Essense challenge, the goal was to improve an experience in public places; the hospital and the airport, where a significantly more varied target group must be considered.

Despite the similarities between the Philips and Essense challenges, there were also differences. While the Essense challenge assigned more manageable user segments to their groups, those designing for the Philips’ challenge had multiple important user groups and many different possible segments to choose from. The Philips’ hospital challenge addressed three different key personas: Low-acuity patients, ED (emergency department) nurses and ED managers (figure 13). During the design process it was important to consider all their experiences and insights, creating a concept that satisfies the mutual interests of the stakeholders.



Figure 13: Important stakeholders for the Philips challenge [28]

Compared to Essense, where the user focus is towards creating a “fun”, enjoyable experience in the airport, in the Philips challenge the user can experience great pain and frustration, due to the hospital environment and their physical conditions. For this reason the prioritization of users’ needs, as well as the possible trade-offs in user experience during design are different. As designers, we must learn how to take this range of challenges

into account, considering direct users and connected stakeholders.

Differences Between Company Approaches

While all three companies focus on User Centered Design; the exact design approach that they take to design for the best possible user experience, differs. This is partly due to the different types of companies they are. Mirabeau and Essense are consulting and service design agencies that work for clients and external companies. This means that they must devote time in their design process to first learning more about the problem, background and context of their customers. Whereas Philips is a multinational conglomerate corporation that often has the necessary channels to complete all stages of the design process internally, meaning their designers are often already familiar with the domain.

Philips has a human centered approach to innovation and user experience. This is clearly shown, for example, by their tool “Co-Create” which is a version of design thinking. Co-create is “an iterative, multi-disciplinary way of stimulating innovation and problem solving”[28]. Its “methodology encourages empathy and understanding, enables continuous learning through experience, and creates speed to market as well as differentiation”[28].

At Essense, they first look at what the focus of the project is, then what needs to be made for it, and finally what the interaction should be [8] (figure 14). Essense also uses the Service Blueprint tool to gain insights into the internal factors, connections, and interdependencies behind a design. This allows their designers to discover bottlenecks in the client’s organizations and decide how to take tangible action [20]. Compared to the Philips and Mirabeau, Essense does not have the resources inhouse to fully develop their proposed service solutions, hence they have an interest in multi-disciplinary collaboration.



Figure 14: Essense’s design approach [8].

Mirabeau begins by identifying the customer’s wishes and needs, and understanding the problem they have to address in depth. They focus their innovations on what is technically feasible and financially viable for the customer. They are focused on helping their customers to provide the best possible experiences to the users of their designs. While doing this, the needs and behavior of the customer is central, “*Human Centric Design Thinking is at the core of everything we do [...] Design thinking is not just a slogan or flash word, it is part of our vision statement*” [25]. They work according to the double-diamond model, through convergence and divergence (figure 15). By looking broadly at each phase and gathering information and ideas, then refining the ideas, they believe clearer design decisions can be made.

We believe that each company’s approach is optimized for the company itself, which makes it unique and working for them. Having different approaches in the companies has shown us that we can search and work for companies in the future whose approach aligns with our own.

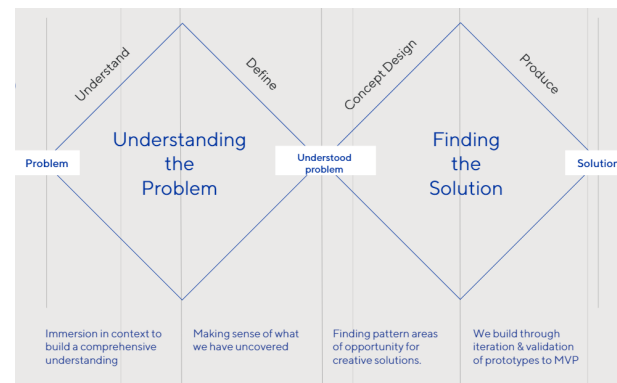


Figure 15: Mirabeau’s double-diamond design approach [25].

Reflecting on Our Learning

In the first three weeks of the course we had the opportunity to gain new knowledge on what UX is and how exactly it is represented in a design process. Even though all of us had already encountered the notion of user

experience at least once along our previous projects, we were not fully aware of the implications or the extensive ramifications of UX and its influence on the design and process. Starting from the fundamentals, designing for the User Experience is very complex, and can be seen as a phenomenon, a field of study and a practice [29]. While experiencing UX as a practice ourselves, we asked the core questions of the why, the what, and the how of our chatbot concept as suggested by Marc Hassenzahl (2011). Besides learning to ground our design in theory, we have also grasped a deeper understanding of our role as designers, extending into the role of mediator between the design and the user, and becoming creators of experiences [15].

Through the Mirabeau challenge, we became “experts” on the topic of investment and chatbots that were assigned to us. We have previously learned that user experience is dependant on the context, the user and the system [29], and the challenges clearly demonstrated the impact of the varying contexts. This was evident from the outcomes shown by the various groups, and could be noticed in the different approaches we took based on the contexts.

Empathy also bears a significant importance within UX, highlighting the need for us to develop understanding and consideration towards the user. In our challenge we have taken this aspect into account by using the mixed perspective approach [34]. Since we ourselves were within the age range of our target group, we have used the first person perspective during our UX challenge in order to gain unique insights into the problem and user’s pains. We then switched to the second person perspective through the survey.

We experienced ourselves how it was difficult to apply what we learn in literature into a concrete design proposal. We also struggled sometimes with designing a purely digital interface based on the insights we gained from this course, since many examples given focused on tangible designs. Tools such as making personas and customer journey maps were helpful in our process. The

persona helped to think about a realistic representation of our target group. However, we also learned that perfect personas do not represent everyone and it is not simply enough for the designer to possess empathic traits when integrating within UX, but that we need a deeper understanding of the subtleties of the context [34].

When designing for our own challenge, we were inspired to design for the transformation economy [3] (figure 16). The paradigm shift described by Brand & Rocchi (2010) towards an economy centred on ethical value exchange, inclusive value networks and addressing collective issues resonated with us as we imagine the future we want to design for. This was the first design we had made which really positioned itself concretely within a transformative future and we learned more about which of our design approaches we should prioritize as we design for this paradigm shift. We placed more value onto the desire and motivation of young people to make a meaningful contribution with their actions, which meant that we had to focus on the broader picture and think more closely about the ramifications and ethics of our design choices.

With all this information acquired, we are confident that we will be able to become not only designers that will bring out meaningful designs complying to the user's wishes and needs, but more importantly become creators of meaningful experiences for the user.



Figure 16: Pillars of the transformation economy.

WEEKLY LOGBOOK

Week 3

During week 3, we prepared for our challenge as described in the above report. During the first days of the week we focused on deconstructing our client's design brief for this challenge. Then we dove into literature research on the related topics, working to connect the theory we had learned in class to the practical application of the challenge. We then created, analyzed and designed based on the insights from our questionnaire. During the last days of the week we focus on creating the mockups and graphics, as well as crafting the story for the presentation. This week was challenging for us, as we had to become experts on the topic extremely quickly, synthesizing our new knowledge into a design and justifying our choices based in theory. Mirabeau shared with us that what we experienced is very close to working in a real world Research and Development position. This allowed us to reflect on the skills we still need to build for our future design careers.

Week 4

In week 4, we presented our design proposal to the client. We received a lot of insightful feedback and suggestions from our fellow students, the professors and the designers from Mirabeau. Providing feedback to other groups was very valuable, since we learned from their approaches, and how they applied different theories and methods from those that we did. Although our design concept was voted as a favourite, the feedback we received on our weakness was the most formative. Our peers pushed us to think about representative sampling in our questionnaire, as well as evaluation methods that we had not considered.

Week 5

During week 5, we debriefed the feedback we received and thought about how we would implement it in a possible future iteration of our design. We also read new literature which supported our feedback, such as learning more about chatbot evaluation methods. We then watched the second round of challenge proposals and discussed

with the group the similarities and differences and taking notes for the report.

Week 6

During week 6 we structured the report and divided writing tasks among the group members. While writing the account of what we had done, we reflected as a group on what could have gone better and what we each enjoyed in the processes to take with us to our future design project work. Writing out our design decisions supported by theory showed us that we had learned more than we thought since the beginning of the course, and could now confidently apply the theory.

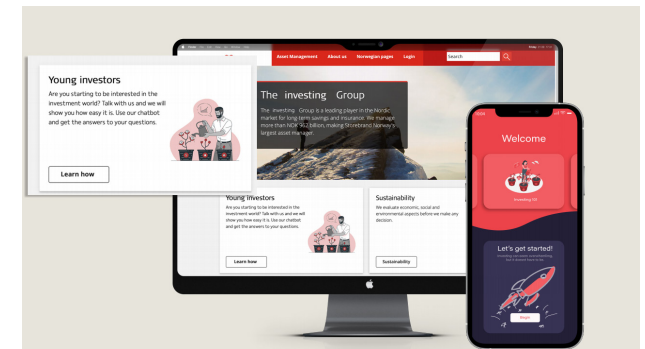


Figure 17: The chatbot integrated with their existing platform

THANKYOU

We would like to thank Ines Camara, Magda van Dijk, and Alexandra Timus from Mirabeau for sharing their valuable insights about working as designers at a research and development company, as well as for their poignant feedback. We would also like to thank Berry Eggen, Harm van Essen and Menno Stoffelsen for their critique which pushes us to become better designers.

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APPENDICES:

APPENDIX A: Questionnaire

https://docs.google.com/forms/d/e/1FAIpQLScR41yRnvdt9gCYGNSeTeeVvbkuk7K1c9RmqnYq1eKoVvTIA/viewform?usp=sf_link

Investing among young adults

Thank you for taking part in our short survey.

BEFORE YOU BEGIN: This survey is intended solely for young adults between the ages of 18-25, the results are completely anonymous and will not be distributed.

By completing this short survey, you will help us to get the best results.

1. Have you ever invested?

(stocks, bonds, mutual funds, crypto currency etc.)

- ☐ Yes, I current have money invested
- ☐ Yes, I have invested in the past but have no current investments
- ☐ No, I have never invested

Yes, I have invested

What were your main motivaters to begin to invest?

- ☐ Financial freedom
- ☐ I wanted to learn more about investing and finances
- ☐ Because my friends were also doing it
- ☐ Because my family advised me to
- ☐ I wanted to support companies
- ☐ I think it is cool to do
- ☐ I like the 'game' of taking risks
- ☐ Altro: _____

No I have never invested

2. Why have you never invested?

- ☐ I do not know where to start
- ☐ It is too big of a risk for me
- ☐ I do not have enough money to invest
- ☐ I have heard of bad experiences
- ☐ Too much effort
- ☐ Too much time
- ☐ Altro: _____

Do you use a Robo-advisor?

Robo-advisors are digital platforms that provide automated, algorithm-driven financial planning services with little to no human supervision.

- ☐ Yes
- ☐ No

Where do/did you invest?

- ☐ Crypto-Currency
- ☐ Stocks
- ☐ Bonds
- ☐ Mutual funds
- ☐ Shares
- ☐ Altro: _____

<div><p>2. Do you know other people in your age-group who are investing?</p><p><input type="radio"/> Yes</p><p><input type="radio"/> No</p></div> <div><p>When you invest your money, which of the following factors do you consider?</p><p><input type="checkbox"/> Their ethics</p><p><input type="checkbox"/> That they were locally/nationally owned/operated</p><p><input type="checkbox"/> Their sustainability and environmental practices</p><p><input type="checkbox"/> The size of the company/currency</p><p><input type="checkbox"/> The stability of the company/currency</p><p><input type="checkbox"/> Their diversity and equality practices</p><p><input type="checkbox"/> Their history</p><p><input type="checkbox"/> Altro: _____</p></div>	<div><p>Do you know people in your age-group who are investing?</p><p><input type="radio"/> Yes</p><p><input checked="" type="radio"/> No</p></div> <div><p>If you were to invest your money in the future, what would you find important for the companies you invested in?</p><p><input type="checkbox"/> Their ethics</p><p><input type="checkbox"/> That they were locally/nationally owned and operated</p><p><input type="checkbox"/> Their sustainability and environmental practices</p><p><input type="checkbox"/> The size of the company</p><p><input type="checkbox"/> The stability of the company</p><p><input type="checkbox"/> Their diversity and equality practices</p><p><input type="checkbox"/> Altro: _____</p></div>
<div><p>To learn more about investing, where have you searched in the past?</p><p><input type="checkbox"/> Google</p><p><input type="checkbox"/> Youtube</p><p><input type="checkbox"/> Tik Tok</p><p><input type="checkbox"/> Reddit</p><p><input type="checkbox"/> Instagram</p><p><input type="checkbox"/> Facebook</p><p><input type="checkbox"/> Your parents</p><p><input type="checkbox"/> Your friends</p><p><input type="checkbox"/> Your bank</p><p><input type="checkbox"/> Altro: _____</p></div>	<div><p>To learn more about investing, where would you search for information, or where have you searched in the past?</p><p><input type="checkbox"/> Google</p><p><input type="checkbox"/> Youtube</p><p><input type="checkbox"/> Tik Tok</p><p><input type="checkbox"/> Reddit</p><p><input type="checkbox"/> Instagram</p><p><input type="checkbox"/> Facebook</p><p><input type="checkbox"/> Your parents</p><p><input type="checkbox"/> Your friends</p><p><input type="checkbox"/> Your bank</p><p><input type="checkbox"/> Altro: _____</p></div>
<div><p>How would you like to learn more about Investing in the future?</p><p><input type="checkbox"/> A conversation with an expert</p><p><input type="checkbox"/> Videos</p><p><input type="checkbox"/> Social media</p><p><input type="checkbox"/> An app</p><p><input type="checkbox"/> Website</p><p><input type="checkbox"/> A chat bot</p><p><input type="checkbox"/> Altro: _____</p></div>	<div><p>How would you like to learn more about Investing?</p><p><input type="checkbox"/> A conversation with an expert</p><p><input type="checkbox"/> Videos</p><p><input type="checkbox"/> Social media</p><p><input type="checkbox"/> An app</p><p><input type="checkbox"/> Website</p><p><input type="checkbox"/> Altro: _____</p></div>

General Questions

How do you feel about Chatbots for Customer service?

A chatbot is an automatically generated chat which simulates human conversation, often used in customer service by companies such as Bol.com, KLM and many others

1

2

3

4

5

1 Star

5 Star

How do you feel about Chatbots for learning new knowledge?

A chatbot is an automatically generated chat which simulates human conversation, often used in customer service by companies such as Bol.com, KLM and many others

1

2

3

4

5

1 Star

5 Star

What do you like about using chatbots?

☐ Ease of use
 ☐ Speed
 ☐ Engaging content
 ☐ Humour
 ☐ 24/7 availability
 ☐ Altro: _____

Do you have any other remarks about investing, chat bots or our survey?

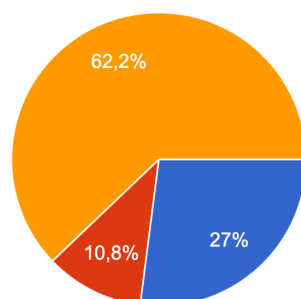
La tua risposta

APPENDIX B: results of the questionnaire

37 people filled in the questionnaire

1. Have you ever invested?

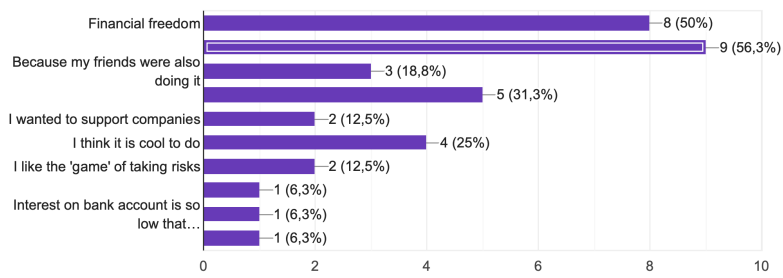
37 risposte



- Yes, I current have money invested
- Yes, I have invested in the past but have no current investments
- No, I have never invested

What were your main motivaters to begin to invest?

16 risposte



* 2: I wanted to learn more about investing and finances

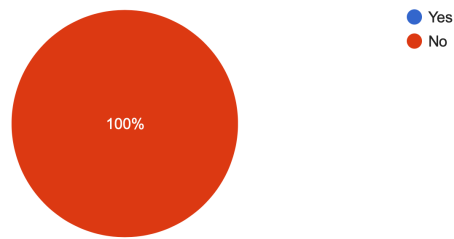
4: because my family advised me to

8: to save for retirement

10: small experiment

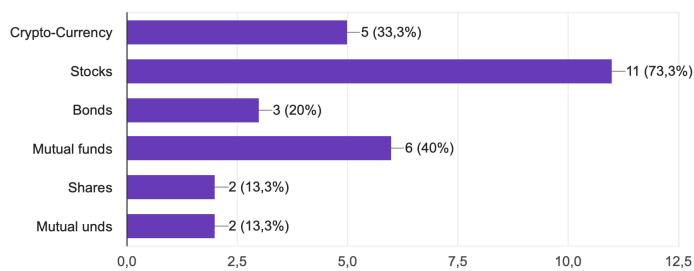
Do you use a Robo-advisor?

16 risposte



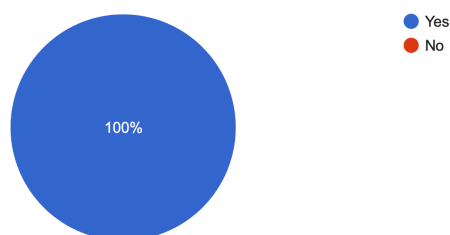
Where do/did you invest?

15 risposte



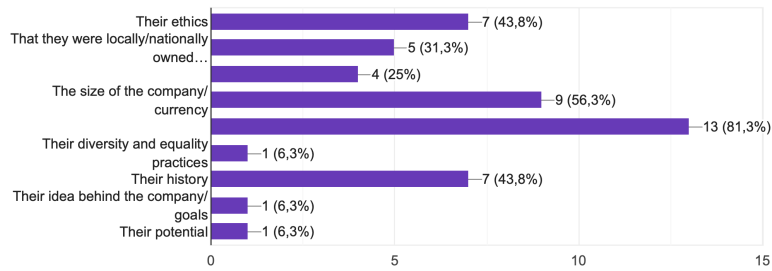
2. Do you know other people in your age-group who are investing?

16 risposte



When you invest your money, which of the following factors do you consider?

16 risposte

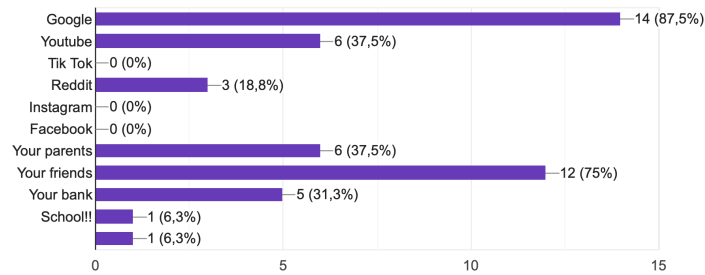


* 3: their sustainability and environmental practices

5: the stability of the company/currency

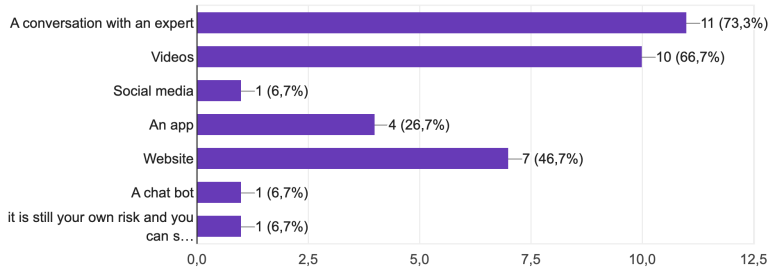
To learn more about investing, where have you searched in the past?

16 risposte



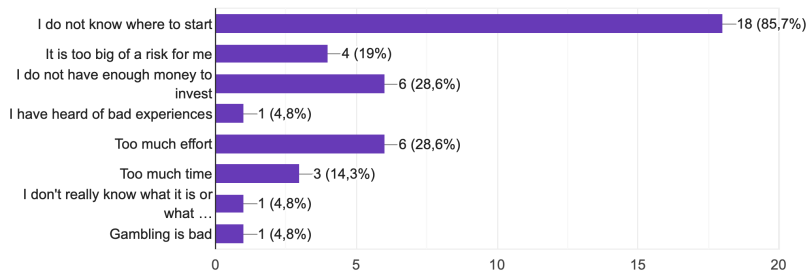
How would you like to learn more about Investing in the future?

15 risposte



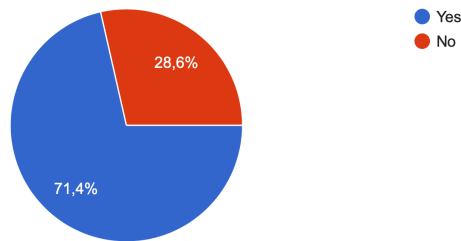
2. Why have you never invested?

21 risposte



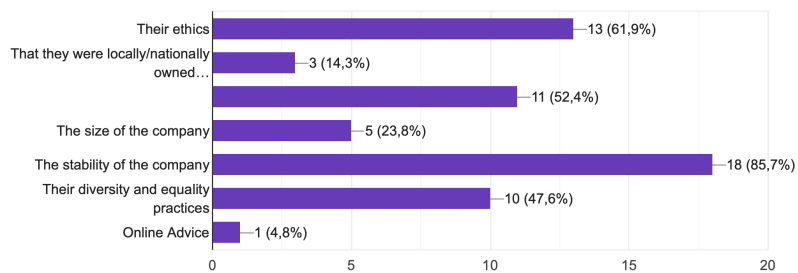
Do you know people in your age-group who are investing?

21 risposte



If you were to invest your money in the future, what would you find important for the companies you invested in?

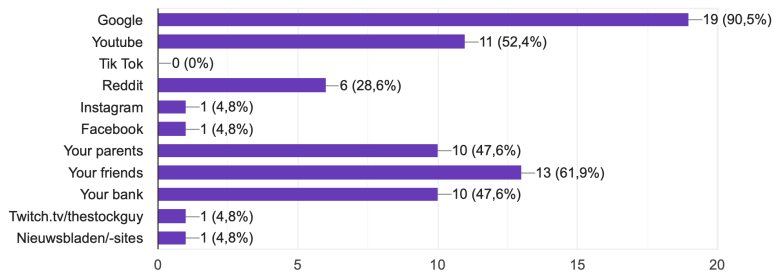
21 risposte



* 3: their sustainability and environmental practices

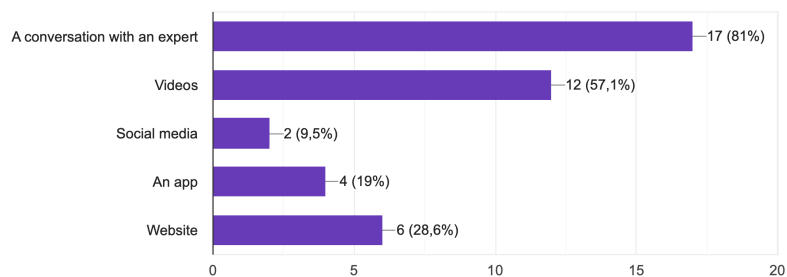
To learn more about investing, where would you search for information, or where have you searched in the past?

21 risposte



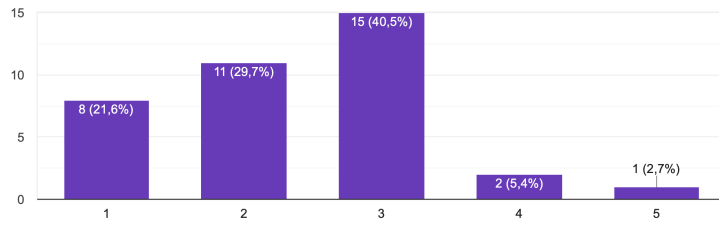
How would you like to learn more about Investing?

21 risposte



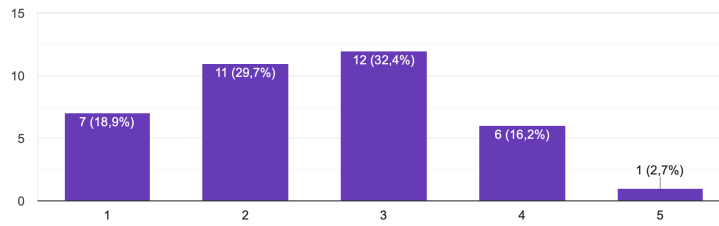
How do you feel about Chatbots for Customer service?

37 response



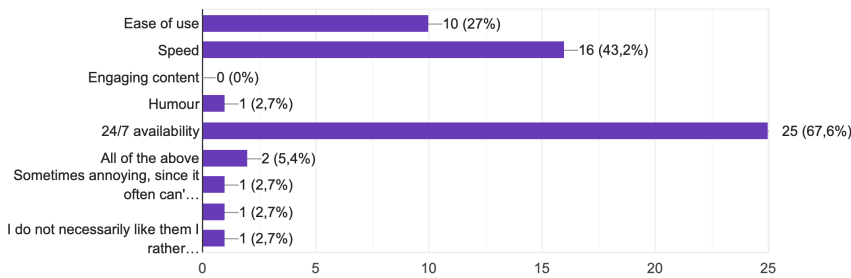
How do you feel about Chatbots for learning new knowledge?

37 response

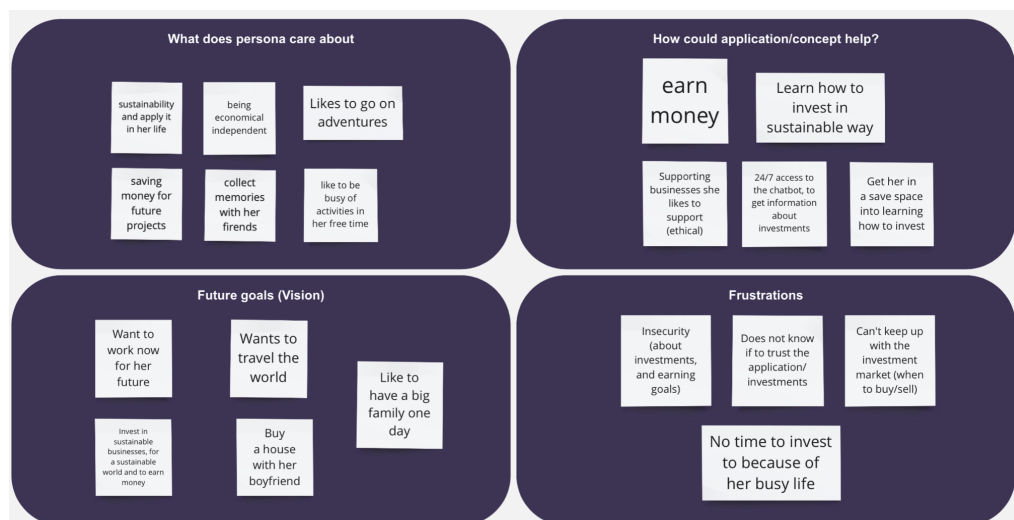
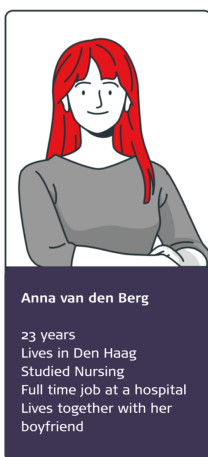


What do you like about using chatbots?

37 response



APPENDIX C: Persona



APPENDIX D: Customer journey map

New grid

Phase of journey	Wanting to start to invest	Collecting information	Learn/start how to invest	Investing
Actions What does the customer do?	Setting money aside to invest Talk with friends who invested	Asking friends for advice Search on the internet	Setting money aside to invest Using the application to learn to invest Creating thought the application her own personal investment profile	Invest money in companies she wants to support
Touchpoint What part of the service do they interact with?	Not yet	Linking information online & finding the service Gaining information in ChatBot Downloading the app During the interaction with the application/webpage/ChatBot creating her own personal investment profile	Interaction with ChatBot With the interaction creating her own profile 24/7 Access to interact with the application	Further expand profile and continue to explore/propose interesting investment opportunities Possibility to nominate friends/family, with benefits for both users
Customer Thought What is the customer thinking?	Thinking how to invest Thinking about what she want to invest in Thinking what could go wrong with investments	'In this way I can support sustainable businesses AND make money with them'. It is also possible for me to invest Thinking 'I want to invest'	'In this way I can support sustainable businesses AND make money with them'. I can invest now	I should invest more I liked the way I learned to invest I want my friends to learn to invest also
Customer Feeling What is the customer feeling?	Insecure Unknown in investment Ready for adventure	Want to invest in the future Still don't know how to start and where to begin	I want to invest now Feeling excited Happy with the service of the ChatBot	Feeling delightful Happy to support ethical businesses
Opportunities	To support sustainable /ethical businesses Earning money More economical freedom	Learning how to invest	Make sure that user keeps on investing Learning friends/family to invest	Supporting more businesses Earning more money and economical freedom

