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Hatching the Future of Urban Chicken Keeping

Designing for Increased Quality of Life in
Trondheim

Master's thesis in Industrial Design Engineering

Supervisor: Ida Nilstad Pettersen

Co-supervisor: Ferne Edwards

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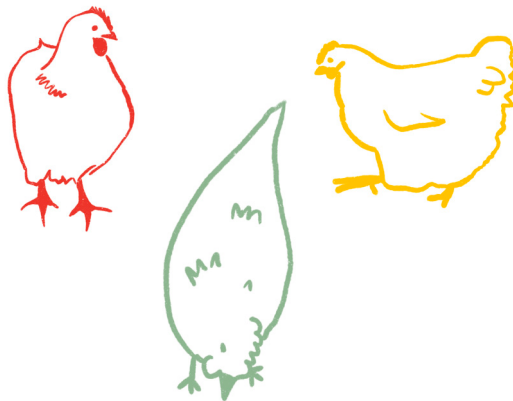
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Norwegian University of Science and Technology
Faculty of Architecture and Design
Department of Design

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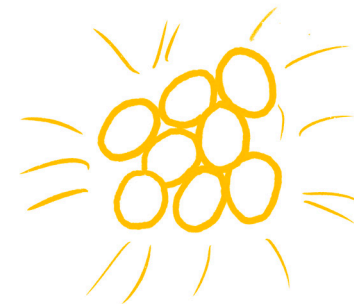
A master's thesis by Anna Caroline Syse
and Ida Maria Corsepius Melen

Preface

This master's thesis is written by Anna Caroline Syse and Ida Maria Corsepius Melen at the Institute for Design, NTNU. We wanted to spend the final semester having fun and taking advantage of the freedom the design students are granted. This resulted in an exploratory project on urban chicken keeping, a topic which we stumbled upon and never stopped loving.

We would like to thank everyone who has supported us while we have been brooding on this thesis. First of all, we want to thank our supervisors Ferne Edwards and Ida Nilstad Pettersen for giving us advice, inspiration and encouragement throughout the semester. We also want to thank Jóhannes Blöndal Sigurjónsson for being supportive and interested in our topic, and Anne Kristin Stenersen for being helpful when the deadline approached. Additionally, we want to thank all the people we interviewed while working on this project, chicken keepers and others, that have offered their time, knowledge and chickens. Thanks to our neighbors for letting us call their chickens our own, and to the chicken for calming us down, bringing us joy and giving us excuses to take breaks.

We want to thank our families for late night phone calls, proofreading and sending cheering flowers. Thanks to our roommates for sharing the home offices with us, and thanks to the closest people who have dealt with the ghost versions of ourselves over video call the last few days before the deadline. Also, a special thanks to our fellow students for the last five years we've shared - you are all golden eggs.



Ida Maria Corsepius Melen

Anna Caroline Syse

Abstract



This master's thesis described the design of two concepts for urban chicken keeping in Trondheim, which have the goal of facilitating an increased quality of life through a closer relationship with nature and a stronger social community.

At a time when an increasing number of people live in urban areas and the relationship with nature becomes weaker, initiatives to bring nature into the city can play a key role in contributing to knowledge about and engagement with nature and the local community. The purpose of this master's thesis is to explore how to design for increased quality of life through urban chicken keeping. The thesis presents concepts, in order to exemplify insights and opportunities.

An exploratory research methodology has been used to study the problem. A semi-structured literature review, 23 semi-structured interviews, five case studies and the design ethnographic method known as participatory observation have been conducted. To analyze the insights, different design methods have been used during the process, such as Persona, Stakeholder Map and User Journey Map. The project's insight process is divided into four phases with the titles "Practicing chicken keeping", "Establishing chicken keeping", "Chicken keeping in urban development" and "Support for chicken keeping".

During the project, the focus was narrowed down to concern shared chicken keeping in housing cooperatives. The final result of the project consists of two concepts. The first concept is a design for a service that lowers the threshold for urban chicken keeping. The second concept is recommendations for a chicken coop adapted to Trondheim's Nordic climate and urban neighborhoods. In essence, research in this study has revealed that urban chicken keeping can be a part of the future if one, through design, takes advantage of the opportunities, addresses the challenges, and highlights the positive effects of urban chicken keeping.

Sammendrag



Denne masteroppgaven beskriver designet av to konsepter for etablering av delt urbant hønehold i borettslag i Trondheim, som har som mål å tilrettelegge for økt livskvalitet og tettere relasjon til naturen.

I en tid der et økende antall mennesker bor i byer og relasjonen til naturen blir svakere, kan initiativer for å bringe naturen inn i byen spille en sentral rolle i å bidra til kunnskap om og engasjement rundt naturen. Formålet med oppgaven er å utforske hvordan man kan designe for økt livskvalitet og en tettere relasjon til naturen gjennom hønehold i Trondheim. Oppgaven presenterer konsepter, i den hensikt å eksemplifisere innsikt og muligheter.

For å studere problemstillingen har det blitt benyttet en utforskende forskningsmetodikk. Det har blant annet blitt gjennomført et semi-strukturert litteraturstudium, 23 semi-strukturerte intervjuer og fem casestudier. Den design-etnografiske metoden deltagende observasjon har blitt brukt. Til å analysere innsikten er det blitt brukt ulike designmetoder underveis i prosessen, som, arketyper, kart over interessenter og kart over brukerreise. Prosjektets innsiktsarbeid er delt inn i fire faser med titlene "Praktisere hønehold", "Etablere hønehold", "Hønehold i byutvikling" og "Støtte til hønehold".

I løpet av prosjektet ble fokuset snevret inn til å omhandle etableringsfasen av delt hønehold i borettslag i Trondheim. Det endelige resultatet av prosjektet består av to konsepter. Det første konseptet er design av en tjeneste som senker terskelen for etablering av urbant hønehold. Det andre konseptet er anbefalinger til et hønehus tilpasset Trondheims nordiske klima og urbane nabolag. I hovedtrekk har forskningen i denne studien avdekket at hønehold i by kan være en del av fremtiden dersom man designer for å utnytte mulighetene, ta tak i utfordringene og fremheve de positive effektene som urbant hønehold tilbyr.

Table of Contents

1 Introduction

14 Background

- 16 Quality of life
- 20 Urban nature's effect on quality of life
- 24 Theories and concepts
- 30 Context description

46 Design Process

First study phase

60 Practicing Chicken Keeping

- 62 Data collection: Participant observation, Semi-structured interviews with urban chicken keepers
- 66 Key findings
- 76 Discussion
- 78 Synthesis

Second Study Phase

84 Establishing Chicken Keeping

- 86 Data collection: Multi-Sited Case Study Research
- 90 Key findings
 - Case study 1
 - Case study 2
 - Case study 3
 - Case study 4
 - Case study 5
- 100 Discussion
- 104 Synthesis

Third study phase

120 Chicken Keeping in Urban Development

- 122 Data collection: Semi-structured interviews with housing developers
- 126 Key findings
- 130 Discussion
- 131 Synthesis

Fourth study phase

134 Support for Chicken Keeping

- 136 Data collection: Semi-structured interviews with supporting actors
- 138 Key findings
- 148 Discussion
- 149 Synthesis

152 Our Concepts

- 158 A service for urban chicken keeping
- 170 A chicken coop for Trondheim
- 184 Discussion

186 Reflection

192 Conclusion

196 References

208 Appendix

Introduction

In the fall of 2020, Ida, who is one of the two authors of this thesis, found herself, found herself in quarantine with her parents in Oslo. There she discovered that a chicken coop with four hens had appeared in her neighborhood. Every day she went for a short walk along the apartment buildings in the housing cooperative and the highlight was collecting grass and feeding the hens through the chicken wire. She quickly discovered how easy it was to talk to the other neighbors who walked their dogs nearby or children who passed by the coop on the way to school to see if any new eggs had arrived. She remembered thinking that it was surprisingly nice, and that she was very proud of living in this “cool” housing cooperative. Snapchats and photos were sent to make friends jealous. On one of these walks, Ida met a young couple who had just finished their studies in Trondheim and moved to the housing cooperative. They talked about how the greenhouse and the hens have been a nice way to get in touch with the new neighbors at a time when people mostly tried to avoid each other. Thus, they felt that they had got off to a good start in their new neighborhood. Other initiatives from the residents, such as an outdoor stone pizza oven, common exercise sessions, a greenhouse, and cultivation boxes, had also appeared since Ida moved away from home. The community thrived.

Good quality of life among the population is one of Norway’s most important resources (Bang et al. 2008, p. 4). A closer relationship to nature contributes to increasing the quality of life (Pyle, 1993). Furthermore, it is thought that interactions with nature can make changes in the mentality of humans (Antonsen, 2017) and have repercussions on the physical and social ecology in beneficial ways for the environment and the climate (Guattari, 1996). Urban agriculture promotes active and cohesive neighborhoods (Rashed, 2019) which again affects the quality of life.

This thesis investigates the possibilities of utilizing chickens in order to achieve these effects. Chickens are productive animals which are relatively simple to keep and small in size. In addition, they are social animals that thrive among humans, are perceived as enjoyable and give idyllic associations. As designers we learn, discuss and synthesize findings through design methods in order to create ways of facilitating this activity in a “more-than-human” centered way. In choosing to focus on Trondheim, we have concentrated on designing for a Nordic climate and an urban environment.

Masteroppgave for Ida Maria Melen og Anna Caroline Syse

Økt livskvalitet og tettere relasjon til naturen gjennom hønseshold i byen

Increased quality of life and closer relationship to nature through poultry farming in the city

Hold av høns og andre nytte dyr slik som griser, kuer og hester var vanlig å se i byer i Norge for bare hundre år siden, men i dagens byer virker dette fremmed (Oslo Museum, 2019). Distanseringen fra naturen har ført til flere initiativer som prøver å bringe naturen inn i byen igjen. Eksemplene Kneiken felleshage og Trondheim studenthage viser Trondheim kommunes satsing ved å støtte urban dyrking (Trondheim Kommune, 2020). Urbant hønseshold i Trondheim er ikke særlig utbredt, men er å finne i flere barnehager og i den åpne hagen kalt "Tantes Hage". I flere byer i USA er det blitt dokumentert positiv effekt hos innbyggere som gjør hønseshold til en del av livsstilen sin (Blecha & Leitner, 2014). Det bidrar til enkeltpersoners livskvalitet og blir en kilde til samhold i lokalsamfunnet, samtidig som man bidrar til god dyrevelferd. Denne positive effekten tror vi kan overføres norske byer også, og vi ønsker derfor å se på muligheten for å designe for positiv byutvikling gjennom urbant hønseshold.

Gjøre mål:

- Samling av innsikt fra relevante kilder og folk som har erfaring med hønseshold i Trondheim eller andre byer. Lære om effekten slike urbane aktiviteter kan ha på innbyggernes livskvalitet og samhold, og hvilke fordeler og utfordringer det innebærer.
- Idegenerering og konseptutvikling for hvordan å tilrettelegge for hønseshold i Trondheim for å bidra til byutviklingen.
- Detaljering av design og presentasjon

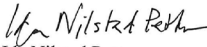
Oppgaven utføres etter "Retningslinjer for masteroppgaver i Industriell design".

Ansvarlig faglærer (hovedveileder ID): Ida Nilstad Pettersen


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Ole Andreas Alsos
Instituttleder

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The people behind the thesis



Ida Melen grew up in an apartment in Oslo with a cat and a small garden. When finishing high school, she traveled to France and Italy to work on ecological farms through the organization Wwoofing. There she took part in such activities as building a chicken fence and slaughtering a hen.

Ida is a committed and curious designer who is passionate about good user experiences. She specializes in interaction design and has worked as a UX designer within various industries and domains such as banking, urban planning and tourism. She enjoys the projects where she can make a difference. For the master's thesis she wanted to use her design skills for something different and lively.

Caroline Syse grew up in Oslo city center with no pets - "my three sisters are enough" - and has no other experiences with husbandry animals. However, the interest in animals and nature is very much present. In addition to fulfilling her dream of owning a campervan, she dreams about living on a farm and learning more about farming and livestock.

Caroline specializes in the field of interaction design, and has worked as an UX designer within logistics, urban planning and tourism. She is particularly interested in projects with a focus on user experiences and end-user effects rather than product development. She is motivated by being able to make a change in her surroundings, and thrives best among users rather than in front of a computer screen. This chicken keeping project offers a mix of exploration of the design process and pure fun.

Motivation

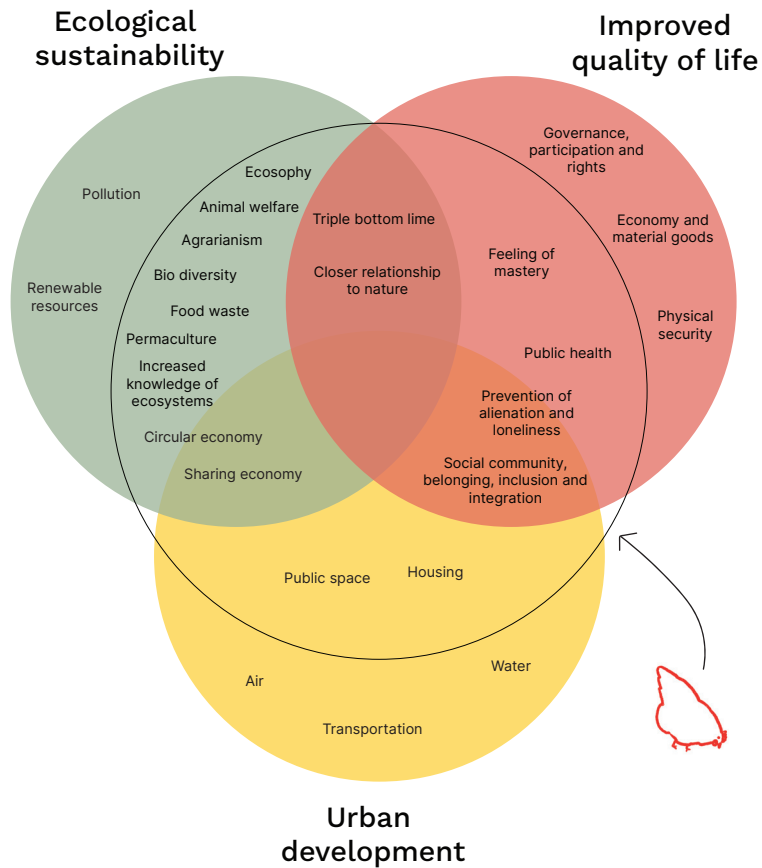


Figure 1: We were motivated to work with ecological sustainability, urban development, and design for improved life quality. Chicken keeping became our way of exploring these topics.

In the process of choosing a master's thesis, there was one thing that kept popping into our heads. We were obsessed with chickens, and it became difficult to choose anything else. Our curiosity was the leading force when choosing the topic of chicken keeping. We wanted to explore broadly and keep an open mind as to whether we were to design a product, a service, a system, engage in speculative design, or do something completely different. We were motivated to work with ecological sustainability, urban development, and design for improved life quality. Chicken keeping became our way of exploring these topics and some of their sub-topics.

We visualized this in a territory map (Figure 1), as a visual way of representing our anticipated areas to explore. This map includes several of the terms and focus areas we later uncovered through research and observations.

How to read the thesis

This thesis is to be read as a semi-chronological journey through our process, resulting in designs which answer our problem statement.

Following the introduction, a background chapter will lay the groundwork for the rest of the thesis. After describing the design process, including stating the problem, we describe our study of the topic of urban chicken keeping in four chapters, one for each study phase.

1. In the first study phase we learned about the activity of practicing chicken keeping.
2. In the second study phase we attempted to establish chicken keeping in several sites in Trondheim, learning from our attempts.
3. In the third study phase we explored the possibility of including urban chicken keeping in urban development.
4. In the fourth study phase we explored services that support urban chicken keepers.

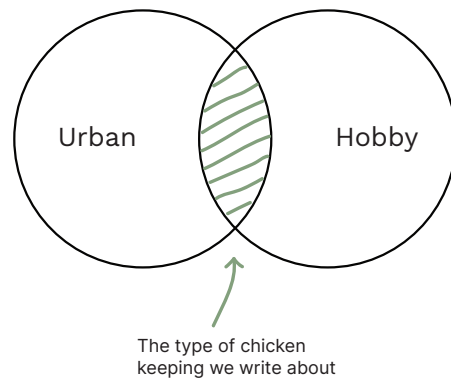
Each study phase chapter includes a description of the data collection, key findings from the study phase, and a discussion. The study phase chapters end with a synthesis, where we, using the key findings and discussion, present results which will be used to design concepts later.

After the four study phase chapters, the concepts we have designed will be presented and discussed. Finally, we reflect upon our project as a whole, and conclude the thesis.

Definitions



Types of chicken keeping



Chicken keeping

Whenever we mention chicken keeping in this thesis, we talk about hobby chicken keeping, meaning the activity of keeping chickens at home in the garden in an urban area with a flock small enough to produce eggs for their own consumption. Normally, this means fewer than 200 chickens, typically, a place between 3-12.

Sustainable backyard agro-ecosystems

In the context of our thesis, this term applies to the cycle of using chicken feces to produce fertilizer, which is again used for growing plants and vegetables, which in turn can be eaten by humans and by the animals resulting in feces.

Productive animals

We use the definition of Blecha & Leitner (2014, p. 105)

We use the term “productive animals”, commonly seen in the urban agriculture literature, interchangeably with “livestock” and “farm animals”. Each term constructs certain animal species in particular ways. “Productive” has the anthropocentric meaning of serving human utility, including food products and labor, [...] differentiating these animals from pets, who in recent decades, have largely been constructed as “consumers” (of food, toys, beds, leashes, and so on) rather than “producers.”

Nature

This term is loosely defined due to the fact that everything on this earth in some way or another comes from nature. By “nature” in this thesis we broadly mean animals, plants, and the world of nature (Nussbaum, 2011). This includes both “wild” nature, such as forests and sunsets, and “tamed” nature, such as agriculture.

Urban

We use the definition of Oxford Advanced American Dictionary. (n.d.a)

This term applies to something connected with a town or city.

Urban agriculture

We use the definition of Landbruks- og matdepartementet (2019)

Urban agriculture refers to a number of different activities related to cultivation and animal husbandry in urban and suburban areas. Urban agriculture can be commercial, in the form of more traditional agriculture and horticulture, cooperative farming, rooftop farming, combined land-based fish farming and vegetable production, vertical cultivation, e.g., in empty industrial buildings, or beekeeping. Urban agriculture traditionally applies to cultivation in allotment gardens, school gardens, roof gardens, community gardens, private gardens, raised garden beds, and on balconies.

Community

We use the definition of Oxford Advanced American Dictionary. (n.d.b)

This term applies to the feeling of sharing things and belonging to a group in the place where you live.

Housing cooperatives

In this thesis we use the word housing cooperatives to apply to the Norwegian words “borettslag” and “sameie”. These are two forms of housing companies which consist of several households. In “borettslag”, the housing company is owned by everyone living there, while in “sameier”, the housing company consists of a group of independent owners (Boligbyggelaget TOBB, n.d.). In “borettslag” there is a joint debt, it is often easier to finance common expenses and maintenance, and the possibility of renting out a space is limited (Boligbyggelaget TOBB, n.d.). In “sameier” there is no joint debt, financing common maintenance is more complicated, and the owner can rent out a space with no limitations (Boligbyggelaget TOBB, n.d.). To limit the number of terms, we choose to use “housing cooperatives” for these two forms of housing companies.

Background

To approach the theme of urban chicken keeping and quality of life, it is relevant to look at the definition of quality of life, experiences about the relationship between humans and nature and several theories and concepts. How do humans and nature relate, and why is it important to quality of life? This was explored through a semi-structured literature review and secondary research. First we will present several theories and concepts before looking into studies on nature's impact on humans. Thereafter, we will describe the current development of urban agriculture in Norway.

Quality of Life



When discussing urban chicken keeping's effects on quality of life, it is important to understand what the term "quality of life" means. The Norwegian Directorate of Health states that "the population's quality of life is one of Norway's most important resources" (Bang et al. 2018, p. 4). They argue that studying quality of life can enable cross-sectional collaboration and provide novel work opportunities within the field of psychological and physical health (Bang et al., 2018).

In a report from The Norwegian Directorate of Health called "Gode liv i Norge" (2016), meaning "Good lives in Norway", the authors point to eleven basic components of life quality (Barstad et al., 2016):

1. How life is experienced - the subjective quality of life
2. Physical and mental health
3. Knowledge and skills
4. Financial and material security
5. Physical security, security for life and property
6. Democratic participation and equal rights
7. Social community
8. Work and education
9. Leisure, culture, and play
10. Nature and local environment
11. Accumulation of disadvantages and advantages

For our thesis, the components focusing on Social community (7) and Nature and local environment (10) are the most relevant to discuss.

Social community

Another report by The Norwegian Directorate of Health on “Life quality, a measuring system”(Bang et al. 2018) points towards research by Cacioppo & Cacioppo (2014) which showed that loneliness predicts negative health conditions. Loneliness is defined as “the subjective experience of lack of community” (Derogatis et al., 1974), and a sense of belonging is important to combat this (Bang et al., 2018).

A study from Sandstrom and Dunn (2014) shows that contact characterized by so-called “weak ties” correlates with greater life quality, even controlling for contact with strong ties. Weak ties are connections with people with whom you do not spend that much time, with and who are often different from you, e.g., in terms of age, life situation and interests. Typically this can be classmates, colleagues, or neighbors. These ties are less intimate than what is called “strong ties”, which are people with whom you spend a lot of time with and that are similar to you, typically friends, family and partner. (Bang et al., 2018) The weak ties are important because they bridge gaps between different networks, creating opportunities and relations that otherwise would not occur (Bang et al., 2018).

Nature and local environment

Nussbaum (2011) argues that “being able to live with concern for and in relation to animals, plants and the world of nature” is important for objective and subjective life quality (p 34). This includes access to and views of parks and green spaces (Bang et al., 2018). It is stated in the report that “good lives are built where people live their lives”, meaning that it cannot be built only within the health sector but must also be built and maintained in other areas of society, such as in city planning (Bang et al., 2018, p. 8). This means that designers, being a part of shaping the future of cities, play an important role in achieving increased quality of life for the citizens.

We believe combating loneliness and tying weak ties are relevant in the context of chicken keeping. It is yet to be researched if the presence of chickens can create a place and opportunity for people to meet casually and to share a common ground, but our hypothesis is that it can. Also, chickens can probably create opportunities for residents to show concern for animals by offering interaction in nature on several levels, through socializing, engaging in agro-ecosystems, and collecting eggs. It is worth researching whether introducing chickens to several spaces in the urban landscape would create more activity and attract more people to these spaces, leading to a livelier local environment.

Urban Nature's Effect on Quality of Life



Trondheim

It is expected that 68% of the world's population will live in urban areas by 2050 (Department of Economic and Social Affairs, 2018). In Norway in 2020, 82% of the population live in cities; 34% living in the five most populated ones. (Statistisk sentralbyrå, 2020). Trondheim is the fourth most populous city in Norway (Statistisk sentralbyrå, 2020) with 200,000 citizens (Statistisk Sentralbyrå, 2021). The city has a lively city center, charming historical districts and sights, several public parks, main roads that stretch through the city and residential areas in the suburbs. The winters are dark and cold, the temperatures can often fluctuate, and the summer is characterized by long days (Meteorologisk Institutt, 2021).

Effects of urban nature

Research on urban chicken keeping

One study has been done on the effects of urban chicken keeping. It investigates new, urban chicken keepers in several US cities (Bletcha & Leitner, 2014). It highlights how new urban chicken keepers value happy chickens and healthy food and that they reimagine the economy and urban life through this activity. The keeping of chickens becomes a source of unity in the local community, while at the same time contributing to good animal welfare. Despite the lack of research on the benefits of urban chicken keeping, we believe that urban chickens share the same benefits as urban agriculture in general.

The loss of human-nature interactions in the city

This overall urbanizing development has decreased the number of interactions between humans and nature (Miller, 2005; Hartig et al., 2014). McClintock (2010) calls this development the "metabolic rift", a disruption in the nutrient cycles on both a social, ecological and individual level. People are alienated from their efforts and the fruits of their labor. The industrialization of farming and the expansion of land creates a rift between city and country, human and nature (McClintock, 2010). Pyle (1993) warned about the loss of human-nature interactions as "the extinction of experience" arguing that "is not just about losing the personal benefits of the natural high. It also implies a cycle of disaffection that can have disastrous consequences". A study by Soga and Gaston (2016) shows that people's attitude toward nature is affected by the interaction they have with nature, pointing to the fact that a loss of interactions can lead to a lack of willingness toward protecting nature.

Benefits of nature interactions

As already pointed out, human-nature interactions have positive health effects for human beings. Dobson et al. (2021) highlight the importance of simple encounters with nature, saying that simply noticing nature has positive effects on people. Human health and wellbeing benefit from taking care of the environment (Fritze et al., 2008) and being surrounded by green infrastructures (Tzoulas et al. 2007). Keiniger et al. (2013) identified six categories of benefits from interacting with nature: psychological well-being, cognitive, physiological, social, spiritual, tangible. Examples of these benefits were improved self-esteem, gaining learning opportunities, reduced occurrence of illness, social cohesion, increased inspiration, and being rewarded with food. Fuller et al. (2007) found that the richer an urban greenspace was perceived by the visitors, mostly concerning plant and bird richness, the more positive the greenspace was experienced.

In her master thesis, Bogstad (2018) explored the relationship between urban agriculture and life quality through a case study in a community garden in Oslo. The study shows that the activities at the community garden influenced the participants' quality of life and could be summarized in six categories: Leisure time and recreation, personal accomplishments and development, a social environment, an arena for family and friends, belonging to the local community and impacts on bodily health (Bogstad, 2018). The community garden promoted a stress-free activity within a safe space where people could be creative, active, and develop personal interest with other people in the community (Bogstad, 2018).

Community and neighborhoods

Rashed (2019) talked about urban agriculture as an activity that encourages both the restoration of ecosystems and reviving communities. These activities create life through working with nature and with society, by being inclusive to all societal levels and providing social interaction and belonging to a community (Rashed, 2019). A case study showed that especially neighborhood well-being was positively associated with the vegetation cover and species richness in their area, and negatively associated with asphalt cover (Luck et al., 2011). The results showed that neighborhood satisfaction increased the likelihood for the neighborhood to engage in activities together (Luck et al., 2011). From the literature it is evident that there is a need for innovative urban planning which include interactions with nature where these spaces are used for social interaction as well as ecological experiences (Rashed, 2019; Keiniger et al., 2013; Dobson, 2021).

Theories and Concepts



Ecosophy

Ecosophy describes the relationship between nature and humans. The word in itself is a conjunction of the Greek words “oikos”, meaning “household”, and “sofia”, meaning “wisdom” (Levesque, 2016). In this context “oikos” refers to the earth, and all of humanity is the “household” of earth. The phrase was introduced and used by the Norwegian philosopher Arne Næss (Næss, 1973) and the French philosopher and activist Félix Guattari (Guattari, 1996). Both Næss and Guattari called for a change in humans’ way of living, making the term known at a time when the environmental crisis was starting to be acknowledged (Levesque, 2016).

Using the terms “ecosophy” and “deep ecology”, Næss encourages a certain lifestyle that has little impact on the environment and promotes all living beings as valuable in themselves (Næss, 1973). Through “deep ecology” Næss favors the labors which are complex and activating, combining “work in city and recreation in nature with recreation in city and work in nature” (Næss, 1973, p. 98). Guattari started using the term in 1985, and without ever meeting or referencing Næss, shared many of his ideas (Levesque, 2016). He went even further, explaining ecology as an intimate connection of the environmental, social, and mental ecology, which are dependent on each other (Guattari, 1996). He suggests that by making changes in humans’ mentality, one could make physical and social changes in ecology as well.

Agrarianism

Trine Antonsen, researcher and Associate Professor at University in Tromsø, argued in her doctoral dissertation that doing strenuous activities such as farming, and other food- and agriculture related activities, teaches humans about their dependence on nature (Antonsen 2017). She used the term agrarianism, or agrarian philosophy, about the role agriculture has in society, pointing out that it has similarities to Arne Næss’ theory of deep ecology (Antonsen, 2017). She said that in order to care for nature it is not enough to learn about climate change and extinction of species, but one must engage in nature and acquire skills. Gathering such knowledge through working with nature improves the way we use nature and leads to better lives (Antonsen, 2017).

The theories ecosophy and agrarianism focus on establishing a relationship between humans and nature which is sustainable, respectful, and activating. It is possible to imagine that chickens are a means for achieving this, by enabling people to work with nature and encouraging activity, producing food, and gaining respect for other species.

Permaculture

The term permaculture was coined by Bill Mollison and David Holmgren in the 1970s (Mollison & Holmgren, 1978). Holmgren (2020) described permaculture as mimicking the “natural and obvious” ways of nature in order to provide for human needs, while increasing the capital of natural resources for the future. The term has historically been applied to sustainability in agriculture, but has later been applied to sustainability in culture in general (Holmgren, 2020). The overall vision is to create a sustainable future where energy and resource consumption is reduced, termed an “energy descent future”. This can be achieved by following the 12 permaculture design principles, whereas several of them point towards circularity in streams of resources by encouraging use of renewable resources and minimizing waste production (Holmgren, 2020). Holmgren (2020) points towards using chickens to prepare the ground for planting as an example of a renewable resource. They fertilize the ground fast and efficiently.

Circular economy

Circular economy is a concept which can be understood in many ways, but according to the Norwegian government it is a concept which focuses on maintaining the value of products, materials, and resources by reusing and recycling them (Klima- og miljødepartementet, 2020). The goal is to exploit the resources efficiently so that its value is maintained for as long as possible. The term Circular neighborhoods describes a neighborhood which is designed to keep its resources within the system by looking at several streams of resources (FutureBuilt, 2020). The goal is to produce and process resources within the system, for example, through growing vegetables and composting food waste (FutureBuilt, 2020).

Chickens are a part of an agro-ecosystem which utilizes the natural ways of nature, and we believe that this can contribute to “circular neighborhoods”.

Sharing economy

Sharing economy is a concept which Botsman describes as a change in society from hyperconsumption, where an individual owns assets privately, to collaborative consumption, where an individual shares assets with others (Botsman, 2010). The rise of the sharing economy shows that people do not necessarily want things, but they want the effects the things can give and the needs they can cover. Sharing economy in agricultural activities has been growing for the last decade (Mount, 2012), where people share spaces, expenses and produce to be able to do agricultural activities. Devita Davidson, food activist from Detroit, USA, points out that the greatest benefit of urban agriculture lies in the possibility to share the activity and the produce with the people in the neighborhood (Davidson, 2017).

One example of sharing economy in urban agriculture is cooperative agriculture. This is a cooperation between farmers and consumers where the responsibility and expenses connected to the crops are shared (Økologisk Norge, n.d.). The consumers pay the farmer in advance, often one year at a time, for a share of the land, thus sharing the risk with the farmer. This is a model which has grown in Norway since the beginning of the century (Økologisk Norge, n.d.).

We believe that urban chicken keeping is an activity that can be shared and thus spread its benefits to many people.

Context Description



Historic perspective on chickens in cities

Chickens in urban environments are not novel, but it counters a century-long development toward excluding productive animals from modern cities like Oslo (Oslo Museum, 2019), Seattle and Portland (Blecha & Leitner, 2014). Thus the urban chickens are challenging the common perception of what cities are for.

There have been animals in Oslo since the founding of the city in the Middle Ages (Oslo Museum, 2019, p. 9). According to the municipality's statistics based on the census, the number of animal husbandry made a big leap between 1875 and 1891 in Kristiania (Thorsen, 2020), the former Oslo. This means that animal husbandry continued throughout the first, big urbanization of Kristiania. In 1891 there were 6285 chickens in Kristiania and they could be seen strutting around in the streets. At that time citizens kept livestock in order to receive milk, meat, and eggs. Livestock was almost a prerequisite for fresh milk and fresh meat in a time without a refrigerator (Oslo Museum, 2019, p. 9). With new cooling schemes and more efficient communication systems from the middle of the 19th century, keeping pets in the city center gradually came to an end. Food became easier to purchase than produce (Blecha

& Leitner, 2014). At the same time, new attitudes towards animals arose. Many, especially the bourgeoisie, disliked the brutal treatment of animals (Oslo Museum, 2019, p. 12) and in 1859 the animal protection association Foreningen imod Mishandling af Dyr was established in Christiania (Thorsen, 2020). Poultry and livestock animals were seen out of place in modern cities leading to productive animals being excluded from cities, in order to clean for sanitation and the bourgeoisie sensibilities (Blecha & Leitner, 2014; Oslo Museum, 2019, p. 12). Blecha & Leitner (2014) refers to historian Dyl (2006) who has documented the twentieth-century debates over the war on rats versus the right to keep chickens in San Francisco.

In recent decades, many books have been published in the field of "animal studies" (Thorsen, 2020), about humanities and social sciences studies on the relationship between humans and animals, such as Kete (1994), Svanberg (2001), and Howell (2015). No animals are pets, they are rather made into it (Thorsen, 2001), and humans can use them productively in work, while simultaneously having a close relationship with them (Thorsen, 2020). The habit of keeping pets goes far back and is found in many cultures. Researchers estimate that we have kept dogs for up to 10,000 years (Thorsen, 2001). Together with the emergence of bourgeois urban culture in the 19th century, the interest in exotic animals, like foreign birds and colorful fish, arose (Svanberg, 2001, p. 11). The type of nature that is perceived as appropriate in the city is often in enclosures, such as zoos, parks, and gardens (Blecha & Leitner, 2014). During the 20th century, the number of pets in Oslo's households increased, due to a better economy and more spacious homes (Thorsen, 2020). Pet owners' understanding of their dogs is floating somewhere between animal and human (Fox, 2006). A study by Blecha & Leitner (2014) showed that this applies to hobby chicken keeping as well, as nearly all participants reported an awareness of the animals as individual personalities with their own thoughts, feelings, and activities. In Norway, it is discussed whether hobby chickens have the potential to become the "new dog", in the sense of more people becoming a pet-like relationship with their hens (Eckhoff, 2021).

Strategies and subsidy schemes

The Norwegian Government published a national strategy for urban agriculture called “Dyrk byer og tettsteder - Nasjonal strategi for urbant landbruk” in February of 2021, four weeks after we started our work on the master’s thesis (Landbruks og matdepartementet et al., 2021). With this strategy, the government wishes to encourage urban agriculture in and around cities, by drawing up guidelines and encouraging the creation of knowledge and the development of values and businesses (Landbruks og matdepartementet et al., 2021).

In addition to this, several other municipalities have created strategies on urban farming. In Oslo “Spirende Oslo”, meaning “Sprouting Oslo”, is a strategy for including more urban agriculture in order to create “a greener and warmer city by having green meeting places, cultivation and livestock” (Spirende Oslo, n.d. a). A part of their goals for 2019-2030 is that more areas will be dedicated to food production, which includes holding livestock, such as chickens, in the city. In addition to promoting urban cultivation, Oslo Municipality includes information on urban chicken keeping on their website (Spirende Oslo, n.d. b). A city farmer has been hired as part of their efforts, and they also annually offer financial support to urban agriculture projects. In 2019 the city granted 2 million NOK to 52 urban agriculture projects (Oslo kommune, 2020). Most of the applicants were organizations, teams and associations, and voluntary actors. Five of the projects that were granted their application in 2019 included chicken keeping. In Bergen, “Dyrk Bergen” meaning “Cultivate Bergen”, is a strategy similar to Spirende Oslo (Etat for landbruk, 2019). The city council of Bergen wants the city to be the greenest city in the country by hiring a city farmer and offering financial support (Etat for landbruk, 2019). In 2017 they offered 150 000 NOK and in 2019 this figure has grown to 252 000 NOK.

In Trondheim the municipality does not have a strategy, but they offer support both financially and spatially to unions, organizations and municipal units in the city (Trondheim kommune, n.d.). In 2020, 380 210 NOK were granted projects that had to do with cultivating food in the city, and one project on that list stated that they were going to have chickens (Trondheim kommune, 2020).

Businesses and research

BYFORSK, a state driven research arena, has started a research project called “Cultivating Public Spaces: urban agriculture as a basis for human flourishing and sustainability transition in Norwegian cities,” led by Beata Sirowy (Forskningsrådet, n.d.). This project is granted 10,4 million NOK for exploring the potential urban agriculture can have in norwegian cities, through looking at social, environmental, spatial and economical dimensions (Forskningsrådet, n.d.). This testifies to the growing attention on including nature into the urban environment in Norway.

There are several businesses, initiatives and associations in Norway that are engaged with urban agriculture in some way. “Bærekraftige liv”, which translates to “Sustainable lives”, is an association that consists of local groups where volunteers run sustainable initiatives for their local community (<https://www.barekraftigeliv.no>). Grønt flagg, which translates to “Green flag”, is an environmental certification for all kindergartens and primary schools in Trondheim, with the intention of ensuring that environmental education is at a high level (<https://www.trondheim.kommune.no/grontflagg/>). Dyrk, which translates to “Cultivate”, is a service that allows people in Oslo to rent out space in their garden so that others can cultivate there (<https://www.dyrkoslo.no>). Nabolagshager, which translates to “Neighborhood gardens”, is an association that develops sustainable solutions for urban agriculture, one such project being “Tak for maten”, a pilot project for rooftop gardening in Oslo (<https://nabolagshager.no>). They offer services such as feasibility studies and strategies, and are always on the lookout for new possibilities.

Agriculture in urban development

In an investigation of whether there are urban development projects that include chicken keeping in their plans, we looked into projects of the most outspoken green housing developers in Norway. The projects we researched were

- Dokken in Bergen
- Nye Lilleby in Trondheim
- Løren botaniske in Oslo
- Vindmølleparken in Stavanger
- Nordre gate in Oslo
- Nansenløkka in Oslo
- Oen in Oslo
- Rotvoll gård in Trondheim
- Living lab in Oslo

Most of these projects had a “green” profile, including raised garden beds and green recreational areas for the residents. They also often included sharing solutions such as common outdoor or indoor areas, shared apartments for guests and carsharing. Out of the nine projects and visions we researched we found that one vision included chickens. At the urban development project at Dokken in central Bergen one of the proposals for the plans from the architectural offices Advancia and VILL proposed that chickens could stay in the common outdoor area among the residential buildings. They write that “Hens, rabbits and other social animals that thrive around humans can be well suited to sheltered urban spaces. They spread joy and closeness, and give meaning to the everyday lives of many” (ÅF Advancia et al., 2020).

Indicators of a trend in chicken keeping

We contacted the team behind the proposal asking them why they chose to do this. The architects had their own experiences with urban chicken keeping and explained that chickens and other similar activities create meeting spaces and a feeling of affiliation which increases quality of life (personal communication, February 23, 2021). They pointed out that this activity can be many things, but said that no matter the activity it has positive repercussions in society. Animals have the ability of creating cohesion and joy among people in all phases of life and with different abilities, extending further than other humans might. She pointed out that animals are not only for children, but can have positive impacts on everyone, building trust and relationships between people. One initiative, such as urban chickens, can not achieve this alone, but the sum of several initiatives “helps to shape us into something richer, both as single individuals and as a community”. This resonates with our desire to increase the population's quality of life. “When we draw this type of “small” solution into our city visions, it is rooted in a certainty that we must build good societies rather than “only” functioning cities”, writes an architect from team Advancia/VILL (personal communication, February 23, 2021).

Urban agriculture is a growing trend in Norway (Landbruks- og matdepartementet, 2019). It is more difficult to say whether urban chicken keeping is a growing trend due to this activity remaining largely officially undocumented.

Mattilsynet, The Norwegian Food Safety Authority, is the state's inspector of plants, fish, animals and food. They do not have a complete overview of the hobby chicken keepings in Norway, because it is not normally a requirement to register this type of animal husbandry. Despite the fact that it is sometimes required due to e.g. bird flu, the figures from their systems would have been misleading (Mattilsynets svartjeneste dyr, personal communication, May 2, 2021).

The numbers from St. Paul, Minnesota of permits issued to chicken keepers offer some insight on the development in the number of chicken keepers. Blecha & Leitner (2014) are referring to Stephenson's (2013) graph of permits issued by Animal Control in St. Paul, Minnesota 2000-2013 (Figure 2).

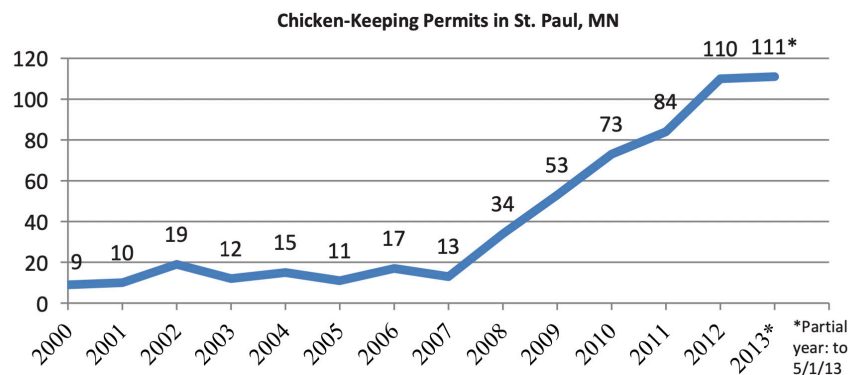


Figure 2: The numbers increased significantly from 2008 to 2013. Whether this trend is reflected in the number of Norwegian urban chicken keepings is unknown.

To get a picture of the development of hobby chickens in Norway, we asked one of the biggest feed merchants within agriculture equipment, Felleskjøpet, about their national sales numbers on feed for chickens. The hobby assortment was introduced at the end of 2013 and at the beginning of 2020, a new series of hobby feed was launched.

The sales numbers we received from Felleskjøpet (personal communication, May 7, 2021) are represented in this graph (Figure 3). The feed types marked in yellow are for egg-laying hens, the feed types marked in green are for young and growing hens, and the blue feed type is a new luxury feed launched in 2020 that can be used for all kinds of chickens. We can see that Felleskjøpet has sold an increasing amount of poultry feed to the hobby market in recent years, and when talking to the employees at the local Felleskjøpet store, they confirmed experiencing this increase in sales the last couple of years (personal communication, April 9, 2021).

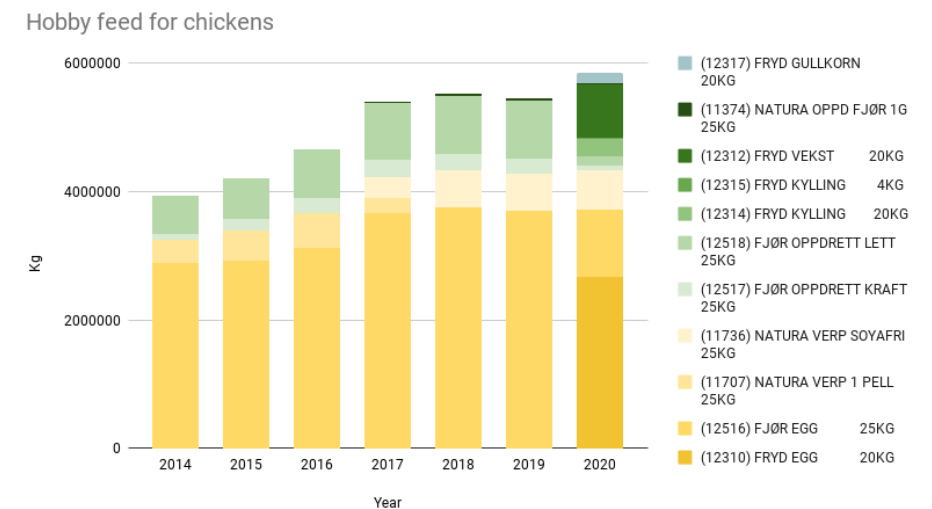


Figure 3: National sales numbers from Felleskjøpet

Still, the database is limited which makes it hard to draw any conclusions from it. The figures we have received are from the last 7 years, and the latest, being characterized by Covid-19, contains numbers that might have been affected by the circumstance. In addition, there are other feed merchants in the market other than Felleskjøpet. It is possible that Felleskjøpet has taken a larger share of the market in recent years, without the market having increased in size, and whether there is a trend can not be stated based only on this. . We contacted Norgesfôr (personal communication, May 26, 2021), which is a big feed merchant sharing the market with Felleskjøpet. Unfortunately, their organizational structure made the data difficult to access.

Rules and regulations

Norsk Genressurssenter, the Norwegian Genetic Resource Center, at Norsk institutt for bioøkonomi (NIBIO) preserves the genes from yesterday's cage hens and breed chickens, hens and hatching eggs, among other things. In 2020, 6500 hatching eggs were sold, which is two and a half times more hatching eggs than in 2019, shown in Figure 4 (Kildahl, 2021). Nina Sæther, leader of Norsk Genressurssenter, believes that this is due to the fact that many have spent a lot of time in their own homes and gardens during the Covid-19 pandemic, and that many could finally realize the dream of having their own laying hens. She also says that they observe the breeds worthy of preservation to be popular among hobby chicken keepers.

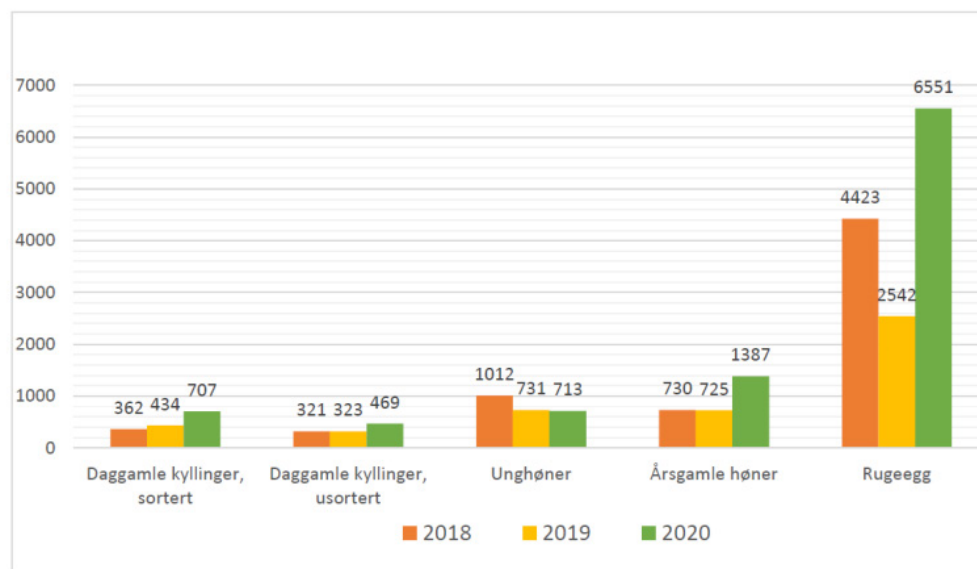


Figure 4: Sales numbers of chickes, chickens and hatching eggs from Norsk Genressurssenter 2018-2020.

In summary, we have the impression that there is a growth in urban chicken keeping in recent years, but we do not have sufficient numbers to confirm this. However, several sources point towards urban chickens getting increased attention.

Tensions arising with the return of livestock to urban areas include concerns about public health, annoyances, and challenging the widespread perception about the separation of urban from rural life. One published study compares regulations from municipalities in 22 United States cities on small productive animals (Butler, 2012).

In Norway there are no general rules against chicken keeping. There are also no established standards for how to keep chickens as a hobby. Several books about keeping chickens in gardens have been written on this subject, e.g. Larsen (1995/2005), Sievers (2010/2012), and Hunsbedt (2019). Books on self-sufficiency, which include backyard chickens, are also published (Österåker, 2015/2017). However these books describe different practices and offer no single standard for how to care for chickens.

This being said, some rules and regulations do apply. This includes Grannelova-law regarding neighborly relations, regulations on noise in densely populated areas and other local rules. It is generally not required to register hobby chicken keepings, except in areas and times with increased risk for diseases (Mattilsynet, 2020b). The animal husbandry has to be done according to several rules and regulations and everyone who keeps chickens is obliged to be familiar with these.. Mattilsynet has the main responsibility for ensuring that these rules and regulations are complied with.

The purpose of the regulations is to ensure good health and well-being in animal husbandry and to ensure that the animals' natural needs are taken into account (Dyrevelferdsloven, 2009). This includes giving them feed, water and care, and a suitable coop where they are able to behave naturally according to their instincts. The chickens must be protected from unnecessary stress, pain and suffering (Dyrevelferdsloven, 2009). Some of

Price for keeping chickens

the provisions do not apply to poultry farming with less than 200 animals (Forskrift om hold av høns og kalkun, 2001, §2). Nonetheless, the animal keeper must be able to document updated knowledge about animal welfare for the species in question and the form of production, and be able to recognize signs of poor animal welfare, and implement measures where necessary (Forskrift om hold av høns og kalkun, 2001). Animal keepers are also required to report suspected serious diseases such as bird flu to Mattilsynet (Mattilsynet, 2020a).

Outbreak of bird flu 2020-2021

Mattilsynet introduced a curfew in parts of Norway on Friday 27th of November 2020, and the curfew was later extended to apply throughout the country (Mattilsynet, 2020a) until June 1st. The reason is that bird flu of the type HPAI H5N8 had been detected in Norway. It is not dangerous to humans, but it is easily transmitted between birds. Bird flu comes to Norway occasionally through wild birds, especially migratory birds. The curfew was introduced to prevent contact between wild and domestic birds. Direct contact with infected birds, or contact with faeces from these, is the most important transmission for bird flu. Feed and water also had to be protected from wild birds. Most birds that become infected with this type of bird flu will die quickly, without having shown symptoms in advance. The highly pathogenic bird flu has also been detected in Sweden, Denmark and several countries in Europe.

Mattilsynet was concerned about the risk that infection would find its way into commercial poultry flocks, because an outbreak in hobby flocks can have major consequences for poultry industries nearby. At worst, a case of infection in a hobby keeping can temporarily stop all egg and poultry meat production in the proximity. Hobby chickens and other birds in captivity in areas with a curfew must be kept indoors or outside under a sealed roof and inside a fence. In order to safeguard the animals' welfare, Mattilsynet encourages expanding the outdoor area, enriching the environment in which the chickens live and considering reducing the number of animals as long as a curfew continues (Mattilsynet, 2020a).

We researched what equipment is needed to establish a chicken keeping in a garden (Larsen, 1995/2005; Sievers, 2010/2012) and researched online to estimate a total price. We found the price for establishing a chicken keeping, including the materials for building a coop and the equipment for feed and water, to be between 4000 NOK and 16 000 NOK, depending on the amount of reused materials and chosen price class. The price for feed and litter is estimated to be 200 NOK per month.

Design Process

Our design background comes from over four years of studying Industrial design, specializing in Interaction design, at the Norwegian University of Science and Technology. The study program combines knowledge about technology, humans and aesthetics in order to design for a desired end-user effect (NTNU, n.d.). Through extensive design research and the use of design methods, the focus lies on solving the right problems before creating solutions.

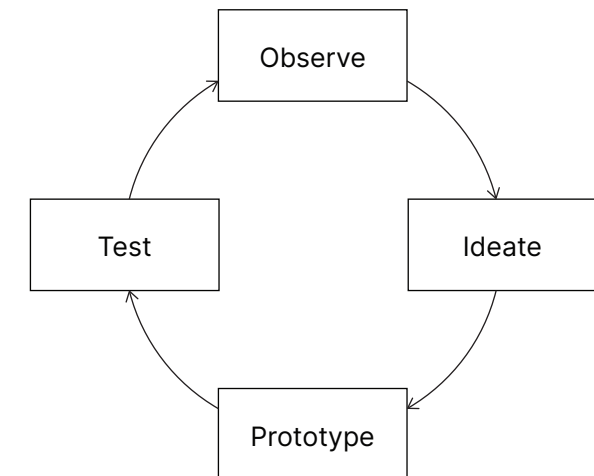
Design Theory



Human-Centered Design

Throughout this project we have gathered insights, specified human needs and the context, and designed concepts. These steps are derived from the human centred design approach. In Norman's book *The Design of Everyday Things* (2013), first published in 1988 he presents the Human Centered Design (HCD) Process with four activities: Observation, Ideation, Prototyping and Testing.

Norman highlights the importance of iterating on these activities to constantly refine and enhance the product. "Fail early to succeed sooner," is stated in *The Field Guide to Human-Centered Design* (IDEO, 2015, p. 21). With each iteration, human needs become more defined and the tests become more targeted.



Observation

The activity where the designer researches the would-be customers in their natural environments. Using methods of applied ethnography the designer aims to determine human needs.

Ideation

The activity of using the human needs found during observation to generate possible solutions. Norman explains this as "the fun part of design" (p. 226), recommending the designer to be creative and produce ideas without constraint, and ask "stupid" questions.

Prototyping

The activity where the designer makes the ideas tangible, preferably through quick prototypes which can be tested.

Testing

The activity of putting the prototype in the context of the intended use with the intended audience in order to find out whether it solves the right problem or achieves the right effect.

Planet-centric
design

More-than-human design



Human-centered
design

Planet-Centric and Human-Centered Design

In this project, living beings are a part of the design. They have their own personality and their own needs that need to be taken into account, similar to technological limitations. We do not attempt to design the chickens (we leave this to the breeders). Instead we attempt to create a context for humans to interact with chickens and benefit from them, preferably in a way that also benefits the chickens. This raises the question of whether we are moving beyond human-centered design.

Wright (2020) questions how we can “design for positive impact beyond humans”, especially now that the world is faced with ecological and environmental challenges. Wright presents the term Planet-Centric Design, coined by the consulting company Vincit, which positions the planet’s needs in the center and creates products or services that are good for the planet (Vincit, 2019). This design approach can be viewed as opposed to Human-Centered Design. Wright points out that the environmental challenges we are facing are human-made, thus it must be conquered by focusing on human behavior. Therefore he suggests more-than-human design as a relevant approach, which we position somewhere in between Planet-Centric Design and Human-Centered Design (Figure 5).

More-than-human design

This is an approach which considers the interaction between humans and non-humans, referring to actors such as animals, forests, weather events and waterways (Wright, 2020). In more-than-human design, humans have the responsibility of considering the impact they have on other non-human actors on earth (Wright, 2020). He refers to Clark et al. (2019) who used the term to point out that a more-than-human approach challenges the perception that non-humans exist either as a pest or a resource. Humans can move beyond the human-centered perspective by developing empathy for and placing values on other species (Clark et al. 2019). In order to create a flourishing multispecies assemblage, people are required to commit to, collaborate and play with other “earthlings”, meaning all species on earth (Haraway, 2015).

Through our thesis we explore how to facilitate cohabitation and coexistence between chickens and humans. We consider how the concepts we design affect the chicken and how the chickens interact with the concepts. Still, the desired effect is to increase humans’ quality of life. Thus, we adopt the Human-Centered Design process and position ourselves within the field of more-than-human design.

This master's thesis has aimed to answer the following problem statement:

“How can we design for urban chicken keeping in Trondheim to lead to increased quality of life?”

by identifying possibilities to attain the goal of enabling more people to enjoy chicken keeping in Trondheim, and in order to achieve the desired effect of increasing the quality of life in the population.

Process

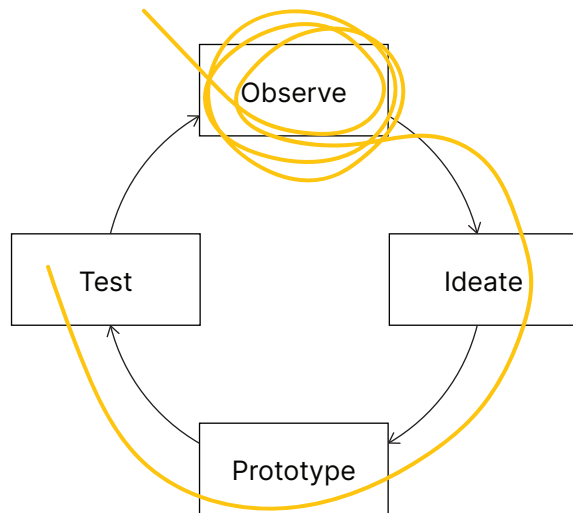
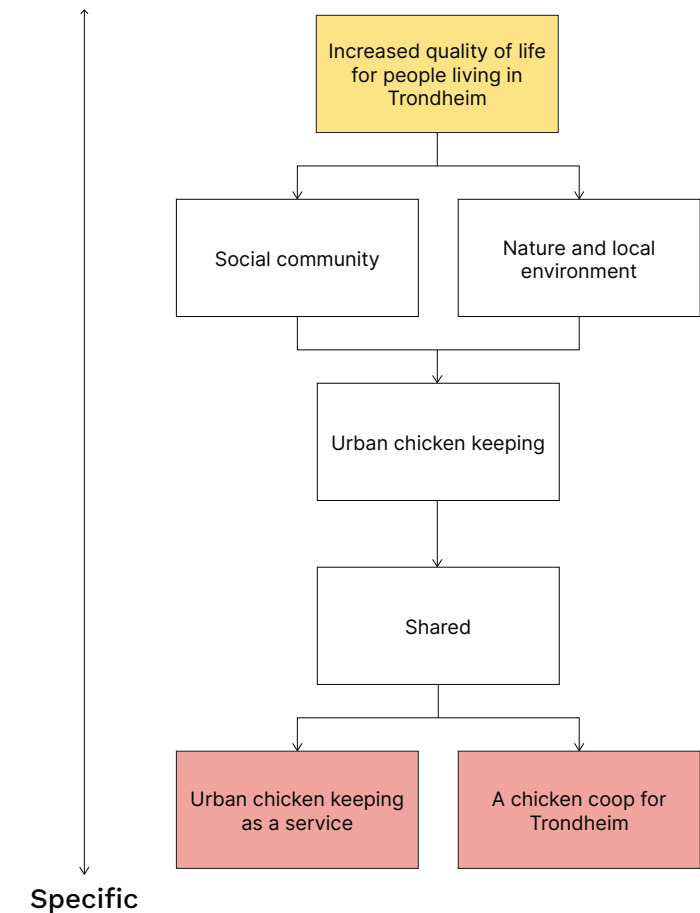


Figure 6: Our Human-Centred Design process

As stated in IDEO's Field Guide to Human-Centered Design (2015), "each project invariably has its own contours and character", which is something we have experienced ourselves through our five years of study. Although the Human-Centered Design process has been a guide of our thesis, it has been modified to fit the project's needs (Figure 6), seeing as we not only focus on identifying and solving problems, but work towards a desired effect for the future in a more-than-human way. The majority of our focus has been on observation through each study phase. The steps of ideation, prototyping and testing have been done on a conceptual level, shown in the designed concepts.

Abstract



Specific

Figure 7: Model reaching from the most abstract desired effect to the specific concepts

It is possible to view the thesis as a journey from something abstract to something specific (Figure 7). The thesis starts with the desired effect of increased quality of life, leading to the values A closer relationship to nature and A stronger social community. It concludes with two specific concepts for a service and a coop. Our progress from the desired effect to the specific concepts, divided into the chapters of this thesis, can be seen in the Gantt diagram (Figure 8).

Gantt diagram

Vacation 

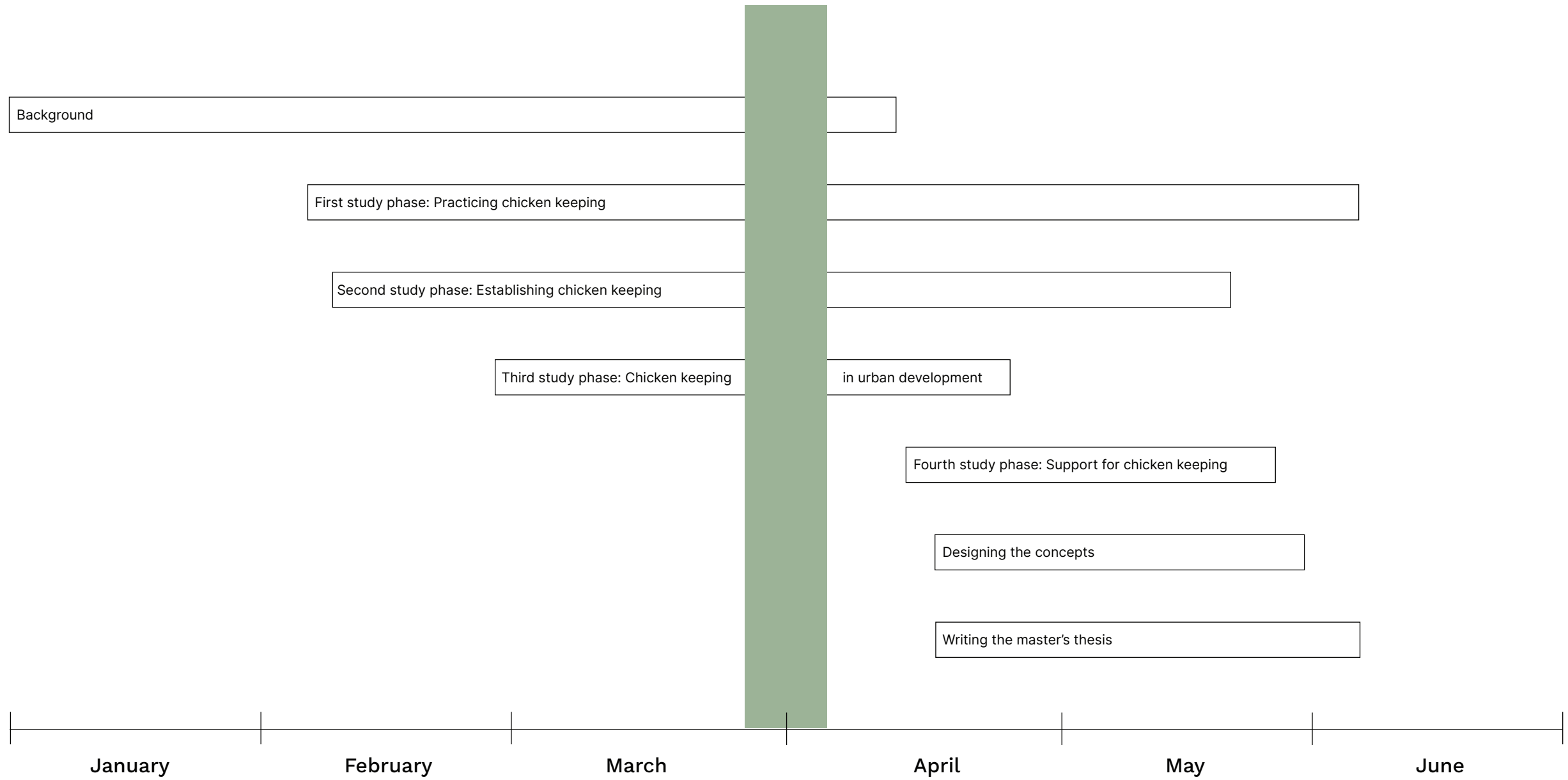


Figure 8: Gantt diagram showing a chronological representation of the activities in themes of the chapters in this thesis.

Methods



The overall approach of this thesis has been exploratory research, in the sense that the focus has been on the user's challenges, the context and future possibilities (Martin & Hanington, 2012). This approach allowed us to become familiar with urban chicken keeping, and gave us the space to explore and be flexible. It mostly included qualitative methods and design ethnographic methods. This enabled us to empathize with and gather tacit knowledge from the users (Rust, 2004). In the background chapter we gathered insights through a semi-structured literature review and secondary research. In the four study phases, semi-structured interviews (Kuniavsky, 2003) and case studies were conducted. In addition, the design ethnography method (Salvador, Bell & Anderson, 1999; Gunn & Donovan, 2016) participation observation was used. We used methodological triangulation (Martin & Hanington, 2012, p. 188), meaning that we used several methods within our exploratory research in order to reduce the uncertainty of the interpretation of findings.

The findings from these methods resulted in a list of requirements, a Stakeholder Map (Martin & Hanington, 2012, p.166) and a User Journey Map (Martin & Hanington, 2012, p.196). For designing and communication the concepts, a scenario (Martin & Hanington, 2012, p.152) and the Elito method (Martin & Hanington, 2012, p. 70; Ulrich, 2007) were used.

First study phase

Practicing Chicken Keeping

The goal of this study phase was to learn about urban chicken keeping, developing empathy for the chicken keepers.

We believe that there are rewards and challenges to urban chicken keeping, and we want to expose them in order to be able to take on them and take advantage of them.

Data Collection



In order to achieve this we used two methods, design ethnographic participant observation (Martin & Hanington, 2012, p. 124) and semi-structured interviews (Kuniavsky, 2003).

This way we were able to corroborate our results with evidence from several angles in accordance with the triangulation method (Martin & Hanington, 2012, p. 188).



Us doing participatory observation at the chicken coop and shopping chicken feed at Felleskjøpet.

Participant observation

We were practicing chicken keeping ourselves by helping a neighbor who keeps chickens once a week. The research was conducted April 28th to June 9th 2021.

Sample

The neighbor with the chickens was found through personal contacts. They are a couple in their thirties with children under 18 years. They live in Trondheim and have a private garden with a chicken coop housing a flock of three hens. We soon started to call the chickens our own.

Topics

We arranged that we would visit the chicken coop once every week and fill up the feed, change the water and collect the eggs, which resulted in a total of 8 visits. These visits had a length of 10-20 minutes. Every fourth visit we would remove droppings and replace the litter inside the coop. Once we drove to Felleskjøpet to buy feed and hay.

Semi-structured interviews

We interviewed 13 urban chicken keepers within 4 months, from February to April. Two of the interviews were carried out through email correspondence, while the remaining 11 interviews were carried out semi-structured in an informal setting through online video calls or physically in the home of the chicken keeper. These interviews had a length of 30-60 minutes. The results were gathered through taking notes. Data was collected anonymously.

Sample

Because there is no complete register of private chicken keepers in Norway (Mattilsynets svartjeneste dyr, personal communication, May 3, 2021), it was not possible to randomly select participants. Because of this, our results can not be viewed as representative for all urban, Norwegian chicken keepers. Thus, the technique used is non-probability sampling. We found the interviewees through snowball sampling (Stickdorn, 2018, p.103). Interviewees were recruited through conversations with acquaintances and through recommendations from the interviewees.

Everyone we came in contact with was eager to speak to us. All 13 interviews were conducted of couples, families and groups of people that kept (n = 6) or had kept chickens (n = 7). Most age groups were represented: 20 - 39 years old (n = 4), 40 - 59 years old (n = 6) and 60-79 years old (n = 3). The size of their flocks varied between three to five chickens (n = 8), up to ten chickens (n = 4) and about 30 chickens (n = 1). Most of the keepers kept only hens while some had one or two roosters. Most of the chicken keepers lived in detached houses with private gardens (n = 10), two lived in housing cooperatives with common backyards, and one was a kindergarten. Detailed information on the sample can be found in the appendix.

Topics

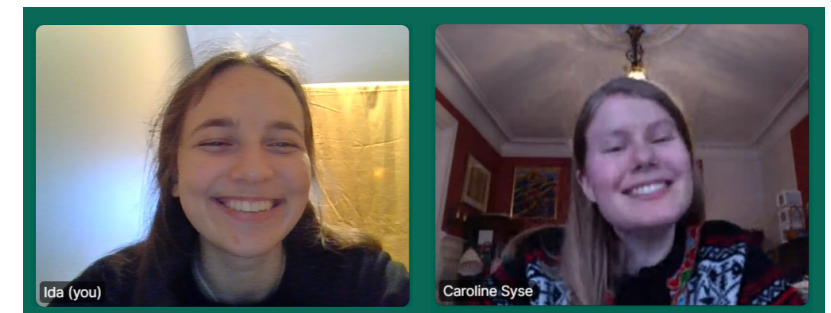
The questions and answers varied in detail, due to the informal nature of the interviews. The interview guide can be found in the appendix.

The interview questions were three fold:

Firstly we asked about details about the chicken keeping, such as why they chose chickens, how many chickens they had, how long they had had them, how often they cared for them, etc..

Secondly we asked about the experience of keeping chickens, asking for both negative and positive experiences and how it affected their lives, neighborhood and their relationship to nature.

Thirdly, we asked about chicken keeping in the context of living in the city, and how they imagined the future of urban chicken keeping would look like.



The interviews were conducted over video call

Key Findings



After keeping chickens ourselves in Trondheim and interviewing people that have experience with chicken keeping in urban environments we learned about the rewards and challenges of urban chicken keeping.

Time, space and support



The chicken keepers Kari and Martin pointed out that one needs space and time to be able to have chickens. We estimate that the size of the chicken coops of the people we interviewed varied from 1,5 - 4 sqm, the size of the chicken run varied from 4 - 50 sqm and the size of the garden varied from 200 - 500 sqm. It also varied how often the chicken keepers checked on their chickens. Many were concerned with checking on them once or twice daily, while others found every second or third day to be sufficient. Some cleaned the coop every week, others once a month. Either way, the time spent caring was only about 10-20 minutes a day, we experienced. Still, we, as the interviewees, often ended up staying longer watching the chickens and talking to the neighbors.

Sunniva's housing cooperative rented their chickens from Eggchange, a company that rents out hens and coops. Kristin's housing cooperative wanted to rent chickens from Eggchange, but at the time, Eggchange did not have any more hens to offer them. Sunniva's housing cooperative received money from the municipality to pay for the chicken keeping. We did not ask specifically about where the equipment was bought, but some mentioned that they bought the feed at Felleskjøpet. Jakob and Live, among others, had learned a lot about chicken keeping by reading books and being members of facebook groups. Trine, among others, had bought her chickens on finn.no.

Rewards

Entertaining, calming and social animals

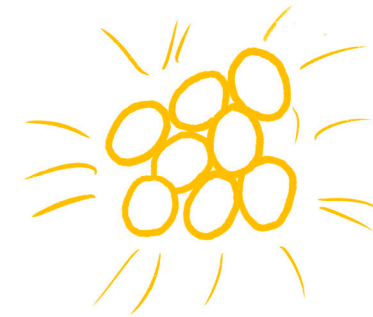
Chickens are cozy and fun animals that provide entertainment. They are described as quirky dinosaur-looking animals that bob around in the garden. Some chicken owners also reported the chickens having a calming effect, slowing down the pace of everyday lives. We experienced this when using breaks from working on the thesis to visit the chickens.

After work, she sometimes made herself a cup of coffee and drank it while watching the chickens bob around in the garden, Pernille, a chicken keeper in Bergen, told us.

The chickens were described by many as social animals with their own personalities. They were interested in their owners and the treats they bring, and approached them when they came home. Pernille described them as intelligent, seeing as they could find their own food and know where to go to avoid dangers. Having said that, SunnivWa noted that city people have a tendency to humanize the chickens a bit too much. After a few visits to the coop we also experienced that our chickens became used to us and started approaching us when we arrived.

Eggs

For some, collecting eggs was the main motivation for getting chickens in the first place, often because the eggs were viewed as healthier and more “natural”. The eggs were plentiful, often enough to substitute buying eggs at the store, and sometimes enough to sell or give away to neighbors and friends as well. The kindergarten used the eggs to cook food with the children, and if there were too many the children brought them home to their families. Everytime we visited the coop we felt the excitement of looking for eggs and, often, the joy of finding them. They were used for that day’s lunch. We found that it was nice that the chickens produced food, as well as keeping them as pets, reflecting the other chicken keepers’ experiences.



Understanding the food cycle

The employees of the kindergarten emphasized the importance of exposing the children to animals and teaching them skills and knowledge such as picking up a chicken, understanding where eggs come from and animal welfare. This teaches them to be empathetic. “We gained an entirely different view on livestock keeping,” Pernille told us as she felt sorry for the chickens that lay the big eggs from the supermarket. Few of the chicken keepers were vegetarians, but many of them talked about reflecting on and being respectful of the animal’s life when eating meat. Eating eggs that had been laid that same day were intriguing and felt special.

Many chicken keepers gave their chickens leftover food. Kari and Martin had an arrangement where they received leftovers from the local supermarket for the chickens to eat, resulting in a win-win situation. “We throw nothing away,” they told us, explaining that whatever the chickens don’t eat go to the composting bin. They were not the only ones with compost, and chicken dropping was a popular ingredient to enrich it. Being a nutritional substance, droppings created an excellent fertilizer which many of the chicken keepers used for their own, and neighbors’ gardens. We experienced that our chickens were picky on which leftovers they would eat, favouring bread and corn, so we did not minimize our food waste through having chickens. Still, the dropping was added to our neighbors’ compost and later used as fertilizer.

Neighborliness and informal meeting places

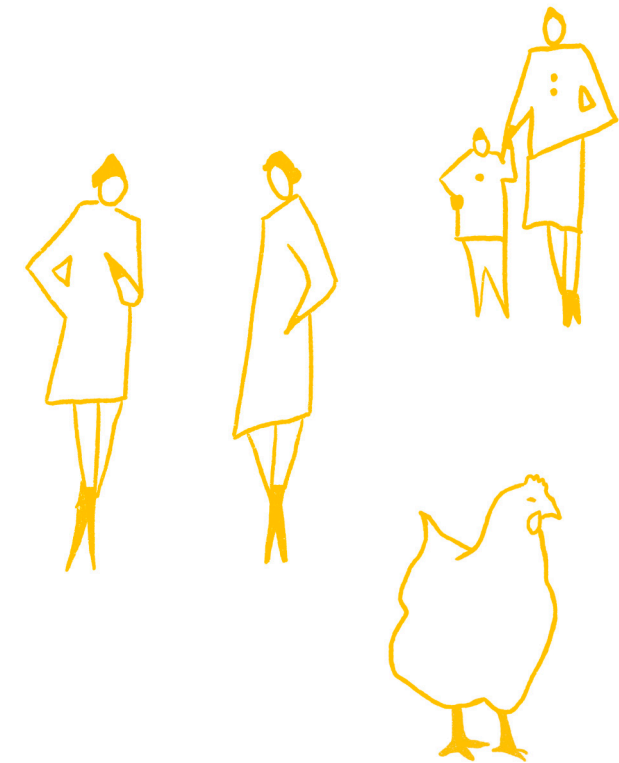
Especially the housing cooperatives reported the chickens bringing the community together. The chicken coop created a natural meeting place for the surrounding people and was a popular visit spot for nearby kindergartens.

Despite that only a few people took responsibility, everyone in the housing cooperative felt that it was their hens, and that was exactly what the chicken keepers intended. "It is a thing for everyone", Kristin, a chicken keeper in a housing cooperative outside central Oslo, declared

When the chickens roamed free they were described as a charming and social addition to the area. Sunniva emphasized that they talked more with their neighbors after acquiring chickens.

On warm summer days, the hens wander around the barbeque in the backyard waiting for the little piece of sausage to fall down, Sunniva, chicken keeper in a housing cooperative in central Oslo, reminisced.

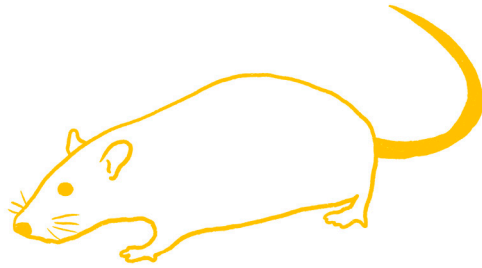
This applied to many of the other chicken keepers as well, including us. We often ended up talking with the neighbors we shared the chickens with when visiting the coop, and we sometimes brought friends over to visit.



Sharing the responsibility

The housing cooperatives shared the responsibility for the chickens between three and five households. Their children were also involved. The chicken keepers that kept chickens alone often involved neighbours in checking on the chickens during weekends away and vacations. Chicken keeping is hard to do alone especially when it comes to going on vacations, we were told. The neighboring family we helped out received our help once a week, which was a welcome relief. Both housing cooperatives enlisted other residents who normally did not participate in the care, to help care for the chickens during vacations. In the kindergarten, parents were enlisted.

Challenges



Noise

Chicken keepers with roosters reported crowing at all hours of the day, leading to neighbor's complaints. As a result chicken coops were insulated, the chickens were kept inside in the dark until morning, or the roosters were put down. "But it is a beautiful sound," Pernille assured us.

Horrified, Trine was awakened by her rooster crowing at 4 o'clock in the morning. The next morning she overheard people on the bus stop talking about hearing crowing in the middle of the night. She could feel her heart sinking into her stomach by the thought of her chickens being a plague to the neighbors, Trine, a chicken keeper in Trondheim, remembered.

In flocks of hens, a few of the chicken keepers experienced loud clucking in the early morning hours and complaints from neighbors. However the sound of clucking was not a big problem for most of the chicken keepers.

Smell

Another challenge was smell, although not as big a problem as noise. The smell was minimal and mostly confined within the coop. Most of the chicken keepers did not find it annoying and did not receive neighbors' complaints on it. They found that frequent cleaning contributed to the smell not becoming a problem.

Winter

Sunniva in the housing cooperative in central Oslo complained that their chicken coop was too small and lacked insulation which led to an uncomfortable environment both for the chickens and residents. The lack of insulation would lead to noise escaping when the chickens are clucking while laying eggs in the early morning hours, and make the coop uncomfortably cold in the winter. The cold could often lead to the chickens' water freezing. To prevent this the chicken keepers Jakob and Live had to change the water often, while Trine solved this by using a special hotplate underneath the water tray.

Pests and predators

Many of the chicken keepers reported unwanted visits by pests such as rats. They explained that this happened due to food laying around and heat in the winter time. Being careful with stray food and building solid coops therefore helped. Live and Jakob had struggled with rats entering the chicken coop, and raising the coop from the ground on blocks minimized the problem. Sunnica experienced a rat coming to the chicken coop during the winter, and they thought a better built coop would prevent this. Pernille told us that rats already exist in the city and can never be truly removed. One can only avoid that they make the chicken coop their home.

Several chicken keepers had experienced goshawks, foxes and badgers killing their chickens. Øystein and Pernille of the chicken keepers had also experienced a dog attacking and killing a chicken. "That's life," Pernille said. Øystein said that it is sad when this happens, but it is not so sad that you don't want to continue keeping chickens. Cats however were not a problem. On the contrary, the chickens were the ones chasing the cats away, Live and Jakob said to us.

Destroying gardens and trespassing

Several of the keepers pointed out that the chickens tended to pluck and perhaps destroy gardens when scurraging for food. They tended to create dust baths in various places they saw fit. Also, some chickens would jump over the fence, wander into the street and go into other people's gardens. Sunnivas from the housing cooperative in central Oslo once experienced their chickens wandering off, to then be returned by the police. A hen from the same flock was once found brooding under the counter of a fashion store.

The hens had been gone for a few hours until the police showed up with the hens in the back of their car, after finding them on a basketball pitch closeby, Sunniva told us laughing.

Illness

Illness amongst chickens was experienced by a few of the chicken keepers. Live and Jakob had previously lost a whole flock to an illness causing paralysis, and had experienced chickens plucking on each other. Pernille put down an entire flock because of neighbours being afraid of the bird flu in 2013. The bird flu regulations at the time the interviews were conducted required privately owned chickens to be kept inside or under a roof at all times. Despite the regulations several of the keepers told us that they decided to let their chickens roam free in their backyard. After keeping them inside for an amount of time they argued that this was a loss to the community and it was uncomfortable for the chickens. They said that the worst case was that their flock died, which was a risk they were willing to take, opposing Mattilsynet views of urban chickens as a contamination hazard for commercial chickens.



Euthanizing and slaughtering

Seven of the chicken keepers reported having euthanized one or more chickens. Six of these chicken keepers had also slaughtered and eaten them afterwards. The chicken keepers' relation to euthanization and slaughter varied. Most viewed euthanizing as a necessary activity although some shuddered when talking about their experience with it. "Chickens are in fact food," Pernille said and told us that her husband was a teacher and had brought a chicken to school and slaughtered it with the students to teach them about food. To them, slaughtering was a natural part of chicken keeping, while for Live and Jakob it was a one-time occurrence which they refrained from after finding that they did not not enjoy the thought of eating their own animals.

"I'm not set on killing anyone tonight. But you have to be willing to kill if you want to keep chickens," Live, a chicken keeper in Trondheim, concluded.

Discussion



Which came first: The chicken or the quality of life?

Does chicken keeping lead to a better lifestyle, as is talked about in “three ecologies”? Because we only interviewed people that have or have had chickens we can not draw any conclusions on this. People talked about reflecting over the animal’s life when eating, but we don’t know if this actually leads to less meat eating. Chicken keeping might only be a result of a certain type of lifestyle the owner already adopts. Do we accomplish any change in people’s mindsets by establishing more urban chicken keepings, or do we only appeal to people that already have this mindset?

The human-chicken relationship

It is safe to say that there are challenges to keeping chickens in an urban environment. When people live close together, complaints about noise, smell and rats are common. Also, death and illness can occur regardless of the environment. On the other hand, the rewards show that the interaction between people and chickens has a big positive impact. Many of these challenges and positive impacts reflect the findings of Bletcha & Leitner (2014). We can see that chicken keeping is two-sided. Because introducing nature this way has such positive repercussions, we believe that it is worth the risks. The challenges must be addressed and overcome whenever they can. One can also argue that some of the challenges might disappear as the activity becomes more common and city dwellers become more tolerant to the chickens strutting about.

Still, the goal should not be that everyone in the city has chickens. This would create an uncomfortable environment for both the chickens and the people. The chickens’ needs do not always fit the citizens’ homes or the situations they are in. The goal however should be to introduce them in suitable areas, in ways that allow the surrounding citizens to benefit from the joy they bring and allow the chickens to enjoy being kept. Therefore, it is worth exploring how we can maximize the rewards and minimize the challenges when introducing urban chickens.

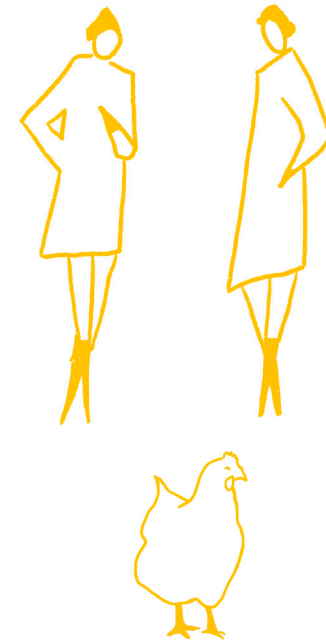


Maximizing the reward: Sharing the chickens

By sharing chickens, the workload becomes more manageable by distributing care, feeding and cleaning, which enables travel on weekends and during holidays. More people are able to enjoy the entertaining, calming and social animals while living a volatile urban lifestyle. Also, the coop creates a social meeting space for informal interaction and activity in the neighborhood.

Minimizing the challenge: Adapting to an urban and nordic environment

By adapting the chicken keeping to an urban and nordic environment the challenges of winter, sound, noise and rats are addressed. Norwegian cities such as Trondheim experience cold and dark winters. Also, in cities people live close together which makes sharing easy. Rats are also an important challenge (Gjerløw & Thonhaugen, 2021).



Shared chicken keeping in Trondheim will be the basis for further work, and through exploration we envision a concept for shared urban chicken keeping. Still, we remain open on what type space in Trondheim chickens could be shared.

Stakeholder map

Through our findings, we have identified key constituents that might have a stake in a concept for shared chicken keeping in Trondheim, shown in Figure 9. They are sorted into four levels, based on their proximity to the chickens.



Figure 9: Stakeholder map

In the middle, the flock of chickens is placed. Next, we have the chicken keepers. Further, we have their neighbours, their children, the extended neighborhood, the board of the housing cooperative or the landlord. In the outer circle are actors such as Mattilsynet, the municipality, the government, city farmers, a chicken rental company, facebook groups, finn.no, the feed merchants and other providers of equipment.

Requirements

In order to maximize the rewards and minimize the challenges we have created requirements for a concept for shared urban chicken keeping in Trondheim.

Visibility and social interaction

The chickens should be available and visible to its surroundings.

Different types of involvement

The chicken keeping should be adapted to the people who want to spend time caring, while also bringing joy to those who just want to walk by and peek.

Adapted to urban environments

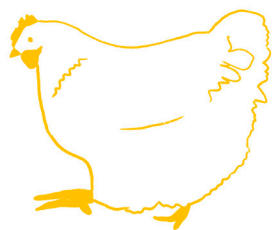
The chicken keeping should take into account the proximity to neighbors and the threat of rats in the city.

Adapted to nordic climate

The chicken coop should withstand cold temperatures, bad weather and dark days.

Fertilizer and leftovers

The chicken keeping should be combined with making fertilizer for the kitchen garden and collection of leftover food such that the whole community can share the benefits in several ways.



To gain deeper knowledge and understanding of chicken keeping, we wanted to initiate the establishment of a shared chicken keeping in Trondheim. We hoped to be able to test concepts we designed based on the requirements from this study phase with the people involved. This turned out differently, as one can read in the next chapter.

Second Study Phase

Establishing Chicken Keeping

The goal for this study phase was originally to initiate the establishment of one chicken keeping for learning about urban chicken keeping and testing our design concepts with the people involved. Instead we ended up with several failed attempts at establishing chicken keeping in our surroundings. The goal therefore evolved into noticing the different hurdles we met and advantages we experienced when initiating chicken keeping in different spaces.

We believe that if we are able to map out the hurdles, we are able to prepare for them in future projects and hopefully overcome them.



Multi-Sited Case Study Research

The method was to initiate establishments of chicken keepings in our surroundings in several sites. From February 18th to May 20th 2021 we initiated the establishment of five chicken keepings in Trondheim.

Sample

We conducted the cases through a combination of convenience sampling, emergent sampling and snowball sampling. The contact persons were either eager to acquire chickens themselves and/or wanted to propose the possibility to a community. The spaces were varied and included either backyards, gardens or common areas. The gatekeepers were stakeholders such as landlords and board members. Details about the sample are shown in the table.

Case study	Contact person	Space	Gatekeeper(s)
1	Woman, 20-29 years, renting	Shared backyard in housing cooperative	The board of the housing cooperative
2	Woman, 20-29 years, renting	Private garden	The landlord
3	Woman, 20-29 years, renting	Private garden	The landlord
4	Board member of community garden	Public park	The board and the landlord
5	A representative of a food culture center	Shared backyard in housing cooperative	The board of the housing cooperative

Table of sample

Topics

To initiate an establishment of a chicken keeping together with a contact person in a space related to them, included sending a proposal to one or more more “gatekeepers” in order to be allowed to start keeping chickens. This proposal was iterated on between the cases by collecting feedback and experiences. In the following process we made notes of hurdles that arose along the way, while continuing the correspondence and answering questions.

The proposal included information about:

- Who would be responsible for the chicken keeping

- The benefits of chicken keeping

- The number of hens, the size and positioning of the coop (sometimes including a conceptual drawing)

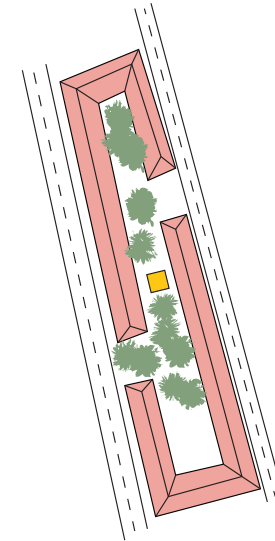
- How to tackle typical challenges like smell, noise and rats

An example of a proposal, from case study 3, can be found in the appendix.

Key Findings



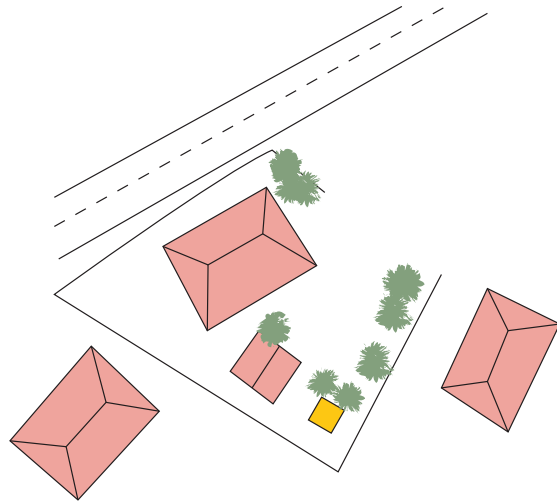
Case study 1: A group of housing cooperatives with a shared backyard



A student living in a housing cooperative wanted to ask the gatekeeper to keep chickens. To begin with she thought of using her balcony, but this was quickly dismissed seeing as chickens enjoy roaming free on green areas. She was unsure whether the backyard was available for her, seeing as the backyard was shared by many housing cooperatives and her apartment was on the outskirts of the backyard. She had rarely used the backyard before and felt no ownership over it.

Closer to the summer she gathered the courage to ask a representative of the board of the housing cooperative. The representative was intrigued, and had forwarded the proposal to other representatives as well. They responded that if she gained permission from everyone who lived in the housing cooperative, it should be fine. However, seeing as summer was coming and she would be moving from Trondheim she did not go through with the proposal.

Case study 2: Detached house with a rental unit

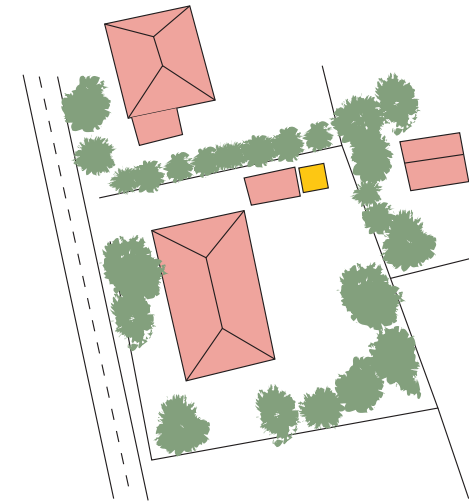


A student living in an apartment in a detached house with three other students wanted to ask the landlord living upstairs if she could keep chickens in the garden. The house is placed outside central Trondheim, and contains two apartments.

To begin with the landlord was intrigued by the idea, especially seeing that the student offered to take all responsibility for the project. However, the proposal was denied because he found it to be too much of a hassle. Exactly what was experienced as hassle was not clear.



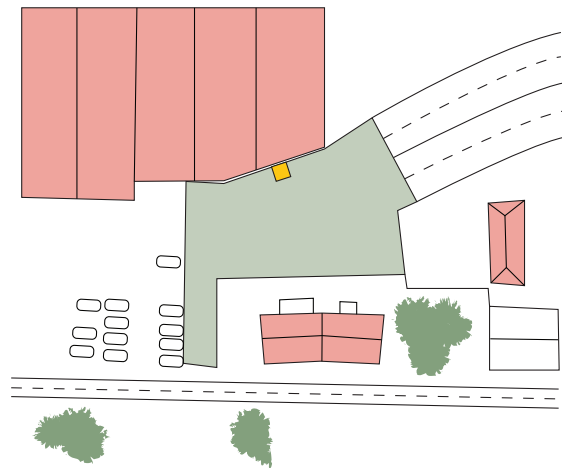
Case study 3: House of six apartments with a common garden



A student living in a detached housing with a group of other students was interested in keeping chickens in her garden, and her two fellow roommates were also positive. The house is placed close to central Trondheim and contains six apartments which are rented by students.

The proposal was denied by the landlord because he was a professional chicken farmer, and he did not want to risk carrying bird flu from the flock in the garden to his flock at the farm. That could result in him having to slaughter 10 000 hens. Otherwise he found it a nice idea and felt bad for turning them down. He was open to other initiatives that did not involve chickens.

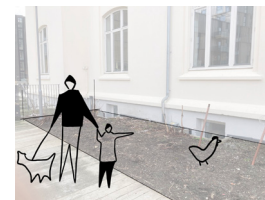
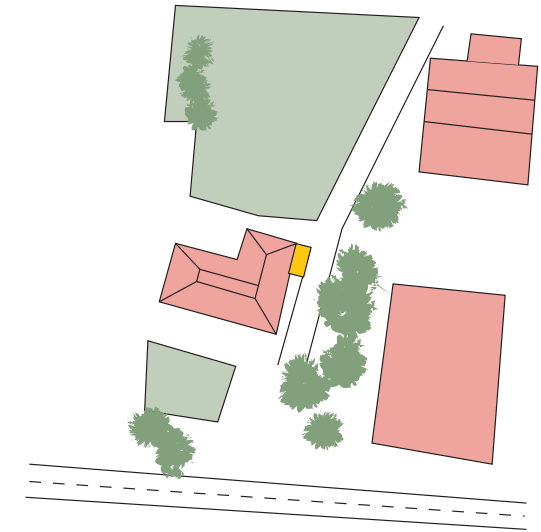
Case study 4: Public cultivation garden run by volunteers



An acquaintance who is involved in a community garden run by volunteers believed that chicken keeping could be interesting for the cultivation group. Through him we sent a proposal which he brought to the board of the community garden.

After talking to a few people on the board the response was negative. The area has no power supply, so they would have to borrow power from a neighbor to keep chickens during the winter. Also, according to the rental contract from the land owners they were not allowed to raise buildings on the property. A few of the board members also doubted that they had enough space in the garden for chickens. In addition, they thought that taking care of the chickens during the winter would be hard to carry out seeing as the volunteers used the garden mostly during spring and autumn. Therefore the proposal went no further.

Case study 5: Semi-public garden in a housing cooperative



In one of the interviews in study phase three we are tipped by the housing developer Nordr that Geitmyra Credo Food Culture Center in Trondheim is interested in establishing a chicken coop. This is an institution placed inside a residential area at Lilleby in Trondheim. They operate in an old building which is surrounded by a common park area.

In a meeting with two representatives from Geitmyra Credo, Siri and Trond, we found that they were very interested in getting chickens due to positive experiences from Food Culture Centers in Oslo and at Ringsaker. They wanted to use the chickens as a part of their classes and in their cooking. They wanted to place the chicken coop in the garden area next to the house. They were also interested in including the nearby residents in the chicken keeping.

Contextual interviews

To map out the interest of residents we walked around the area and asked people. All contextual interviews were made between 15:30 - 16:20 on a Wednesday in late April. During this time, many people were out walking their dogs and it was a while before most people came home from school and work. The sun was shining and the temperature was 7 degrees. We perceived the area as calm, quiet and safe. Multiple well-kept playgrounds and gardens made the area neighborhood child friendly. We spoke to seven people who walked through or stayed in the area during the time we were there. We used purposive sampling to get a balance between men (n = 3) and women (n = 4), people under the age of 40 (n = 4) and people over the age of 40 (n = 3), people who were outside with their children (n = 2) and people who were walking their dogs (n = 3). Everyone except two lived in the area. One of the people we spoke to turned out to be on the board of the housing cooperative and had therefore heard about the chicken keeping plans already, the others did not know anything beforehand. We gathered the research through field notes.

When presenting the idea of hens at Lilleby, all of the seven people we came in contact with were positive. They thought it seemed nice and cool. One described the idea as cozy, another thought hens suited the atmosphere of the place and a third pointed out that it was compatible with being a child-friendly area. One took long pauses while talking, day-dreaming into this idyllic imagination.

“[Chickens] would give a rural feel in a densely populated area”

One drew parallels to the Lilleby garden team (Lilleby hagelag) and said that she was happy to see that people dared to put work into the common areas and that no one was destroying it. She was sparkling, talkative and enthusiastic.

“It’s nice to see that the garden team exists”

Four out of seven people had questions or expressed concerns about whether the hens would make a lot of noise, whether they smelled a lot and one was worried about whether they attract pests. Another was worried that it could create a clinch with neighbors. The board member thought it would be nice, but was of the opinion that the chicken keeping should have been planned when building the residential area. We perceived him as skeptical and somewhat resigned.

Yet, no one wanted to get involved in the care. Two did not live in the area and were therefore not relevant to ask about this. One explained that he was a bit lazy. A mother helped her daughter up the stairs to the slide on the playground while she told us that she had enough to do with daughter and a new job. Two stated no reason, but were interested in watching the hens and one mentioned that it could be fun to receive some updates.

Talking to the board of housing cooperatives

Siri and Trond later arranged a meeting with three representatives from the housing cooperatives in the area. The representatives had initially thought that Geitmyra Credo wanted to produce eggs in a big scale chicken farm, but it was clarified that Siri and Trond only wanted between four and five hens. They had concerns about noise, smell and pests, and were reassured that these challenges would be addressed properly and that Geitmyra Credo would have responsibility for the hens. They also pointed out that the municipality and Mattilsynet should be noted of the activity. The representatives were convinced that hens would be a great addition to the area, and gave permission to Geitmyra Credo.

The representatives were positive about the idea of including residents in caring for the hens. However, they did not think that the residents needed to approve the chicken keeping - "that will be much of a hassle" - but that they rather could receive information about it. The approval from the board was sufficient. It was determined that an informative email and a questionnaire about involvement, which we had prepared for Siri and Trond, would be sent to the residents.

Discussion



You can dream as much as you want about keeping chickens as an idyllic thing as much, but if you do not get permission to keep them, nothing happens. To get permission has proven to be the biggest hurdle in this study phase. One advantage of using case studies as a method is shown by the fact that we got to experience this difficulty, which we did not uncover during the first study phase. As a result we have reflected on different ways we could overcome the hurdles and gain permission.

From the case studies, ideas came up which can be considered when asking for permission from a gatekeeper:

First of all, it is safe to say that keeping chickens is an unusual request and if one had seen or heard about examples of it previously, it could be easier to get permission. Visits could be arranged to city farms or, preferably, other housing cooperatives that have chickens. Also, other cities' municipalities can do like Oslo and add information about urban chicken keeping on their webpages, to normalize the activity and show support.

Secondly, the risk of bird flu and other diseases is a substantial obstacle which is hard to combat. It makes sense that collaborating with a chicken farmer is unwise. The use of other animals than chickens or initializing other activities can be considered, though this can cause other challenges. However, we do not have the capacity to investigate other possible animal species or activities, as that could become a master's thesis in itself.

Thirdly, in contracts that are intended to allow public areas to be used for cultivation, we have experienced that buildings are not allowed to be raised in that area. This can lead to ambiguities about whether a chicken coop can be viewed as a "building" or whether it should be viewed in the same category as breeding boxes. By keeping highlighting that chicken coops are small and lightweight, and that they easily can be built as temporary structures, when making, uncertainty can be avoided later.

It is important to note that unpredictable factors can lead to permission or lack thereof. The gatekeepers' previous experience with chickens, the way a chicken keeper communicates to the gatekeeper and the mood of the gatekeeper are just a few examples. An approach toward getting permission can be to work towards spreading the ownership over the activity to the gatekeepers. Areas where residents are satisfied with their neighborhood increases the chance of them engaging in activities together (Luck et al., 2011). Thus, an unsatisfied neighborhood may decrease the chances of establishment of a chicken coop.

How did the chicken keepers we interviewed gain permission?

When looking back on the first study phase we remembered that most of them did not need permission because they kept their chickens on private land, and in these cases some of them informed the neighbors beforehand. However, the housing cooperatives' experiences are relevant to look at: The housing cooperatives had to get permission from the board. Kristin from one of the housing cooperatives who asked for permission from the board, but not all residents, experienced that neighbors wished they were informed about the chicken keeping in advance. They did not want to stop the chicken keeping from happening, but they wanted to be involved in the process. Sunnica from the other housing cooperative reassured the neighbors by highlighting that there was a low threshold for discontinuing the chicken keeping if problems arose and they were attentive to talk about challenges that came up. To the most skeptical neighbors, they emphasized the joy the hens brought to the other neighbors.



Space categorization

In addition to exploring the obstacles that arise when establishing urban chicken keepings, the case studies resulted in an understanding of different types of urban spaces which are suitable for chicken keeping. These can be divided into categories. These categories will be described, and a category best suited for shared urban chicken keeping will be presented.

The type of spaces we have looked into can be distinguished by how many people feel like the space is theirs and how much they feel welcomed in the space. In figure 10 the five case studies, together with an example of a public park, are placed along an axis showing “private” and “public”. “Private” spaces are available only to the people who own them, and “public” spaces are available to everyone.

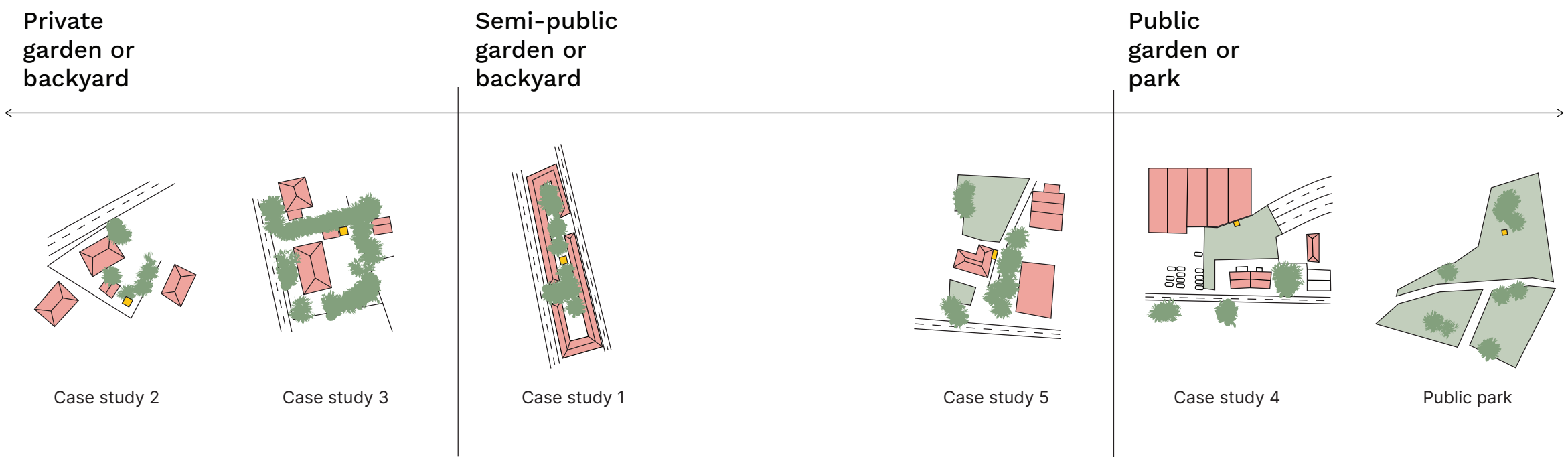


Figure 10: Space Categories

Private garden or backyard

These spaces are often detached houses with gardens or backyards that are owned and used by the people living in the house. Few people, usually only the people living there, feel like the space is theirs. The gardens are only available to the people who live there, which is typically not more than 20 people, usually less. Other people can not walk through or stay inside the space. The second and third case studies are categorized as private gardens. In addition, most of the chicken keepers we interviewed in the first study phase kept chickens in private gardens or backyards.

Private gardens or backyards can have lots of room for chickens and vegetation, and are placed close to the people that care for them. However, the chickens are unavailable to the public and therefore the chicken keeping remains a private project within the group of people living there, and to some neighbours and acquaintances. If one would place chicken coops in the second and third case studies the natural place to put the coop would have been hidden from view for the people passing by. These spaces are less urban than the following space categories.

Semi-public gardens or backyards

These spaces are often one or more housing cooperatives with backyards or gardens connected to them. Many people, both residents and in some cases the general public, have the space available to them and feel like it is fully or partly theirs. The space is often open for people to walk through or stay in for a short period of time, for example at a playground or on a bench. The backyard in the first case study can be categorized as a semi-public backyard because many people live there and feel ownership to the space, probably hundreds of residents. The space around Løren Botaniske and Nye Lilleby (<https://www.nyelilleby.no/>), and the housing cooperatives we interviewed in the first study phase also fit inside this category.

Semi-public gardens or backyards can often have lots of room for chickens and vegetation. Keeping chickens in such a space has the advantage of being available to the public to see and interact with, while being near the residents that provide care and infrastructure.

Public garden or park

These spaces are not connected to a residential area but are available and visible to the general public to walk through and stay in for both short or long periods of time. People that use the space feel ownership to it. The fourth case study can also be viewed as such. All parks fit into this category, having several hundreds if not thousands of visitors during the year.

Public gardens or parks can often have lots of room for chickens and vegetation, and have the upside of being available to the public to see and interact with. However, because nobody lives there there can be challenges when it comes to ongoing care and infrastructure such as power and water supply. Although people feel ownership over the space, they might not feel responsible for it. Therefore, the risk of vandalism is a possibility.

Which space is best for shared urban chicken keeping?

Based on the requirements for a concept for shared urban chicken keeping we can evaluate the different space categories:

Visibility and social interaction

This is achieved if the coop is placed in a semi-public or public space.

Different types of involvement

This is achieved in a semi-public and public space, as many people are using and feeling ownership of the space. The space is both available to people who care for the chickens and curious passersby.

Adapted to urban environments

Public spaces offer less challenges of noise and smell because the space is presumably removed from residents. Rats however might still pose a threat. Many people do not have a private garden or backyard in urban areas.

Adapted to nordic climate

Private and semi-public areas offer less of a challenge by being presumably closer to power supply and in a sheltered space.

Fertilizer and leftovers

Both private, semi-public and public areas offer the chance to use the fertilizer as a byproduct of the chicken keeping, depending on the access to composting. Leftovers, however, are easier to provide in a controlled way in private and semi-public areas, as residents are connected to the space

In addition to these requirements, from experiencing the difficulty of establishing chicken keepings we added a sixth requirement:

Getting permission

This is easily achieved in a private space. It is less likely to get permission in semi-public or public areas as there are more people involved in and affected by the space. However, it depends very much on the people deciding, e.g. the board in a housing cooperative, the landowner of a public park etc.



In order to maximize the social aspects of chicken keeping the chicken coop should be placed in a semi-public or public space. Semi-public spaces have the advantage of being connected to a residential area with power and water supply, and responsible individuals nearby. For this reason we choose to have housing cooperatives in mind when moving forward.

Getting permission

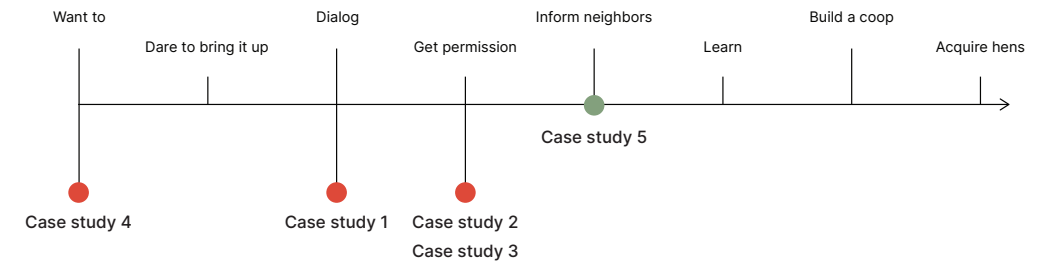


Figure 11: User Journey Map

The process of getting permission for chicken keeping in a semi-public space has been explored through several of the case studies. Getting permission includes knowing who to ask for permission and what to present when asking. Our suggestions give people the opportunity to learn from our and others' experiences, which we believe could lead to dialogs being started in housing cooperatives, and lead to a feeling of security and reassurance among residents.

User Journey Map

Within this timeframe of the five case studies there are several stages, whereas getting permission from the gatekeeper, in this case, the housing cooperative's board, is one of them. The stages are visualized in a user journey map, and it shows at which stage each case study ended.

The first stage is to want chickens

The second stage is to dare to bring it up

The third stage would be in a dialog with relevant gatekeepers

The fourth stage is to get permission from gatekeepers.

The fifth stage is to inform neighbors about the planned chicken keeping.

The sixth stage is to learn about urban chicken keeping, in order to be prepared.

The seventh stage is to build a coop for the chickens.

The eight and last stage is to acquire hens or fertile eggs.

Who needs to give permission?

Every housing cooperative is different, but they all have a board (Boligbyggelaget TOBB, n.d.). The majority of examples we have encountered have only required permission from the board, although the board in the first case study wanted all neighbors to be asked. We can therefore conclude that, in the case of establishing chicken keepers in a housing cooperative, approval is needed from the board, and information must be given to the neighbors.

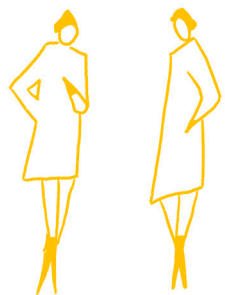
What should be presented to the board?

The precondition for keeping chickens should be the presence of adequate space, power and water supply, people that have an interest in an time to establish it, preferably several people. When approaching the board of a housing cooperative, the benefits of chicken keeping, general information about the number of hens, the size and placement of the coop, how to tackle smell, noise and rats, who will be responsible and the inclusion of neighbors should be presented. By sending the residents the information about the chicken keeping, they will not be surprised by the chickens arriving or feel overrun. They will also know who to contact if they want to get involved or have questions. Showing examples from other chicken keeping, informing about bird flu (if it is a risk) and clarifying chicken coop as a temporary building could also be included.

The format of such a proposal should be suited to be sent by email, published in a Facebook group or in a web portal, as these are common ways for housing cooperatives to communicate. An example of this is shown in figure 12.



Figure 12: Example of proposal



Having explored different spaces for urban chicken keeping and the process of establishing it in different sites we find ourselves wondering if chickens can be introduced from the very beginning: From the time residence areas are planned. This will be explored in the third study phase.

Third Study Phase

Chicken Keeping in Urban Development

The goal was to find out if housing developers find shared urban chicken keeping interesting in the context of their housing projects, and why, and understand what role a housing developer could have in establishing chicken keeping in their housing project.

By implementing a chicken coop into the project plans of new residential areas, we believe that housing developers can use it to promote their projects as distinct and catch the attention of potential buyers. The residents are probably more likely to get involved in chicken keeping if it is proposed as a community activity. If chicken keeping can be introduced in new housing development projects, not only in visions for new districts (ÅF Advancia et al., 2020), we believe that the idea can spread and become more common in the city.



Semi-structured interviews with housing developers

We conducted four semi-structured interviews with housing developers through video chat from March 1st to April 15th 2021. The interviews lasted 30-60 minutes. The results were gathered through notes and audio recordings.

Sample

We wanted to talk to housing developers that are well established in Norway and that include urban agriculture and sharing solutions in their projects. This way we would capture the point of views that are relevant and leading in the Norwegian housing development market. The sampling process was a mix of online research and snowball sampling. OBOS Nye hjem and Nordr were found through online research on their projects Løren botaniske in Oslo and Nye Lilleby in Trondheim, respectively. Tobb was found through recommendation from our supervisors. OBOS Fornebu was found through recommendation from the representative at OBOS Nye hjem.

Nodr, 01.03.21

Interviewees:

Hilde Katrine Lodgaard, Sales and Marketing Manager

Solveig Haugli, Project Manager

Hiske Visser, Project Employee

Formerly known as Veidekke Eiendom, Nordr is Scandinavia's largest property developer (<https://www.nodr.no/>). To create attractive places to live, they focus on green and sustainable solutions, which includes sustainable material choices and offering raised garden beds to residents.

OBOS Nye Hjem, 03.03.21

Interviewee: Karoline Forsnes Krogstad, Project Manager

OBOS Nye Hjem AS is a subsidiary of OBOS which is involved in housing development in Norway through OBOS (<https://nye.obos.no/>). OBOS Nye Hjem are developers of several housing projects that include urban cultivation and sharing solutions in the common areas.

Tobb, 14.04.21

Interviewees:

Runar Skippervik, Department Manager "Bygg"

Helle Pettersen, Department Manager "Nye boliger"

Ole Jermstad, Project Manager "Nye boliger"

Tobb is central Norway's biggest housing association (Boligbyggelaget Tobb, n.d.). They manage homes in Trøndelag with the main emphasis on Trondheim. In several of Tobb's projects, it is clear that community and green areas are central themes.

OBOS Fornebu, 15.04.21

Interviewees: Tor Evert Lindeland, Development Manager

OBOS Fornebu is a part of OBOS that develops residential areas at Fornebu, an area at the outskirts of Oslo where they plan on building more than 5000 new residences (OBOS, n.d.). They will include lots of parks and varied architecture that aim to mix in with the rural surroundings. The area will be a place for experimenting on sustainable solutions within energy, mobility and construction.

Topics

First, we asked about the housing developers' projects and their thoughts on "green" development in order to create a foundation for the conversation on chickens. Then we asked about shared urban chicken keeping in the context of their housing projects. Here we presented a few slides about our project as a starting point for the conversation. In the two latest interviews we also presented a slide showing several possible models for distributing responsibility between a housing developer, a supporting actor and residents. This model was created as a result of findings from the two earliest interviews. The slides and an interview guide can be found in the appendix.

Key Findings

Through the interviews we gathered information on what makes chicken keeping desirable and what makes it undesirable for housing developers. We also gained an understanding of how one would go forward to include chicken keeping in a housing project.

A housing development project has several stages including buying an area, building and selling residences. Often a housing developer sells the first residences in an area before all the residences are built. In the time when only some of the residences are sold, the housing developer is interested in making the area attractive for new potential customers and pleasing for existing customers, in order to increase the sales value. At Nye Lilleby, Nordr launched initiatives such as outdoor training, Easter egg hunting and a pop-up concert for the residents during 2020 and 2021. At the construction site at Løren Botaniske and in a construction site at Fornebu, OBOS is facilitating the creation of allotment gardens where the neighbors and residents could grow their own vegetables until construction begins in the area. Both Nordr and OBOS will discontinue the initiatives and activities when all residences have been sold and they no longer have affiliation to the area.

The interest of housing developers

Despite having never considered chicken's as part of a project before, three of the four housing developers, Nordr, OBOS Nye hjem and Tobb, were positive about the idea. They thought it could spread joy to many residents, combat loneliness, promote sales and differentiate them from other residential projects. Tobb spoke about combating loneliness as a topic they had become aware of recently, the pandemic being a strong reminder. They emphasized that housing developers play an important role in combating loneliness. Still, they emphasized that the chickens must not be detrimental to the residents when it comes to noise, odors and rats, and that it is essential that someone is responsible for the chicken keeping. Nordr thought it could be included at Nye Lilleby if Geitmyra Credo Food Culture Center supported the residents, and Tobb imagined chicken keeping in their "Leie-før-Eie" ("Rent-before-Own") projects which has a young demographic as a possibility. At Løren Botaniske we were told that it is too late to add a coop to the project seeing as the plans for the area were already set.

The remaining housing developer, OBOS Fornebu, was skeptical about the idea, explaining that keeping animals is a much bigger responsibility than other initiatives they facilitate such as cultivation. He asked for numbers on how many citizens would be interested in engaging with urban chicken keeping, and how many would find it to be a selling point. Still he said that "chickens are cool" and that it could create cohesion in a community.

The housing developer's role in establishing chicken keeping

OBOS Fornebu and Tobb questioned whether it is the role of the housing developer to establish chicken keeping in an area, but rather that it should come from the residents or a supporting company. They pointed out that there might be potential in looking into already existing housing cooperatives for establishing chicken keeping, in addition to new housing projects.

However, when discussing chicken keeping as a part of new housing projects, it was clear that chicken keeping should not be an activity that is forced upon the residents by the housing developers. It should rather be an option that they can decide to engage themselves in. The housing developers called for a "package" of information and support from professionals that could make it simple for them to implement a chicken coop in the plans of a housing project. Chicken keeping in new housing projects could be arranged by initiating a service deal with a professional company which takes care of the chickens, or by making it easy for passionate residents to take care of the chickens themselves. In the latter option the residents should be supported by a company. When the housing developers have sold all residences in an area, it is up to the residents if the activity continues or not.

Discussion



Chickens as a part of future cities

Chickens spark curiosity among the housing developers and is a discussed theme among the architects from the Advancia/VILL team (ÅF Advancia et al., 2020), which gives us the feeling that we are onto something. Even the fact that so many representatives from housing developers agreed to meet with us is a testimony to this. The question is how chicken keeping can become a part of future cities. Although most of the housing developers were positive about chickens, we wonder whether they actually would include them in their projects seeing that they depended on the support from someone else to be able to take the leap. We also recognize the fact that there are potentially passionate residents in existing housing cooperatives as well, and targeting them as well would impact more people.

It all boils down to a need for *someone* who delivers *something* that lowers the threshold for establishing chicken keepings, which would benefit both housing developers and residents of existing housing cooperatives.

Synthesis



Support for urban chicken keeping

We believe that offering support for urban chicken keeping will increase the chance of more chicken keepings to be established in the future. The support will minimize the risk of keeping animals and distribute the responsibility if needed. Information on the placement and size of the area for the chicken coop, courses on how to care for the chickens, help on euthanizing and slaughtering ill chickens and regular visits are examples of what the support could include. Housing developers and existing housing cooperatives alike could benefit from this support, perhaps other groups as well, lowering the threshold of urban chicken keeping.



We wish to design a concept for a service that could help housing developers or existing housing cooperatives establish chicken keeping. Exactly the type of support that should be provided, in what form it is given and by whom is not clear. This will be further explored in the fourth study phase.

Fourth Study Phase

Support for Chicken Keeping

In this study phase we explored what a supporting service in the context of shared urban chicken keeping could be and what it could do.

We believe that such a service can lower the threshold for establishing urban chicken keeping and that it may be profitable.



Semi-structured interviews with supporting actors

We approached this goal by identifying existing actors with relevant value propositions and conducting semi-structured interviews with them.

The interviews were conducted over video call. Results were gathered through audio recordings and notes. Prior to the interviews, research was conducted on the companies' websites and social media accounts, and key information was gathered from Enhetsregisteret, the Register of Legal Entities (<https://www.brreg.no/>), and through e-mail correspondence.

Sample

We have examined seven different commercial and non-commercial actors with relevant value propositions. They were found through online research and emergent sampling. Three of them are sole proprietorships of commercial nature, while the other four of them are non-commercial actors who have stipulated that the purpose is not to conduct business. They are connected to non-profit organizations that receive support from the municipality. Their goal is to get nature into the city, increase quality of life, have a smaller ecological footprint and spread knowledge and skills. Two of these non-commercial actors are registered as foundations, one is an association and one is a stock-based company.

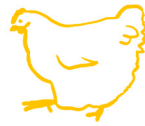
Five of the actors have experience with chickens, whereas one of these works exclusively with chickens, while the four others have some chicken activity in addition to other tasks. The two remaining actors do not include chickens in their activity, although one is considering doing so. All actors operate in Norway, either in the Oslo area, Bergen or Trondheim.

Topics

We looked for information that could be used in the development of a service design to enable more people to enjoy shared chicken urban keeping. The questions were customized for each individual actor. The interview guide for Bieffekten can be found in the appendix as an example.

In summary, we asked about, their service and motivation and their thoughts on a service for shared urban chicken keeping.

Key Findings



EggChange

Interviewee: Jochem Jacob De Kort

EggChange is a sole proprietorship that operates commercial rental of hens. In the summer of 2020, they rented out about 200 hens distributed on 50 chicken coops to families, housing cooperatives, nursing homes and kindergartens. They offer a way of keeping hens in without hassle. Most customers are found through word of mouth and their homepage. The customers receive an assembled coop and hens that they maintain themselves. They get support if needed. The price is fixed for 12 weeks at a time. After the 12 weeks, one either chooses to buy the chicken coop, continue renting, or end the chicken keeping. This makes the chicken keeping flexible and the customers can choose to not have chickens e. g. while travelling during the summer holidays. Jochem tried a model with down payment of the hens over two years in the early days of the company, but it was not successful. Eggchange's key resources are space to store the coops and the agreement with the chicken farmer. The chicken farmer provides young, healthy hens that are ready to start laying eggs. One of the key activities is to drive around and assemble chicken coops. This takes a lot of time, and is one of the reasons Jochem experiences the business to not be so profitable. He wants a chicken coop that is more adapted to Norwegian conditions and at the same time easy to assemble. For the future, he imagines that a franchise could be started in a different city, e.g. Trondheim.

Bieffekten

Interviewee: Sigrid Bakken Døsvik

Bieffekten is the sole proprietorship, which Sigrid started 10 years ago in Trondheim. She does not work with chickens, but with bees. Bieffekten has between 7-13 customers, mostly companies, but also institutions like museums, kindergartens, universities like our NTNU and student housings like Sit. It enables the customers to have bees at their location and their own honey without having to do any work for it. A package containing bees, equipment, information, honey, teaching materials for children and help with exposure is offered. All maintenance and care is done by Sigrid. She does not offer courses, arguing that this would make herself excess. The customers can find Bieffekten through her homepage. The kindergartens are offered the service of Bieffekten through an agreement with the municipality where they have the bees one year before they are moved to the next kindergarten. The annual subscription costs 67 000 NOK. Sigrid finds it easy to get customers, but she does not want to expand her business. Bieffekten's key resources are bees, beehives and Sigrid's knowledge gained through courses and experience. Sigrid's key activity is to set up beehives, care for the bees and create information material. She is motivated by the opportunity to have a "green" job with pleasant work tasks. When talking about service for urban chicken keeping, Sigrid believes that her business model can be used as inspiration, underlining that subscription creates predictability for both the service provider and the customer.

Cecilie Fosse

Interviewee: Cecilie Fosse

Cecilie Fosse manages a school garden in Bergen and keeps chickens as an integral part of it. She is employed at two schools, offering an alternative to school for pupils with challenges and sometimes teaching for whole school classes. She also incubates chicks at schools before taking them back to her school garden. In her school garden, she breeds chickens and sells them to hobby keepers. The chickens she sells to hobby keepers are breeds that are suitable for gardens and she is concerned with only offering healthy chickens. She points out that this is not always the case when buying chickens. She wants to offer a chicken coop for her customers in the future, because she sees a lack of good quality chicken coops on the hobby market. She shares her knowledge of chickens with hobby keepers through regular courses organized by the city farmer of Bergen. The courses have different themes like general introduction to urban chicken keeping, chick keeping and slaughtering. She does not have a homepage because she already has more requests than she can answer.

Bybonden of Bergen

Interviewee: Ida Kleppe, employed as Bybonde since November 2018

Bybonden of Bergen (translated to "City Farmer of Bergen") is associated with Lystgården stiftelse which aims to work for increased quality of life and reduced ecological footprint, as well as manage Landås main farm. The purpose of the foundation is of a non-commercial nature. The website lists some of the questions that the city farmer should ask: "Can there be more schools with a kitchen garden? Is it possible to plant apple trees in our parks? Do more residents want chickens in their garden? Can companies have apple trees and currant bushes where employees can be allowed to serve themselves during breaks?" (bybondenibergen.no) Bybonden offers ways to learn about farming by offering courses in chicken keeping through Cecilie, cultivation and composting, and advises housing associations, companies and schools on ways to organize cultivation in common areas. The courses are charged for and funding is received from Lystgården foundation and the municipality. The key resources are the farm, knowledge and contacts.

Bybonden of Oslo

Interviewee: Øystein Hvamen Rasmussen, operation manager and Bybonde

Bybonden of Oslo is associated with Foreningen Losæter which is a small farm located in a park in Bjørvika, central Oslo. Losæter is an institution that facilitates a different development of the city's public spaces. They describe themselves as an organic demonstration farm and competence center for urban organic farming in addition to being a social place for organic food production, architecture, education, art and culture. It started as an art project in 2012 that evolved and became a small farm with 7 acres of cultivated land, a food producing forest garden, a market garden operated according to ecological principles, a sensory garden used for therapy, a compost project and a baking house. Volunteers do most of the work, Øystein organizes them. The volunteers are varied, including "promising young people" and retired people. Most of them stay only for a few years. They do not have hens right now, but had hens before and plan to have it again. Øystein is open to the idea of offering courses in chicken keeping or helping people with slaughtering and euthanizing.

Competence Center for Urban Agriculture at Voll gård

Interviewee: Eivind Gullvik Frøiland, gardener and leader since the beginning of 2021

Voll gård (translated to Voll farm) is a foundation in Trondheim that, among other things, offers educational programs on their visitor farm for schools and kindergartens. There they exhibit farming with livestock and offer a programme based on the current season. On Sundays, the farm is open to the public. Voll gård is managed by a number of different organizations and collaborates with several volunteer centers. Since 2016, they also have a Competence Center for Urban Agriculture. There, private individuals, housing cooperatives and educational institutions can learn about how to do urban agriculture themselves, by taking courses and asking for advice. The courses are charged for and funding is received from the Voll foundation. One of the key resources is a garden-sized demo garden and chicken coop next to the farm that can be used for inspiration and teaching. Eivind is positive about the idea of offering courses in chicken keeping for a good prize.

Geitmyra Credo Food Culture Center

Interviewees:
Siri Omholdt, head of teaching
Trond Åm, general manager

Geitmyra Credo Food Culture Center, is a center where children and families learn about healthy, good and sustainable cooking. There are centers in Oslo, Kristiansand and Ringsaker, and in the autumn of 2020 a center was started in Lilleby in Trondheim. It was called Geitmyra Credo due to its proximity and partnership with the reputable Michelin-restaurant Credo. The centers offer teaching and training for school classes, kindergartens, families with children and adults who work with children. School classes of the 9th grade visit the center as a part of their education, and the municipality funds this. Other customers sign up for courses. The center's key resource is a kitchen and space suited for education. They are planning on acquiring chickens, as one can read about in the second study phase of this thesis.

A service supporting urban chicken keeping



Everyone thought that chickens in the city hold great potential. When discussing a service that supports urban chicken keeping, we found that several already had thoughts on expansions and new activities for their own companies. Eivind and Geitmyra were in the process of acquiring chickens for educational purposes. Eggchange and Cecilie Fosse were planning to expand their chicken activities and create better offers for their customers. Bybonden of Oslo envisioned his system for urban agriculture to expand to public parks in various cities, wishing to achieve this in the future. Bieffekten believed that her business model would work well for chickens as well. Bybonden of Bergen thought chickens are great for being kept as a hobby, but that precautions must be taken to ensure comfort in the city, especially concerning the presence of rats. She called for standardized information about coop quality and size, about the quality of the space, about how to utilize chicken droppings and standardized solutions for heat, food and water.

Discussion



Market opportunities

We have been told that there are not enough hens to meet the demand from the customers and there is a lack of insulated chicken coops. There are no actor that offers regular visits to chicken keepings and only Eggchange offer care during vacations. Also, slaughtering and euthanization is an activity many chicken keepers wished to be spared. These shortcomings suggest that there is room in the market for an urban chicken keeping service.

Attracting customers

Eivind at Voll gård and Øyvind, Bybonden of Oslo, emphasize that what they offer is more than a nice plot of land to look at. Their activities at the urban farms is a step in the direction of reimagining what a city can be, reminiscent of the way of thinking within ecosophy (Næss, 1973). Some of the same thoughts can be recognized among the customers of Bieffekten. Corporate customers' and institutions' willingness to pay for her services must be seen as an expression of, or desire to communicate, a wish of bringing nature into the city. The product Bieffekten sells is to a greater extent an image and a communication tool than just the honey that comes with it. What may sound like wild thoughts from long-haired, idealistic urban farmers, has a certain commercial resonance among corporate customers of Bieffekten. Eggchange writes on their website that they strive to revolutionize chicken keeping by making the chickens happier and the eggs more sustainable. The chickens are described as social animals that are educational for children and adults, by providing awareness about the origin of our food. These experiences point towards the fact that promoting food-activities that are connected to animals are attractive for customers, and that they are willing to pay for it.

Synthesis

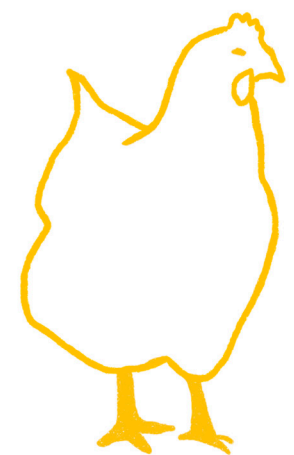


What are the possibilities for a supporting actor?

The synthesis of this study phase is a gathering of possibilities of what a supporting service can be and what it can do. This support can be offered to housing developers in new housing areas, residents in existing housing cooperatives, institutions like kindergartens, schools, student housing and nursing homes and municipalities concerning public areas and parks.

The value proposition will vary, depending on the customer segment, especially seeing as the customer and the user sometimes are not the same person. For example the value proposition for housing developers is to increase the value of housing, while for the residents the value proposition would be enjoyable chicken keeping. The channels used to reach out to customers can be sales, word of mouth, social media or a home page. The revenue streams should be based on subscription fees, in order to receive a regular income while delivering regular services. The services that are offered can be chicken coops, healthy chickens, courses on chicken keeping, chick keeping and euthanizing, regular visits, care, solutions for holidays and someone who can euthanize and slaughter if necessary.

How the service is designed will largely depend on who is offering the services and what resources they have. This will determine what resources and activities the actor offers and what partners will be needed for.



Our Concepts

We designed concepts which will help us answer our problem statement: “*How can we design for chicken keeping in an urban environment to lead to increased quality of life?*”. Concurrently the relationship between urban development, ecological sustainability and life quality is addressed. During the four study phases we found the aspect of sharing important for reaching our desired end user effect.

The concepts were designed by identifying possibilities through discussing and synthesizing our findings. We believe that the greatest contribution we can make is to create concepts that offer concrete solutions to problems we have found, in order to reach a future where chickens are a part of the city.

The Elito Method

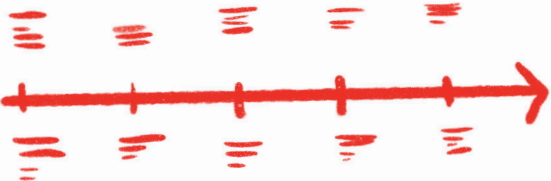
Observation “What did you see, read, or hear?”	Judgment “What is your opinion about that observation?”	Value “What values are ultimately at work?”	Sketch “How to solve this problem / take advantage of this opportunity?”	Key metaphor “What is the hook for this story?”
Hens make noise in the morning when laying eggs	This can be a problem in the city as people live close together	Sleep	Insulated walls No light inside the coop early	Chicken coop
It is cold in Norway during winter	It is important that the chickens are comfortable	Animal welfare	Insulated walls Electric heating	
There are rats in the city	Chickens can attract rats, and either way be blamed for attracting them	Comfort	Pest safe solutions	
Must be cleaned regularly	Lack of cleaning can lead to unwanted smells	Comfort Animal welfare	Washable material	
Collecting eggs is fun	People experience the usefulness of chickens	Joy	Visible egg basket Available chicken coop	
People like to visit the chickens	Visiting the chickens can be the highlight of the day			
People do mistakes	Lack of knowledge is part of the reason for mistakes Difficult to know what to relate to	Confidence Delight Animal welfare	Courses Healthy chickens	Support from a company
There is varying information about chicken keeping				
Courses on chicken keeping are popular				
Chickens need care almost every day	This does not suit a volatile urban lifestyle with traveling on holidays	Freedom	Help with care	
Some think it is unpleasant to slaughter	This can stop some from starting chicken keeping	Comfort Animal welfare	Visit of a butcher	
Housing developers want support from professionals	The chicken keeping must not be forced upon residents	Reassurance	Courses Regular visits	

Figure 13: The Elito method

In order to arrive at specific concepts with solid design arguments rooted in research, we used the Elito method (Martin & Hanington, 2012, p. 70; Ulrich, 2007), shown in Figure 13. In this method the observations from the four study phases are analysed through asking ourselves a series of questions, resulting in the two “key metaphors”: Further, these “key metaphors” evolved into final concepts.

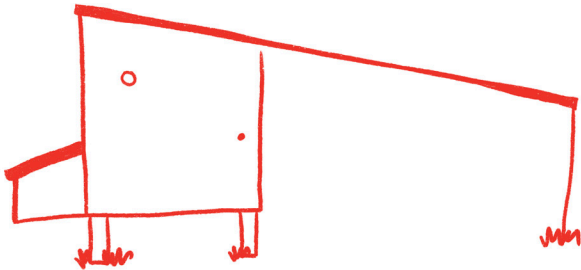
Scenario

Service



The first concept is a service designed to support urban chicken keeping.

Coop



The second concept is a set of recommendations for a chicken coop for shared chicken keeping in a nordic climate and in an urban environment.

To illustrate how the concepts can be used in the future, we created a scenario inspired by the Stakeholder Map and the User Journey Map synthesised in the first and second study phases. We chose to design with the establishing phase of chicken keeping in a housing cooperative in mind.



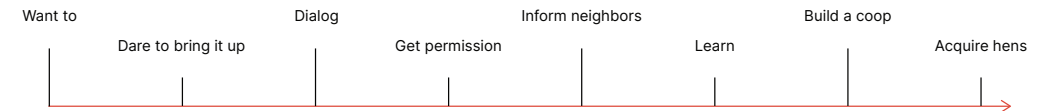
The three families, Syse, Corsepis and Fossøy, live in a housing cooperative in Rosenborg, Trondheim. They all want to have chickens in their common backyard, which is a space that they share with the rest of their housing cooperative. The backyard is also open for the public to look into and walk through. There is also a playground and several benches within the space where children often play. The housing cooperative is placed close to the center of Trondheim, in proximity to both supermarkets and public transport stations.

A service for urban chicken keeping



In the Scenario:

When researching urban chicken keeping the families in the housing cooperative discover a company which offers courses to people who want to start with chickens. They come in contact with the company, sign up for a course and order a flock of hens that arrives later that month. During the summer holiday, all three families are on vacation. They use the offer from the company to outsource the daily care for some weeks.

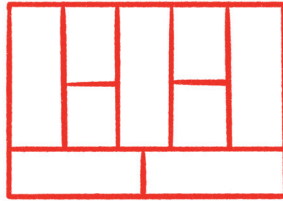


The Goal

The goal of this concept is to lower the threshold of urban chicken keeping for different customer segments. Through a service, urban chicken keeping can become available to more people, while being done safely and avoiding discomfort for both chickens and people.

Our impact

Although we do not intend to start a company ourselves, we want to communicate our knowledge and ideas in a way which can be picked up by someone who can profit from it and wants to work on increasing life quality for people in the city. We believe that this service can have an impact on several customer segments, not only residents in a housing area but also institutions, the municipality, the general public, and urban development. Our belief comes from having been in contact with a range of people and projects which have chickens or could potentially be interested in having them, which includes housing cooperatives, housing developers, a kindergarten and community gardens.



Basis for the service

The basis for the service is the insights gathered throughout the four study phases. Through interviewing chicken keepers we learned about several challenges which in some cases made urban chicken keeping difficult and uncomfortable. Through attempting to establish urban chicken keeping ourselves we found that none of them succeeded except for the case when a supporting actor was involved. Through talking with housing developers we found that the chance of establishing chicken keeping within a new housing cooperative would increase by receiving support. Through interviewing comparable supporting companies we found that there seems to be a market for this type of service. The design of the concept was iterated on through feedback from SparkNTNU, a guidance service for students with a business idea.

The business model for the service

The service will be presented by using the steps of a business model canvas. Each step describes different aspects of how the service could operate. Because we don't know who the business model will be used by, we do not include detailed information on the final steps in the model, seeing as this information depends heavily on the key resources available within the company.

Customer Segment

We have divided the possible customer segments into four segments:

People in housing cooperatives who want to establish urban chicken keeping in a common garden or backyard to create positive repercussions for the neighborhood. Chicken keeping is completely new to them and they have no chicken keeping network to lean on.

Housing developers who want to include chicken keeping in their housing project as an offer for their residents.

Institutions such as nursing homes, kindergartens and schools which want to keep chickens for the joy of the occupants, students, children and employees.

A municipality or district within a city that wants to create life and activity in a public area by including chickens.

Value Proposition

In general, the service offers safe, flexible and low-threshold hands-on experiences with urban chicken keeping for everyone delivered to the customer. Additionally, the value proposition can vary within each customer segment:

People in housing cooperatives will experience social cohesion, learning and the creation of weak ties in the neighborhood.

Housing developers will increase the value of their residences.

Institutions will gain opportunities for learning and spreading joy among the occupants, students, children and employees.

A municipality or district within a city will offer broad inclusion and opportunities for learning in the local community, create weak ties and social cohesion.

Channels

In general, the service will reach the customers through a homepage and marketing on social media. Further, the channels within each customer segment are as following:

People in housing cooperatives can be reached through word of mouth and through noticing other urban chicken coops.

Housing developers can be reached through the company directly reaching out to potentially interested housing developers.

Institutions can be reached through the company directly reaching out to a potentially interested institution or the municipality.

A municipality or district within a city can be reached through the company directly reaching out to the municipality or district to propose urban chickens in a fitting area.

Customer relationship

The company's relationship to the customer is based on a subscription agreement which can be renewed every six months. The company offers rental of coop and hens, one course every period, regular visits to help with care, slaughter when necessary and remote consultation when necessary. In addition, the customer can ask for care during vacations. The content of the service can be tailored to the customers' needs, for example by increasing or decreasing the number of visits. This can be imagined as two variations:

For people in housing cooperatives and housing developers, the company offers visits once a month.

For institutions and a municipality or district within a city, the company offers visits once a week.

Revenue Streams

The customer pays a fixed price for the subscription agreement. In addition, the customer can pay for extra services such as care during vacations and extra visits beyond what is stated in the subscription agreement.

Key resources, Key activities, Key partners, Cost structure

These steps are influenced by what resources, activities and partners the company wants to have and what the main costs are. Seeing as we are not starting this company, we can only suggest different possibilities.

To be able to fulfill the value proposition, the company delivers coops, hens, courses, care, help with slaughter, help with vacations and remote consultation. In addition, we believe it is a good idea to be able to compost the hens' droppings, so that the fertilizer can be used. A possibility is to collect droppings from all customers and, using warm composting, to sell to the chickens keepers and others as fertilizer.

In order to deliver such services, employees are needed, but the number of employees depends on the size of the company and the skills of the employee(s). Also partners might be needed to deliver the services the company does not deliver themselves. An example could be that the company has knowledge about and experience with chickens but lives in an apartment in the city. He can offer courses and regular care, but does not have the space to breed chickens or build and store coops. This will have to be outsourced through an external partner. In a second example, the company owns a farm and has the space needed for breeding chickens, building coops, composting chicken droppings and keeping chickens during vacations. However, she does not have the capacity to visit chicken keepers or arrange courses and will have to do this through an external partner.

Triple Bottom Line

In addition to looking into the financial aspects of the service, we are inspired by the framework “Triple Bottom Line” to also view the social and environmental aspects (Hall & Slaper, 2011), believing that one could create businesses that create economic value while being good for the environment and people. Considering the service’s performance on several levels contributes to increasing its value (Hall & Slaper, 2011). Using the “Social Stakeholder Business Model” and “The Environmental Life Cycle Business Model”, we have looked at what environmental and social benefits and impacts the services offered through the company can have.



Environmental Benefits

Bringing chicken into the city leads to a more biodiverse and multi species urban environment. Composted droppings utilize the nutrients to benefit plants in the local environment. Also, the activity of urban chicken keeping makes people work with nature, which can lead to valuing nature more (Soga & Gaston, 2016).

Environmental Impacts

In some cases, chickens can impact its local environment through being noisy, smelly and attracting rats. In times of disease, urban chickens can contribute to the spreading of this. It is uncertain whether chickens have a bigger environmental impact than commercial chicken keeping. Although the eggs are locally produced, the transport needed for visiting different chicken keepings and the materials needed to build coops might outweigh this benefit. More research is needed to determine this impact.

Social benefits

Chickens can offer a possibility to spread joy, learning and inclusion in an area. This creates a sense of community, mastery, entertainment and peace, and offers an opportunity for learning about chicken keeping and the food system.

Social Impacts

Quarrels between neighbors can occur, and there is a risk of vandalism. Also, the space used for the chickens removes other potential uses of this space.

Customer Journey

The Customer Journey exemplifies how a service for chicken keeping can help a housing cooperative.



The families Corsepius, Syse and Fossøy hear about a company that rents out chicken and coops, and they find out that they want to try in the backyard of their housing cooperative.

They sign up to a course on urban chicken keeping.

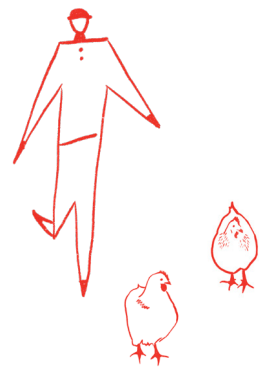
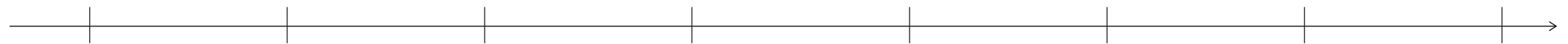
They order a flock of 4 hens and a chicken coop

The company arrives with the hens and the coop.

The families do the daily care, and the company visits once a month to check up.

The families notice a hen is plucking on other hens and calls the company for advice. Later the company arrives to remove and slaughter the hen. The families gets a new hen.

The families renew the contract to keep the chickens for another six months. The company arranges a new course, and more residents from the housing cooperative joins.



The company arranges a course for people who want to learn about urban chicken keeping.

The company receive an order from a group in a housing cooperative.

The company delivers the hens and assembles the coop.

The company visits once a month to check if everything is going well.

The company receives a call about a hen who plucking on others, and arrives to remove and slaughter it.

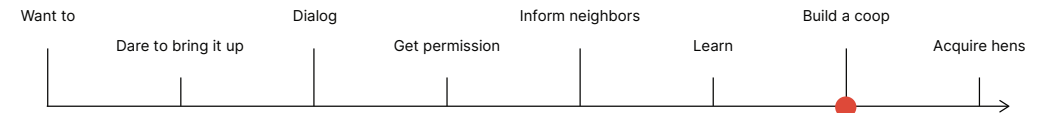
The company renews the contract and arranges a new course for the housing cooperative.

A chicken coop for Trondheim



In the Scenario:

The three families have been in a dialogue with the board of the housing cooperative and gotten permission to place a chicken coop in the common backyard. They have also informed the rest of the residents about the chickens. Their next step is to build a chicken coop. Using our recommendations and inspired by the examples, they buy the materials needed and build the coop in a few weeks.



The Goal

The goal of this concept is to present and exemplify a set of recommendations for a chicken coop for shared chicken keeping in a Nordic climate and urban environment. The resulting chicken coop can be used by companies that want to build and deliver coops for chicken keepers, or by chicken keepers who want to build a coop for themselves.

Our impact

There are already many books containing information about how to build a chicken coop. However, from talking with Eggchange and Cecilie Fosse we have found that there is a lack of insulated chicken coops on the market. Our concept concerns the specific context of a nordic climate, an urban environment, a semi-public space and facilitating different kinds of involvement.

Recommendations

The recommendations are divided into the topics:

Space

Smell

Noise

Rats and other pests

Closeness to nature

Availability

Urban lifestyle

Nordic climate

Basis for our recommendations

The recommendations come from our findings in the four study phases on the chickens' basic needs and human needs in an urban and Nordic environment, in addition to the benefits of creating meeting spaces in a neighborhood. The recommendations also build on our wish to increase quality of life through a closer relationship to nature and a stronger social community for people living in an urban environment. These positive aspects can be achieved by designing a chicken coop that follows a set of recommendations. The coop offers a view of how a possible future with urban chickens could look like, imagining a comfortable environment both for the chickens and for the people in the area of the chicken coop. The topics of the recommendations are iterated on through feedback from Cecilie Fosse, introduced in the fourth study phase chapter, and through prototyping and sketching.

Space

The size of the coop should fit the size of the chicken flock. Since chickens are herd animals, the minimum size of a flock is three. The minimum space for free-roaming laying hens, given by law, is 1,67 sqm for 5 hens and 3,33 sqm for 10 hens (Forskrift om hold av høns og kalkun, 2001, §25). Based on Sievers's (2012) recommendations, the total space should be 5 sqm for 5 hens and 10 sqm for 10 hens, offering the chickens more space to move around. 1/3 of this space is intended for the chicken coop and 2/3 for the chicken run. Chickens can also roam freely in the backyard or garden. Due to the risk of diseases like bird flu, the chickens might have to stay under a roof of the chicken run for longer periods of time. Therefore, including a roof to the chicken run is important.

Smell

The smell comes from the droppings, and therefore the coop should be easy to clean. Every week droppings should be removed. Most of the dropping is done while sleeping on the perches, so there should be a tray underneath made of plastic or steel, allowing for simple and clean removal of the majority of the droppings. The perches should be placed 20 cm from the wall to avoid droppings hitting the wall instead of the tray. A couple of times per year the coop should be thoroughly washed (Larsen, 2005, p 47). This can be done by hosing the entire inside of the coop. For building the inside walls of the coop, the materials should be able to withstand hot water. The floor should be slightly sloped towards the doorway of the coop so that the water can drain away. Being careful to regularly turn and occasionally change the litter in the chicken coop, also avoids smells.

Noise

In the city, one should not have a rooster. Hens make much less noise, and mostly in the first four hours after sunrise when laying eggs inside the coop. By having a layer of insulation in the walls, much of the sound will stay inside. The sun rises early during the summer in Trondheim, thus preventing light from entering the coop before humans wake up is important. This way the hens will think it is still night time and delay their egg-laying. Having an automatic timed door opener will solve this. When choosing a position for the coop, any bedroom windows should be kept a distance to if possible, in order to further minimize the chance of sleep problems.

Rats and other pests

Rats are a problem in cities, independently of hens (Gjerløw & Thonhaugen, 2021). To avoid further problems one should raise the coop from the ground and use pest safe materials on the walls and on the floor. The chicken run should be enclosed by chicken wire, and the bottom part of the enclosure should be a strong pest-safe wire. The pest safe wire should be dug below the ground or folded on top of the ground to prevent rodents from digging their way into the chicken run (Sievers, 2012). Feed should not be stored in the chicken coop but rather in a common area which is available to everyone involved in care.

Closeness to nature

The droppings from the coop can be placed directly on the soil beneath fruit trees and berry bushes or can be processed in a warm compost to be used on vegetables, herbs, and flowers. This illustrates the cycle of agro-ecosystems.

Recommendations visualized in coops

Availability

The coop should be placed such that the chickens can be sheltered from strong wind, sun, and rain (Larsen, 2005). To increase the social benefits, the coop should be placed in a space where it can be viewed by the neighborhood, for example close to a pathway. It should be possible for neighbors to peek inside the chicken coop and possible for curious neighbors and passing children to see the eggs. Seating can be placed around the chicken coop so that the neighbors can enjoy the chickens and use the space as a social area.

Urban lifestyle

Sharing the chickens with neighbors reduces the work, while giving at least as much joy. The daily care, including feeding, renewing the water and collecting eggs should be easy to execute for everyone. Simple, automatic feeders make it possible to skip one day. The chickens' opening can be operated by an automatic door opener, which eliminates the need for a person to open and close their door in the morning and evening.

Nordic climate

One should keep the coldest winter months in mind when planning the coop. The chickens do not need as much heat as humans and can withstand several degrees below zero. Still, due to extremely cold and fluctuating temperatures, in Trondheim, the coop should have a layer of insulation. Extra heat can also be included (Felleskjøpet, n.d.). A heating plate should be placed underneath the water tray, in order to keep the drinking water from freezing. During the winter in Norway, extra light can be given to the chickens in order for them to keep producing eggs (Larsen 2005, p 49) and give them enough time to eat (Mattilsynet, 2020b). This light can be given from early in the morning until sunrise. Keeping the natural sunset allows the chickens to take their time to roost for the night.

Based on our recommendations, we have designed chicken coops in order to exemplify how the recommendations can be used. We have designed two coops for different flock sizes.

The small one is for flocks of 3-5, while the big one is for flocks with up to 10 chickens. It is possible for humans to go into the big coop. This makes it possible to enjoy the chickens indoors, which can be nice especially during the cold winter.

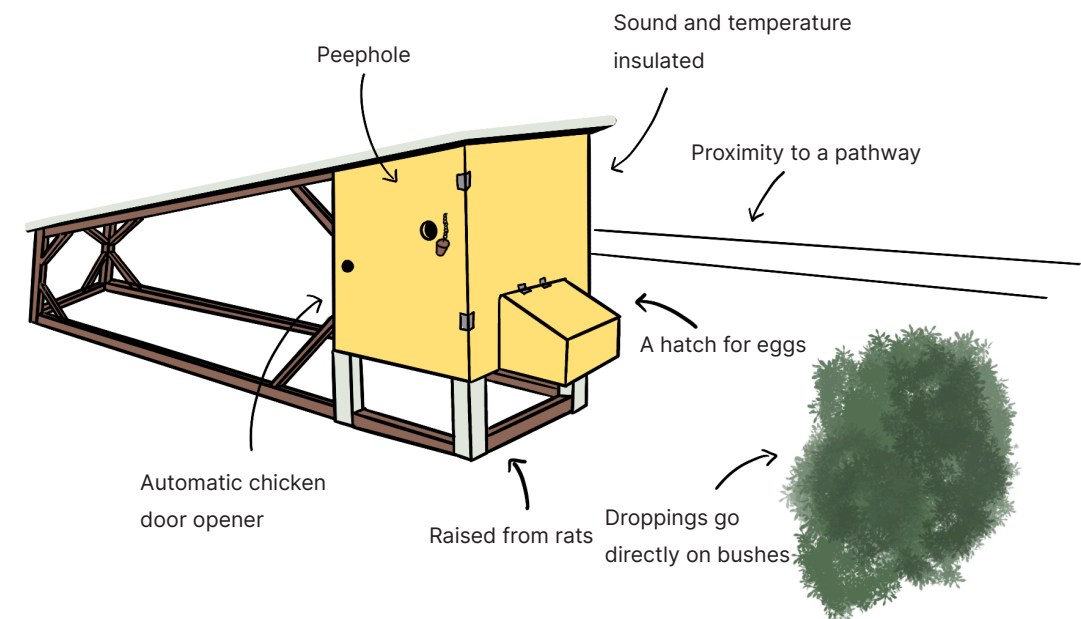
Both coops have peepholes where children and adults can look into the coop and see how the chickens live. The peepholes are closed with plugs to keep the light outside and the chickens quiet in the morning.

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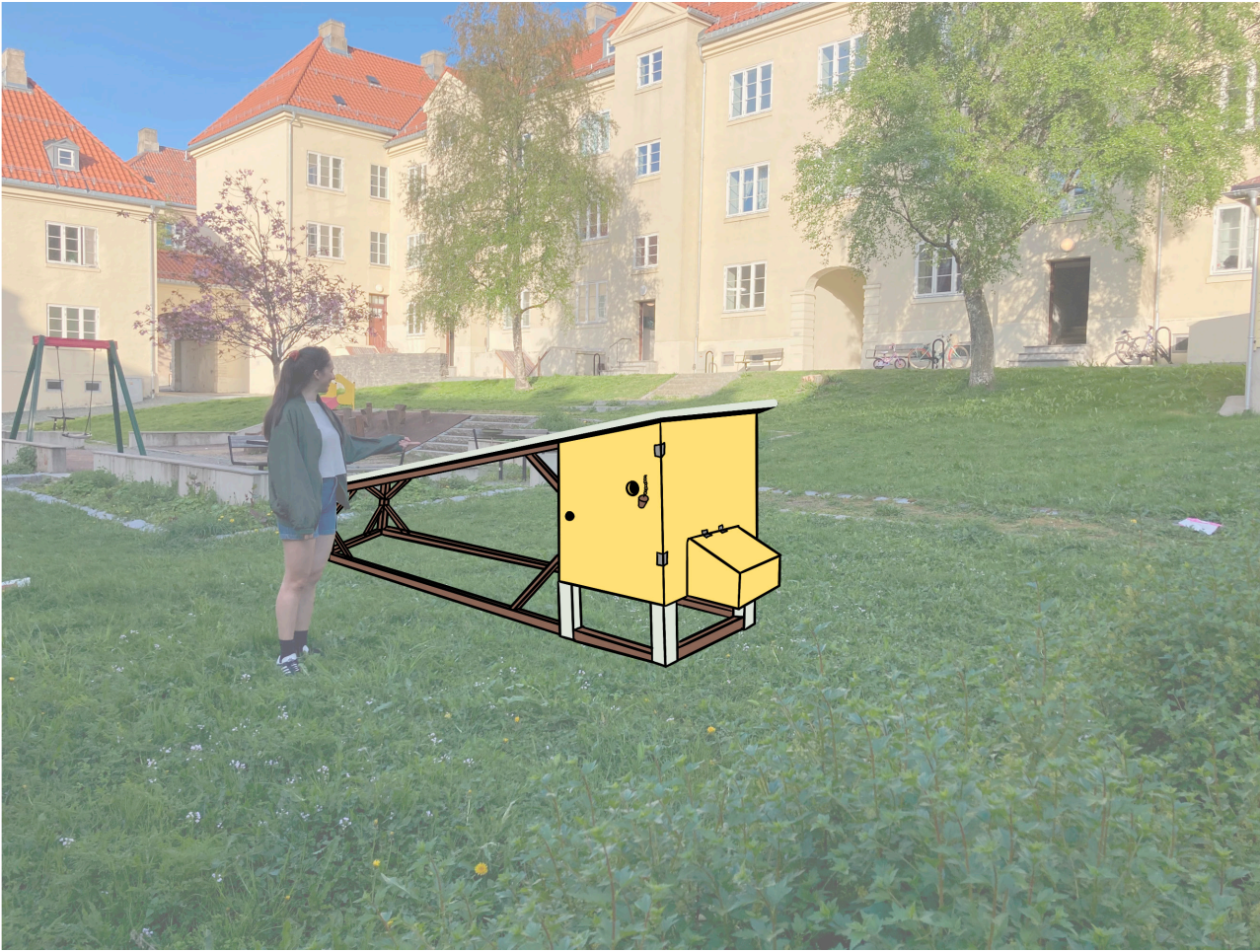
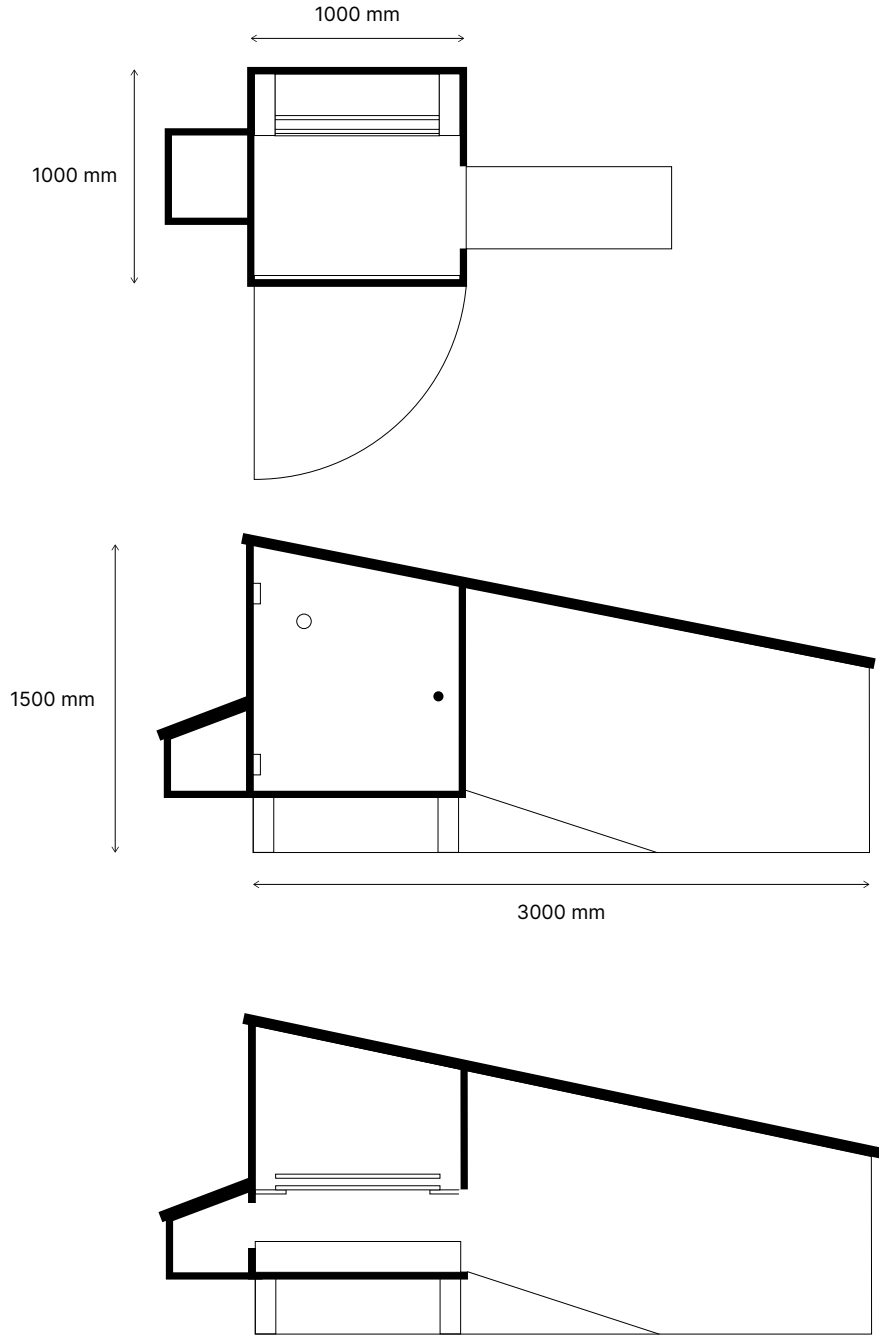
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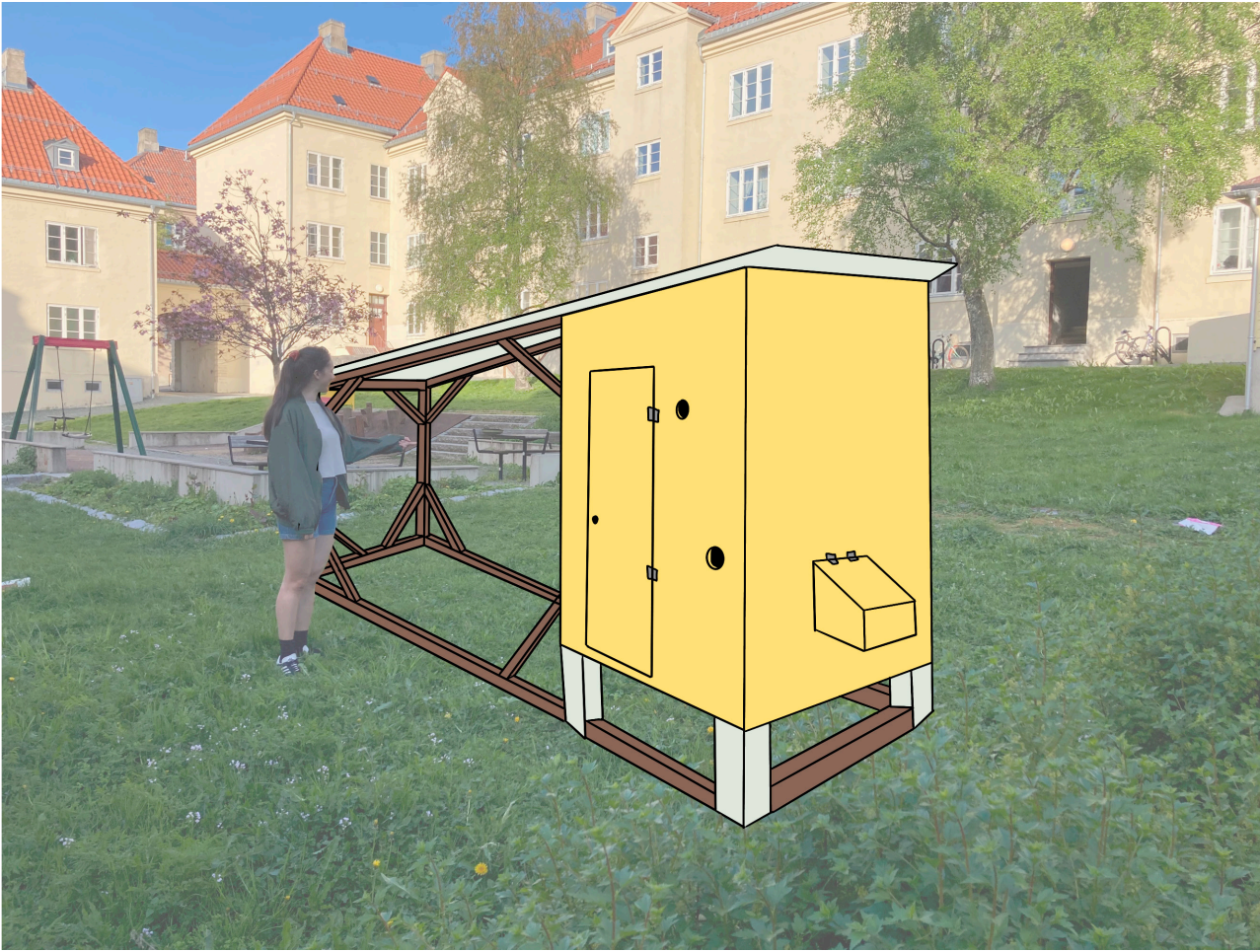
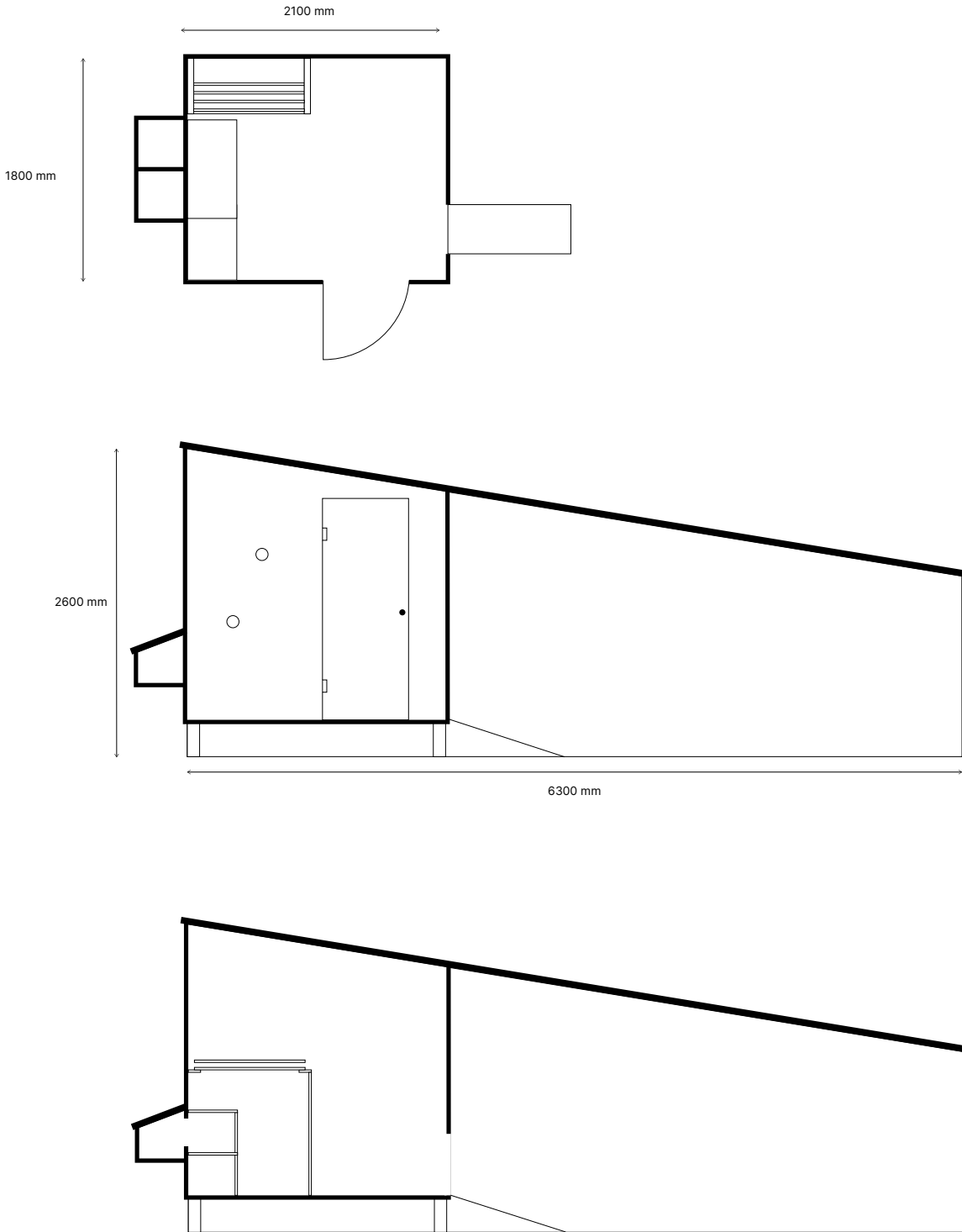
Small Chicken Coop

A home for 3-5 hens



Big Chicken Coop

A home for up to 10 hens



Discussion



The concepts are designed on an abstract level, and are still in need of further iteration before being put into life.

A service for urban chicken keeping

In order to verify if a service for urban chicken keeping is feasible it is important to conduct a feasibility test. This is done by asking potential customers whether they would use such a service as we offer. In order to get an honest answer it is important to ask about their willingness to pay for such services. The customers that would be asked in our case are housing developers and residents in existing housing cooperatives.

A chicken coop for Trondheim

The recommendations for the chicken coop needs further detailing and should be tested through building a prototype. We believe that the recommendations are already possible to use as a guide for building chicken coops, either by chicken keepers or by companies that provide coops for customers. However, in order to create a coop that focuses on easy and user friendly assembly, several rounds of building and testing must be done.

Adapting the concepts

Although the concepts have been designed with Trondheim and chickens in mind, we believe that they can be inspiring for creating concepts for other cities and with other animals as well. In other contexts of a different city, the local climate and urban landscape must be taken into account to adapt the service and coop to the specific conditions. In the context of other animals, such as rabbits, birds, goats and bies, their needs must be investigated to understand how a house and service could best be suited to them. Adapting our concepts to other contexts can offer new challenges but also new opportunities.

Reflection

Through this project we answer the call that the government asks for in the National Strategy for Urban Agriculture, and we attempt to innovate and create value in this field. There are good reasons to believe that urban chickens can increase quality of life. The chickens make people feel good, largely through providing a relation to nature, and create and enrich social communities. Introducing urban chickens leads to a more varied and rich urban greenspace, which is experienced as positive and enriching (Fuller et al., 2007). The people involved with the chickens have more interactions with animals, which counteracts the “extinction of experience” (Pyle, 1993). People gathered at the chicken coop tie valuable “weak ties”, which strengthen social communities, create a feeling of belonging, and combat loneliness (Sandstrom & Dunn, 2014; Bang et al., 2018). In the future, chickens strutting around in the streets of the city may be seen once again, just as in the 19th century (Thorsen, 2020).

A “sharing economy” is about users wanting the effects that a product can give and the needs it can cover, not the product in itself (Botsman, 2010). Sharing is a way to achieve this effect, resulting in lower expenses for users. In our project, the social aspects of sharing have been more important than the financial aspects. Botsman enthusiastically talks about the global network that enables this new economy (2010). The type of sharing targeted in this project focuses on local communities, and is not dependent on the internet. We believe that social sharing creates more value than only the expenses being shared.

The term “ecosophy” designates a lifestyle with little impact on the planet through a close relationship to nature, and “agrarianism” highlights that understanding our dependence on the natural world can be done by working with it. Urban chicken keeping can teach young and old people alike a lot

about where food comes from, but we do not have clear findings showing that this makes chicken keepers take better care of the planet in other ways. The findings do not show the opposite either, but we should be careful not to draw too definite conclusions about whether chicken keeping promotes taking care of the environment.

Nature was vaguely defined early in this thesis. At this point we want to discuss the aspect of negative and unpleasant interactions with nature. Rats and other pests, predators and illness among hens have to be seen as “nature”, as well, but they are not often highlighted when talking about nature in this context. Smell and noise from the hens are also parts of nature - and rather unwelcome. Nearly all of the beautiful roosters are killed to suit the urban lifestyle. We wish to experience some aspects of nature, but one must acknowledge that we do not want a close relationship with everything.

The urban agriculture movement is growing, and we believe that urban chickens are a natural way to take the movement a step further. However, the volatile nature of the urban lifestyle prevents us from imagining that chickens can be combined with cultivation to such an extent that it follows the principles of permaculture. The service we designed is about renting chickens, which is a rather un-permanent activity. Yet, on a small scale, permaculture can be illustrated through chicken keeping the way it is described in this project: composting droppings and occasionally feeding chickens leftovers. It is tempting to argue that chickens can be part of a “circular” neighborhood. However, it is unrealistic and unhealthy to feed the chickens entirely with leftover food (Larsen, 2005). Consequently, some resources will have to be added from outside the neighborhood. Even if the chicken keeping does not achieve a complete circularity, we still believe that agro-ecosystems can have pedagogical benefits.

Throughout this project we have adopted a more-than-human design approach. Our attention has been on the humans, and the chickens' needs have been seen as limitations. Simultaneously, these needs had to be addressed in order for the humans to enjoy the chicken keeping and the presence of the chickens. Urban chicken keeping is enjoyable for humans if done in a way that is comfortable for both chickens and humans. Despite being able to enjoy eggs from unhappy industrial chickens, humans do not enjoy eggs from unhappy chickens when seeing them. In order to feel good we need to take care of the nature which surrounds us. Designing for this has required us to look at our impacts on the chickens, in addition to our impacts on ourselves and fellow humans.



Conclusion

In this master's thesis our goal was to enable more people to enjoy chicken keeping in Trondheim. To achieve this we have designed two concepts that aim to increase quality of life through a closer relationship to nature and a stronger social community. We did this by taking advantage of the opportunities, addressing the challenges, and highlighting the positive effects of urban hobby chicken keeping in Trondheim.

Due to proximity to neighbours in urban areas, getting permission in the establishment phase is an issue, but at the same time the proximity to neighbors opens up possibilities for sharing. A main finding was to focus on sharing the chickens, which increased the positive effects. The design is adapted to the specific circumstances that are found in Trondheim. It addresses the challenges of getting permission in the establishment phase, noise, smell and rats. At the same time it is highlighting the positive effects chicken keeping can have, especially in urban environments, like counteracting loneliness and increasing interactions with nature. It addresses several challenges that are connected to chicken keeping, such as slaughtering and providing the right care.

This way we believe that urban chicken keeping can be part of the future and move the future of urban areas in direction towards increased quality of life through a closer relationship to nature and social communities.

This master's thesis is important simply because the goal of increasing quality of life is important. This goal can, and should, be reached in multiple ways, and we believe urban chickens can be one of them. Our concepts can be applied to achieve this. Additionally, we believe that our findings from this project can be applied to other urban animal husbandry and other initiatives, bringing nature closer to people living in urban areas.

For further research directions, we suggest more qualitative and quantitative research on the effects of urban chicken keeping and urban husbandry in general, as well as research comparing the effects of interacting with animals and interacting with plants in order to feel a closer relationship to nature and a stronger social community. Within design, we suggest doing similar projects for other animals such as rabbits, quails, goats and bies, as well as continuing the exploration of chickens.



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Appendix

A

Interview Guide: Chicken Keepers

Deres historie med å holde høns i byen

- Hvem er involvert i hønsesholdet?
- Hvordan organiserer dere stell?
- Deler dere på andre aktiviteter i tillegg til hønene?
- Hvorfor valgte dere å skaffe dere høns?
- Hvor mange høns har dere? (høner og haner)
- Hvor lenge har dere hatt dem?
- Hvor lenge planlegger dere å ha dem?
- Fortell om hønseshuset og hønssegården
- Hva gir dere hønene av mat?
- Hva gjør dere med bæsjen?
- Lever hønene med andre dyr?

Deres opplevelsen av å holde høns i byen

- Hvilke positive effekter og utfordringer har du opplevd?
- Hvordan har det faktisk at du bor i by påvirket det å ha høns?
- Hvordan påvirker det folk rundt deg? (de andre som steller, i nabolaget, tilfeldige forbipasserende, venner etc.)
- Har du noen tanker på hvordan hønseshold har påvirket forholdet ditt til naturen?

Deres tanker om fremtiden av urbant hønseshold

- Hva ville du sagt til en venn som vurderer å skaffe seg høns i byen?
- Er det noe som kunne gjort det lettere for dere å komme i gang og å ha høns?
- Hvordan tror du fremtiden til hønseshold i byen ser ut?

- Har du noe bilde som vi kan bruke som illustrasjoner?
- Kan vi ta kontakt hvis det er relevant senere?
- Vi sender samtykkeskjema!

B

Table of Sample of Chicken Keepers

Name	Type	Age	Number of chickens	Type of dwelling	Placement	Type of chicken coop	Free roaming?	Sharing the chickens?
Kari and Martin	Couple living without children	60s	8 hens and 2 roosters	Detached house with garden	Central Trondheim	Home built	Free roaming	Yes, children and families often visited
Øystein	Child in a family	20s	5-7 hens	Detached house with garden	Outskirts of Oslo	Home built	Chicken run	No
Marie	Child in a family	20s	30 hens, 1 rooster	Detached house with garden	Central Oslo	Refurbished playhouse	Chicken run	No
Kristin	Three families, two of them with children	40s	4 hens	Housing cooperative with common green garden	Outside central Oslo	Bought coop and home built run	Chicken run	Yes, three families shared the main responsibility, and neighbors visited and sometimes helped out
Ingrid	Student	20s	5-10 hens	Renting an apartment in a detached house with garden	Outside central Trondheim	Home built	Chicken run	Yes, she helped the family that owned the hens
Trine	Family with children	50s	-	Detached house with garden	Outside central Trondheim	Home built	Chicken run	No
Pernille	Family with children	60s	5 hens	Detached house with garden	Outside central Bergen	Refurbished playhouse	Chicken run	No
Lise and Tom	Representatives from a kindergarten	40s	4 hens and 1 rooster	Detached house with garden	Outskirts of Trondheim	Home built	Chicken run	Yes, in addition to employees and children, parents sometimes helped
Georg	A representative of three families with children	40s	10-11 hens, 1 rooster	Detached houses and apartments with a common garden	Central Trondheim	Home built	Free roaming	Yes, three families shared the main responsibility and the neighborhood visited the chickens
Jakob and Live	Family with children	30s	5 hens	Detached house with garden	Outside central Trondheim	Home built	Chicken run	Yes, they shared the responsibility with friends, and neighbors sometimes visited
Kristian	Family with children	60s	4 hens and 1 rooster	Detached house with garden	Outside central Trondheim	-	Chicken run	-
Stian	Couple with no children	40s	3-4 hens	Detached house with garden	Outside central Trondheim	-	Chicken run	-
Sunniva	A representative of six families with children	40s	4 hens	Housing cooperative with common backyard	Central Oslo	Bought chicken coop, home built run	Free roaming	Yes, the six families shared the main responsibility and neighbors visited and sometimes helped out. Also, they get support from Eggchange, where they rent their chickens.

C

Proposal to Gatekeeper

Emne: Forespørsel om høner i hagen i sammenheng med masterprosjekt

Sendt: 14. April 2021

Hei!

Kort: Er det greit om vi har høner i hagen frem til juli? Jeg, venninnen min og hennes masterpartner vil ha ansvaret.

Lang:

Venninnen min Ida Melen er student ved Industriell design, NTNU, og sammen med hennes samarbeidspartner Caroline Syse skriver hun masteroppgave om "Økt livskvalitet gjennom delt hønsehold i byen". De tror at det er et stort ubrukt potensiale i å ha høns i byen, og at høner som en del av byutviklingen kan bidra til større trivsel, følelse av tilhørighet og glede hos beboerne. De har en instagram @kaklemaster, hvor du kan lese litt mer om hva de driver med.

De har spurt meg om jeg kunne tenke meg å ha høner i hagen for en kortere periode, frem til juli siden de ikke har mulighet til å ha det hjemme hos seg. På den måten kan de få praktisk erfaring med høner, noe som vil være veldig nyttig. Jeg synes det virker veldig gøy og spennende. Vi tre (meg, Ida og Caroline) vil dele på hovedansvaret og inkluderer gjerne de andre i huset dersom de er interessert. Derfor vil jeg høre med deg om du har noen innvendinger for så å høre med de andre som bor i huset også.

I forbindelse med prosjektet har de satt seg veldig nøye inn i alle aspektene rundt hønsehold, deriblant utfordringene man kan møte på som lyd, lukt og skadedyr, som kan være til plage for oss og naboer. Først og fremst ønsker de å gjøre alt etter boka slik at disse utfordringene ikke vil bli et problem. I tillegg ønsker de å ta en runde med alle naboene og fortelle om prosjektet slik at alle er informert og vet at det er lav terskel for å si ifra dersom det er noe.

Jeg forstår at dette er en uvanlig forespørsel, men jeg tror det kunne vært veldig gøy! Ida og Caroline tar gjerne en prat med deg på video for å bli litt kjent og finne ut av ting sammen.

Med vennlig hilsen,

██████████

D

Interview Guide: Housing Developers

First, we asked about the housing developers projects and their thoughts on “green” development in order to create a foundation for the conversation on chickens.

How do you work with target groups in the development of new housing projects?

To what extent is “green” marketing, sharing and “green” solutions important for attracting potential buyers?

What do togetherness and good communities mean to you?

How do you think the focus on sustainability and “green” solutions will develop in the future housing market in big cities?

Then we asked about shared urban chicken keeping in the context of their housing projects. Here we presented a few slides about our project as a starting point for the conversation.

Have live animals been considered as part of any of your housing projects?

Is it possible to have bees, chickens or other live animals in the common areas, if any of the residents want it?

What risk factors and concerns arise at the idea of establishing chicken keeping?

What rewards could chicken keeping give you?

Which target group could chicken keeping be interesting for?

Could it be relevant to facilitate chicken or other livestock keeping in some of your projects, and if so, how would you go forward to make it happen?

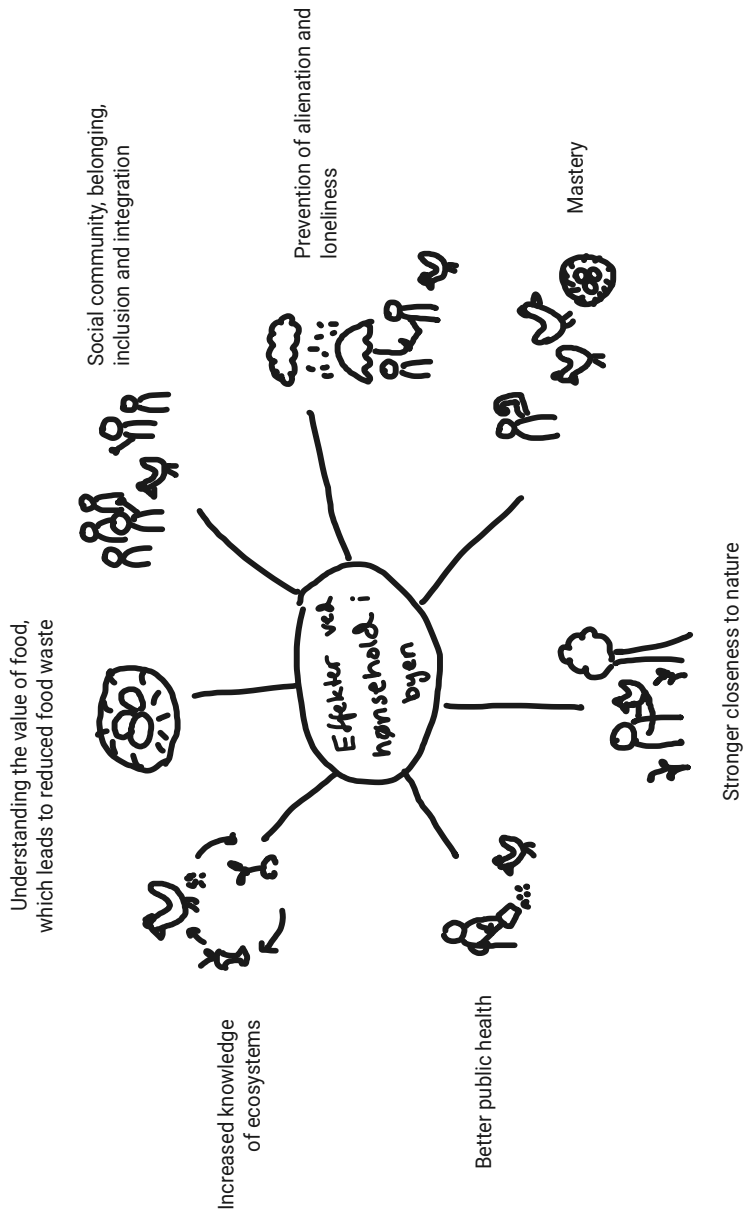
What are your thoughts on distributing responsibility, if chicken keeping was introduced in one of your housing projects?

Imagine that you can get a package that contains everything you need to establish chicken keeping in your project. What do you want in the package? What do you want to know?

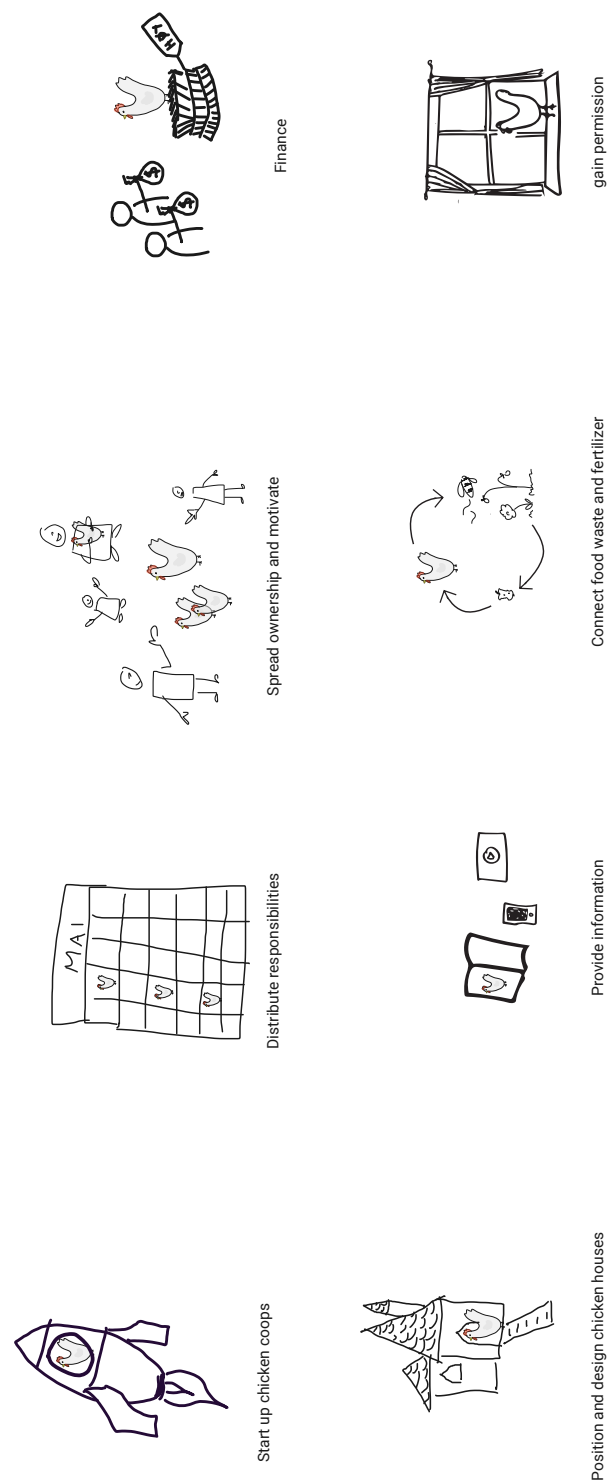
E

Slides as a starting point for conversation with housing developers

Why?

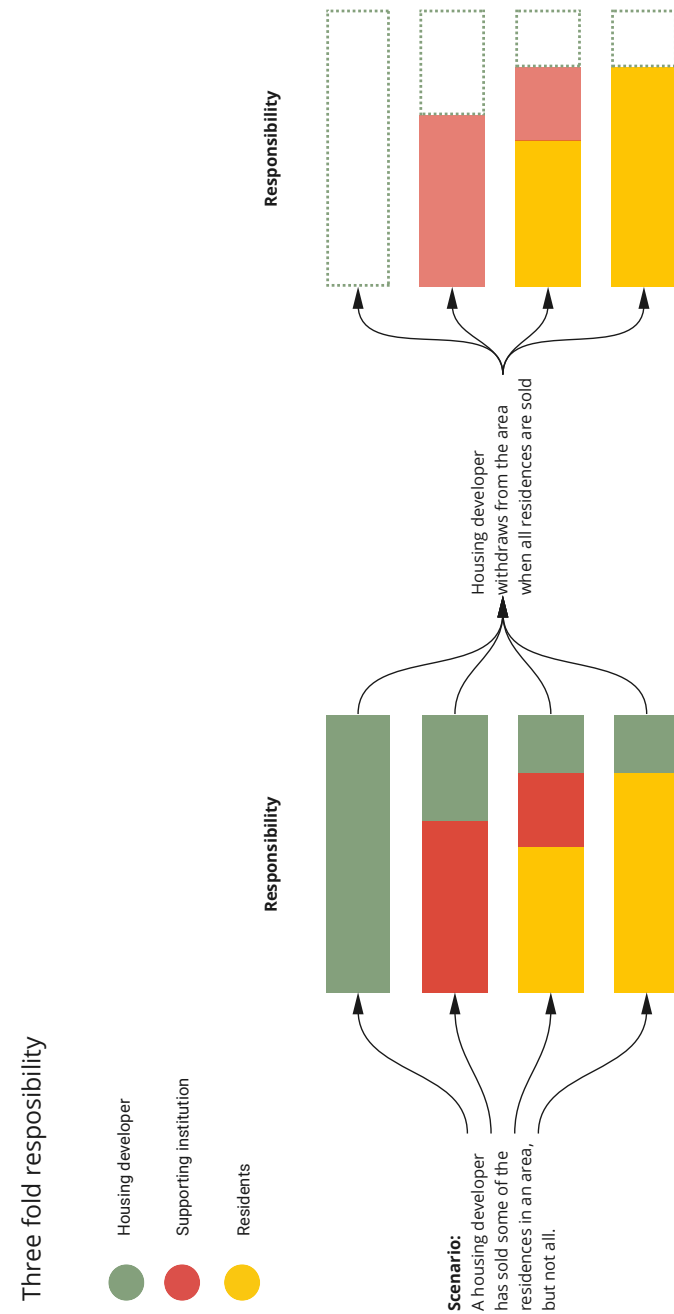


How to ...?



F

Distribution of responsibility



G

Interview Guide: Bieffekten

Er det greit om vi tar lydopptak?

Hvor vi fikk tipset fra
Presentere oss og oppgaven vår
Presentere studiet vårt

Hvem er du?
Hvorfor startet du med dette?
Hvordan går det? Hvordan fungerer denne
forretningsmodellen?
Hvor mange bikuber er du fadder for?
Hvor mye arbeid er det?
Hva har du lært av å holde på med dette en stund?
Vi ser at dere fungerer som faddere. Inkluderer dere andre i
lokalmiljøet i stellet av biene? Hvorfor, hvorfor ikke?

Er du kjent med høns og hønseshold?
Kunne man overført din foretningsmodell til høner (eller andre
dyr)? Har du vurdert å utvide til høner eller andre dyr?
Hva blir det neste, hva er fremtiden til Bieffekten?

Har du spørsmål til oss?

H

Consent Form

Informasjon om og samtykke til deltagelse i masteroppgaven:

Økt livskvalitet og tettere relasjon til naturen gjennom delt hønseshold i byen

Bakgrunn og formål

Masteroppgaven skrives av Caroline Syse og Ida Melen ved Institutt for Design, NTNU. Hensikten med oppgaven er å utforske potensialet rundt det å ha høner i byen, effekten det har på menneskene som er i kontakt med dem og designe for at flere kan utnytte seg av de gode effektene. Dette utforskes gjennom intervjuer og observasjoner.

Om intervjuet

For å samle innsikt ønsker vi å utføre intervjuer med personer som har kunnskap innen urbant landbruk. Data blir samlet inn via notater og bilder.

Om informasjonen du gir fra deg

Innholdet fra intervjuet vil kunne publiseres i studentenes masteroppgave. Ditt navn, din stilling og bilder fra deg kan bli brukt til å henvise til intervjuet i masteroppgaven.

Frivillig deltagelse

Det er frivillig å delta i undersøkelsen og du kan når som helst trekke ditt samtykke uten å oppgi grunn.

Kontaktinformasjon

Dersom du har noen spørsmål om oppgaven eller intervjuet, ha lav terskel for å ta kontakt med masterstudentene:

Anna Caroline Syse

Ida Maria Corsepius Melen

Eller veilederne:

Ferne Edwards

Ida Nilstad Pettersen

Jeg har mottatt informasjon om intervjuet og samtykker til å delta:

Dato/Sted

Signatur

