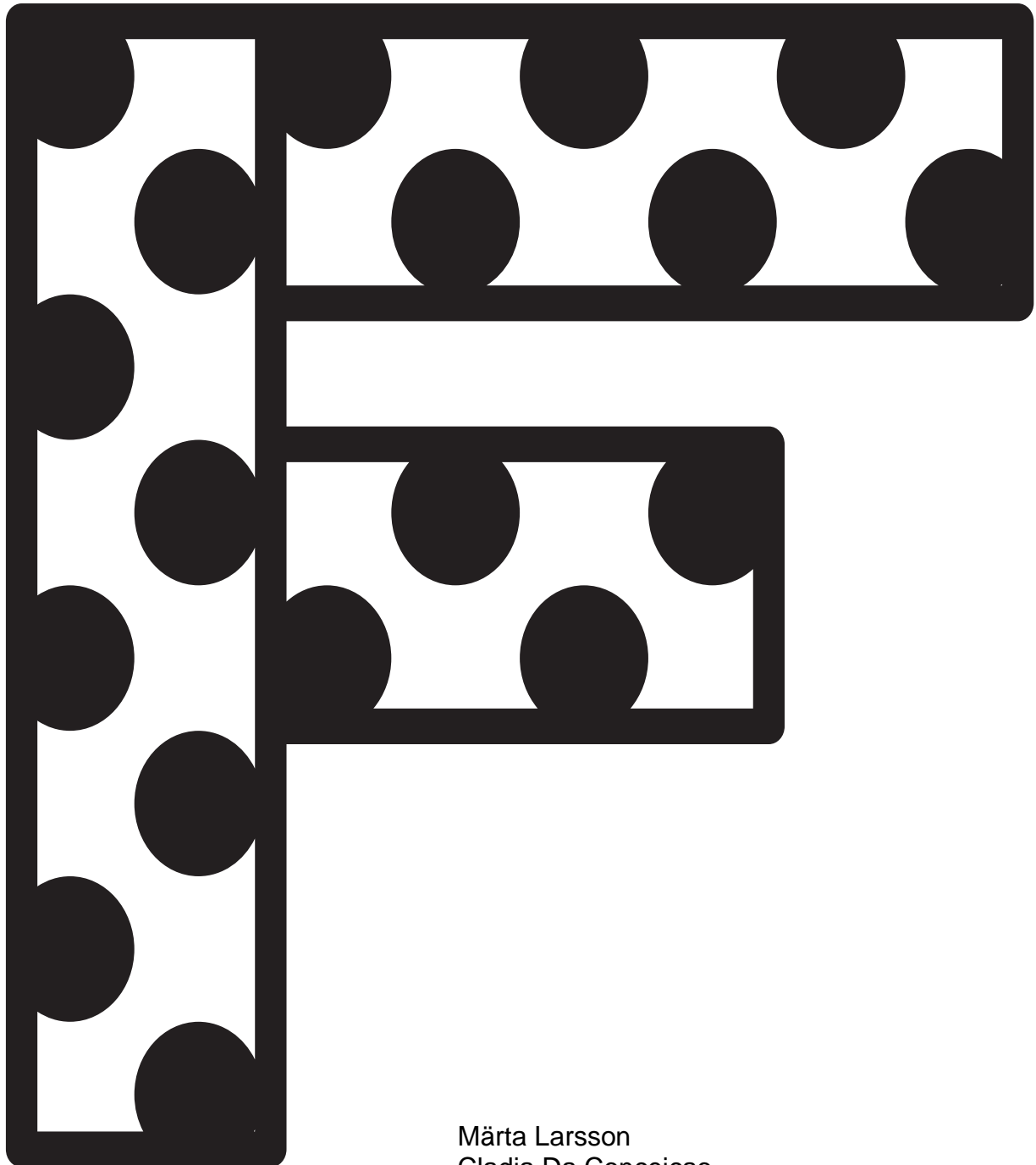# FUTURE OF HOUSING
Housing the future

R.19-02

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Jens Lindemann
Salim Yahya
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Preface

The report that you are about to read is the result of a creative and in some ways chaotic project, where students from different disciplines and universities worked with challenges that Stockholm, as a county and a city, is facing.

The city is our lab! - is the motto for Openlab. Students worked with challenges provided by Stockholm City and Stockholm Council in a wide range of areas. Within the framework of a 15 credits master-course, students worked in project-groups of 6-8 persons for one semester. To develop an understanding of the issue at hand, students engaged with the set challenges though the use of various research methods such interviews and observations, as well as literature studies. Students then developed a number of proposals for solutions, one of which has then been pursued to create a more concrete solution that is tested within real-world situations.

 Whilst working together at Openlab, students from different disciplines met and interacted with each other – not always without complications.

However, in these meetings something new and exciting can emerge. Students carry with them experiences of interdisciplinary discussions and solutions - a very important competence for meeting challenges of the future.

The result of all discussions, analysis, and synthesis's is here documented in the report. Of course the report can only cover some parts of this dynamic and creative process. We who have worked as teachers in this course have our main function as coaches, providing tools during different phases of the project. The students work according to a process model based on *Design Thinking* and *SCRUM*. Creative ideas and systematic thinking merge together to a final project.

For us this is learning at its best – Freedom, Creativity, Social interaction, Engagement and FUN! But it is also based on real challenges in society – the idea is that Openlab's project should contribute to a better Stockholm for its inhabitants. **The city is our lab!**

Ivar Björkman,
Executive Director

Liv Gingnell
KTH Royal Institute of Technology

Mats Danielson
Stockholm University

Martin Jonsson
Södertörn University

Sofia Vikström
Karolinska Institute

The Openlab Master's Course Report Series

13:01
Hitta rätt i vården
Ett värdigt åldrande

13:02
Vårdombud och Vårdagram
Rätt bil i rätt ruta
Hem & Vision

14:01
Levande stadsrum
LivsLabbet
Alla kan falla

14:02
Spira
Södersken
Zon 164

15:01 (English)
Increasing Patient Involvement in
the Healthcare System
Stockholm in Motion
Green Power of the Ecoflower

15:02 (English)
Grassroots Movements & Stockholms
Stad: Bridging the Gap
BikeMeSTHLM
The Step-Up! Planning Tool

16:01 (English)
Inside out
Elderly people & warmth
EduAction

16:02 (English)
Jobbtorg
Helping Hearts
Inspiring the Youth of Husby

17:01 (English)
The process wheel
Childish solutions
MindTrip-Making nursing homes more like
homes

17:02 (English)
Cykelbanan+
Finns I Sjön
Culturama
Stockholm Water Tap

18:01 (English)
The Dinner Dome
The Magic Button

18:02 (English)
Revival
SpiderWoman 2:0
Fireplace
Smart Square
DiContrast

Abstract in English

This project report traces the progression from the stage where Challenges for Emerging Cities was merely a course name, to StockHomer, the solution we ended up designing to improve the conditions for future housing in Stockholm. Through OpenLab, Familjebostäder challenged us to find out how to build new apartments to meet the needs and desires of their future tenants. We approached the challenge using a variety of tools within the design thinking method. This helped us seeing the elephant in the room: we were searching for particular needs of future tenants renting a hypothesized apartment. So, we found a more tangible angle: how can real tenants convey their actual needs and desires to the companies that provide their housing? StockHomer is a playful online tool that gives tenants a platform to unleash their ideas about housing and to show, rather than tell, how various spaces could meet their particular needs. This game is not merely play, it provides a way for curious housing companies to, literally, see their tenants' wants, needs and desires, and make informed decisions about current and future housing developments.

Sammanfattning på svenska

Den här projektrapporten följer processen från det att Utmaningar för den växande staden bara var ett namn på en universitetskurs, till StockHomer, vilket är den lösning som vi designat för att förbättra förutsättningarna för framtida bostäder i Stockholm. Via OpenLab gav Familjebostäder oss uppdraget att ta reda på hur de kan bygga och anpassa bostäder som tillgodoser behoven hos framtida hyresgäster. För att utforska uppdraget närmare använde vi oss av ett flertal verktyg från design thinking-metoden. Dessa verktyg hjälpte oss att se elefanten i rummet — vi sökte efter specifika behov hos framtida hyresgäster i en hypotetisk lägenhet. Vi valde därför en mer konkret vinkel: hur kan hyresgäster framföra deras egna faktiska behov och preferenser till fastighetsägarna? StockHomer är ett onlineverktyg som via en lekfull spelplattform tillåter hyresgäster att förmedla sina idéer och illustrera hur olika utrymmen kan tillgodose deras specifika behov. Spelplattformen är inte enbart till för underhållning utan förser även nyfikna fastighetsägare med ett verktyg för att, bokstavligt talat, se hyresgästernas behov och preferenser, och kan på så sätt fatta väl underbyggda beslut för utformningen av framtidens bostäder.

Content

Introduction

Team Introduction

Our team was created by combining a dynamic group of students with various fields of education and expertise creating an environment that fosters innovation and original thinking. This means that the backgrounds and expertise of each team members is diverse and no one is an expert on the subject. In the following section all of the team members are briefly introduced.

Claudia Da Conceicao

Claudia is from Cape Town, South Africa, and has spent the last 9 years living in Finland. She studied International Business (BBA) majoring in Green Supply Chain Management as well as Project Management. She is currently studying in the NORDIG Master's programme (MSc) of Innovative Governance and Public Management.

Lucie Váňová

Lucie is from the Czech Republic. She completed her Bachelor's degree in Denmark in Graphic Design as well as Communication Design and Media. She is now studying Media and Communication at Södertörn Högskolan.


Märta Larsson

Märta is from Stockholm, Sweden. She studied her Bachelor's degree in Statistics and Economics at Uppsala University. She is currently working at Utbildningsförvaltningen, Stockholms stad (the municipality of Stockholm) at the department for school planning.

Jens Lindemann

Jens is from Westfalia, Germany. He spent a year in Norway working with handicapped adults before entering university. He studied Political Science, Public Administration, and Geography in Konstanz, Oslo, Prague, and Belgrade. Jens enjoys visiting the mountains for skiing and rock climbing in his free time.
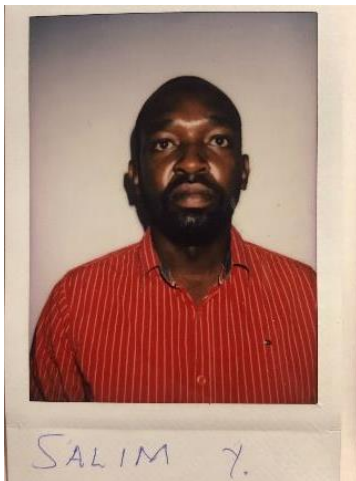
Salim Yahya

Salim is from Zanzibar, Tanzania, and works as a tutorial assistant at the Department of Engineering at Zanzibar University. He has worked as a field engineer in telecommunications and studied BSc in Telecommunications Engineering at the University of Dar es Salaa. He is currently studying his MSc in Computer and IT Systems Engineering.

Andrea Niman

Andrea has an MSc in Psychology and has been researching the neurological and cognitive correlates of the sense of smell at Stockholm University. She lives with her two cats in public housing.

Mayur Sambhaji Khedekar

Mayur is from Pune, India. He completed his Bachelor's degree in Mechanical Engineering at Pune University. He is currently working on his Master's degree in Engineering Design at KTH Royal Institute of Technology, Stockholm.
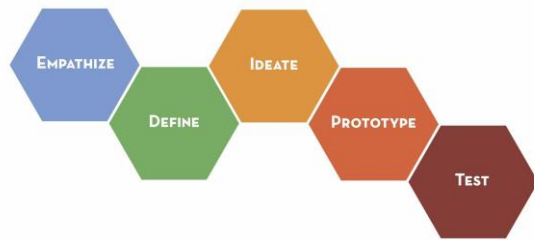
Design Thinking - an overview

This project and paper are formulated around the concept of design thinking. Design thinking is a process for creative and practical problem solving and is applied in various professional fields. The key method in design thinking is the double diamond scheme (Figure 1), where the focus lies on two types of thinking, namely divergent (expand and broaden) and convergent (focus and narrow down) thinking. The process in design thinking is comprised of five steps as shown in the previous hexagons, which are (1) empathize, (2) define, (3) ideate, (4) prototype, and (5) test.[1] During step (1) empathize, open interviews are held. The goal is to gain insight into the user's personal stories and lives. This can be done, simultaneously, through immersion and observation. The focus here is placed on better understanding the problem through interaction with the user. Step (2) define places a focus on analysing and narrowing down the information collected in the previous phase by finding patterns and hereafter creating a statement to work with where the problem is defined. Step (3) ideate is the phase where new ideas are created that focus on providing solutions for the defined problem. Step (4) prototype emphasises to place the ideas into context of the real world and create a tangible prototype in order to then (5) test those ideas and receive feedback from users. This paper presents our progression through our challenge.

Image 1. The double-diamond process.[2]

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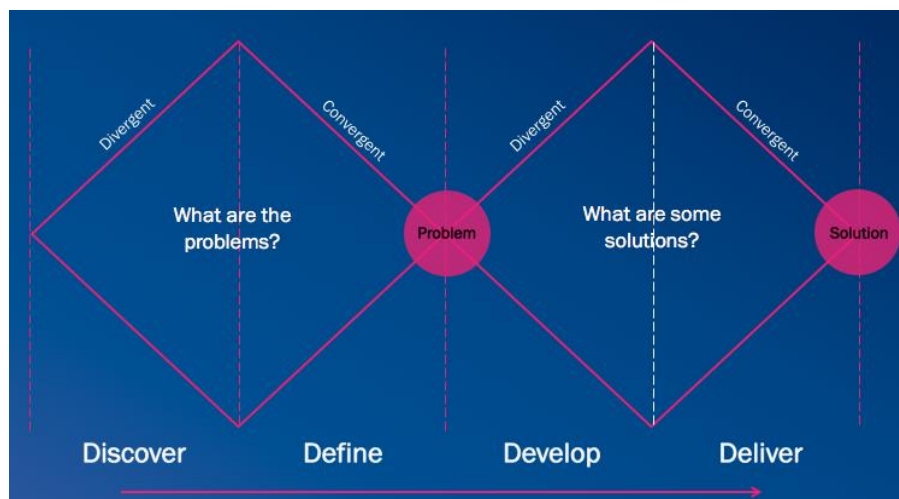
[1] bootcamp bootleg, *d.school,* 2014, pp. 1-5.
[2] Heffernan, *Design Thinking 101*, 2019.

The challenge

How should we [Familjebostäder] build new flats/buildings in order to meet demands of future tenants?

Familjebostäder is a public housing company that owns, develops and manages rental housing units and non-residential properties in Sweden. They own properties all over Stockholm County, covering the annual rings of the city from the 19th century to the 2010's. Their vision is to offer welcoming and smart living environments for both current and future residents of the city. Public housing companies are required to offer housing that match a wide range of incomes. It is more profitable for public housing companies to build new units than to buy and upgrade existing ones. The initial challenge that Familjebostäder provided was to understand and capture future needs of generation Z by getting to know their habits and preferences and from that identifying possible business opportunities for Familjebostäder.

Meeting with Familjebostäder

A week after the challenges were presented and assigned to teams, we met with the challenge givers from Familjebostäder. They presented the company and informed us about their current dilemmas and challenges that they are predicting.

At this meeting, the target group was specified as the age cohort born in the year 2000 and onwards. This cohort (most commonly referred to as Generation Z) is not to be confused with the Millenials (the cohort that were adolescents in year 2000). Further, Familjebostäder was very clear regarding that the focus should not be on the process and obstacles of getting an apartment in Stockholm today. They also presented their programme Smart living environments, which focused on how the company could develop concepts and be more efficient. Familjebostärder informed us about how little they know and understand about their tenants, since they do not have any regular interaction with them and we found this surprising. After the meeting, the team reflected on the fact that Familjebostäder invests so much money into new buildings without knowing their future tenants and this is what we identified as a key problem.

Insights from the meeting

One of the questions we discussed in our team after the meeting was how long tenants will live in their apartment in the future. Due to the well-known difficulty of obtaining an apartment in Stockholm, we wondered if residents would occupy their apartment for longer than before. If so, the apartments need to be more flexible in order to fit different needs of different phases of life. We also considered the opposite scenario; will future tenants live in their apartments shorter due to the increased mobility in a globalised labour market? Both scenarios seem likely and future housing needs to account for that.

Initially in the challenge, Familjebostäder wanted the team to investigate the needs and wants of future tenants who will apply for an apartment in 10-15 years. We realized at an early stage that those wants are likely to change and hard to predict. It is difficult to know what the future

will bring, in terms of technology, innovations, and trends. After the meeting, the seed for providing Familjebostäder a method or a tool for collecting information about current and future tenants was planted. In this way, we also included the current tenants as means to understand something about future tenants.

Chapter 1: First Project Phase

Empathize Mode

The empathize mode is the first one of the double diamond model. It's goal is to feel what the group of interest is feeling and to put ourselves into their shoes. The objective of this mode is to create solutions that are based on the needs of the target group, and avoid creating something irrelevant and without a motive. This method also helps to redefine challenges and see the bigger picture. The empathy phase includes observation of related subjects and environments, engagement with the target audience and immersion in the user's experiences.

Documentary Excursion

In the beginning of the process, we wanted to understand more about housing and contribute to the group dynamic. For this purpose, we went together as a group to the cinema and watched the recently released Swedish documentary film Push. The documentary offered a good opportunity to observe some residents and get an understanding of their struggles what it can look like globally. The most surprising thing we learned was that the housing market was willingly opened for few huge and globally active investment corporations, who did not intend to provide affordable and normal-standard housing. In some cases, the constructional quality of houses decreased. The documentary provided our first shared experience as a group and sparked our curioustiy for the challenge.

Literature

To get more acquainted with the problem at hand, we searched for literature in the housing sector. We found that while housing sector development managers agree that socialisation is something to be actively addressed in future housing, involvement of not only policy, but also proactive tenants, is seen as a way to achieve social urban development. This should engage tenants as agents and not as merely end users. Engagement approaches are, however, a topic of discussion by itself. Lövholmen, a gentrified area in Liljeholmen, has been struggling to find ways to capture people's views on the inclusion of an art studio amongst normal resident apartments. Among the approaches, it has called upon researchers, architects, and students to give views or suggest ways in which those ideas can be captured.

Regardless of static human needs, few general trends can also be observed. Future trends concern, for example, air, mental health, and the experience economy.[3] Worldwide, most people breathe polluted air. Thus, consumers might demand reduction, prevention, and protection of air purity. Shorter work weeks might also become a norm, because people tend to work more from home, though there are mixed results whether a home-office is more

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[3] World Value Service, *WVS Database*, 2019.

relaxing or stressful.[4] Further, the demographic evolution alone is not sufficiently explaining the housing market crisis.[5]

Interviews

In the empathizing mode interviewing is useful and important tool. We initially set one of our interview groups to be 14-19-year olds, since that is the stated target group. However, we realised that people at such young age might have values and needs that differ from those of their future, older selves. They also lack experience in having their own household, hence we set another interview group which of 26-50-year olds. The second group covers older users who, among themselves, have diverse needs from their homes, and they, in contrast to the younger group, actually do have a household themselves. We were curious if values, needs and wants shift with age and experience. We also wanted to investigate differences and similarities between the two groups.

We asked a number of school principals for permission to interview their students. We interviewed students at the following schools: Globala Gymnasiet, Johan Skytteskolan and Rinkebyskolan. To cover not only school premises, we also interviewed a group of friends at Lava, which is a place for young people aged between 14-25 to be creative, borrow tools, join workshops and nourish skills they are interested in. We made individual appointments with the older adults,because we sought deeper answers and insights which would be hard to obtain by people on the streets.
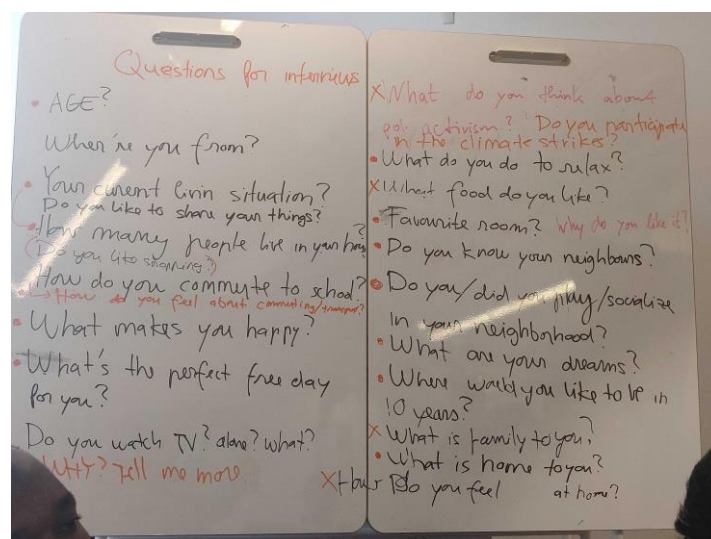
Image 2. Rinkebyskolan

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[4] Burkeman, Oliver, *The Guardian*, 2014.
[5] *Green & Lee, Age, demographics, and the demand for housing, revisited*, 2016.

Image 3. Lava open meeting place

Image 4. Brainstorming questions for the interviews

The range of our interviews was very broad, from quite brief answers lasting a couple of minutes, to deep talks with people for almost an hour. The older group and people from Lava tended to be more willing to give us lengthy answers which might be an effect of the varied settings. However, with the respondents at school we achieved a great volume of 60 + answers. We had an objective to get to the why behind things, and to seek out values and preferences. Some questions that provided us with interesting answers were "Which is your favourite room in your home and why?", "How can your home make your life easier?" and "What makes your house your home?". Keeping in mind that teenagers' opinions are subject to change, we brainstormed on different subjects and then formulated our questions. Transcripted answers were structured topic-wise. Our favourite quotes are shown in the figure below:

Quotes:

> Will the teenagers really be the ones living in those apartments?

> My favourite room at home is our small toilet

> More technology in our homes would be scary

> Time to see residents as agents rather than end users

> Smart housing is already here but I haven't seen it yet. It is only for the elites
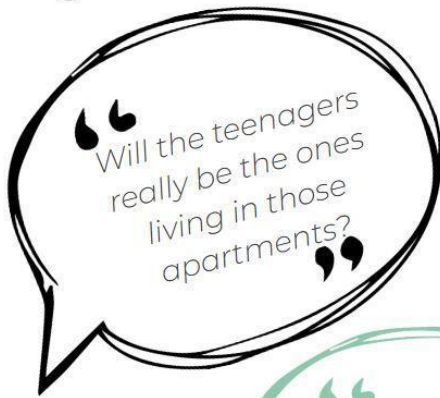
Generally, we could see that there are conflicting themes of socialising versus privacy. Moreover, there were similarities between these two groups. Both valued privacy, safety, nature and a space to be their true selves with possibility to personalise. We were surprised that so many of the students participated in the climate strikes 'Fridays for future'. Their knowledge in this area of concern was very high and they felt that change was necessary and wanted to be a part of that movement. We were also surprised by their positive outlook towards shared living. We wonder if this means that they will demand a more sustainable way of living in the future.

Image 5. Summary of our findings

Immersion

In order to gain a holistic sense of our interviewees, we immersed ourselves in some of the interviewee's environments. For example, we took a walk and look around Rinkeby neighbourhood after we conducted interviews with teenagers at the local school. Moreover, we collected the best and worst three aspects about the group members' current living situation. This simple discussion enabled us to quickly identify challenges and successes from the current real-life situations.

We also gathered information regarding if and how our personal housing needs and wants have changed over the last ten years. One aspect that turned out to be important was that people might not be aware of their need to socialize. The will to gain independence seems to overshadow this need. Access to nature is experienced as positive and lack of storage space as negative. Other aspects are proved to be less changing over a period of ten years and that is the need to personalize our homes, which might go hand-in-hand with a lack of practical construction knowledge, e.g. if it comes to drilling holes. The need for storage space seems to grow over time, as well as the need for greenery, fresh air, and silence. Beyond that, a separated kitchen is experienced as negative. This aspect was brought up in line with the general statement about the floor plan and the fact that adding a temporary area-divider (bookshelf, curtains, or table) is easier than to remove a wall.

Overall, from our immersion, it is evident that while there are a few needs in the housing topic are changing over time, most do not. While safety, clean environment, and light seem to be stable, the level of needed individual personalization seems to be rather fluid. A key message in comparing our our needs and values as younger teenagers in comparison to now, was that as teenagers, the nature of these needs and values is different, and the changes that have been present have not necessarily been influenced by the outside environment, but rather our internal growth.

Personas

From our interviews and immersion exercises, we created several personas to represent our findings.
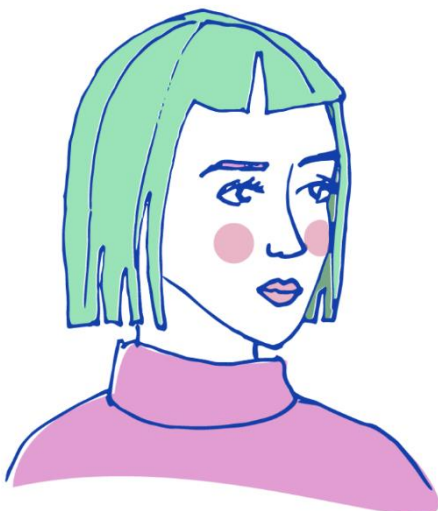
Julia

35 years old, Swedish

♥ Being creative

Works on smart housing for Familjebostäder

Wants to get to know the future tenants but does not know how

Petr

31 years old, Czech

♥ Nature and rock climbing

Has a full-time job at SKF

Lives in a shared apartment
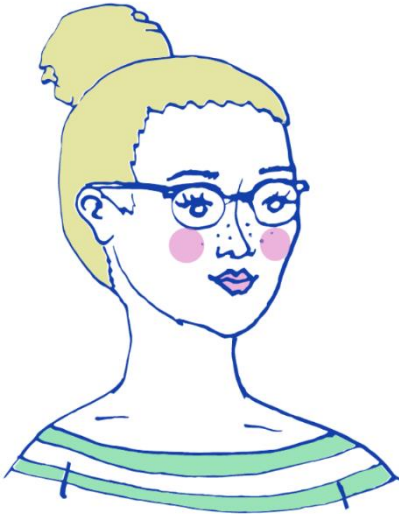
Loves to socialize but needs quiet time to recharge

Tindra

16 years old Swedish student

♥ Playing floorball

Engaged in climate strikes and societal issues

Likes to interior design and travel but is concerned about her carbon footprint

Define Mode

Insights

A sense that we had since the beginning of the challenge was that the question of what people will want is very difficult to answer. It is complicated to capture because it requires accessing what the future will hold. Therefore, questions about what people will want provided us with only assumptions of what the future might offer. While interviewing was helpful in the sense that it helped us gain our first material for ideation, the method did not really help us catch habits of the interviewees.

The association of home with family was mentioned by a range of interviewees, regardless of social background, age or character. Unsurprisingly, when the common response of "my own bedroom" was chosen amongst teenagers as a response to "what is your favourite room", this was reasoned with the ability to personalise the space and be surrounded by their own things. Furthermore, a concern in both interview groups was the importance of balance. Balance between real life and digital media life, balance between social and private environments, and balance between daily routines and external influence. We found it hard to create personas (based on our interviews), because while many values were shared across both target groups, people were still very unique and independent.

Young people today take pride in their engagement in societal issues, which was also mirrored in our interviews. This high awareness is likely to increase the need for agency. Social media is affecting trends rapidly, which in turn affects desires and priorities. However, some basic human needs remain the same, such as the need for community, belonging, individualism, play, and so forth.

Our interviews reminded us that people like to travel, and some in the older group had relocated several times in their life to different countries. This might indicate that rental apartments might need to adjust to this type of lifestyle. We discussed two extreme scenarios. One defines very short rental periods because people travel more, and it will be easier to live abroad. The second defines very long periods because it is so difficult to find an apartment and in case people want to travel, they would sublet their apartments. As for the situation in Stockholm, the latter scenario seems more accurate, which again emphasizes the need for flexible apartments.

A reflection after meeting with Familjebostäder and conducting interviews was that the findings we have are only valid for now. This is because trends and wants are bound to change to some extent. Further, we realised how time consuming the method of interviewing was and that there had to be a more accurate, efficient, and sustainable way to gather information about the wants (and needs) of possible future tenants. Keeping this in mind, we saw the possibility that our work could be a contribution to create a more efficient and personal means for Familjebostäder to monitor wants and needs over time, and at the same time give agency to the current and future tenants.

Point of view

The original questions from the challenge giver were 'who are the future tenants and what would they need from Familjebostäder?', 'How should Familjebostäder build in order to meet the demands of future tenants?'. In the challenge, Familjebostäder also stated the need of business opportunities and asked what future generations would be willing to pay for apart from what is usually paid for, for example extra services. A recurring topic along the process was the fact that Familjebostäder had little knowledge about their future and current tenants and minimal communication with them. This seemed to us as the most pressing issues and we wanted to develop a solution which could be valid for a long period of time. Therefore we reframed the challenge and formulated our point of view as follows:

"How might we help Familjebostäder better capture the many needs and wants of their current and future tenants over time?"
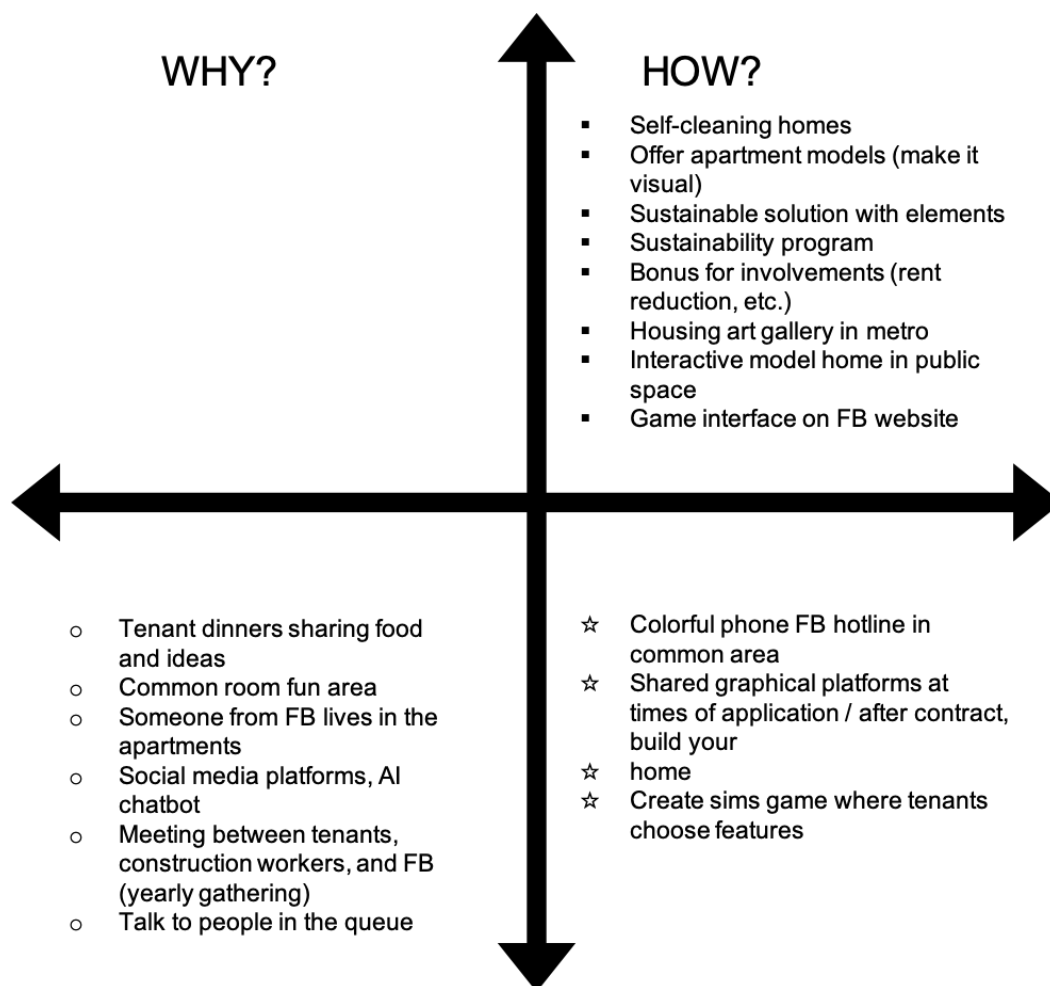
Ideate Mode

Ideation is the third hexagon in the Design Thinking model. This is where concepts and solutions are explored widely. In the previous modes, we had to actively hold the urge to create (perhaps ill-informed) solutions. By using various tools and techniques, we could start setting our queued ideas free and explore both shared and unique ideas further. The following section illustrates some steps of our ideation process.

Brainstorming

We all contributed with our ideas on how me might fulfill our challenge. These ideas were then passed around to other members, whose task it was to either develop it further or use it to inspire new ideas. We completed sketching exercises where we used drawing to express our ideas. Further we did a similar activity where other group members would add on or be inspired by our drawings. The output of the exercises seemed to revolve around creating an inclusive, safe, fun and interactive, and long-term data collection tool for capturing the needs and wants of current and future tenants.

Further, we categorized our ideas according to feasibility and originality into the 'how-wow-now' matrix, where we evaluated the ideas regarding how doable, original and game-changing we found these concepts to be. Our ideas are presented in the matrix below.

	WHY?		HOW?	

WHY?   HOW?

- Self-cleaning homes
- Offer apartment models (make it visual)
- Sustainable solution with elements
- Sustainability program
- Bonus for involvements (rent reduction, etc.)
- Housing art gallery in metro
- Interactive model home in public space
- Game interface on FB website

o Tenant dinners sharing food and ideas
o Common room fun area
o Someone from FB lives in the apartments
o Social media platforms, AI chatbot
o Meeting between tenants, construction workers, and FB (yearly gathering)
o Talk to people in the queue

☆ Colorful phone FB hotline in common area
☆ Shared graphical platforms at times of application / after contract, build your
☆ home
☆ Create sims game where tenants choose features

Concepts and Solutions

We noticed that some themes, concepts and perspectives were coming up recursively, such as individual and community agency as a need. All of the solutions evolved from the Point of view. For concept 1, 3, 5 we made different kinds of prototypes which had different themes, such as environmental, detailed and appealing to emotions. We also had a student from another group interacting with one of our prototypes (concept 1, see picture below) in order to get more feedback. Further, we asked people on the street to comment and interact with the same prototype, which gave us even more feedback on weaknesses and strengths. At this stage the focus was to develop the 'weak' concepts which are our least favourite before presenting them.

a) 'Pick Your Parts' Apartment Catalogue

Online catalogue available to future tenants where they can select and change services/products based on preference and affordability. The idea is that as you make your selections, the rent total adjusts as you add/remove products/services. Different apartments might have different offers available, and these offers would all be small, personalizing features (no balconies or moving walls, etc.). The concept revolves around the idea that this is what you would actually apply for after receiving your apartment offer and this data can be used long term to s''ee recurring user choices. The idea is to capture information from the time of apartment reservation, through contract signing, to the tenant's moving in.

b) Community Forum

The core idea of the community forum is that information provided by the tenants is 'traded' for agency. In this form of cooperation, the tenants are not only involved for the sake of participation but also for specific consultation in the sense that what they agree on in certain aspects will really become reality. This way tenants are given a certain amount of power in return for communication about their preferences.


c) 'Build a home' Competition

A regularly held game-based house-building competition, using a platform already existing, such as The Sims or other design platforms. Each competition held would offer competitors different themes and specifications, such as the challenge to build a family home or budget house, focus on sustainability, balance in shared living spaces, parks and recreation. The contest could be limited to different geographical locations, age groups, or other specifications that either compliment or contrast each other. The public would vote for the winner, which would be a fun way to see what people like and want in each theme/category. This would provide Familjebostäder with inspiration and ideas.

d) Hotline Bling

A visually interesting phone placed somewhere in the apartment complex connected to the Familjebostäder hotline. The hotline will provide assistance in various issues (maintenance, neighbours, news and information, etc.) tenants may have in several languages. This is to assure that those not native to Sweden and Swedish language, or even English, do not have to feel lost and unheard. Nearby the telephone will also be a suggestion/feedback box for tenants to leave thoughts and ideas. The main objective of the telephone is that it is psychologically more inviting to stay in touch when there is an easy and permanently available measure and a physical representation of Familijebostäder in the apartment complexes.
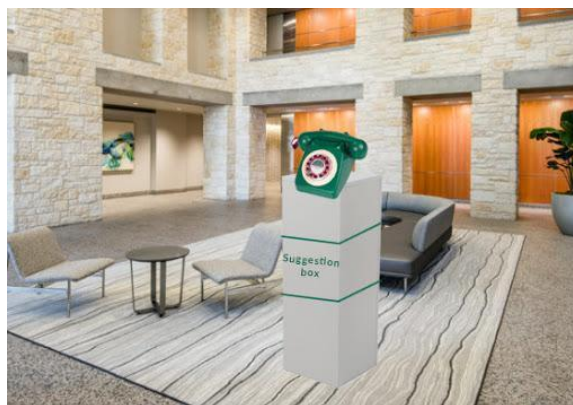
e) Survey

By collaborating with Bostadsförmedlingen, the aim is to capture information at the moment of application, keeping in mind that the survey will most likely be filled out by 18-20 year olds.

We hope to develop this idea into something more creative and fun to interact with.

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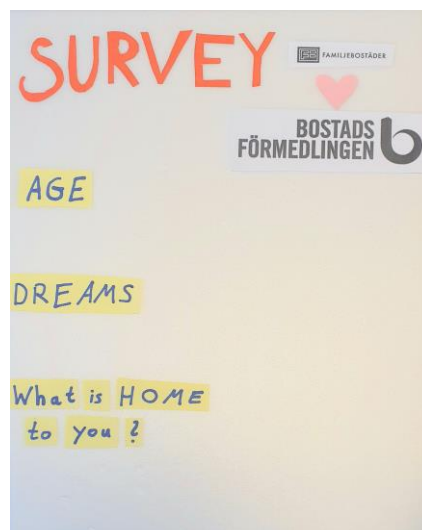
Presentation of Concepts

For the first external delivery we presented the concepts to the challenge givers. All in all the feedback was positive and they liked the fact that we had changed the challenge somewhat in order to provide them with an idea which could help them over time. Though they liked most of our concepts, they did mention that their favourite was concept 3, the 'build a home' competition. They planned to have an internal meeting, discuss our ideas with others at Familjebostäder, and get back to us on how they would like us to proceed.

Limitations

During the first phase of working on this design thinking method with our specific challenge, we thought it would be important to reflect on limitations and problem areas we discovered along the way to help us in the next phase. The first limitation was the difficulty understanding what people will want. This is because this aspect is heavily influenced by what is available and what opportunities and options will be available when the time comes. However, we concluded that while the younger generation may not have clear ideas of what they want or, they still have values and areas of passion. How these values will affect their habits, however, is only left to speculation and therefore did not provide any concrete ideas. We also realised that satisfying the needs and wants of current tenants might also assist in creating a more problem-free base for the younger generation. We also found that while our interviewing was helpful, it was possibly not the best tool for data collection as it is a verbal practice that digs in to personal information about how others live. This is why we decided to offer a better method or tool for data capturing that would be available for both the future and current tenants.

Another issue we struggled with was moving away from the very big problem of limited apartments available in Stockholm that create long waiting queues when applying for an apartment. We all agreed that this was a sore subject and something that is of great importance, but were also told not to place any emphasis on this process within this assignment. We also found it interesting to look at the relationship between wants and needs, from both the perspective of the client and the data collectors. Should people not get what they need before they get what they want? This idea connected to the mention of queueing for apartments, as this is related to the need for housing, while our solution concepts mostly address the needs and wants of those who already have housing. We found it important to question what people would require to perhaps extend their stay or take better care of their apartment, regardless of whether it would be classified as a need or want.

Chapter 2: Second Project Phase

Internal evaluation

As a team, we decided that if we were going to go with the ideas and suggestions made by the Familjebostäder representative, we will have to define our concept more clearly. At this point the idea suggested was to use concept 3, the "build your home" game, as a permanent feature on the Familjebostäder website, and attempt to rule out the idea of it being a competition. However, the challenge of catching people's attention in order to get them to

engage in the game is sufficient. Due to this, we thought that the competition-aspect could be something that would motivate the users and make the game more relevant. Since we were leaning towards leaving that aspect out, due to the feedback, we thought of maybe sketching on a complementary event to the game, such as an offline competition. Such a competition could be done in collaboration with schools in Stockholm, in order to arrange for students to participate. The competition would in this case be a physical event, held annually and have different themes, such as 'Sustainability', 'Budget', 'Futuristic'. This competition could also work as PR-campaign for the online-game, since some features from the online game could be used in the competition.

Another idea was to create a social media campaign using Instagram for example. Such a campaign could use humour and "memes" to create a sense of understanding between Familjebostäder and generation Z. It could use the "stories" feature to create polls with images from the game or competition, asking questions regarding preferences, and would provide fast data for Familjebostäder, as well as allow the followers to feel that they have contributed. Further, these kinds of campaigns are also useful for creating wider visibility and might guide followers to their website and motivate them to participate in the game, with the chance of perhaps being featured on social media. It is important here to highlight that active engagement in the online-game and social media is not an end in itself but needs to be conceptualised in a way that it serves data collection in some sense.

Meeting with Familjebostäder 2.0

In early December 2019, our team visited Familjeböstader headquarters in Hammarby Sjöstad to present our progress on defining the concept selected. During this meeting, we received a positive response on the gaming concept and were asked to focus on the game itself, by elaborating on the design, function, and data collection methods possible, rather than creating the entire concept where a social media campaign and offline competition were present. The reason for this was that Familjebostäder had previously run competitions, and were therefore already aware of their importance and functions and can also build on already existing knowledge for an offline competition. They also acknowledged the importance stated of running a social media campaign, but commented that with the game up and running, this could be determined at a later stage.

Defining

In defining this concept, based on the meeting with Familjebostäder, we considered mainly (1) how the game would look and its function and (2) how the game will collect data and how the data could be analysed.

How the game would look and function

The game was defined as a 3D platform that should be easy to use. Shells of various buildings, such as small studios, apartment common rooms, family homes, outdoor areas, and shared housing, will be offered in a gallery that the user can then select from. This rules out the need for them to build from a blank slate (saving time and assisting creativity blocks), and also

allowing them to find a build that closely imitates their own home if they so choose (also assisting motivation to participate by allowing the feeling of personal connection to the build).
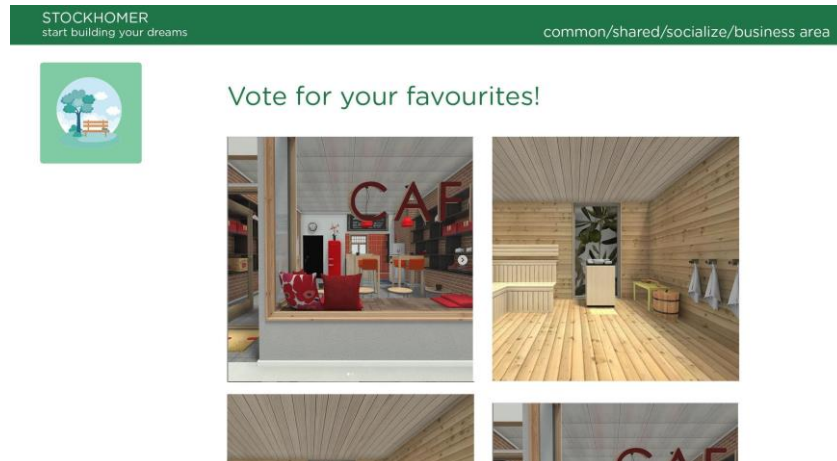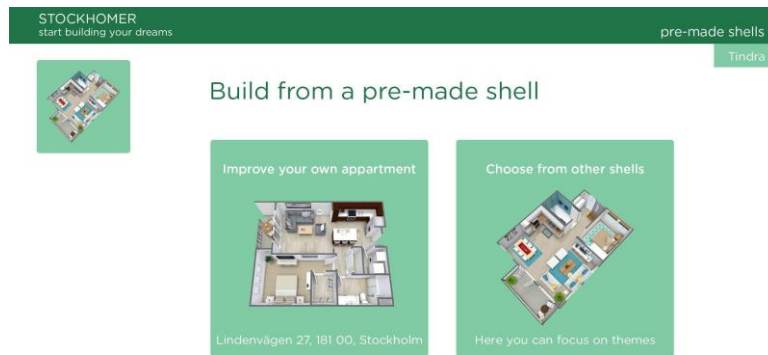
Picture 5. A seriel of our prototype
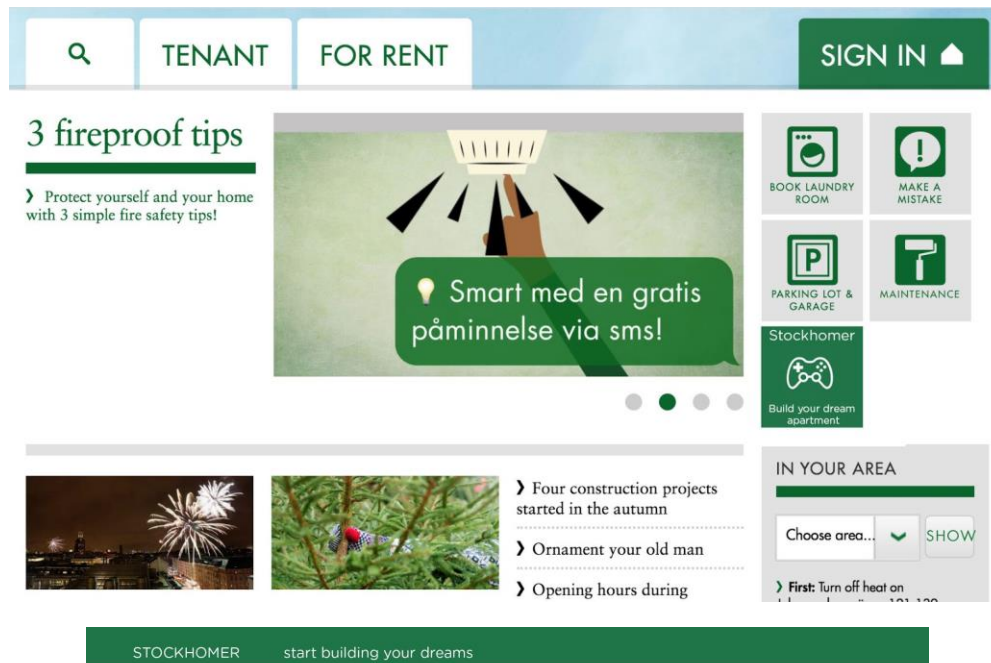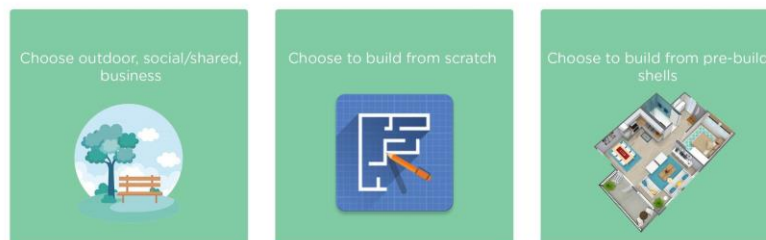
After selecting your lot, the player can then customize the shell, by adding or removing internal walls, painting walls, adding furniture, and customizing the inside of the shell provided.

How the game will collect data and analyse it

All or most items that can be used would be colour coded based on what they might resemble, such as fences and cameras representing the creation of security, or solar panels and recycled rugs representing the hope for more sustainability within the household. Other themes might also include budget friendly items, sleek modern furnishings, items related to social needs and communication, or even technologically advanced items. Having these themes will allow the user to use whatever they feel suits them best, without having to choose from only one area of importance, as well as allow the data to be collected through tallying how many of each theme's items were used in the final product. To elaborate, a build could contain several items in each theme, and the number of items in each theme could then simply be added up to resemble what may be of overall importance to various individuals, consciously or subconsciously. We think that it is important to offer the same number of possible items to choose from in each category.

As mentioned in the previous section, a default setting is suggested to be given and users will than work according to their choices with it. This default option of the game environment but also the selection of items to choose from allows for continuous adjustment to innovations and changes, both technological and societal.

Another opportunity for how the suggested tool can collect data is to also measure the time users spend on a choice. The time for decision-making could be compared across the different dimensions and could reveal insights about how future tenants make decisions rather than what they do prefer content wise. A rather long waiting time before a decision would suggest that users are unsure about their own preferences while shorter click rates indicate clear priorities.

15

After defining this concept as a stand-alone product, we decided to use a SWOT analysis to identify what strengths, weaknesses, opportunities, and threats were present.

We agreed that the online game concept should be used for concrete qualitative idea development while simultaneously continuing the long-term data-collection. The interesting point here is that the qualitative idea development might account for habits and the long-term data collection for values and preferences.

SWOT analysis

Strenghts

Internal

self running
sustainable
always available
easy to use platform
personal + creative
gives FB a playful image

Weaknesses

too exclusive
technical difficulty
difficult to analyze data
high complexity

Opportunities

External

not intimidating
keep the game exciting
FB can get to know what people want
presence of social media
big data analytics
build a sense of community

Threats

loss of motivation
less variation
not enough attention
online problems- internet
keep the game exciting
online visibility

Implementation benefits

Our initial challenge was essentially to find out what kinds of physical features and services future tenants of Familjebostäder will want and need from their housing provider. Familjebostäder's ultimate goal/motive is to save money, and ideally also make a profit, by building in accordance to (their) tenants' needs and wishes, because introducing changes to existing buildings is more expensive than building "right" from the beginning.

At an early stage, we noted that Familjebostäder knows very little about the needs of their current tenants, that there is a lack of mutual, ongoing communication or dialogue between them and their tenants. We identified this lack of dialogue as an obstacle in our mission to find out what needs future tenants might have, but also as an opportunity for us to develop a solution to establish and keep a dialogue between Familjebostäder and their target groups (current tenants, future tenants, the public (population of Stockholm).

StockHomer is essentially a tool to help Familjebostäder find out the answers to the challenge they gave us. It is a flexible, dynamic and stochastic solution.

Conclusion

Concluding our semester-long project, is not an easy task. We went through the double diamond process twice, when in the first round we were trying to understand the methods of design thinking and the second time we did the process again focused on more relevant things for our project and irritated necessary parts such are ideation, definition, prototyping and partial tasks under these topics.

Our team's milestones were supported by the feedback from Familjebostäder and our own evaluation mostly with the How, Wow, Now matrix, which led us to our final concept. This concept is a game "StockHomer" which would run on the website of Familjebostäder and its goal is to offer a platform for neighboral communication about changes in the area, to offer a platform for feedback from the tenants who can express their wishes that would have been helpful for them, so Familjebostäder can learn from them and through this process, it will be a data source collection on the choices, the way those things were chosen, trend forecast and a feedback loop.

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Future of Housing

is report is about applied design thinking for the future of Stockholm's future public housing. Familjebostäder challenged us to find out how to build new apartments to meet the needs and desires of their future tenants.. Design thinking tools helped us seeing the big issue: we were searching for particular needs of future tenants renting a hypothesized apartment. So, we found a more tangible angle: how can tenants convey needs and desires to the companies that provide their housing? StockHomer, our final solution, is a playful online tool that gives tenants a platform to unleash their ideas about housing and to show how these needs could be met. This game is not merely play, it is a way for housing companies to capture tenants' wants, needs and desires.

Openlab is a creative centre that provides opportunities for finding solutions to challenges in society. In cooperation with our partners and other actors, we create proposals for innovative solutions for the Stockholm region. We do this across the lines between different disciplines and professions. The reports from Openlab are results from students interdisciplinary cooperation within the framework of a 15 ECTS master course.