Daring to dream in a sea of change

- Uncovering values hidden in the urban space

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Abstract

In this thesis project we explore the present municipal planning practice from a multi-level perspective as well as engage in a case study surrounding the development of an urban neighborhood in the Danish city of Albertslund. Through a transition designerly approach we seek to explore the present dynamic network of actors in and around the field with the aim of understanding the actors expressed matters of concern, values, and hindering's. Some of the central actors are, hereafter, enrolled in a digital co-designerly workshop where we through knowledge sharing of best practice, envisioning of opportunities, and organizational mapping, try to specify the particular circumstances that enable a diverse set of values, to be offered and gained, in urban spaces. Following this, we synthesize our exploration and participatory engagement, to develop an extensive set of interrelated recommendations, outlining the values and their associated benefits, that one can aim to establish in different urban planning areas, their triggers, and finally their indicators. The intention for these recommendations is to equip Danish urban planners, in their quest to develop inclusive, livable, and sustainable cities.

Keywords: Urban planning, Sustainability, Transition, Green spaces, Climate adaptation, Co-design, Participatory design

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Birgitte was the one who introduced us to the vastly complex yet exhilarating field of urban planning and sustainable climate adaptation, she has further been assisting us with her expertise in both the fields that we have engaged in, but also in navigating our research even through unprecedented times due to the national lockdown following the global pandemic of SARS-COV-2.

A, thank you, should also go out to all the actors that we have involved in our study, and a recognition of the time that they have put aside to accommodate our exploration, allowing for a much more grounded and interesting process. Further, agreeing to join us on (for those involved the unchartered territory of digital workshops, held online, using video and voice connections.
These actors are:

Albertslund Municipality
- Sigrid Glarbo
- Anne Adamsen
- Anja Irene Bæk
- Jan Holm

HOFOR
- Frank Brodersen

Toftegården
- Emilie Aahron Pedersen

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INTRODUCTION

The United Nations Department of Economic and Social Affairs,has projects that 68% of the world's population is going to be living in urban areas by 2050 (UN-DESA, 2018). This means that nearly 2.5 billion people are going to move from rural, to urban areas. With cities occupying just 3% of the earth's land mass but accounting for more than 70% of the world's total carbon emission (UN-SDG, n.d.), radical changes in how we build and live, in cities can be seen to have large cascading effects in a wider context.

With an increase in urban populations, a following increase in the services that cities are expected to provide for all actors, rises. These services are the likes of, a need for mitigating the immediate weather impacts, and reducing the indirect effects, related to climate change (Frantzeskaki, Hölscher, Bach, & Avelino, 2018). The city is further, becoming a complex nexus of different actors' matters of concerns, conflicting priorities and values, that can be seen as a barrier for more radical transformation of the socio-technical urban regime.

Approaching any solution that might create a positive change is, by several researcher within transition studies, described as being about recognizing them as part of the complex systems that cities are, and that no single design solution or policy change can create the needed transformation (Hyysalo, Marttila, Perikangas, & Auvinen, 2019; Gaziulusoy & Ceschin 2020; Andres Valderrama, Ulrik Jørgensen, Jens Stissing Jensen, 2015).

The incumbent regime are, however, still attempting to address the above mentioned issues in isolation, often within their sectoral divide (Bush, 2020; Healey, 1998) creating an institutional lock-in against encompassing newer more cross-disciplinary approaches in creating more sustainable and livable cities (Hyysalo, Marttila, Perikangas, & Auvinen, 2019). It has therefore been argued that in order to approach the design and development of more sustainable cities, we need to address them from a systemic perspective, collaborating across disciplines to coordinate and develop many small contributions, to better the premises that cities are currently based on (Hyysalo et al., 2019).

Following the nexus of actors and capacities, cities are also seen as an opportunity for new innovations and alternative practices to emerge (Mueller et al., 2020; Raynor, Doyon, & Beer, 2017). For this reason, cities are often described as the place where we are able to reimage, explore, and experiment with the way we live and as such design our surroundings accordingly (Nevens, Frantzeskaki, Gorissen, & Loorbach, 2013).

As we set sail to develop this thesis, we therefore also endorse the statement made by UN general secretary Ban Ki-Moon: *"So, it is clear that transforming our world for the better means transforming our towns and cities. That means better urban governance, planning and design."* (UN-NEWS, 2016).

Regarding this as a call for action and, as such, motivation for the carrying out this thesis.
With a background in sustainable design engineering, our knowledge, and abilities, enables us to not only understand but also contribute with valuable insights within complex systems, is what sets us apart from e.g. traditional engineers. It is also what qualifies us to engage in driving the sustainability agenda at the forefront of the fields that we engage in and to aid in managing the transitions of societal structures. From this perspective we set out to study and drive public urban planning processes towards more sustainable urban development.
In this study, we have therefore engaged in a co-designerly process together with Albertslund municipality, and the utility company HOFOR, to explore, reframe, and qualify values and benefits offered by elements in the urban environment. In an effort to establish a framework and vocabulary for them to set sustainability and participation on the agenda in their urban development projects.
The case that we have been engaged in, is interesting in relation to making such a contribution as *"Nimble city governments often have closer relationships with their businesses, residents and institutions than state and national governments, allowing new policies to be implemented more quickly and decisively."* (C40 Cities, n.d.).
Our hope is therefore also that our contribution to this collaboration can act as a contributing step to a larger transition that is currently taking off, both in Albertslund and the world

Scope of the study

When engaging in a field as widespread as urban planning, we have taken a cautious approach to what we have chosen to include in our thesis work, due to the overall time constraint of the semester as well as our prior knowledge within the urban planning field. As our interest within the field and thus motivation has been on exploration of co-beneficiaries related to sustainable infrastructure elements i.e. blue/green infrastructure, we have deliberately limited ourselves from including elements from private spaces like green roofs and walls, interior design, and specific housing sizes, even though these might also contribute with values and benefits, albeit from another perspective.

1.1. Research agenda

Aim

With this thesis, we want to explore how a reframing and qualification of principles and values that are considered "good" can inform and support the development of more inclusive, sustainable, and holistically designed urban environments, ultimately rendering sustainability and participation more governable, in that context.

The following research questions will guide us to fulfil this aim.

- How has the process of institutionalizing urban planning, in the municipalities, defined the incumbent planning regime, and how can this be seen to hinder the adaptation of wider concepts of both social and environmental sustainability in the present planning practices?

- How are the actors and dynamics of the Hyldager site reconfigured as the site is assigned a new role of becoming an urban neighborhood, and how is this reconfiguration presently expressed as matters of concern (MoC) and opportunities by the stakeholders around its development?

- How can we through a co-designerly process explore and develop planning objects that can equip the planners with the argumentation and vocabulary enabling them to engage a wider more heterogeneous network and push for more sustainability in urban planning and development projects?

1.2. Research Design

The work presented in this thesis, represents the work that has been carried out over a period of 4 months, during the spring semester of 2020. As such, the initial process that we had developed in order for us to answer our problem statement and research questions, became dramatically impeded by the outbreak of SARS-COV-2 i.e. Coronavirus, which as of finalizing the report is still regarded as a global pandemic. Our initial goal was to engage in a highly participatory process together with Albertslund municipality, HOFOR, and external experts, and additionally, join these

actors in observations both on the case site, but also in their day-to-day work.

However, as of the 12 of March 2020, a nationwide lockdown was imposed by the government, which meant that Aalborg university closed the campus, and discouraged the students from meeting up or conducting field studies. The same or similar guidelines were utilized by Albertslund municipality and HOFOR. This meant that we had to make a considerable navigation, to be able to develop this thesis and answer our problem statement. The process as it ended up, is outlined in the Figure 1, and represents our work from before the lock-down and all the way to delivery. The inspiration for our overall approach is based on that of the double-diamond (Design council, n.d.), however, adapted to deal with the peculiarities of this thesis, under the given circumstances.

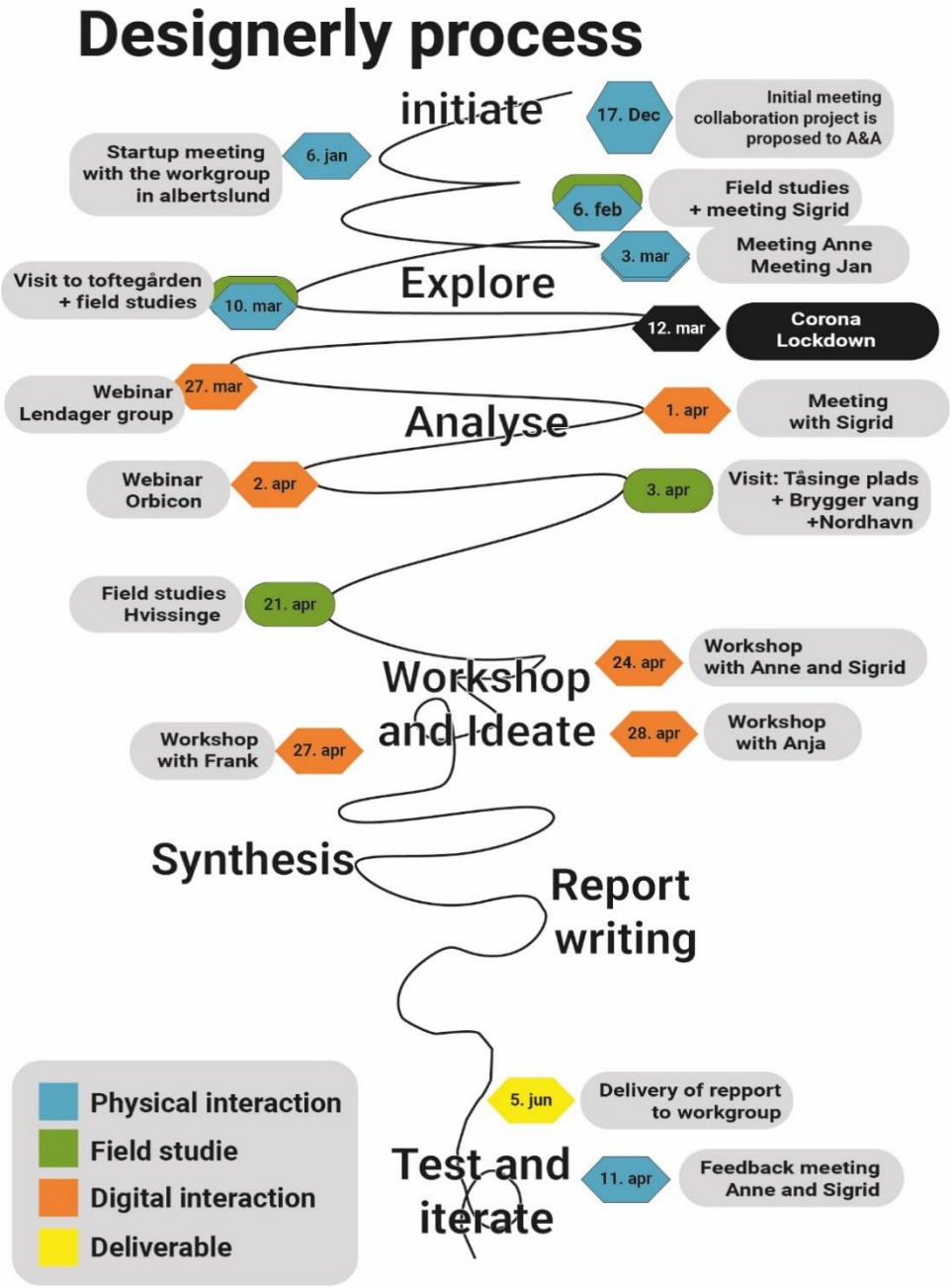


Figure 1: Our design process, as it ended up

1.3. Case description

At the core of this study, sits the case that got us involved in this endeavor. The case is the development of Hyldagerkvarteret, which is a new neighborhood that is being developed within Albertslund municipality. We got engaged in this project together with HOFOR which is the utility company for greater Copenhagen, on the premise of pushing a more sustainable development project. The formalized motivation for our collaboration was to:

The motivation for all three parties of this collaboration is to promote concrete, sustainable solutions within urban development. The parties all want to promote a more multifunctional use of the city's surfaces and outdoor areas, as well as optimize the city's existing resources to promote more sustainable living in the city. For the working group, the solutions are sought through an interdisciplinary dialogue (Sigrid Glarbo, 2020b, p. 1).

In carrying out the development of Hyldagerkvarteret, and more importantly to this study, partaking in the development of sustainable solutions in the process, we have what is referred to as the workgroup.

The workgroup is constituted by Sigrid Glarbo, Anne Adamsen, Hans-Henrik Høg, Anja Irene Bæk, Frank Brodersen, Birgitte Hoffmann, Andreas Vang & Alexander Lindeburg.

The opportunity that presented itself with the development of Hyldagerkvarteret, was that the municipality were the developers of the land, instead of the more usual approach where the site is sold to an entrepreneur that is then responsible for both the development of land and in turning the site into a neighborhood.

Taking on this new responsibility in turn gives the municipality more agency when it comes to the land development as they are responsible for coordinating all the infrastructure elements on the site and with this, the overall layout. These decision-making processes are crucial to be a part of when wanting to integrate sustainable and multifunctional elements in relation to the land-development processes.

To go about this city expansion in a sustainable and holistic way, the municipality has, as of May 2020 adopted a new municipal plan called *Mere Albertslund* defining how this coming phase of city development projects are to be carried out, and what values are sought to be integrated as part of this development.

Within the agreement between Albertslund municipality, HOFOR and Aalborg university this is also stated as *Hyldagerkvarteret is to be planned on the basis of the visions stated in 'Mere Albertslund'* (Sigrid Glarbo, 2020) The visions can be found on Appendix 1.

As such, *Mere Albertslund* has been a defining actor in our project, and much of our work, in exploring the barriers and opportunities in Albertslund.

Hyldagerkvarteret is to be developed on the site referred to as the Hyldager site. The Hyldager site is geographically placed in the south western part of Albertslund municipality, with approximately 1.4 km to the S-train station and city center.

As of writing this report the site is primarily constituted by grass fields, trees, wild nature, gravel roads and pathways as well as an old gym hall. The development of this area is one of multiple areas that Albertslund municipality is currently in the process of developing, and as such part of a much bigger network transformation and agenda.
The reason for this city-expansion can be found in that Albertslund is experiencing an increase in citizen numbers, much like they experienced in the 1960s where the city went from being 3000 citizens to 30.000 over a period of 10 years (Sigrid Glarbo, 2020a).

The site measures 8,77 hectares which equates to 87.700 m^2 (Byudvikling & Erhverv, 2019) and is naturally framed between the train tracks to the south, the stream *Store vejle å* to the west and the village of *Vridsløselille* to the northeast. Presently the area is regarded as a "bridge" between the natural area of Hyldager bakker and the built-up city.
There are two major neighboring areas to the Hyldager site, the first one being the recreational area of Hyldager bakker, which is under construction, to the west and the second being the aforementioned urban area of Vridsløselille to the north, and lastly Albertslund city to the east.
Going one step further out, the surrounding area is defined by three major roads and a railway. These include Roskildevej to the north, Holbækmotorvejen to the west, Vridsløsevej to the east and a railway to the south. A map can be found on the next page, detailing the area of and around the Hyldager site (Figure 2).

Overview of the Hyldager site, and its surrounding area

Figure 2: Broader context of the Hyldager site

1.4. Structure of the report

In chapter **two** we explore and discuss the state of the art within urban planning, in Denmark and explore co-beneficiaries linked to blue/green infrastructure elements, as well as their presence in planning and assessment tools available for planners and decision makers, working within urban development and design. The state of the art is supported by a literature review, conducted as part of this thesis.

In chapter **three** we present the theories that have been applied through-out this study. This includes outlining the specific theories and what they allow us to do and see, however, also how we have used them to gain knowledge, and prioritize certain perspectives as we have conducted our research.

Chapter four can be regarded as an extension of chapter three in that it outlines and details the methodology applied in generating, capturing, and processing the knowledge that is central to the thesis.

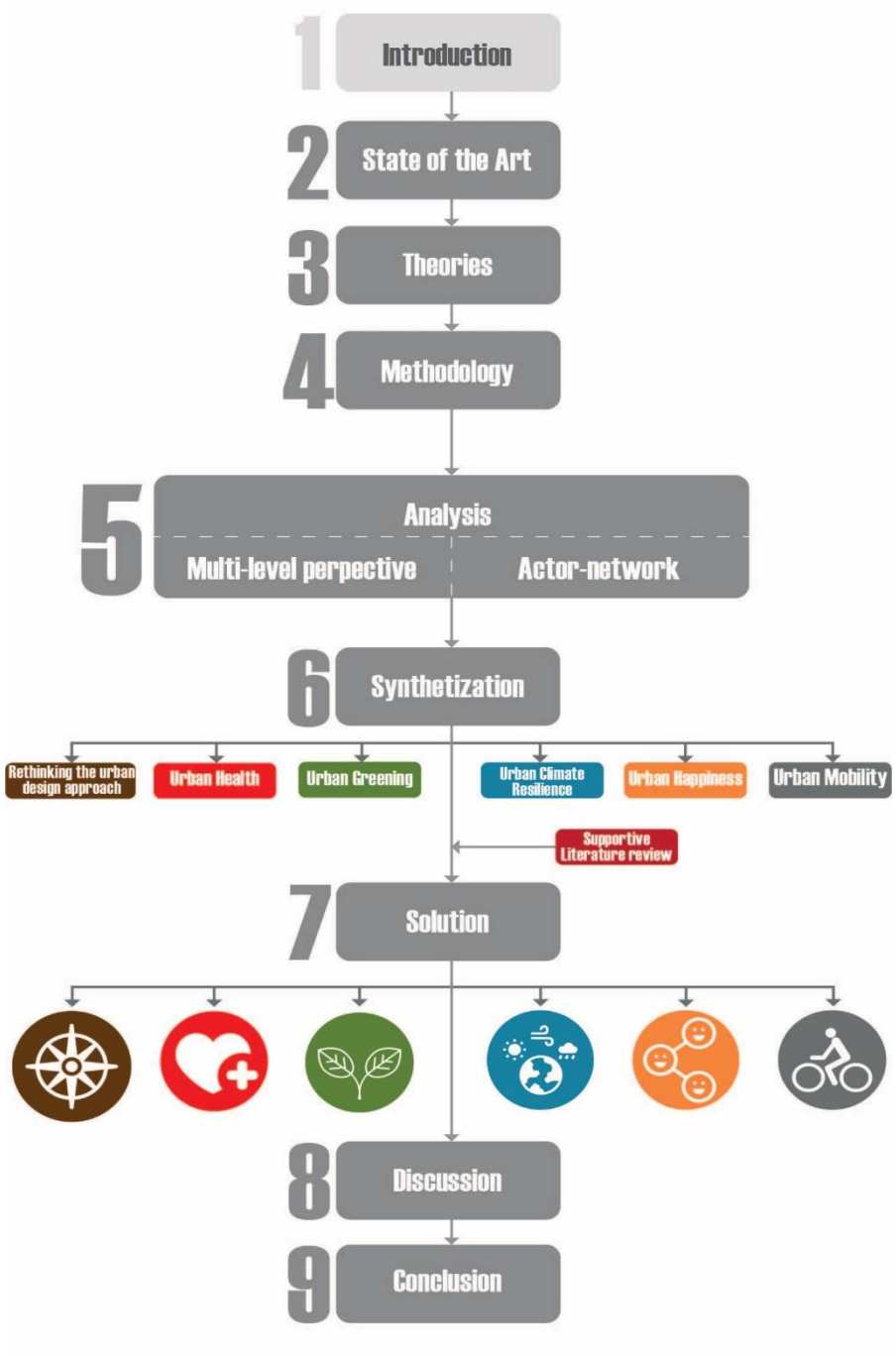


Figure 3: Structure of the report

In chapter **five** we present our analysis, which is built up of two parts, the first being a multi-level perspective analysis on the institutionalization of urban planning in a Danish municipal context, the landscape dynamics that are putting pressure on the regime, opening windows of opportunity that allow novel responses to gain a foothold. The second part is based on an actor-network approach, and as such outlines the MoC that are posed by actors in the network, and the associated relations, both currently present, but also how these dynamics will change as part of turning the Hyldager site into Hyldagerkvarteret. In this second part we are also analyzing the knowledge we have gained from interacting with the different participants in workshops.

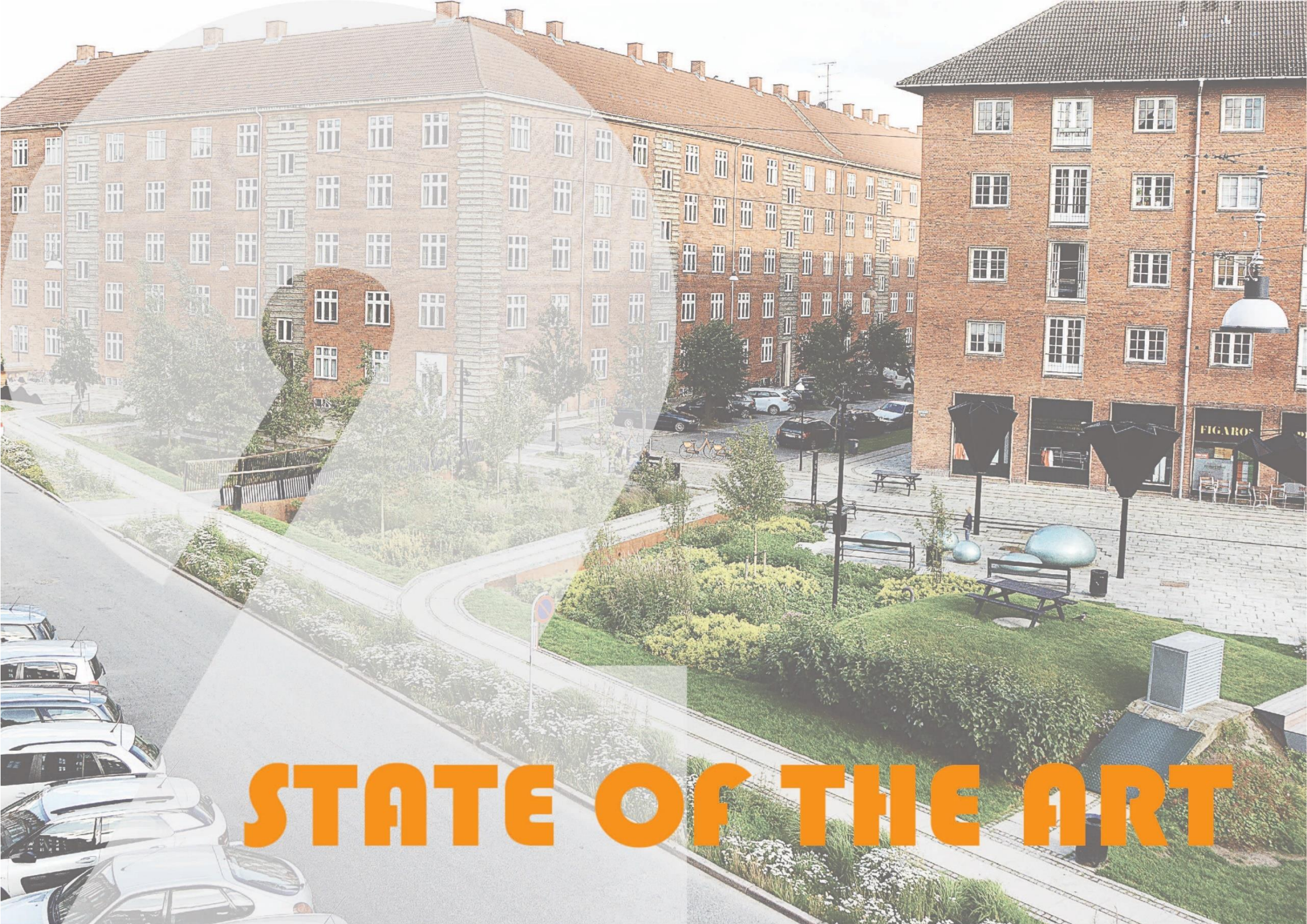
Chapter **six** serves at the synthetization of the knowledge gained from our research and our workshop, and as such outlines our solution space by drawing together our findings, enabling us to define the frame that our solution should adhere to.

In chapter **seven** our design proposal is outlined. We, further, detail the core elements of the guidelines and recommendation that our solution consist of as well as how we see it align with the MoC that exist in the network and how we aim at giving it agency in the urban development project

In chapter **eight** we discuss: the participatory design in relation to the case that we have engaged in and in the wider context of urban development, digitalization of workshops, lack of tangibility and *knotworking*. A more general discussion on the perspective we, as a society, are taking on challenges like the one dealt with in this thesis, and finally some of the peculiarities that we have encountered as part of developing this thesis.

In chapter **nine** we state our concluding remarks on the thesis, both in relation to the proposal, highlighting the answers we have found to our research questions, but also in relation to the approach we have taken, and the perspective that we view such challenge from. As we conclude on the work that we have carried out, we are also suggesting relevant pathways for further research to be carried out, in reinforcing the knowledge within the field.

Chapter **ten** outlines our own reflection on the process, giving insights into the challenges we have faced, and what we have learned from dealing with them. Furthermore, we note the limitations of our work, and how it has been to develop a thesis under the circumstances of a global pandemic.



STATE OF THE ART

Urban planning in Denmark has come to be a highly institutionalized field, as will be outlined and discussed later in this thesis (see section 5.1). However, its current form is what we are interested in as an outset of this study, and as such will also be the focus point in the former part of this chapter.

The urban development process (Figure 4)

First the municipality looks at their different areas based on a development strategy for the municipality. Based on that development strategy, a series of local-plans are developed, detailing the municipals development possibilities, and overall visions, for those areas. In our case this plan is called *Rammelokalplan for Hyldagerkvarteret 12.7* (Byudvikling & Erhverv, 2019). When the local-plan is passed by the city council, the work on planning the area begins. Here a strategic environmental assessment (SEA) is made, detailing the environmental factors related to developing an urban area, based on the local specificities.

We became engaged in the development project of Hyldagerkvarteret at this point in the process, when the SEA had just been submitted to the planners. When the SEA has been conducted, and the local-plan has been adapted based on its findings, the municipality has to publicize it and have it up for public hearing in at least 8 weeks.

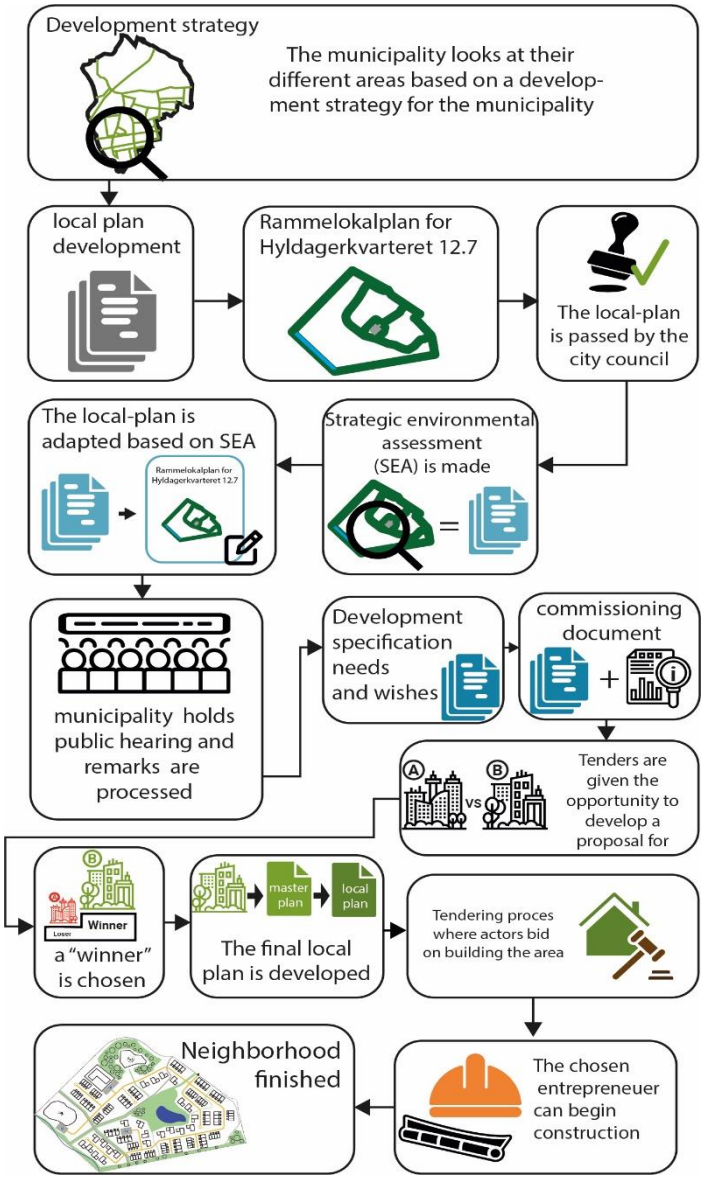


Figure 4: The urban development process

After the public hearing, any remarks made by citizens are to be processed, before the municipality can continue their process. At this point, the municipality is to make what we would translate into a *development specification*, detailing the demands and wishes, put forward by the planners on behalf of the municipality. When the *development specification* is done, it is combined with all available information on the area, as well as any further conditions, into a commissioning document. Two or more tenders are then given the opportunity to develop a proposal or design of the area, based on the commissioning document, in what is regarded as a competition. As this process finishes, and a "winner" is chosen, their proposal is then translated into a 'master plan' on which the final local-plan will be based. When the final local-plan is developed, the municipality will engage in a tendering process, where different building associations or entrepreneurs can bid on the actual construction project of carrying out the development. For Hyldagerkvarteret, this is expected to happen in 2023, as this is when there can legally be built houses on the site.

Over the course of such a planning process, the planners are utilizing different tools to gain knowledge, and steer the planning process. These range from the expected influx of citizens giving an indication if urban development is necessary, to the highly specific measurements done as part of the SEA in regard to foundation mapping, outlining where it is possible to place buildings in a given area.
Moreover, the Danish municipalities are obligated to express and assess how their urban development projects are contributing to a combined sustainability effort, as part of the 'lokal agenda 21' initiative, put forward by the Danish plan-law.

This state-of-the-art outlines the overall process that we have engaged in, during the development of this thesis, and as such, the field that we have been navigating in. Our interest lies with the two latter notions, i.e. that of equipping the planners with tools, and supporting their efforts in planning for more sustainable urban areas.

For this reason, we saw an opportunity in learning from already established research to get an initial perspective on these notions. In the following sections, we will therefore present this knowledge.

2.1. Literature review

The aim of our literature review has been to explore how value elements are sought operationalized within urban planning and development projects, by studying the recent research conducted within the field.
The identified and expressed values from the literature reviewed have contributed both to the development and refinement of our proposed recommendations as well as indicating the overall approaches that exist within the field of urban planning and development, that we are engaged in. Lastly the literature review has contributed to our understanding of, and therefore also partly our approach, to the actors that we have engaged with in the Hyldager case.

Tools and approach

In this section of the literature review we explore the recent research literature that have discussed and/or developed tools and frameworks, for the integration, planning or design of urban green spaces and urban areas with climate adaptation or mitigation solutions.
Our focus has been to understand the different approaches that have been taken and the discussion that exist around the usability of the tools, as well as how values and co-beneficiaries around health, recreation, blue-green infrastructures are sought integrated into existing planning practice.

While tools and frameworks have been around for some time, we have prioritized later works of literature as well as reviews to better comprehend the state of the art within this field and its more recent developments.

The majority of the tools and frameworks that the literature review is centered around assessing the presence and proximity of "green" in an area through Geographical information system (GIS) based tools (Lindholst, Caspersen, & Konijnendijk Van Den Bosch, C. C., 2015), mapping techniques (Dagenais, Thomas, & Paquette, 2017; Mishra et al., 2020) or scoring systems (Mishra et al., 2020). Focusing mainly on being able to equip decision makers and planners with clear answers to what is and ought to be (Lindholst et al., 2015).
Lennon, Douglas, & Scott (2017) describe this tendency as *"(…) modern decision makers in urban planning demand evidence for the benefit of allocating scarce urban land for public open space and a clear design framework to guide its provision."* (p. 779). However they also highlight that the reason for the lack of attention to more qualitative measurements in regards to co-beneficiaries of Urban Green space (UGS) is because *"(…) the concept of 'quality' does not easily lend itself to the formulation of policy or design that is applicable across an administrative area of varying socio-economic and/or environmental attributes."* (Lennon, Douglas, & Scott, 2017, p. 779)

The most common theme within the research around tools for planners is that of the ability and need for making green infrastructure and the value that it can bring, comparable with that of gray infrastructure (Antognelli & Vizzari, 2016; Tsegaye et al., 2019; Van Oijstaeijen, Van Passel, & Cools, 2020) as well as understanding its opportunities and barriers for implementation in urban development projects (Geneletti & Zardo, 2016). From Geneletti & Zardoz (2016) article it is clear that there is a recognized need for city planners to develop more resilient cities to cope with the experienced climate change effects i.e. drought, heat islands, cloudburst, and floods, but they also highlight that enhancement of green areas to prevent such, is often solely proposed as a general measure without clear justification of its direct benefits and because of this knowledge gap more substantial solutions and their benefits still only see limited implementation in development projects (Geneletti & Zardo, 2016).

Several of the article reviewed argue that many of the qualities that these assessment tools try to capture, beyond the environmental and direct economic benefits, are related to more relative and subjective based on how an area is perceived i.e. do they feel safe, at ease, are senses stimulated, and do they feel a social coherence (Pfeiffer & Cloutier, 2016). These qualities are also referred to by some, as being the perceived quality of life (Antognelli & Vizzari, 2016) and is therefore also described as harder to generalize out of a specific context (Mishra et al., 2020).

An emerging field within the literature reviewed, can therefore also be seen to seeks and bridge this gap, by focusing on what affordances that different actors perceive in an area (Mishra et al., 2020) and how an understanding of these affordances can aid in an urban design/development process (Lennon et al., 2017) by envisioning different demographics in the form of "model users" and the affordance that they might perceive.
While this, more designerly approach to create public green spaces, and urban areas that afford itself to potential user groups, it is still based on what is perceived by the expert planner or designer in the development process based on their inherent knowledge.

From the literature it is therefore also highlighted that despite the value that many of the proposed tools might have, in informing and guiding the general development and planning work, there can be several benefits and values to gain by engaging local actors and in particular local planners as part of the development work (Antognelli & Vizzari, 2016; Dagenais, Thomas, & Paquette, 2017; van de Ven, F. H. M. et al., 2016) as these are often better able to translate and interpret local needs, while also having a more direct

knowledge of an areas relation to the surrounding landscape (Antognelli & Vizzari, 2016, p. 279), and confirm or reject perceived values and issues that is sought to be mitigated through a proposed solution (Dagenais et al., 2017).

Several of the tools and assessment methods is therefore also increasingly often highlighted as being part of different kinds of participatory processes with the aim of better sharing knowledge between different professions and expert fields within a planning process (Lindholst, Caspersen, & Konijnendijk Van Den Bosch, C. C., 2015) as well as creating a shared understanding of different sectors concerns in relation to a development process (Pfeiffer & Cloutier, 2016; van de Ven, F. H. M. et al., 2016).

However, while several of the articles reviewed highlights that it could be beneficial to bring a diverse set of actors into a more participatory process, they also argue for the need to create a common language and understanding. Currently there is a need to educate other professions and local stakeholders to qualify them to engage with the specialized maps and tools, often used in today's processes. It is also argued that because of the need for such added "investment" from stakeholders, it can sometimes limit their engagement (van de Ven, F. H. M. et al., 2016) unless time is spent on qualifying the participants (Dagenais et al., 2017). "Simpler" tools that try to mediate and fill this gap are therefore being developed as with the Adaptation Planning Support Toolbox developed by (van de Ven, F. H. M. et al., 2016) where the tablet "touch and draw" format is argued to enable more participatory engagement and shared learning in the process by ease of use and by seeking to inform and make the different elements and their potential benefit transparent. Such tools are however still seemingly few and mostly centered around use in existing urban areas where there are local residents.

THEORIES

In this chapter, we are going to outline the theories, on which this thesis is based. This includes an introduction to how the specific combination of theories has allowed us to both approach the challenge, as well as defining a scope for gaining and processing knowledge.

In this study we are inherently attempting to foster a potential basis for transition of the current approach to local valuation of, and planning for, sustainable value-elements in urban development projects.
As such, we are endorsing the notions of transition design and transition management, to explore how such transition can find its way into the established system. We, further, draw on this approach, as we argue that not one single solution can be seen to answer to the complexity that cities are ascribed, due to their diversity of actors, interests, interactions and processes (Nevens et al., 2013).
This complexity is also part of the reason why we choose to take a pragmatic approach as we seek to understand and how different fields of knowledge deal with the creation of value in urban spaces. Further, enabling the use of mixed methodologies as we make our own explorations.
Our stake, in going into this project, has therefore been to represent sustainability and sustainable change. By firstly seeking to understand and map the existing approach, the issues faced, and concerns articulated by the actors, and secondly develop a contribution, with the actors we have engaged.

In understanding and mapping the current approaches, and established system, we have utilized, firstly a multi-level perspective to understand the wider dynamics of the municipal urban planning regime, both in relation to the institutionalization of practices but also in ways of incorporation of sustainability elements and their assessment. Moreover, we are able to get an idea of how we can make a contribution to an established transition agenda, able to gain a foothold.

Secondly, we have utilized actor-network theory (ANT) to describe and map the existing actors, relations and dynamics of the field we are to act in. We further use ANT to explore opportunities in the role that local actors are assigned in response to future controversies, in ways that the established metrics and practices fail to. Moreover, it enables us to navigate the process as agency is identified and made tangible to us, through the collection of viewpoints, as MoC.

3.1. A pragmatic approach

In carrying out this study, we have taken a pragmatic approach, as this has enabled us to utilize multiple ontologies, as well as mixed methodologies.

Pragmatic research is often applied when dealing with complex problems, as it allows the researcher(s) to view the problem in a broad context and thus reach further to gain new insights that would not have been uncovered if a narrower research approach had been taken.
It also becomes relevant as we are working with a sustainability challenge that is deeply embedded in a long tradition for urban planning practices in Denmark.

Pragmatic research is primarily regarded as a study of real-world problems and situations as noted by Duram (2010) *"Pragmatism is concerned with understanding and resolving problems that occur in our uncertain world."* (p. 3). This entails that the researcher(s) go out into the world in an effort to understand it, and the actors that act in it. This first-hand experience is what allows the researcher(s) to properly understand and convey the knowledge that different actors bring to the situation i.e. their ontologies.

We have done so in this study, by going on field trips to both Albertslund, Hyldager Bakker and the Hyldager site. But also, when interviewing actors in the municipality, or actors with relations to the Hyldager area. Duram (2010) describes this as *"(…) understanding of a situation must be gained through one's own experiences or inferred from other people's experiences."* (p. 3)

An important part in gathering and processing this knowledge, is then to utilize the right methods, and that is another key factor of pragmatic research, as the *"(...) pragmatic researchers are more likely to be cognizant of all available research techniques and to select methods with respect to their value for addressing the underlying research questions (...)"* (Onwuegbuzie & Leech, 2005, p. 385). This can be quantitative, or qualitative methods or even a combination of both.
When conducting pragmatic research, it is of great importance that we as the researchers are aware that the knowledge, we gain will to some extent be influenced by ourselves or the actors whose experience is being inferred. This is noted by C.H. Cherryholmes (1992) as he states that "*Pragmatists take seriously the assumption that we are historically and socially situated, that when we read the world we can never be quite sure if we are reading the "world" or reading ourselves (...)"* (p. 14)

We have dealt with this by drawing and mapping the knowledge that we have gained, instead of merely processing it verbally. We have done so, to eliminate as many links of interpretation as possible, however, still being aware that a drawing or a map is something that is interpreted yet to a lesser extent.

3.2. Design for sustainability transition

As our project was, and still is, aimed at fostering change through qualifying and enabling the interaction of local actors and stakeholders towards a more sustainability driven urban development project. We have seen a value in drawing upon the principles of transitions management as well as transition design in analyzing the existing system.

In carrying out this study, we have worked from the principles of transition design (Gaziulusoy & Öztekin, 2019), we have taken this theoretical approach as we find it central to understand, analyze, and propose change for the better, within established systems. We see that transition design as an overall approach to foster change at the socio-technical level of systems, can aid us in understanding how we, through design in relation to urban planning process, can propose new ways of assessing the value and benefits that different actors pose through their function and dynamic interrelation. Moreover, we see that they can guide the development of the urban area, in question, in a more sustainable and inclusive direction.

While transition design is still an emerging field of design (Gaziulusoy & Ceschin, 2020) it builds on the notions already established within: *"Sustainability science; complex adaptive systems; system innovations and socio-technical transitions theories; futures studies (scenarios); product development; business strategy"* (Gaziulusoy & Öztekin, 2019, p. 7).
Our aim in designing for transitions, deals with that of enabling and empowering local actors and stakeholders through participatory processes, as this has the potential to enable more radical visions of the future urban context and therefore also foster more radical change. Here Terri Irwin (2015) argues that *"Transition Designers look for "emergent possibilities" within problem contexts, as opposed to imposing preplanned and resolved solutions upon a situation"* (p. 115) and that *"This approach is highly transdisciplinary, collaborative, and rooted in an understanding of how change within complex systems manifests."* (Irwin 2015. P. 115).

In addition to the overall perspective of designing for sustainability transitions we have further drawn on Transition management as defined by Loorbach (2010). As an approach to understand and structure the engagement with the workgroup as we see that: *"Transition management can be considered as a multi-actor process with participation from government, societal organizations, companies, knowledge institutes and intermediary organizations. Because of this participation at various levels a multi-level network emerges within which different themes are discussed and tackled"* (Freitas, 2015, p .153).
Drawing on transition management in this project has aided us in understanding the process of change and how the creation of new ways of addressing barriers, opportunities, and visions between stakeholders in a development process, can lead to a more favorable environment for the planning recommendations that we propose.

Transition theory, further, enables us to understand and elevate the challenge and its context, where after we are able to see where our recommendations fit into the system, and potentially contribute to a transition of the established strategic public planning processes to account for more sustainability. Ultimately leading to more sustainably built environments, offering a multitude of values and benefits for citizens and nature.

The change that we are working towards, is to be understood as *the way we think cities and use them* and can contribute to our understanding of how local adaptive changes can contribute to a broader change at other levels of governance.

3.3. Multi-level perspective

In this study we have taken a multi-level perspective in regard to identifying, understanding and mapping the institutionalization of urban planning processes in Denmark. Moreover, we have utilized a multi-level perspective (MLP) to explore how different dynamics within the landscape and incumbent regime is changing and how this in turn can create opportunities for socio-technical niches to develop.
When taking a multi-level perspective three separate 'levels' are considered and, when combined, these 'levels' indicate the new developments, the configuration of the regime, and the pressures that are exerted on the stabilized regime (Geels, 2002). Starting at the macro level we have the 'landscape', which represents societal, political, or environmental changes (Geels, 2002). At the meso level we have the 'incumbent regime' defined by regime actors, routines, as well as the institutionalized structures (Fuenfschilling & Truffer, 2014).

Lastly, we have the micro level which is where niche-developments are placed, these refer to novel and oftentimes shielded developments (Geels, 2002).
In mapping and analyzing the field from the various levels we have been better able to comprehend how the present regime has evolved. And the barriers that presently hinders it in adapting to the landscape change, which in turn creates opportunities for niches to displace the incumbent regime.
The success of these niche developments relies on the regimes capability of adapting and as such its resilience in regard to mobilize an internal reconstruction.

While we see a great value in understanding the large, long term picture we also need a way to map and understand the immediate dynamic network that we are a part of and how we can best navigate it towards a transition, and we therefore turn to ANT.

3.4. Actor-network theory

The theory of actors and the networks that they are part of, have served as our general approach to understanding the context and dynamics of actors and their networks, whom we are engaged with.
As such, we are endorsing the notions on the descriptive capacity that is offered by taking such approach (Storni, 2015).
In this sense, ANT has enabled us to both identify but also map the actors that are part of the case, we are working with, and describe their relations in the network they are seen as part of. We have done so by mapping the identified actors, in networks, emphasizing their relations to one another, while describing the dynamics that is entailed by them. We have done so, both in terms of what is identified and established at present time as well as, how the relations and dynamics are seen to be changed as the network of the Hyldager site, is reconfigured to comply with its envisioned future network of a neighborhood.
Seeing as we are the ones mapping these actors, we are also the ones who assign agency to them, potentially silencing other actors in that process.
Taking this approach entails subscribing to the "non-modern" approach to ANT in line with that of Callon (1984) and Latour (2004).

However, as we have also opened up the process for participants and included the actors engaged in the project, through the likes of workshops, we have deliberately intended for an overall more democratic approach, than what is regarded to be within the scope of the non-modern ANT.
For this reason, we have attempted to distance ourselves from what Storni (2015) deems a *'designer-network-builder'* and thus converge with the more modern approach to ANT.
In conducting our study, we have, therefore, drawn on what Venturini (2012) calls *'second-order objectivity'*. *"(...) the second-order objectivity is based on agnosticism and suggests that one ought to collect as many viewpoints as possible (...)"* (Storni, 2015, p. 174).
However, in this thesis the viewpoints have not solely been used to map controversies between actors in the network, but also to support and represent the actors and their MoC as we progress further into this study.
Lastly, we have explored the representativeness of the viewpoints by outlining and discussing them as 'shared matters of concern', i.e. how widely they are subscribed to by the different actors.

METHODOLOGY

In this chapter we want to present the methodology that we have applied in gaining and producing knowledge for this study. Additionally, we want to outline how this knowledge was captured, and processed, in order for it to inform our analysis. Lastly, we want to support the reader by introducing the actors that we have interacted with, and the sites that we have visited, during the project.

4.1. Desk research

A staple methodology to apply in any research project is that of desk research. It is regarded as a quick way of gaining a baseline knowledge in regard to a given field of interest. Desk research is conducted by the researchers through a computer, making focused searches on a variety of databases (Geels, 2002). We have made great use of this methodology in this project for multiple reasons. Firstly, we have conducted desk research in order to establish a common foundation of knowledge to talk from in regard to our case, dealing with the development of Hyldagerkvarteret. Secondly, we have used desk research in relation to conduct both interviews and observations. Lastly, we have used deskresearch to get a further reach than would have been feasible elsewise. This is due to two factors playing a role in this project, as we are working with a time constraint of the semester. But maybe more pressingly because of the aforementioned outbreak of COVID-19, resulting in a limitation in conducting field studies in relation to the given guidelines by Aalborg University. This has meant that strategic deskresearch has become a more prominent means of gathering data, than it would otherwise have been.

In the documentation and sharing of deskresearch, we have made use of worksheets, allowing an internal knowledge sharing process, these have both been physical as printouts, but also figured as digital posters for a quick overview.

In extension to this type of desk research, we have also worked with a considerable amount of grey literature. As we have partnered up with a municipality, we have read and worked with both, municipal strategies, local plans, and industry documents. Understanding these documents has been an important step in qualifying ourselves as the researchers when interacting with actors in the project but also those peripheral to this study.

4.2. Literature search

Search strategy

In conducting our literature search we used the search database 'Scopus' as we expected a broad array of scientific fields to have contributed to the area of interest. Seeing as Scopus' database contains this broader scope of literature including social science and design, we chose that. In our approach to doing a literature review we draw on the book: Doing a literature review (Hart, 1998).
Our initial search was conducted using the combination of:

urban OR "urban planning" OR "urban development" AND benefit* OR value OR valuation OR classifying OR "quality of life" AND design

as our aim was to explore how different benefits and values had been described and researched.

This however proved to be a too vague strategy and the results were too widespread. We therefore used Scopus function of sorting the literature found, in terms of relevance to the search words and identified additions to our search strategy that could provide a more fruitful result for our aim. Here we also used some of the articles we had identified through our desk research. While we gained and tested an array of these new elements, we ended up with the following addition to our search strategy:

AND "green infrastructure" OR "Green space" OR "ecosystem service*" OR "water management" OR "climate adaption"

From this search strategy we gained 1260 hits. Scrolling through these we became observant of the clutter and relative vagueness that many of these hits had in relation to this project and we therefore used Scopus Analysis tool to gain an overview of how we best might initially limit our search further.

Using the 'analysis' function made it clear that most of the results are from 2000 and on with the majority within the last 10 years (see figure 5). We therefore choose to limit our search to only include results from 2000-2020. We did this under the notion that prior key material will still appear as references in the final literature and a snowball method can therefore be used if it is found necessary.

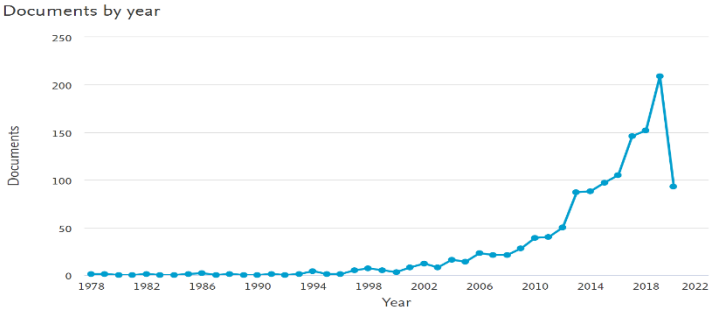
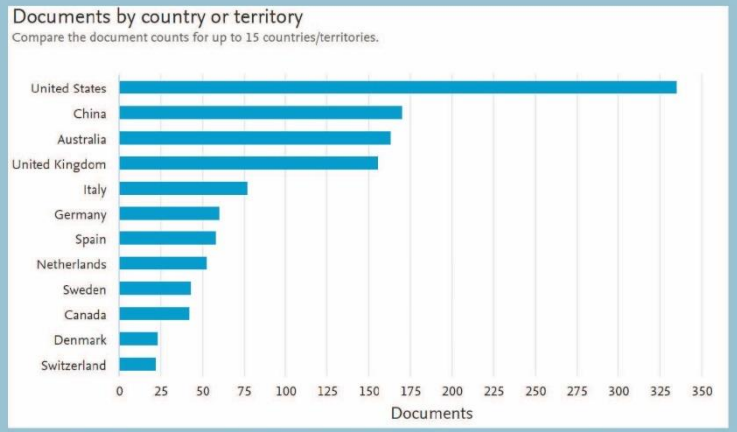


Figure 5: Amount of material, sorted per year.

We further refined our search as follows (see figure 6):

- Limiting the results to only include those that are written in English
- Limiting our search to journals, book series, and books
- Limiting to peer-reviewed material on the subject and thorough descriptions and introductions to the subject area (book chapters/books). We therefore limit the search to the following document types: articles, reviews, book chapters, and books
- Limiting the results to countries or territories with similar: Demography, geography, economy and political landscape as Denmark. We do this as we are only interested in hits, where the source material, or the basis for the study, is based on western developments, because the laws and regulations resemble each other more and therefore the studies is expected to have navigated a similar field.



- Excluding the following overall subject areas found in the initial search: Energy, chemistry, mathematics, chemical engineering, biochemistry, molecular biology, physics and astronomy, veterinary, computer science, immunology and microbiology. We do this, as the above mentioned subject areas are seen to not contribute to a literature review, with the perspective needed for this thesis.

Figure 6: Our further steps to specify our search.

Screening

Hereafter, we sorted the remaining 585 hits using the Scopus database function of *relevance* a sorting mechanism that prioritizes the search results with the most commonality in its *title, abstract* and *keywords*. From this, an initial screening of the results was conducted. The total amount of hits based on relevance was reduced to 103 Here non-relevant subjects were sought to be excluded such as green roofs, urban gardens, and coastal ecosystem services. As they are beyond the scope of the thesis to explore.

Output and analysis

Finally, a thorough screening of all abstracts was conducted, and 47 results was chosen and extracted for the literature review.

Based on identified general themes and subject areas in the screening process the 47 articles were subdivided into the following general categories: Tools and methods, Social, Nature and Health. For better overview and discussion of the specific thematic. This was done out of the notion that we would enable a better scope for reviewing the results and create a clearer lined focus for the intended outcome of the review.

Each article selected was then read and analyzed using the method of feature mapping (Hart, 1998) an approach suggested by the author as a *"(...) method by which the content of many articles can be systematically analyzed and recorded in a standardized format."* (Hart, 1998, p. 146) see figure 7.

Source / author and date	Disciplin/ standpoint	Notes	Evidence (e.g cass study, survay	Arguments / core idea	Core citations	Central references	Country /geografi
APA reference and full titel	where are they talking from e.g. enviromental science, agriculture science.	What is this article overall about. what is the framing or context that they are writing in.	what are they basing they arguments on, (e.g. case studie, statistics)	what are they proposing. and realting their research to.	central citations that could be usefull for the article. e.g. definition, analogies, perspectives.	who are they refereing to in their central arguments. what are they building on	What is the geograhical orgin of authors and the context it was written in

Figure 7: own illustration of feature mapping method derived from (Hart, 1998)

Using this method, we were able to record and outline the central features of the literature reviewed in a systemic approach that also enabled comparison between the different articles. This enabled us to overview the outlined arguments of the different articles as well as identify similarities and oppositions in the results they presented.

4.3. Interviews

As part of our investigative studies, a series of interviews have been conducted. Before each interview, we have taken the time to get an idea of who the interviewee is in an effort to understand the knowledge that they represent. We have, further, coordinated how we wanted to approach the given interview defining our own roles in relation to interviewing and supplementing. Approaching interviews in such fashion can be regarded as conducting semi-structured interviews (Mytton, Diem, & Van Dam, 2016). A total of five interviews were conducted, of which four were semi-structured and one was unstructured.

Out of the four semi-structured interviews three has taken place, at Albertslund town hall, and as such our interviewees has been in a known environment, where it has been possible for them to find materials if they found it useful in conveying a certain point, or to have object to talk from or about. The interviews have taken place in meeting rooms, and the setting has been mostly professional yet casual in regard to the conversation. The fourth semi-structured interview took place at Toftegården (read more in section 4.4) and was primarily conducted in a common room, thus leading to a more casual setting, however, the end of the interview was conducted during a brief tour of the farm, complementing the more casual conversation about the local area and use of Toftegården. To quickly touch upon the unstructured interview, we conducted this as part of a field trip to Hvissinge (read more in section 4.4) where a conversation was struck up with a resident in the area.

Sigrid Glarbo — **Landscape-architect and city planner in Albertslund municipality.**

Sigrid is the project manager for the work-group that is planning and developing Hyldagerkvarteret. As such, Sigrid has been our main contact within the municipality, and she has contributed with extensive knowledge and documents surrounding the development of Hyldagerkvarteret. She has further filled an important role to us as she has broken down the municipalities urban planning process, to give us a better understanding of the network that we have stepped into as part of carrying out this study.

Jan Holm — **Landscape-architect at Albertslund Municipality.**

Jan is the project manager for the development of Hyldager bakker and has for this reason been able to contribute with valuable insights to this study as he has well-established prior knowledge of the local area and its existing actors.

Anne Adamsen — **Engineer at Albertslund municipality.**

Anne is responsible for planning and carrying out climate adaptation projects in the municipality. She is part of the workgroup around planning and developing Hyldagerkvarteret. Anne has been instrumental for us in regard to gaining an understanding for the climate adaptation planning and how surface management of water can contribute with other benefits than mitigating stormwater.

Emilie Ahron Pedersen — **Manger at Toftegården.**

Emilie is the manager of Toftegården, and as such has been regarded as a spokesperson for the local network, as she knows the area rather well, and interacts with many of the local citizens on a day to day basis. Emilie is also the person that is managing some of the current use on the Hyldager site and has seen how the area has developed over the past years. As such she has been crucial in understanding the current network on and around the site.

Samuel Brüning Larsen — **Study coordinator at DTU for Mobility, Transport & Logistics**

Samuel is a resident in the newly developed residential area of Hvissinge, we met him as we were on a field trip in the area, studying how this rather uncommon residential area was planned, and developed. He assisted us with any questions we had in relation to the values of such an area, and what the attraction was for him and his family to move there.

Common for all the semi-structured interviews was that we, prior to the interview, developed an 'interview guide' in order to keep some structure for the interviews, however, still allowing for the interviewee(s) to take the conversation in any relevant direction (Ayres, 2008). Taking this approach was especially important as the conducted interviews were limited by the time set by the interviewee, as this allowed for a more coherent conversation i.e. not interrupting with questions, but also seeing as they were the experts within each of their respective fields. This meant that they could talk more freely about the elements that they found to be of relevance or interest to us, based on our initial questions.

Capturing and processing the information gained during interviews, has been a core element of our interview strategy. We have therefore recorded all four of the semi structured interviews, so that we could transcribe them and extract knowledge from these transcriptions. Albeit, well aware of the fact that we are the ones making the final interpretation of the data and representing it as such. In addition to audio recordings, we have taken notes as the interviews went along, sometimes detailing specifics that were pointed to or in relation to objects, which would have been impossible to determine from a recording.

Transcription

No particular methodology has been taken when transcribing our recordings, yet a general consensus has been to transcribe any information that was new to us, or relevant in relation to our study. We are well aware that this means that a reduction has been made already before it has had time to crystallize on paper, but this has been done to make it feasible at all to transcribe our interviews. This also means that it has not been feasible for both of us to transcribe all recorded interactions as this would have taken up too much of our combined time. What we have done instead was to write summaries of the transcriptions, and these summaries were then written by the one who had not made the transcription, thus ensuring that both of us were on par with what was said, and the knowledge gained from each interview.

4.4. Observations

Another part of our investigative studies has been to conduct observations. The outset for our observations has been to gain knowledge in regard to the field we are engaged in. Before venturing out and conducting field observations, we have utilized desk-research as stated earlier, to qualify the sites that we have gone to visit. This enabled us to better prioritize where we should go, and with what purpose.

The conducted field observations can be divided into three categories, as they have related to certain specific areas of our study.

Hyldagerkvarteret and its local context	
The Hyldager site	The site on which Hyldagerkvarteret is going to be built, for further details see section 1.3.
Hyldager bakker	The large recreational area of Hyldager bakker, borders both the Hyldager site and the highway west of Albertslund. It is currently in the process of being reestablished and further developed, as part of making the Hyldager site eligible for neighborhood development. The new Hyldager bakker, will therefore play multiple roles, as it reduces noise-pollution from the highway, becomes a planned and managed recreational area, as well as, offering varying degrees of multifunctionality in regards to activities, learning, and biodiversity.
Toftegården	A farm that resides between the Hyldager site and the village of Vridsløselille. The farm is open for visits, and further functions as an integral part of Albertslund municipality as they teach children about animals and nature, as well as being responsible for the municipal landscaping.
Co-beneficiary/multifunctional climate adaptation solutions	

Kongsholmparken	A recreational area in the south-south west, part of albertslund municipality. Part of the area is a stormwater basin capable of containing 25.000 m^3 while also offering recreational values, with a gravel path surrounding its perimeter, and benches surrounding the nature-inspired basin.
Tåsinge plads	The first climate adapted urban space in Copenhagen, and as such one of the first projects where climate adaptation and co-beneficiary values were explored. The project was heavily dependent on local engagement, and participation, and is regarded as a big success in relation to moving nature back into the city.
Bryggervangen	Near Tåsinge plads, is the neighborhood of Bryggervangen. In 2017 and 2018 this area was converted from a traditional urban space into a nature focused climate adaptation solution. It consists of more than 600 trees and bushes, and is divided into 5 biotopes, each inspired by certain types of nature that can be found in and around Copenhagen.
Enghaveparken	Enghaveparken is one of the newest established climate adaptation projects in Copenhagen. It is also the biggest of its kind, and heavily based on multifunctionality as it is aimed at introducing activity and sensory benefits
Neighborhoods with a twist	
Hvissinge	The residential area of Hvissinge, which is a peri-urban area of Glostrup, has a number of similarities in common with that of the Hyldager site. How Hvissinge was developed, further, aligns with some of the stated visions for Hyldagerkvarteret, and as such, has served as inspiration in relation to the introduction of nature, community areas, and housing types.
North Harbour	In the new neighborhoods established in North Harbor in Copenhagen, climate adaptation solutions are highly based on smart solutions, where the water management elements are hidden in plain sight. This approach is in high contrast to the visions of Hyldagerkvarteret, but has served as inspiration in exploring the diversity, in form, that multifunctional urban solutions can take.

Much in line with the interviews we have conducted as part of our study, we have also made an effort to capture the observations that were made, in order for us to better process it, rendering it usable in our further work. In capturing our observations, we have made sure to take photos, record video and sound, take field notes, and synthetization description as a means of reflecting on newly conducted field observations. Taking this approach means that when we draw on these observations in relation to this report, the data will be represented in different formats.

In addition to capturing our observations it is also important to convert that when we go out and observe on these sites, it is done on the premise of us being the researchers, and consciously taking on us a certain ontology when engaging the field. We have generally taken an ANT approach when visiting the outlined sites, thus observing actors, and their relations within the given site. Additionally, this has enabled us to identify the associated dynamics that these relations foster, ultimately assisting us in mapping the actor networks at a later stage.

With this in mind, we have incrementally qualified our view on the basis of the sites that we have been visiting to conduct observations. We have done so by firstly, conducting previously described desk research, to establish a baseline knowledge both in relation to the specific site, but also in relation to how it weaves into our project. On this basis we have then conducted more observations, thus gaining more knowledge in this regard. This also ties in with the interviews that we conducted, both in that it has enabled us to build up prior knowledge before talking to experts. But also, in the sense that the interviews have contributed to further qualification in regard to observing new actors and dynamics.

Having the development of Hyldagerkvarteret as our primary case, we have utilized the Hyldager site to test the knowledge we have gained, we have done so by iterating our observations as we have visited the site multiple times, thus leading to new discoveries.
An example of this dynamic is that of the slope present on the Hyldager site. Had we not interviewed Anne and learned that the slope dictates the water drainage zone, which again dictates how the different water types are to be managed, then we would not have been aware of this important actor, related to climate adaptation solutions.

4.5. Co-design

As we have gained knowledge through sources, like observations, interviews, and different literature, it has also been important to us to activate this knowledge, and build upon it, together with different actors.
We have done so by engaging with the actors involved in our project, through co-design, in the format of workshops.

Co-design is regarded as *"(...) the creativity of designers and people not trained in design working together in the design development process."* (Sanders & Stappers, 2008, p. 6). In this project we have engaged with mostly city-planners, who are either architects or engineers, which means that they are trained in design to some degree.
For this reason, we have been able to successfully stage co-design elements such as design games (Vaajakallio & Mattelmäki, 2014), even though the workshops were staged online, as some prior knowledge existed in relation to this form of work.

Co-design is further regarded as an applicable methodology in internal processes when the goal is related to *"(...) redesigning workplaces and work organization as well as work tools"* (Spinuzzi, 2005, p. 167).

We have been aware of this, as we have applied co-design in relation to identifying hotspots in the way the planners organize themselves around the case-project. However, also in generating elements that are crucial in informing the design recommendations.

During this project we staged 4 identical workshops with 4 individual participants.

Sigrid Glarbo	Introduced in section 4.3
Anne Adamsen	Introduced in section 4.3
Frank Brodersen	**Corporate Vice President - Environment and Partners (HOFOR)** Frank is representing HOFOR in the workgroup and is thus an important actor for us to engage with as he has an incredible amount of experience, working together with municipalities, however from an external perspective. He has further been part of planning and developing a long series of multifunctional climate adaptation solutions and can therefore contribute with crucial firsthand knowledge in regard to these.

Anja Irene Bæk	**Road engineer at Albertslund Municipality** Anja is responsible for planning and coordinating infrastructure elements for the Hyldager site and was, for this reason, important to bring into the workshop as she was able to contribute with specific knowledge on this matter. As much of the surface area is occupied by these infrastructure elements, they play a crucial role to us in relation to the benefits that they hold the potential to contribute with.

The primary reason for this format was that the workshops had to be staged online due to the lockdown following the COVID-19 pandemic. Our considerations was that if multiple actors were to engage with the different workshop elements at the same time we would encourage unnecessary complexity, and just getting 4 participants online and ready would prove to be difficult enough, one at a time, so balancing this led us to the final format of 4 identical and individual workshops. This choice, and our reflections on it will, however, be discussed in more detail in the section 8.1.

Two programs were used to stage and facilitate the workshops, the first one being Microsoft Teams, for communication and capturing purposes, as it allows actors to talk to and see each other, while recording both voice and screen. The second program that we used was an online tool called 'Mural' which was used to set up a workshop "board" constituted of the knowledge needed to engage in the workshop, as well as the different design games (see figure 8). Using 'Mural' allowed us to invite the participants into the workshop space, so that they were able to interact with the different elements, together with us.

In developing the workshop, we set two overall aims for the workshops, the first being that of qualifying the expressed MoC, based on their role, as well as, detailing concrete and tangible responses to these MoC. The second aim was to explore and map how urban planning projects are coordinated within the municipality i.e. who are given agency, and on what premise.

To give ourselves and the participants a greater chance of answering these aims, we spilt the workshop into 4 parts, two parts for each of the aims. In the following we will shortly outline the four parts.

Workshop

Figure 8: The complete workshop board

Part 1

With the first exercise (see Figure 9), we are trying to define each participant's role in relation to the development project. We are doing so, by moving magnifying glasses around a fictional map of Hyldagerkvarteret. Thus, mapping the points of interest for the participant, and in that their MoC, with regards to establishing the future neighborhood.

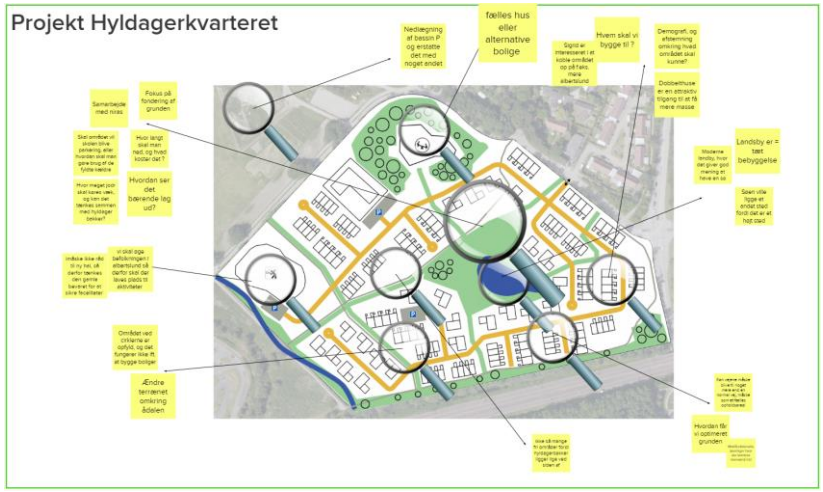


Figure 9: Exercise 1 from the workshop (Sigrid's results)

Part 2

In the second exercise (see Figure 10), the participants were told to prepare a boasting example, to talk from. When the participants boast about a project that they have participated in, we see that they are prioritizing what elements are of value to them, and as such, what combination of elements resulted in a desired outcome. Knowing what is desired, enables us to further have a dialog on what is then regarded as undesired, as well as what specificities they are aware of in that relation.

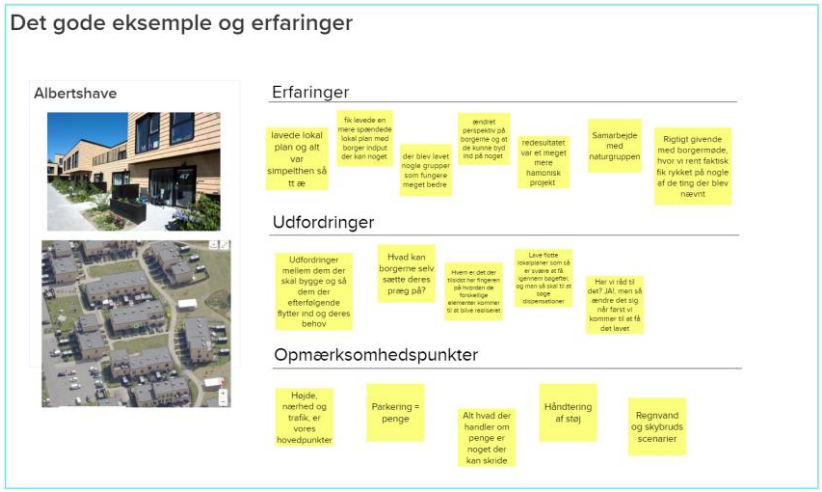


Figure 10: Exercise 2 from the workshop (Sigrid's results)

Part 3

In the third exercise (see Figure 11), we are trying to map how the participants are organized within the municipality, in relation to planning the development of a new urban area. The exercise is built on what resembles a minimalistic actor network, without any relations, and here it is the participants job to map these relations. This enables us to look specifically at the already established organization of work i.e. who are the participants working with currently. Equally, we are trying to map which potential, albeit non-existing, corporations they regard as beneficial in regard to urban planning.

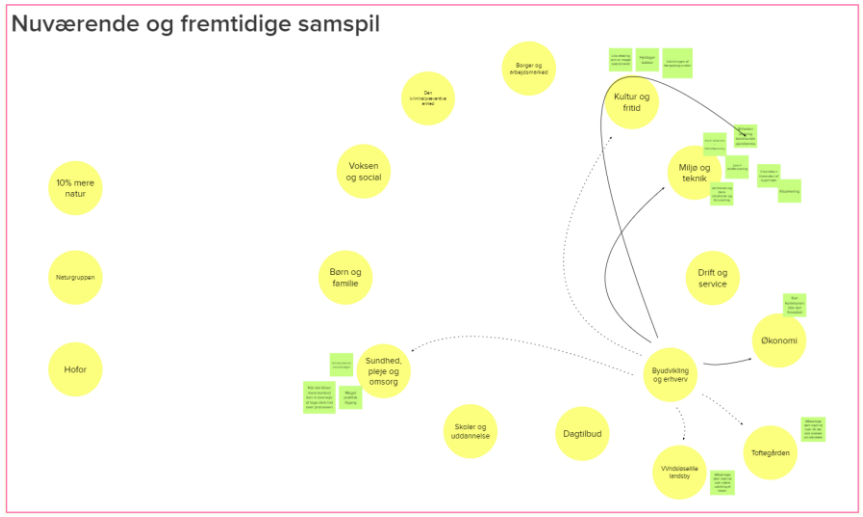


Figure 11: Exercise 3 from the workshop (Sigrid's results)

Part 4

The final exercise (see Figure 12) is where ideas are developed. With outset in the previous 3 workshop elements, and 6 prequalified elements i.e. Nature & recreativity, Facilities for playing, learning or experiencing, Institutions, Housing, Internal mobility & infrastructure, and external mobility & infrastructure, a combined idea-generation is undertaken, where the participants and ourselves are brainstorming on concrete visions and values that can be used to support or respond to previously expressed MoC. Reflecting back on what and who can be mobilized in order to make a coherent and desired response.

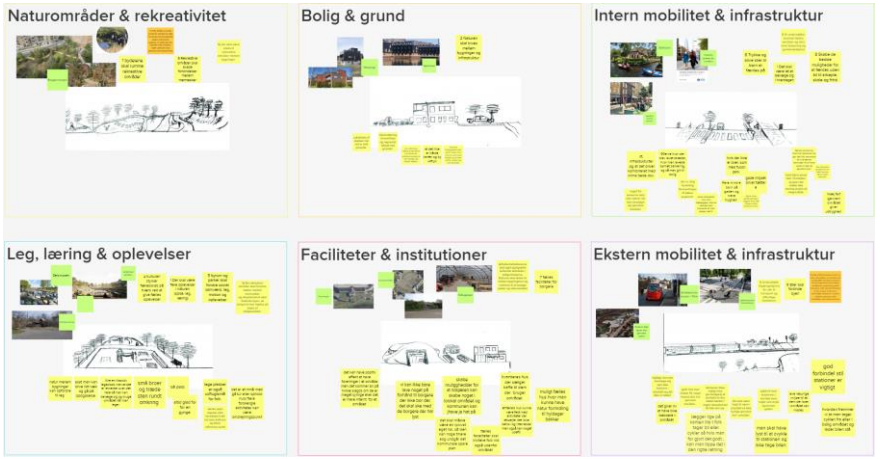


Figure 12: Exercise 4 from the workshop (Sigrid's results)

4.6. Affinity chart

Dealing with multiple sources of data ranging from highly qualitative interviews, to local adaptations of the SDG's, has called for a methodology capable of coding this data. Coding data can be regarded as structuring the findings, thus rendering it capable of interpretation, but also in conveying what is actually expressed by the involved actors. Furthermore, it enables us as the researchers to identify certain hotspots or clusters within the data that we have gathered.

In our effort to code the empirical data gathered in this study, we have utilized an adaptation of the affinity chart method (Plain, 2007). Here we have noted the different statements from both interviews and from the grey literature surrounding the development of Hyldagerkvarteret (see Figure 13 and Appendix 2). Taking this approach also enables us to identify how our data is related to one another in clusters while also allowing the nodes i.e. individual statements to spread out between already established clusters. Hereafter, we colored each statement in relation to the actor that expressed it, enabling us to see how the spread was between clusters and involved actors. We did this to identify any unforeseen sewage in the power-relations, between the actors and their presence in the different clusters.

Another outcome of this, was also that we could identify how big the reach was between actors, i.e. how many clusters they were representative in.

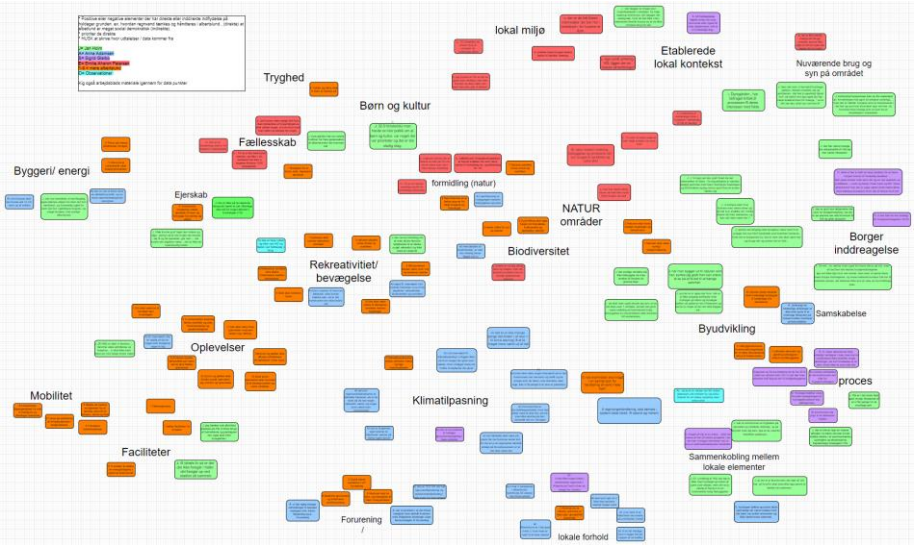


Figure 13: Affinity chart, depicting grey literature, and interviews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5.1. A multi-level perspective on Danish urban development

If we zoom out and take a broader look at the urban development projects of Albertslund, we see that multiple projects are currently being worked on, but also that some have just finished (Albertslund Municipality, 2019). This is interesting, as it is important to get an idea of how Hyldagerkvarteret relates to previous and future urban development projects. But also, in understanding what the role of Hyldagerkvarteret is, in that regard. This links back to the fact that the municipality is trying to do something different by taking increased control on this project compared to the other projects that they previously have run and are currently running.

The development of the present regime

To better understand how the incumbent regime has developed into its present form, we have to first look back in time, and explore some of the key changes that have happened within the municipal structures in Denmark. This is both to understand how the agency has shifted from being highly centralized, to become locally anchored, but also to identify why elements such as roads, parking, plot ratios etc. has come to be the primarily valued elements within the present urban planning practices. We do this to understand how urban planning practices have become institutionalized within the municipalities, and as such, what worldviews and disciplines have had an influence in shaping it.

The establishment of municipalities in Denmark, can be traced back to the market towns of the middle age as these, to some degree, had acquired some trade privileges, and a degree of autonomy, from the rest of the state. Building on this development, an increasing amount of agency was given to the administrations of local communities, i.e. the church, in relation to recovering tax payments (Dam, 2013). However, the need for better coordination between local communities, and that state, was the final factor in establishing a systematic deployment of local administrations in Denmark. The administrations were constituted by one or more representatives, with the perish mayor at the core, and their primary role was to handle police enforcement, maintenance of different infrastructure, tax recovery, and drafting of soldiers (Dam, 2013).

By 1838, the number of tasks carried out by the local administrations and the increasing complexity of those tasks culminated in a need to involve the citizens in the decision processes.

Involving the citizens created a demand for a democratic process where the selected citizen representatives were

chosen on the basis of an election rather than being exclusively for the wealthy as it had previously been.
The result of this process was the establishment of the perish-municipalities in 1842 which is regarded as being the first formal municipalities in Denmark (Dam, 2013). Six years prior to the democratization of the Danish state.
In the next 100+ years, the municipal structure itself saw little to no change besides geographical negotiations, and a further formalization of their roles. It wasn't until the 1960s that anything major happened. It was at this point where the majority of municipalities were systematically amalgamated, thus aligning processes and centralizing the work that was carried out by the various municipal sections. The result of this process was the municipal reform from 1970 with the goal of having one municipality for every city. The expectation was that the municipalities would then be more efficient in handling the needs of and developing the city. However, this was just the first step of multiple that reduced the number of municipalities, in order to streamline the work carried out by them and optimize the communication between local areas and the state. As of present time, we have 98 municipalities in Denmark.

This quick-dive into the establishment and development of municipalities in Denmark, shows both how instrumental the municipalities have been in developing local institutional capacity, but also in formalizing the roles of different sectors needed in order to manage cities. The last take-away is that citizen participation in city matters at least in a broad sense, is nothing new, and has been utilized in Danish city governance since the 1840s.

Development of Urban planning in Municipalities

If we look more specifically on how urban planning has developed in Denmark, we briefly touched upon it in the previous section as one of the roles of the local administration through the 19th century was coordinating the maintenance of roads and other infrastructure. But the majority of city planning was still carried out centrally by the state. However, in 1921 the *Danish city planning laboratorium* was established, on the belief that urban planning should be carried out by professionals (Illeris, 2014).
But It wasn't until 1938 that a law i.e. *Byplanloven* was formalized, detailing urban planning and development processes in Denmark. One of the key aspects in this law was that the urban planning jurisdiction was formally placed with the local administrations i.e. municipalities.
This meant that there was an uptake in professions like engineering, and architects within municipal matters. This development should however prove to define how urban planning is carried out, and what elements are deemed as governable in such processes.

The reason for this can partially be found in the fact that having these highly specialized professions like engineers and architects, administer the actual planning processes, meant that most of the indicators and parameters used in urban planning projects became quantity based and statistical, like population numbers, parking spaces, plot ratios, work-spaces etc.
The physical planning is produced and primarily approved by experts, especially engineers and architects. They are socialized into the idea that they know best how things should be (Illeris, 2014, p. 32) and the planning had, so far, sought to promote trade - by prioritizing shopping streets and parking lots (Illeris, 2014, p. 64).
Additionally, only certain information was available, at this time, to those who engaged in the planning process. The most dominant of these being the indication that population numbers could give: *the population numbers is the most easily accessible description of cities and is used as an indicator of their "general condition" as a city with rising numbers is considered to be a healthy city, where new areas are developed and where urban expansion is happening* (Andersen, Engelstoft, & Møller-Jensen, 2005, p. 6).
The lack of quality-based indicators can therefore be ascribed to the fact that cohesive and city-wide planning at this time was considered highly complex, and it was believed that no experts would be able to comprehend this planning-problem, within their field. Thus, furthering the highly divided, and sectoral/expert approach, to city planning (Illeris, 2014).

When looking at the development of urban planning in Denmark, we learn that it has only become institutionalized in recent times i.e. during the last 70 years. We also see that the way urban planning became institutionalized i.e. by decentralizing it. This meant that a black boxing of what indicators are used in decision making processes, with regards to urban development. Lastly, we have learned that the metrics used within public urban planning processes are heavily expert-based and quantifiable, as qualitative indicators were at an early point deemed too complex. Without today's modern tools to give them the overview.

Changing landscape pressure, as the demand for sustainability rose

During the last 40 years, urban planning has seen some incremental changes, based on landscape level pressure being exerted on the established regime. The most dominant and profound is however that of climate change. The already measurable effects of climate change, but also the visible effects have meant that an array of Danish city expansion projects has been called-off as it was argued that: *Instead of economic growth, the environment in the broadest sense became the ideal. Instead of large buildings such as Høje Gladsaxe, dense and low housing such as Albertslund Syd came in demand. People rejected the major total renovations, in the cities, and demanded a gentler urban development.* (Illeris, 2014, p. 64). This also spelled an alteration to the priorities for the city-planners as: *Instead of cars and highways, public transport, bicycles and walking became the priority* (Illeris, 2014, p. 64). Furthermore, a call for new solutions came with the change as *"(…) urban governments across Europe have been under pressure to become more proactive and 'entrepreneurial'"* (Healey, 1998, p. 1533). However, becoming more proactive and entrepreneurial, is one of the challenges still faced by Danish city governments, as the adaptation from the highly growth based, and quantifiable urban development, is still deeply rooted in the way that public urban planning is carried out, at least in a Danish context.

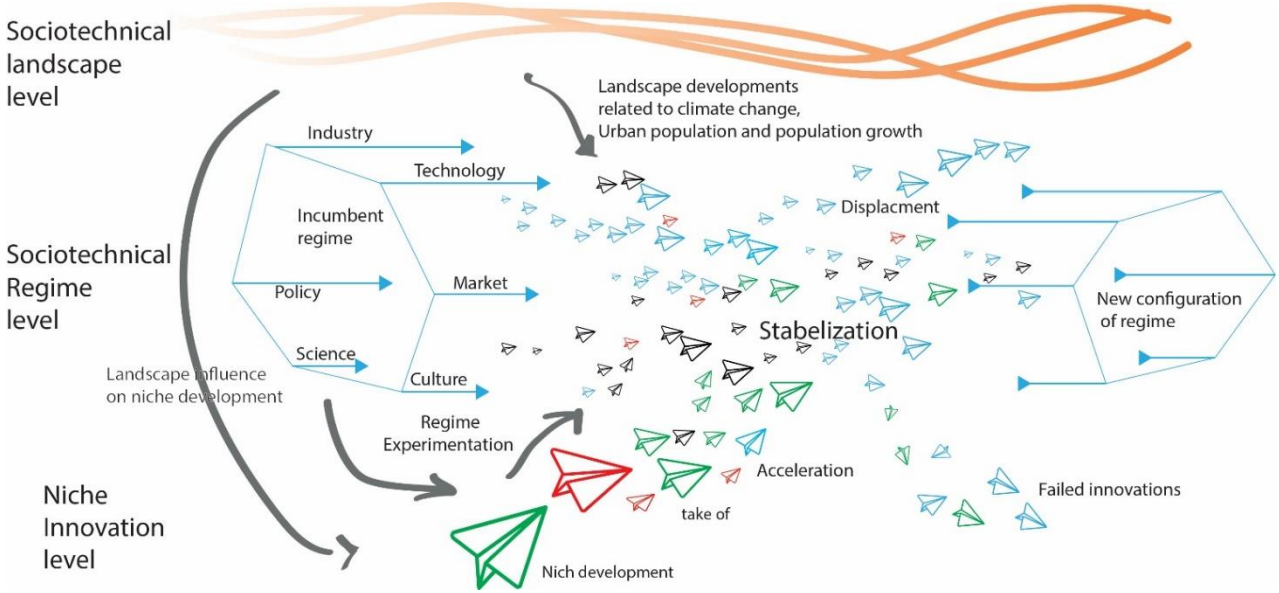

Figure 14: Multi-level perspective

The landscape dynamics

When looking at the landscape, on the macro level today, we see a couple of elements that are affecting the incumbent regime. The first one is something that has been going on for a long time, that being the population growth. As of 2020 the expected growth in global population is around 80 million people (Roser, Ritchie, & Ortiz-Ospina, 2019) and in a Danish context this growth is expected to be around 20.000 people every year (Danmarks statistik, 2019). This means that we are not in a position where we can dwell on urban planning, and development, as housing demands need to be met for the ever-growing population.
Besides the outright growth in population we also see that the urbanization of the current population is growing rapidly, as 68% of the global population is projected to be living in urban areas by 2050, which is an increase of more than 2.5 billion people compared to today. Finding space for 2.5 billion people in urban areas is quite the task and does without a doubt require the urban areas around the world to be reconfigured in new ways.
This increase seems to be almost incomprehensive, yet on a Danish scale the numbers are, at least initially, more manageable as forecasts state that by 2050 we will be just over 6.3 million people living in Denmark (Klintefelt, n.d.) and of these, 9 out of 10 will be living in urban areas (Bøggild et al., 2012). The tendency is, however, that we are gathering up in the bigger cities, which in turn pushes for an expansion of already established cities. In regard to Albertslund, we see that they are preparing to increase their population by 10.000 citizens over the next decade (Sigrid Glarbo, 2020).

The last landscape element to note is that of climate change, and its associated demand for climate action, and combating or mitigating climate change has, further, become one of the highest prioritized challenges to overcome on a global scale (United Nations, n.d.). In a Danish context we see this demand expressed through the formalized agreements made by the Danish state on behalf of the individual municipalities and their citizens, answering to the promises made to higher institutions like the UN through signing the Paris agreement.
Moreover we see a single contributing event which has also had a significant impact in regards to the agenda of creating resilience towards more extreme weather, this being the historical cloudburst that hit greater Copenhagen on the 2nd of July 2011, causing damages to the city for around 5 billion DKK (Beredskabsstyrelsen, 2012), further increasing the demand for solutions that are climate resilient, sustainable, and co-beneficial.

To sum up, we see an increasing demand for building mass, and an even further demand for urban, sustainable, livable, and climate resilient building mass. These are all contributing

factors that are creating a strong pressure from the landscape, on the incumbent regime, thus requiring actions to be taken, either by the regime itself or new niche developments that are better able to answer to the pressure.

A regime that is fighting to adapt

As it currently stands, we see that the regime is trying to respond to the aforementioned landscape dynamics, using their institutionalized and black-boxed approaches, founded in quantitative metrics, tools, assessments and discourses established many years ago. This approach has been adequate for all these years, however, with a rising pressure, and only so much elasticity embedded in the current regime structures, we see that municipalities are running out of tools in their toolboxes, capable of answering to the landscape pressure sufficiently. This is, further, accentuated today as Danish municipalities are scrambling to better understand, translate, and utilize for instance the SDG's as a foundation for their revised municipal strategies, as with the case of Albertslund with Mere Albertslund.

Another tendency that we see within the regime is that major actors such as Ramboll, Realdania, or Fødevare & Miljøministeriet, are all developing, funding, and experimenting with tools, that hold the potential to contribute with metrics and MoC when exploring multifunctionality, and co-beneficiary elements in urban planning.

These tools do however have a common denominator, as they are still primarily quantity based, and still seek to convert highly complex challenges such as perceived feeling of safety and having healthier citizens into just a series of numbers in calculation tools, in an attempt to cater to the highly institutionalized public urban planning processes, and while those who design the cities are becoming aware that they are designing cities for people, they still seem too busy to ask those same people or further include them in the urban design.

An opportunity, and the niche trying to seize it

As municipalities and major actors in the regime are often failing to fully adapt to the landscape pressure, a 'window of opportunity' is opening up, allowing for niche developments to potentially establish a foothold within the regime, thus potentially displacing some of the institutionalized processes and dynamics.

These niche developments are often centered around the creation of new more holistic ways of talking and qualifying, not only the technical value of infrastructures and city space, but also the co-beneficiaries that they are seen to provide.

The new paradigms and demands for sustainable considerations in urban planning can, following this, be said to have led to openings of how urban spaces are thought of. This, further, creates fertile ground for new niches to enter the regime at municipal level city planning, potentially displacing not only the aspects how they approach and perceive urban planning but also how the municipalities planning sections can begin to imagine, designing things together with other actors, not presently included in urban design.

The niches around more engaging transdisciplinary, and sustainable, public planning, that is trying to seize this 'window of opportunity', has existed in some years at this point

From our literature review we see that that the research related to this niche started becoming more wide-spread and expressed as of the early to mid-2000's but has only started to become more embedded in "reality" with the municipalities and companies in the last decade.

Through carrying out this study we have seen how these niche innovations, despite their aim of displacing the established way, of quantifying cities and their design, by bringing more qualitative values into account, they are still struggling with finding a foothold in the established practice. They therefore often resort to creating hybrids resulting in easily adaptable changes but also more incremental improvements to the issues they seek to solve.

5.2. Actor-network analysis

Exploring the existing Network and its relations in and around the Hyldager site (Figure 15 & Appendix 3)

In this coming section we want to explore the historical context of the actors present within the Hyldager site.
Despite its initially apparent desolation, a diverse network of heterogeneous actors can be seen to define the site, as well as the activities on and around it.

For this reason, it has been central to explore this network i.e. the actors and relations within and around it, to highlight and identify what central aspects currently constitute it. Furthermore, seeking to understand what existing actors (human and non-human) would be necessary to enroll and

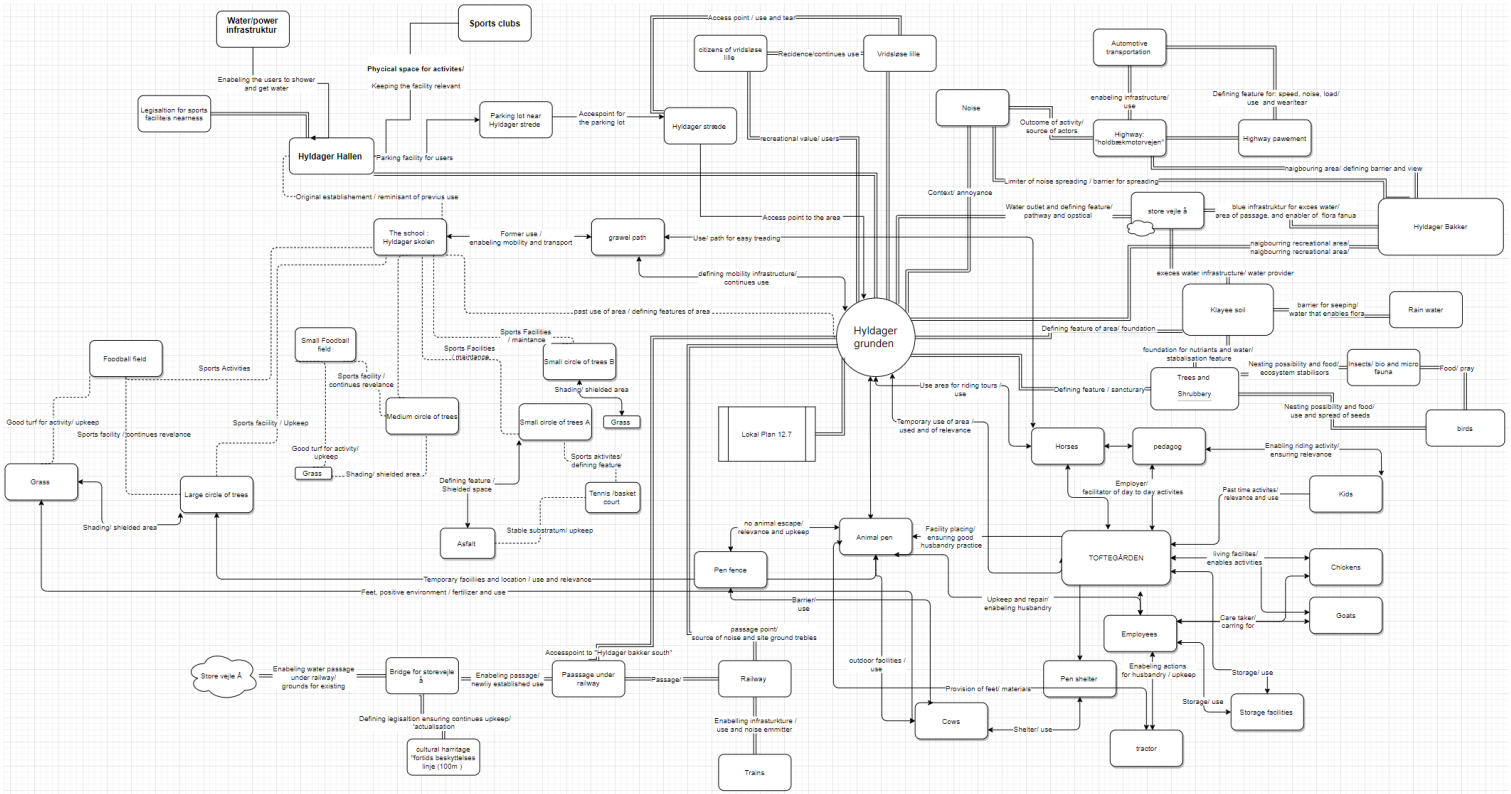

Figure 15: Actor network mapping of the Hyldager site

mobilize if it is to be developed as an urban neighborhood, considering the visions of Albertslund municipality.

How history continuously shapes the network

The Hyldager site, intended for urban development, is still to this day defined by the previous network and relations that existed there, both above and below the visible surface. We will therefore start by briefly introducing the central points of the previous networks, enabling us to further explore how these actors could potentially affect the new network of the area.

The Hyldager Elementary school was built on the site in the late 60s (Sigrid Glarbo, 2020) and has in many ways been a central actor in the local network around the site. It further ties up with the established village of Vridsløselille and the surrounding houses and new urban areas that were established around the same time. In addition, it also functioned as a natural transition between the city of Albertslund and the green area of *Store vejle ådal* as well as the municipal border and highway beyond the green area.

The school's outdoor area to the south west was defined by open grass fields abrupted by 4 tree circles (see Figure 16) designed by Jørn Palle Schmith (Sigrid Glarbo, 2020) with the purpose of folding, the horizontal elevation of a larger part of the area as opposed to the natural inclination of the stream valley.

These four structures were further meant and fitted to enable different outdoor activities. Each of the circles was almost entirely enclosed by trees creating a natural barrier around the activity, within each circle, having only one opening towards the school. The tree's roots further reinforced the soil layer put there, thus creating a more resilient structure that could withstand water shed and erosion of the soil and the established sports facilities.

While the origin of this soil that was used to these natural structures is unknown, to us and the planners, we have been in contact with, it is most likely from another building site where it needed to be moved away from as in the case of

Figure 16: Visual overview of the four tree circles

Hyldager bakker and the tram. They are still recognized and referred to as defining features that carry a local history of the area (Byudvikling & Erhverv, 2019).
The school was closed in 2012 due to a declining number of kids in the municipality, as well as poor facilities compared to more modern schools nearby (Sigrid Glarbo, 2020). Most buildings were demolished and only the gymnastics hall in the center of the area has been left to facilitate local sporting activities for citizens (see Figure 16 & 17). The actual relations and network around these facilities and the day to day use is, however, unknown also to the workgroup engaged with the development of the site.
It is, however, stated in the local-plan that the municipality has an obligation to uphold the gymnastics hall for organizational and sporting activity or provide an alternative.

Figure 17: Photo of the Hyllagerhall taken on a fieldtrip

At present the Hyldager site is, beside the tree circles, the reminisce of sport activity areas and the gymnastics hall, mostly laid open with un-kept nature, uncut grass and a tree gathering with fruit trees in the northernmost corner.
From the school there is still a defining gravel road that moves across the site in a U shape from the north to the north east. A parking lot is also present in the north east part of the site.
The general area is covered in grass, only interrupted by leftover gravel piles in parts of the areas where the school used to be (see Figure 18).

Figure 18: The remaining gravel piles from the Hyldager school, photo taken on a fieldtrip

The current use of the site, and its effect on the network

The current use of the area is at first sight hard to pinpoint, as it lays out as an open ground without formal structure.
When looking closer, some use can, however, be identified, as there are trotted trails that go outside of the gravel road and around in the area indicating some activity (see Figure 19).

Figure 19: Photo of one of the trotted trails, taken on a fieldtrip

The local animal farm Toftegården are making temporary use of the area, due to the reconstruction of the Hyldager bakker, as they used to have pens for horses, cows and goats in Hyldager bakker but has now been given permission to use part of the area of the Hyldager site.
A pen for cows is therefore established in the largest of the tree circles facing out towards Hyldager bakker in the eastern corner of the Hyldager site (see Figure 20).

Figure 20: Photo of the cow pens, taken on a fieldtrip

We can from this initial description, identify the majority of relevant network actors and map them into what seems to be a loosely bound network of mostly nonhuman actors present on the Hyldager site.
From the observed uses of the area it can be argued that the network easily lends itself to new actors and takes on different roles in other actors' networks in temporary periods, without noticeable resistance.
A good example of this can be seen, in the temporary use by Toftegården, in some of the area. The initial use of the Hyldager site by Toftegården, was only meant for an animal pen in the largest of the tree circles, while Hyldager bakker is being constructed. We can, however, from our field trip and interview with the manager of Toftegården, Emilie, understand that they have also begun using some of the space at the Hyldager site as storage area for fodder, hay, and other building materials.
While this seems like a simple dynamic change, it helps to show the little to no objection or resistance from the Hyldager site's network has happened as a response to what is equivalent to two 40-foot shipping containers of material surrounded by a semi structured fence (see Figure 21).

Furthermore, neither the municipality or other actors with relation to the network and site, have remarked this change in the local network and the new (if only temporary) role that have been ascribed to it.

Figure 21:Photo of the storage area that Toftegården has set-up on the Hyldager site, taken on a fieldtrip

It is first when a more permanent reorientation of the network and assignment of new roles for the different actors and potential displacement of them, that we begin to unravel and understand the larger network around the area and how changes affect it, as new actors show them self and create new MoC for the actors trying to initiate change.
As part of our analysis of the Hyldager site, we have further tried to understand these dynamic translations that are happening in relations to the development of the area. As we see that new interpretations and roles are being assigned to different actors in the existing network of the Hyldager site, and new actors are sought to be introduced either to enable

other actors to enter the network, to uphold specific and resilient relations that are bound to a larger network or in order to exclude actors from the network as it transforms. We here recognize that in changing or developing new networks, it will always change actors and their relations from something else, never from nothing (Rosenqvist, 2018).

As society we have therefore also sought to ensure that the actors, we, as a macro network, view as valuable are preserved. We do this by introducing and upholding rules and regulations that are able to talk on the larger network's values and relations to specific actors on its behalf, when local actors try to displace them and their assigned role.
To ensure that actors, whom we as society value in one way or another, or stabilized networks constellations endure, stabilized networks around them in the form of institutionalized rules and regulations have been put up and are being upheld by the macro actors and institutions that form our society.
Rules and regulations often seem cumbersome for those who are encountering them or are hindered by them in a site specific context, but the rules and regulations endures as they build on long chains of networks and negotiations over time, that continuously speak on behalf of other actors, both present and future.

Whether it is ensuring the continued habitat of vulnerable species and plants or the health and stable relations of future actors in the network, ensuring that they don't live on e.g. contaminated grounds, rules and regulations often first appear when actors tries to reconfigure the network, where it then works as an anchor for the specific actors it talks on behalf of and tries to create resilience against the proposed change.

Rules are therefore also seen changed or removed if they no longer speak on behalf of the network they represent or new stronger relations around it are made.
For the same reason, rules as actors in networks often only come forward when changes are suggested or brought about by other actors.

How rules and regulations create resilience in the network

How the change agents, becomes aware of these actors, how they assign roles and subsequently manage to navigate the change needed to translate the actors into these new roles is therefore central to understand in an urban development project, as this also provides us with potential openings and dynamics that can affect other parts of the project and which actors are possible to bring into the network, and how.

In the coming section, we will dive into some of the identified MoC that have strengthened the relationship between existing actors and larger previously hidden networks, to better understand them and how they can affect the suggested network (Byudvikling & Erhverv, 2019).

Managing the water on the site

The topographical layout of the Hyldager site is mostly of an incline of approximately 2-4 m from the most eastern part of the ground in the direction of the village of Vridsløselille and down towards the stream of *store vejle å*, which is the natural outlet of rainwater from the site i.e. recipient.

For most of Albertslund and in the case of the Hyldager site, the soil has a rather high content of clay which in turn complicates the ease of seepage of rainwater down through the soil. Instead the water either stays on the top layer and eventually evaporates, is absorbed by vegetation and trees or runs downhill if the terrain allows it.

In the case of the Hyldager site, it would run towards the stream where it joins the regular waterflow.

When streams, rivers and creeks are described in relation to water management they are defined as recipients as they are ascribed the role of receiving and transporting the water. In terms of the network, it goes from being an actor with local relations in a landscape to an active infrastructure actor in a much wider network with relations to measurement actors whom it talks on behalf of, through the institutionalized metrics such as water level (m), water flow (m^3/s), contaminants as well as biodiversity. These measurements further act as spokespersons for the recipients in the municipality and larger network making the streams governable.

Water that is led into the recipient of *store vejle å* will therefore not only be a part of the immediate surroundings, but will travel through *Kongsholm parken*, on to the water ski lakes in Albertslund, that are actually water retention basins, through a new part of *store vejle å*, before it finally reaches the coast in *Ishøj*, thus affecting six municipalities along the way.

So while at present, water shedding from the Hyldager site, has not been a MoC or been put under any particular restrictions, because the top layer of soil, grass and trees on the site, can be seen to have managed most of the immediate rainwater and the minimum of activity has produced little to no contaminants that could seep into the stream.

However, with the introduction of new actors like houses, gardens, roads, parking spaces, cars and all that comes with it in establishing a new neighborhood, water shedding and contamination becomes a MoC, for two main reasons.

Firstly, it changes the established network considerably, potentially creating increased water shedding due to new non-permeable surfaces, centralizing water flows and reducing open top layers of soil and grass where water previously could seep down or slowly evaporate from or be soaked up by plants and trees.
Secondly, the new actors bring contaminants not previously present in the network with them, both primarily from the actors themselves, such as exhaust gasses and oil form cars. But also, in the form of actors that are introduced as part of the stabilization of the relationship between the primary actors. e.g. road salt, herbicides, cleaning agents etc.

This is then where the Rules and regulations come into play, talking on behalf of the negotiations between the municipalities and other actors that could be affected by these changes.
Frank and Anne, clearly express these MoC in relation to transforming the area. It is stated that all water needs to be cleaned before it can be led into the recipient and the water in general is managed on site.
As the municipal agreement states, that Albertslund cannot increase the amount of water led into the recipient or negatively affect the water quality by contaminants, as this will have a negative effect on all the actors downstream of the Hyldager site.

Firstly, this means that estimates and measurements of the potential increase and flow of water into the recipients and around on the Hyldager site, is highly sought to be made governable through maps and models. Here these known actors that are established to talk on behalf of and represent the present and future actors and their potential relations in the network of the neighborhood, becomes especially powerful as they end up affecting the planners and their relation to the agreements in place and the wider network that they represent
Secondly this MoC leads the change agents of Albertslund and HOFOR to seek out potential actors that can ensure a stabilized relation between the water and other actors and manage the water on site, also in case of increased levels of rain.

Limiting noise and enabling urban development

From the very beginning of our integration into the project around Hyldagerkvarteret. Noise, or maybe put more neutral, sound has been at the center of attention when it comes to regulatory boundaries. The reason is that the area in its present state is suffering from a degree of noise pollution that exceeds the boundary values for allowing citizens to live there, thus hindering the continuation of the development project.
With outset in the noise we will further try and describe this changing and critical dynamic that has challenged the municipality to translate a rather large network of actors in order for them to overcome noise, or put differently, how to deal with the regulation and thus the defined interrelationship between new housing areas and their inhabitants, and noise exposure, herein also the source and more resilient network that the noise represent.
In order to talk about noise in the first place, there are three critical actors that need to be discussed, the first actor is the municipality or the department of city planning representing it in this regard, as they are wanting to develop a neighborhood on the site. The next actor is the opposition, in the form of the regulation made by Miljøstyrelsen, stating that 58 dB is the quantifiable limit for allowing citizens to live in an area. The last actor present is the mediator between the municipality, and the regulation i.e. the measurements and equipment used to make those, as it enables the involved actors in discussing the matter and identify a way to move forward.
When it comes to the question of mitigating the noise pollution, it is important to discuss the resilient and stable network that noise is representing in this matter. The noise pollution on the Hyldager site stems from Holbækmotorvejen, which is a rather large highway, Roskildevej which is one of the main roads in and out of Copenhagen, and lastly a crucial railway out of Copenhagen. These three actors are all highly utilized, regulated, and defining elements for their surrounding areas, thereby making them extremely hard to change, thus reinforcing the network around noise.

This has meant that Albertslund municipality has had to cope with the noise pollution by external measures, as a reconfiguration of the network surrounding the noise is not regarded as an option. What was regarded as an option, however, was to translate the network of the surrounding green area between Albertslund and Taastrup.
This was the option that the municipality went with, by reimagining the existing area, and developing a recreational area, with integrated noise barriers, called Hyldager bakker. This meant that a complete restructuring of the area was

initiated, building a rampart that reaches as high as 22 meters higher than the current terrain, at certain points.
Furthermore, expanding the area as a dedicated recreational space, compared to its prior state of somewhat managed land, with transport paths through it has meant that a substantial reconfiguration of the network surrounding the area of Hyldager bakker, has happened and to some extent still is happening. As new actors have been introduced, and some discarded, all in preparation for the clearance to build Hyldagerkvarteret. The final measurements for the mitigation of noise has, as of writing this report, not been made available, as Hyldager bakker is still under construction (see Figure 22), but there seems to be a sensation within the workgroup that the noise levels will be within the limit. Thus, enabling the further processes in developing Hyldagerkvarteret.

Figure 22: Photo of the construction going on at Hyldager Bakker, from fieldtrip

Preservable trees and their roots in the network

The current vegetation on the Hyldager site, is one of the important actors within the current network of the area. The vegetation in the area is mostly made up of trees of different sorts and age. However, when building a neighborhood, most of the trees are to be removed, to make space for infrastructure, houses or community areas etc. But before any plans can be made as to a more concrete layout of the area the planning department is obligated, by law (Byudvikling & Erhverv, 2019), to assess the trees present in the area based on their preservability. This is done by evaluating individual trees, focusing on their age, height, survivability, rarity, and estimated price, to name some of the parameters. This is then further reinforced in the network by another actor, i.e. bats, as they are also a contributing factor in regard to deeming a tree preservable. The reason for this is that bats are regarded as appendix-IV species and cutting down their trees can only be done when it isn't mating season.

In addition to these preservability concerns that are expressed both by regulatory actors, as well as municipal actors, the trees are also deemed valuable by some of the planners, within the workgroup. As stated by Anja: we also have to look at the existing vegetation and, for instance, figure out if we can preserve it.

Because a tree that is old also has a value, in terms of reaching that size (Anja Irene Bæk, 2020). The trees can, further, be seen to play an important role in the development of an area that is more cohesive with the surrounding areas, as already established relations are protected and therefore kept, by letting some of the preservable trees stay as a reminiscent of the area that once were.

Ensuring a stable foundation for the new network

With the establishment of new structures on the Hyldager site, the foundational layer that ensures that houses and infrastructure can be built without betrayal from the underlying network that supports them. Here the previous network of the Hyldager site in the form of the tree circle becomes an obstacle as the top of layers that was used to create these "natural" structures is not deemed sound enough to withstand the new actors and their effect on the established network.

At present time an investigation into the carrying capacity of these layers is therefore being conducted, to determine the best procedure to ensure a future stable network and relation between the foundational layer in these areas of the site and the houses and infrastructure they are forced to function with. This is done as regulations to the foundation demands that a certain level of pressure pr. m^2 can be handled by the layers.

When talking to Sigrid about the matter she refers to the normal procedure of either by pile-founding the area down until the underground layers are stable. This is done by establishing an extra foundational sand layer, or completely removing the existing actors from the area to have a direct access and relation to the foundational carrying layer (Sigrid Glarbo, 2020).

In the case of the tree circle and their future relationship we, however, see that only few actors talk on behalf of them in the network and they are therefore in a weak opposition against the more powerful regulations and needs of the future network that is being formed.

From this we also see how powerful a network that is working on behalf of the municipality and the project of transitioning the Hyldager site into Hyldagerkvarteret, as well as how invested the large network of Albertslund is on developing and extending the city and their network, converting large networks that has not previously been assessed as eligible for urban development.

Understanding the established network present on the Hyldager site, and how rules and regulations are acting as representatives for a loosely bound network, thus giving it some rigidity, and resilience, has been of great impotence in further exploring how a reconfiguration of the network is enabled, and what it entails for the existing network.

5.3. Reconfiguring the network - Matters of concern, visions, and how it is organized

A considerable reconfiguration of the current network is going to occur as part of transforming the Hyldager site, into the new neighborhood of Hyldagerkvarteret.

As part of this reconfiguration, we will see the introduction of new actors within the network, both replacing, but also displacing present actors. Some of the new actors that are being introduced are expressed as part of Albertslund's municipal strategy i.e. Mere Albertslund, and further reinforced but also at times contradicted as we have interviewed different actors from the work-group around the development project. The knowledge gained from these interviews and the visions stated in the municipal strategy has been combined and analyzed as part of an affinity chart, in an effort to outline the expressed MoC of the municipality and work-group, but also Toftegården representing the surrounding area. Through this exercise, we identified 9 elements of importance i.e. safety, health, nature, recreation, climate adaption, institutions, community, accessibility, and infrastructure.

Workshop

The expressed MoC related to the 9 aforementioned elements are, however, not always shared by the different actors surrounding the development of Hyldagerkvarteret. Moreover, we see that a fairly vague terminology is used by the actors as they describe the elements i.e., we want safe paths, or nature affects health and well-being. Here they are merely endorsing an expressed value within their sector or the municipality, of what is regarded as "good". Thus, failing to convey the "goodness" of the value, but equally in qualifying how it should be achieved during the planning process.

This is something that we saw as crucial for our further work, and something we felt the need to challenge, as we sought to clarify the "goodness" of the expressed values.

In our effort to explore this, we set-up and planned a series of workshops, with actors from the workgroup. We had set two overall aims for the workshops, the first being that of qualifying the expressed MoC, based on their role, as well as, detailing the values that are related to these MoC. The second aim was to explore and map how urban planning projects are coordinated within the municipality i.e. who are given agency, and on what premise.

As stated in the methods, we held 4 individual workshops, on an online platform called 'Mural', and each workshop was divided into 4 parts.

The two parts that relate to the first aim of the project i.e. parts 1 and 4, is what we want to outline here, as they have informed the analysis on reconfiguring the network on the Hyldager site, as it is turned into a neighborhood.

Part 1

In this first part of the workshop, we made a mapping exercise, based on a fictional version of Hyldagerkvarteret. This worked as a way to get fairly specific with certain elements, as there was something tangible to talk about. The specific knowledge we gained from this exercise was in regard to the role each participant plays in the planning process, i.e. what elements they are focusing on within the project, and as such what their MoC are in relation to planning the development for this specific site. Each of these MoC are represented by a magnifying glass on the individual maps (see figure). The exercise further reinforced just how much each participant is impacted by the sector they represent, as they fail to take a holistic or systemic approach to their stated MoC.

Part 4

In the last part of the workshop we shifted away from the internal, and mapping based, exercises and turned to a more generative idea-development exercise. Here the 9 value elements were turned into 6 physical elements of Hyldagerkvarteret as stated in the methodology. The goal was to use their previously expressed MoC, and roles, as foundation for building up different visions related to the 6 categories. Here we were able to challenge assumptions and contribute with inspiration, leading to more tangible contributions within each of the categories.

In the following part of the analysis, we are thus drawing on the knowledge gained from multiple sources i.e. interviews, observations, affinity chart and workshop (see Figure 23). To give a detailed overview of the dynamic reconfiguration that is occurring as the Hyldager site is turned into Hyldagerkvarteret.

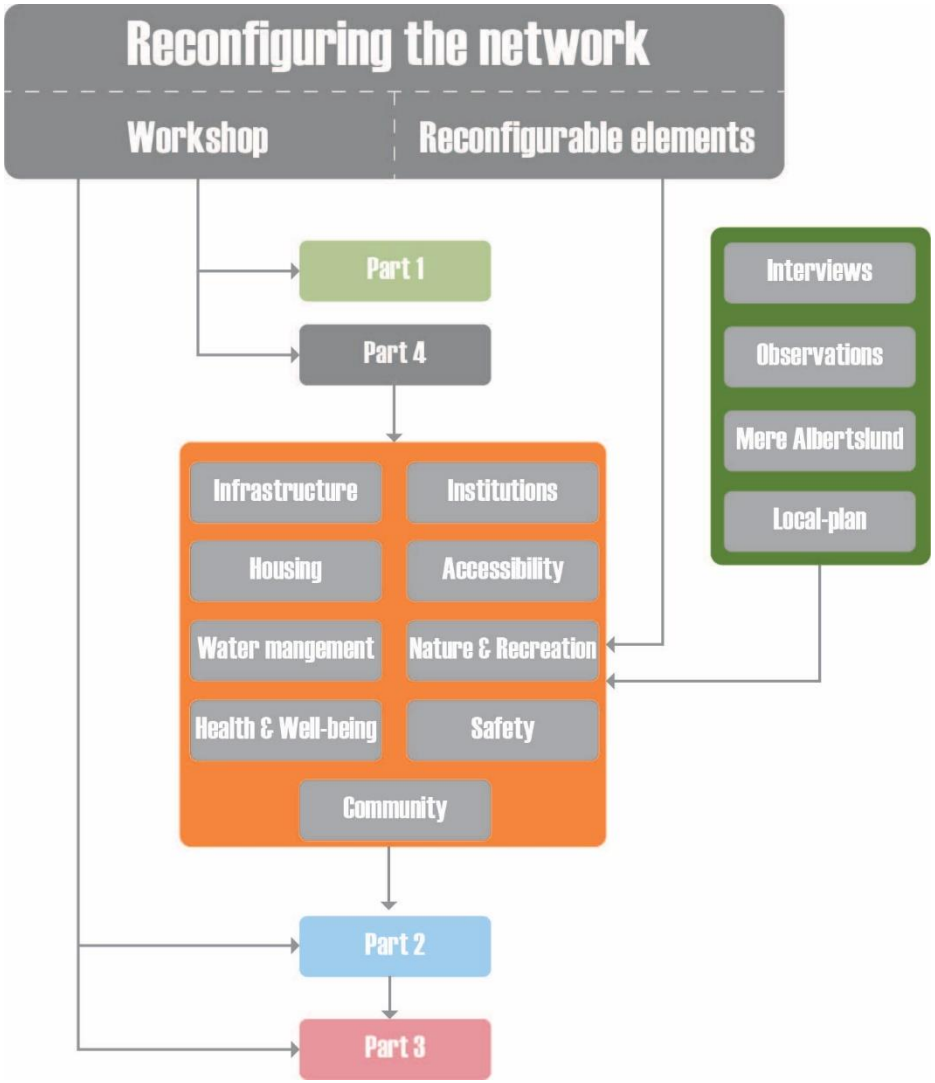

Figure 23: Diagram showing how the 9 reconfigurable elements of the Hyldager site was identified, and how they relate to the workshop

The reconfigurable elements of the Hyldager site

Infrastructure

There has previously been some utility function and infrastructure related to the school that existed on the site. Nothing substantial has carried over, and in the establishment of a new neighborhood, new infrastructures have to be laid down and made accessible for the different actors to connect to. The MoC is however linked to the process of placing these and the interrelationship with the establishment of roads that these utilities are often placed in connection to, as to avoid reworking elements later or completely changing elements due to limited interaction or communication between the future tenants and the utility actors. Anja elaborates on this matters by highlighting that, while soft infrastructure such as power cables, internet and street lights can be placed at a later stage as they are often dug down on the side of the road, the hard infrastructure for water, sewerage, and district heating, that is placed underneath the road, is often more of a concern if or when things change along the way in a development project such as Hyldagerkvarteret. Frank also highlights this as he expresses that they, as the utility company, feel a need to be part of development projects at an early stage, to avoid

spending time and money reworking infrastructure. And further, for consulting the planners in issues such as separation of rainwater and sewage water and how to best enable this on the tenants own property, so overflows in the case of cloud burst can be avoided or at least managed. For the future operation and management section Anja also needs to be able to express their concerns surrounding the physical dimensions of the infrastructures, as trucks for sweeping roads, or repair men need specific parameters to be able to provide their service at later stages.

While most of these actors are brought into the network externally from the present network and are affected more by the dynamically developing network that is being established as other actors start to become established, some relations can still be seen to be of significance.

Frank Brodersen highlights that water and sewage is sought to be able to flow through gravitation alone and that this, in the case of the Hyldager site, where there is a clear incline that enables this, can affect how parts of the remaining area ends up being developed to accommodate this aspect. Finally, the access points form main lines in the utility infrastructure needs to be opened up and connected to this new area, here external actors need to ensure that the services of these new additions to their network can be met with the present relations.

Institutions and public facilities

With the development of a new neighborhood, and thus new citizens, along comes the need for different institutions such as schools, kindergartens, sporting facilities etc. The need is primarily related to the inbound residents, and as such becomes accentuated as the network transitions from its current form to the future network of Hyldagerkvarteret. In the specific case of Hyldagerkvarteret, the residents are yet to be determined i.e. non-existing, and as such the challenge of planning what institutions are needed and where they should be placed is turned into a MoC for the different actors we have engaged with.

Diving into these MoC, we see that an overall vision is made in relation to institutions in Mere Albertslund as it states that the municipality has an ambition to offer high diversity in the types of institutions that are available to the citizens (Albertslund Municipality, 2019). With multiple schools nearby, and kindergartens as well, the institutions needed are more focused towards community activities, being either a communal or dedicated sports-facilities. Sports-facilities are currently established on the site, in the form of a hall, but its faith is being discussed by the work-group and the municipality, seeing as it is in desperate need of renovation.

This is also where we have identified contradictions, as the municipal vision is to have a diverse offer of institutions yet

won't prioritize to renovate and maintain the already established facilities on the site. Sigrid Glarbo expresses this MoC as she states that:

A decision has actually been made in relation to the gym-hall, stating that it is to be demolished, but there are still some who see it as a value element to preserve, given that the municipality probably don't have the finances to make new buildings like you have done here. So, if it is demolished, there won't be a municipal building. But seeing as we have 10,000 new citizens coming to Albertslund, and we also have to be able to offer them the possibility of establishing associations and can come and do their Kung-Fu or whatever they are doing there (Sigrid Glarbo, 2020c).

As a decision is still pending as for the future of the established sports-facilities it is hard to say how the network will be affected, in that regard. But with the introduction of residents into the network, a proportional demand for institutional offering will follow.

Housing

The plot layout and the construction of houses is of course one of the central functions in the development of the new neighborhood, but while the municipality of Albertslund or the project group that works with developing the area is not directly in charge of constructing the houses and how they end up, they have a clear role in defining the parameters of which they are going to be established on, in order for them to function according to the role they are ascribed, in the wider network. This also includes the relations that these will need to uphold to.

The workgroup therefore needs to provide a framework that takes all the surrounding matters into consideration as well as aligning the relations that are expected to arise and make them operational by articulating specific parameters and standards that the houses need to be built in accordance to.

One of the main actors expressing the MoC, surrounding housing types and the interrelations different housing types can create, is Sigrid, as she has to interpret the overall vision from the local-plan that acts as the overall framework and it is here in the translation process that we see other actors and their network begin to exert their influence and power on process. In the local-plan, it is expressed that a multitude of housing types should be sought integrated so different actors in different life situations can live in the same area

(Byudvikling & Erhverv, 2019). Sigrid expresses this by highlighting the vast diversity in directions they could take: *Should large gardens and garages be prioritized, or should it be larger houses with smaller plots and more public area with shared parking? Should there be row houses or double houses, for the smaller plots?* (Sigrid Glarbo, 2020).
How these micro networks that the plot and the house will form, will however not only affect the actors that are to live there, but also affect the wider network.
A clear MoC expressed by the municipality is an expectation to this neighborhood and the other new developments that are ongoing in the municipality to create interestment for new young couples and new families as Albertslund has an overall aim of increasing their population as well as somewhat changing the demographic towards more high income citizens (Boelplan, 2019).
The housing types can therefore also be seen as an area of conflict as they should be aimed at, and be part of, a dynamic change to interest a new not yet present group of actors that seemingly does not relate to the present municipality and network, but still function and relate to the rest of Albertslund and the larger network and relations that exists there.

Accessibility of the area

Getting to and from the new neighborhood, but also being able to move around within it, are a combined MoC expressed by the planners in the workgroup. The MoC can be summarized as an availability challenge, as it relates to the ease of being a pedestrian, cyclist, or car-driver, in and around the neighborhood. It is further, distributed between all ages, and physics.
This MoC is not to be confused with that of having the infrastructure available, as discussed in the first subsection but rather, the approachability of the mobility-based infrastructure that is being established. Mere Albertslund also outlines this concern as it states that the municipality wants to *'create the best possible opportunities for traveling for work, school and leisure, by other means that a car'* and *'support everyone's access to transport and public functions'* (Albertslund Municipality, 2019).
Anja who is in charge of making an outline for the accessibility in and around Hyldagerkvarteret contradicts these statements from Mere Albertslund as she states that we have a lot of separated mobility infrastructure, and that means that we also have a lot of bridges and tunnels in the municipality which, in turn, means that there is a lot of maintenance. Moreover, as there are many stairs because of this separation we lose a considerable part of the accessibility linked to some

of these systems, and it also demands a lot of space (Anja Irene Bæk, 2020).
This statement can, however, also be seen to portray the fact that Anja is aware of the challenges related to the development of mobility infrastructure with a high degree of accessibility. With regards to the network, we see that the introduction of infrastructural accessibility brings with it, new actors like stable pathways, wide and manageable roads and bike tracks. Separated tracks, paths and roads, with stairs and ramps between them. Lastly, actors such as wide parking spots, and clear signage are also essential in this matter.

Water management

As explored in the previous section surrounding the network changes that are seen to happen as part of the development of the neighborhood, an expressed MoC is how the houses and infrastructure relates to the area and is regarded as part of the site.
Traditionally, rainwater would have to be managed within the individual plot, and the house just connected to the regular in and outlets that the municipality and utility company has established. In the case of Hyldagerkvarteret Frank and Anne have expressed an interest in directing rainwater away from the houses and managing it in the public area of the site, on the surface, instead of enforcing the regulations about management of rainwater on the plot itself (Frank Brodersen, 2020). The principles are already established elsewhere on public buildings and for an already established neighborhood as part of water management developments but have not been used as a systemic concept for a neighborhood that is to be developed. Whether this is a good idea for the future network, will rely on the actors ability to function in the world that is ascribed to them by Frank and Anne as responsibilities and relations in the case of shared rainwater management between private citizens, public and utility would be changed to function accordingly, displacing the existing relations that is expected between these entities.

The agenda to lead and manage the rainwater in the public space can be seen to correlate with one of the stated values in Mere Albertslund as it states that climate adaptation should be part of the city development to create resilience and that they support the idea of climate adaptation and management solution also creates biological and recreational values (Albertslund Municipality, 2019).

The idea of surface managing the water in public areas in the neighborhood, therefore becomes an interesting intersection between different MoC as the allocations of space for water management is now also allocated to other actors and relations. This, however, also means that in order

to be able to create solutions that fit the needs of the area, many of the other actors have to be made known so they can be accounted for in terms of potential water shedding and contamination.

Nature and recreational spaces

Recreational spaces, and nature play an important role in developing a cohesive neighborhood, as Hyldagerkvarteret is what could be regarded as a peri-urban area i.e. placed on the outskirts of the city and near to more open land.
Recreational spaces and nature, are furthermore, regarded as co-beneficial in an urban context, as will be discussed in the next subsections. These reasons are what is being considered as the Hyldager Site is converted into a neighborhood, and as such calls for a reconfiguration of the current network.
Albertslund municipality expresses the incorporation of nature and recreational space as a clear MoC, through their municipal strategy, when it comes to local urban development. Concretely it states that: *'Nature, must be visible in the neighborhoods', 'There needs to be room for recreational areas between buildings', 'Recreational areas should be present in the different areas of the city',* and *'Recreational areas should foster connections between citizens'* (Albertslund Municipality, 2019).
From our empirical studies, this seem to be a shared MoC within the workgroup as well, as Sigrid states that: *I think we need to look at nature between buildings, in relation to its potential water management properties, in order for it not just to be another forest plantation, and that we could go all out in relation to biodiversity, play and learning* (Sigrid Glarbo, 2020) and Jan holm states that: W*hen you expand the urban space into nature like here, I think you should try to make it synergize* (Jan Holm, 2020).
However, the specifics around how the nature and recreational spaces are to be incorporated is still being explored. The reason might lie in that Hyldager bakker has not been finished yet, thus the effects on the network from this new area is still unclear. This is something that Sigrid is highly aware of, as she sees little to no point in having recreational spaces within Hyldagerkvarteret since the recreational value offered by Hyldager bakker is, to her, in direct competition.
What we do know is that the nature that will find its way into Hyldagerkvarteret will be more of a planned type than what can currently be found on the site. We also expect that most of the trees that have been deemed preservable, will stay, as discussed in section 5.2.

Lastly, that the fruit-trees in the northernmost corner, of which some are preservable, will also carry over. The rest of the present nature will be removed, either to make way for infrastructure and houses, or as part of the construction process, with the introduction of big and heavy machinery. In relation to carrying over some of the historical value, related to the present nature, we have discussed if the highly dominating tree circles could be incorporated in some way, as they are a strong representative from the current network. However, a solution has not yet been found.

Health and well-being

Creating a healthy neighborhood and city is an aim that is clearly expressed in Mere Albertslund in relation to creating a healthy, safe and accessible city for all (Albertslund Municipality, 2019). It is, however, only vaguely presented what is meant by this and how it is sought to be planned for.
Here, the most concrete MoC is the expressed health risk of noise both in the general area but also in residential neighborhoods.
Here the means is set to be about reducing speed of vehicles and providing better, more noise reducing surfaces to drive on. Specifically noise is a central MoC in the whole development of Hyldagerkvarteret as presented earlier, however, it is here not a matter of the local noise created by traffic in direct relation to the site but rather noise emitted from the major traffic ores that surrounds the wider area (highway, railroad, and main road (Roskildevej)). The noise pollution can therefore also be seen to be the one MoC in relation to health that the work group for the area's development have actively engaged with and developed answers to.
In other matters, health is mostly connected with the idea of having active citizens that use bikes and walks more referring to the principles of wider Copenhagen and healthy bicycle capital. There exists some understanding of the idea of creating local attractions and places to visit, to make people take the bike, run or walk, but only expressed in general terms (Sigrid Glarbo, 2020). Health is seemingly a, for now, unanswered MoC that is too far away from the development network and practices to be answered within the practices of planning and development.

So while it can prove to be a co-beneficiary to the network and the local dynamics of the future area, it is not currently seen as something that can be planned for and taken into account but rather something that can be added through concrete recreational elements if an opportunity rises along in the development work.

Safety and the perception thereof

In its present form, the Hyldager site it not something that would be regarded as safety inducing, seeing as it lies on the border of the city i.e. sees little to no people, has no streetlights, and is dominated by tall trees, un-kept nature, and isolated paths. Safety, and the feeling thereof, is of course something that must be prioritized highly when a new neighborhood is being developed, as people in all ages need to live there and not have to fear going outside or commuting to and from the area. For this reason, safety is also an expressed MoC, that we have come across in our studies.
In regards to the municipal strategy we see that it is expressed as a priority as it states that: *'We support living community areas and path with good lighting and recognizability', 'We prioritize safe paths to and from schools and daycare',* and *'We support that children, early on, learn to ride bike and that they have safe and secure paths to use'* (Albertslund Municipality, 2019).
These statements are also, mostly, in line with what we have heard during interviews and workshops where safe pathways and tracks, and the separation from the road-net is expressed as a MoC for Anja as she states:

What I consider to be safe is, that you have some bike paths and pedestrian paths, for the children so that they have an area to move on, but that it is still separated from the road and with safe crossing points, so that it is clear for both motorists and cyclists (Anja Irene Bæk, 2020).
When talking to Anne, she expresses a MoC related to the placement of certain natural elements in relation to climate adaptation solutions: *The most important notion for us is that it must be safe, meaning that we can't put up all kinds of bushes so that children do not dare go that way because there may be someone standing behind the bushes* (Anne Adamsen, 2020).
As stated previously the actors that are currently in the network are not seen to contribute to a safe/safety inducing area, which means that a considerable reconfiguration of the network is to happen in this regard. Instrumental to this reconfiguration is the introduction of people, lighting both ambient and street oriented, good signage, and wide and overseeable pathways. Other actors are however to be displaced by this reconfiguration as the un-kept nature, trees, and darkness are to be dealt with.

Community and private life

One of the least present actors in the network for the Hyldager site is that of community. With its former use being an elementary school, that has since been demolished, and the only remaining structure being the sports-facility, the network around the area does not reach far out and remains mostly isolated within itself. When residents are introduced into the network, they must therefore integrate into the loosely bound existing network structures, but also establish new ones, with strong relations to the area, and each other.

The establishment of a grounded and healthy community within the area is the final MoC that we want to highlight. Starting with Albertslund municipalities overall strategy being: *A city, for the children, the green, and the community*, we see a clear prioritization.

Within the local-plan for Hyldagerkvarteret, this vision has been concretized into the following: *'Varying housing sizes are to support diversity, coherence across ages and family types, as well as the possibility to move internally in the area when one's state of life is altered', 'The Hyldagerhall should be preserved and used for community activities', 'There needs to be offers in relation to community facilities',* and *'Communities should be encouraged by the outside areas'* (Byudvikling & Erhverv, 2019).

Sigrid shares this MoC, and is even interested in the possibility to explore a cross-over where roads plays a role in establishing a community, as she states that:

I think there is a lot of community to be gained here, as it is where people always go in and out, as there is where they access their home and, as such, this is where you meet each other (Sigrid Glarbo, 2020).

Lastly, we have heard from Emilie that the residents, currently living, in Vridsløselille are in need for community areas, or somewhere, where they can host assemblies etc. This means that with the introduction of even more residents, in the local network, the demand for such facilities becomes even clearer.

An opportunity also lies here as the combination of dedicated community areas that are shared with Vridsløselille would also assist in the cohesion of the new neighborhood of Hyldagerkvarteret.

5.4. The conflict between new values and old practices

Having challenged, mapped and analyzed their matters of concern in relation to the 9 categories, we want to understand the underlying process, on how they approach and coordinate planning projects in the municipality, and what elements they consider as valuable in that context. For this reason, we are in this coming section outlining and analyzing the two parts of our workshops, related to the second aim i.e. parts 2 and 3.

Part 2

The boasting example that Frank Brodersen starts with is that of refitting and repairing "Kanalen" in Albertslund and how they through close collaborative work with the municipality, managed to establish a solid partnership during the project. This meant that many of the processes became aligned to a higher degree than usual, creating a better overall process and more effective execution, which in turn minimized the disturbance for the citizen. While that kind of collaboration between two such actors, in relation to the same project, is not something revolutionary, it is still a rare thing.
Here Frank argues that the inclusion of the different actors in and outside of the municipality will make a major difference. His case shows how early alignment and collaborative work often can lead to greater improvements and processes than if done by the entities separately which Frank argues is often the case.

Both Sigrid and Anja's cases revolved around citizen participation and how a project utilizing this approach was perceived as much more valuable for them as they praised the results and the small things that were established because of this participatory approach, that would maybe otherwise not have been. However, the two boasting examples also differ as they draw out and highlight different elements when talking about these as well as how such projects relate to their usual approach.

Bringing with her the boasting case of Albertshave in Albertslund, Sigrid, elaborates on how a regular neighborhood development process had turned sour, with the original 'local plan' being highly contested by the local citizens, at the citizen hearings, due to a plot ratio of 40%. Because of this, they engaged in a participatory process with the local citizens taking their considerations into account, iterating the local-plan to include more greenery and space.

Here, Sigrid states that the result turned out better than what was originally projected. She further highlights that this contestation, while annoying at the time, was valuable and

that the process that it led to have changed her perspective on the role that citizens can play, mentioning the local nature group that they collaborated with on making local ponds for higher biodiversity as part of the new plan.

The boasting example from Sigrid first and foremost highlights what can happen if there in contrast to the Hyldager site is a strong local network that chooses to object and talk on behalf of it, and that this can actually change other dynamics in the network enough to foster more positive change. It also highlights the classical roles ascribed in the network: of citizens as "laymen" and municipal planners as "experts" has started to blur and that this makes perceived to make it both difficult to manage when doing projects but also potentially more rewarding if done right.
Sigrid, however, also recalls that the particular part with the ponds, did not turn out that well, as she saw that the municipality was too quick to let go and the citizens thus weren't fully able to carry it on their own. So, an element of alignment in this new way of doing can similarly be seen to be a delicate new MoC.
From Anja's boasting example about co-creating a bicycle lane in a rural area with the local citizens, she argues that it can be highly beneficial to include citizens and other actors in the process from the beginning. If done, it helps to both avoid confrontations from these actors later on, but more importantly create a bigger ownership and commitment to the project when you do it with the local network and not around them.
From our discussion on this citizen engagement and this approach to development projects that Anja was a part of, Anja emphasizes how including all partners early and coordinate with them early on, can reduce the waste of money, minimize points of potential conflict, and enable better accessibility (in terms of access to citizen owned property that was taken into use as part of the roads development) as well as meet the goal of establishing a bicycle route in a project like this.
She also highlights that the involvement of other and local actors in the project of the bicycle lane, can also bring co-beneficiaries it creates a result of higher value to the end users, as well as a better synergy with the local network, it is established in.

Lastly, from Anne's boasting example of Kongsholm parken and the development of it, we are made aware of how the planners often need to take the existing network i.e. relations to a site into account, both while they develop it but also potentially after the "project" has finished.

With the development of the water reservoir in Kongsholm parken a large network of actors with relations to the area had to be taken into account, both people passing through it for work, people doing recreational activities, as well as the local

relations that the project had to fit into, like "Kanalen", which it is connected to, as well as the stream of *Store vejle å*. Here the exercise of continuing some form of relation with the actors in the network in a constructive and safe way, while at the same time radically changing it, proved to be a tightrope walk. However, because they managed to do it, she argues that they were able to avoid larger headaches and potential conflicts from both, human and nonhuman actors. Having a broad network and understanding of the correlations and matters of concern in different places proved to be important for Anne as it enabled her and the project group around Kongsholm parken to better navigate and find good solutions to both the present and future network related to the area.

A matter that has come after the park was established is that HOFOR has closed down its use of a groundwater well in the area, which has changed the ground water level as the water is no longer "drained", putting unintended stress on the reservoir. Anne argues for the perspective of still having a sense of how things around former projects change. If the network changes around an actor, the role of that actor or its ability to stay part of the network and fulfill its role has to be ensured, otherwise it can at some point betray the network. Here, she argues that projects are not done just because they have been finished, rather that it is a continuous process, where the municipality has a role in continuing to have a relation to the actors in it, and dynamically adapt to the changing network.

Part 3

In part 3 of the workshop, the focus was on the day-to-day collaboration and relation between the different disciplines and sections within the municipality. Drawing up the established relations that the different actors, as representative for their own network, had to others.
By further discussing and exploring these relations or the lack thereof we were able to better comprehend the existing role assignment as well as what disciplines are given agency in relation to urban development.
From Frank and Anja's perceived networks within the municipality (see Figure 24) we can see a strong correlation between 'City planning & business', 'Operations & service', and 'Environment & tech', forming the sort of trinity within urban development and management in the municipality. This correlation is also strongly emphasized by Sigrid as she argues that these are the sections within the municipality that are needed to plan, develop and service an urban area. For this reason, she sees little reason to engage other sections in the planning and development of an area such as the Hyldager site. Sigrid's only addition to the trinity is the alignment with the economics department as it is important

to have a clear notion of what the planning projects limits are within the larger municipal economy.

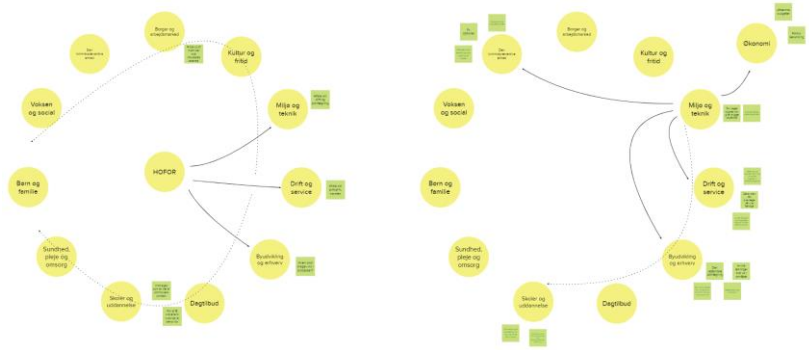

Figure 24: The perceived networks of Frank (on the left) and Anja (on the right)

The limited involvement of other sectors, i.e. the more "soft disciplines", within the municipality is not something that is looked at as an issue. Sigrid exemplifies this stating that, for instance the caretaking sector only deals with citizens that are too old and that it is not the focus of the area to have citizens that old, and as such, it does not make sense to bring them into the process for now, but maybe at a later state in the process towards the end, it might be useful to bring in citizens of Vridsløselille in as well as Toftegården again.
From the workshop with Anja it is further highlighted that while they are in the Environment & tech section have awareness of elderly mobility and access as well as creating priority roads for school kids from neighborhoods such as Hyldagerkvarteret, they are, however, not in direct contact with either, and that it is learned from courses.

While the reasoning from both Sigrid and Anja is sound and their relations to only the "hard disciplines" makes sense in the classical sense of how planning and urban development has been conducted, it stands in contrast to what is highlighted as the valuable elements in the boast examples, where precisely collaboration and the integration of other fields into development projects is emphasized as being a highly positive element. At the same time, we also see that because the planners and engineers of the project have a perception of how they ensure that a city area is "good" from principles and practices learned, they don't see a need to involve the specific actors from the municipality sections.

A bit in contrast to the other network drawings is Anne's as it can be seen to be much wider (see Figure 25), and while this also has to do with her field of work as that she has to be engaged in many other matters beyond just development and water management itself. when talking about the different collaborations she engages in, it also seems that she has a better understanding of what the different sections have of MoC and interest and is therefore also more easily able to engage in diverse projects away from her own field. She argues that by having this broad perspective she is better able to account for other perspectives, talk on behalf of and draw things into new projects she is engaged in.

It could therefore seem that one of the hindrances to more collaborative work and engagement has to do with a limited shared vocabulary and understanding of how other disciplines could contribute to an urban planning process and how engaging them in the project from an earlier stage could be valuable.

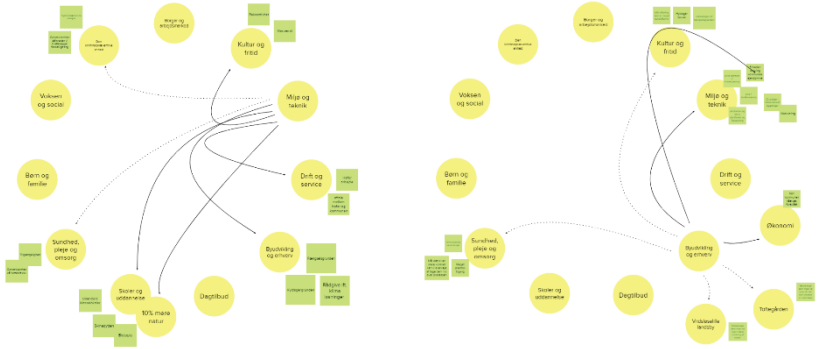

Figure 25: The perceived networks of Anne (on the left) and Sigrid (on the right)

SYNTHETIZATION

From the analysis, a series of elements can be drawn out to frame, that a solution should, at its best, adhere to the identified concerns and needs that it is developed to answer to.

The first notion in this series is that of minimizing noise for the area to a degree that is within the limit. In this quest they are developing Hyldager bakker, as well as considering alternative measures.
The investment is, however, also expressed in the discourse they use, talking about changing the area to enable houses to be built, accentuated by the potential removal of large quantities of soil to ensure a stable foundation. This incentive to see new potential in an area such as the Hyldager site and consider it as a resource rather than a reserve as it might formerly have been, seen as part of a general plan of adapting Albertslund to a different demographic to ensure a prosperous city and municipality in the years to come (Boelplan, 2019).
Despite the aim to develop and adapt the city, it is still argued from the local-plan and the actors engaged with developing the Hyldager site, that the area should be in synergy with the larger context of Albertslund as well as the local context it will be embedded in.
Within this strategy of development, we see a discourse on the creation of value and in particular how co-beneficiaries can be seen created, as part of the urban development projects.
We further see that while there is a clear intent to create value, there is not always a clear understanding of how this value is created, and here stabilized assumptions of what is "good" often prevail.
While the analysis show that urban planning is a complex nexus of elements that is sought to be fitted together to create coherence, we also see that presently, there is limited engagement with other disciplines outside of the classic planning and development network, and not all parties that might have stakes in developing an urban area are involved, witch from our findings can be seen as part of the reason urban development projects can fall short in providing these values and co-beneficiaries.

In the following section we elaborate on the result from our analysis, by synthesizing it. This was done through a process of firstly drawing out our results from the different analytical parts, secondly, we identified tendencies in the results obtained, thirdly we coded the results, with reference to the category and area that the results contributed to.

In creating meaningful categories that express coherent areas in terms of value elements and in response to expressed MoC, we have drawn inspiration from the framework of Healthy streets of London, Realdania's VejLedNINg, as well as in referenced to the municipal strategy *Mere Albertslund*, as they are regarded as reference point if a solution should have relevance in the specific context of our case.

6.1. Rethinking the urban design approach

As our analysis has shown, an area intended for urban development should not only be approached as a site isolated from all else, but rather seen as a part of a large interconnected and heterogeneous network.
Here we also see that some actors that are presently established on or near the Hyldager site does not easily lend themselves to the new proposed network, and in several of the cases explored in the analysis it can therefore seem appropriate to find ways of integrating them as part of the new network instead of seeking to displace them entirely.
For this reason, we see an argument in thinking the Hyldagerkvarteret in relation to Hyldager bakker, that is currently under construction, as well as bringing in local actors, that are able to act as spokespeople in terms of local values and MoC, as these are often local specificities that is not easily captured by the present metrics and can lead to negative feedback loops or lesser value created in the end, if these are not properly addressed early in the process.
This in turn also means that seeking ways of qualifying local actors and spokespeople to engage and contribute to a development project becomes a new lesser known MoC, that would need to be addressed.
From the analysis and interaction with the workgroup, we have been able to better comprehend the steps that are firmly established as the process by which an urban area such as the Hyldager site is converted into an urban neighborhood. From this we have also been able to explore the opportunities and limitations of the, for now, mostly quantitative metrics used to address the values and priorities that different elements can affect
Within this present approach of valuing and quantifying matters as separate entities, it is from the analysis evident that creating and obtaining more sustainable solutions with a higher quality of co-beneficiaries can be difficult to achieve in some areas, within the current professional disciplines engaged with the development project.
From the analysis and the workshop, we would further argue that there, at present time only is limited interdisciplinary knowledge sharing and inquiry, and that this is seen as a potential aspect that can limit more radical improvements and values to emerge.

Presently this shortcoming is seen in that assumption of what is "good" is all prevalent, stemming from communities of practice, established in schools and courses and because limited soft disciplines engage in urban development projects. Moreover, we see indications that this might be accredited to a missing vocabulary when articulating/expressing co-beneficiaries around health, nature and recreation which, in turn, can hinder more sustainable urban development as it is not presently taken into account. This is further something that we see accentuated in the municipal strategy *Mere Albertslund*.

The final notion that we take with us in this regard, is that of creating local attachment. By involving and engaging the local community in urban projects, a higher degree of attachment can be seen to occur, which in turn fosters a higher degree of resilience in regards to smaller projects in the future, because of an already established network, and stakeholders that can promptly be re-engaged, even after the municipality has left the immediate collaboration. We further see that if the municipality is supportive of the citizens initiatives, a potential for added-value is made, and that alternatives might be more costly in the end. The last thing that we take with us is that large projects should not be regarded as "done" just because the development process is over. The network that is stabilizing should be regarded as an opportunity, for both local citizens, but also the municipality in improving it going forward.

6.2. Urban health

From the analysis we see that a MoC regarding noise is being expressed both by regulations and by the planners, in relation to having healthy citizens.
Creating a safe and accessible city as well as creating more nature can further be seen expressed by the municipality, as contributing to the health of citizens.
However, the way these elements make a contribution is not clearly expressed and instead assumptions are made, that attractions and places to go can motivate people to increase their level of physical activity. This is ascribed to a lack of knowledge on how elements such as nature contribute to the health of citizens, even though they perceive nature as positive in this regard.
Planning or designing for healthy citizens is therefore also presently seen as a matter too complex to take into account, or as out of scope, for the planners to engage in when developing a neighborhood such as Hyldagerkvarteret.

6.3. Urban greening

Having UGS and nature in an urban context is clearly seen as a value expressed in the analysis and specifically in the case of the Hyldager site. It is expressed as an important value to be able to pull nature into the new urban area and create a harmony between the neighboring areas through nature. This can bridge the urban/natural border that can often come to exist with new urban development areas, and also help to invite local citizens out into nature.

A subject that has emerged in relation to creating "good" nature at the Hyldager site is the conservation of the trees that are deemed preservable in the area. The value of conserving these natural elements is here expressed in terms of historical relations to the area, but also a value in having more established natural elements in a new neighborhood instead of bare soil and open land.

While there is a clear municipal and planning metric in place for the conservation of nature that is deemed preservable, finding ways of giving them a place in the "new area", and that nature is valuable, it is not clear why or how, making it difficult to encompass in an urban context or priorities when developing new.

Equally we see from the municipal strategy, that nature and here also nature between buildings is valued as good and expressed as an enabler for biodiversity, learning and recreation, while not expressing a clear link to how this value is achieved.

6.4. Urban climate resilience

Water and the management thereof, has been explicitly expressed as a value-element, especially in regard to managing it locally and on the surface. Moreover, we see that the municipalities are expressing a value in terms of separating rainwater and sewage water, so that the former can be used in nature and public areas.

Therefore, we see that they are well aware that climate adaptation in relation to water management can have positive co-beneficiaries and that they are working with water adaptation solutions and their co-beneficiaries in relation to recreational value and biodiversity.

However, the technical properties of water adaptation solutions are still what is being prioritized, in relation to delivering the needed water retention capacity and secondly seen as a way of potentially creating added value.

In the case of the Hyldager site, there is a value expressed in managing the water in the public areas as these offer the potential to establish a systemic and more resilient solution for the whole area.
In the analysis we also see an expressed value in making water management solutions and the water they manage measurable. The value of those measurements is seen in the subsequent ability to better adapt solutions and extend the capacity of these, if needed.
Thus, creating more security and certainty against potential damage of property is regarded as an added value in terms of social and economic safety both for the immediate citizens of the neighborhood and the extended network.
Besides water management, climate resilience and adaptation, is not a matter that has been brought forward.

6.5. Urban happiness

Fostering, urban happiness is a matter that we see expressed in several instances of our analysis. It is often expressed in the form of creating a good place for people to live, making people feel safe when they move around in the city, as well as enabling communities to flourish.
A clear MoC but also value that we can see from our analysis is that of understanding the affordances that different demographics see in different housing types. Having a multitude of housing types and therefore a potentially diverse demographic composition in a neighborhood is seen as valuable and contributing to a healthy local community.
An element that is seen to contribute to this value is the ability to create synergy between the different housing types and hence seek to avoid creating boundaries between these, both in physical elements and appearance of the houses. Creating more heterogeneous neighborhoods can therefore also be seen expressed as a clear indicator for creating healthy neighborhoods.

Safety

Safety and the perception thereof is highly prioritized by the municipality and the workgroup.
The value of safety is currently sought to be achieved, through the creation of well illuminated streetscapes and through the creation of a transparent path systems, and infrastructures, for especially young and elderly citizens.
Presently this is translated straight into what you are able to do within planning and what you cannot e.g. not establishing bushes and dense shrubs near intersections and too close to walk paths.
While some indicators of what is safe can be seen to exist, it is from our analysis, regarded as a subjective perception of what is safe.

Prosperous Communities

A clear stated priority in developing a new neighborhood can, from our analysis, also be seen as that of enabling communities to form.

In relation to the aforementioned housing types there is also a clear expressed perception, that the ratio between house size and garden can have an impact on how communities develop, as this will also impact the amount, quality, placing and affordances of public spaces and community facilities of an area.

Besides the housing types and the house to garden ratio, there is however no clear indicators expressed, of where or how communities are fostered. There are, however, several expressed perceptions of how it could be enabled in the local context of the Hyldager site. These include Recreational spaces, institutions and facilities for local use, and social neighborhood roads, as these are seen as an opportunity to create space for interaction between local residents

6.6. Urban mobility

In the analysis, the value of creating infrastructure with an easy overview for walking, cyclists and cars, is expressed, as this can enable an increased feeling of safety as well as potential ease of flow in the city.

A clear principle for the municipality of Albertslund is the separation of roads and paths where it is possible, as this is further seen to create a safe mobility for soft road users. This is, however, also seen as a potential challenge when it comes to connecting paths across roads when there is such a separation while still ensuring good mobility and accessibility for all ages and physics.

Good mobility is clearly expressed as both a matter of being able to travel with ease internally in the municipality and in terms of commuting externally from the municipality. Here cyclists and pedestrians as well as public transport are valued higher than privately owned cars.

Finally, a clear indicator in relation to the amount and quality of paths in and around the area is expressed, here the value is regarded as that of making people choose to take their bike rather than their car.

Filling the blanks

Some of the MoC identified though our analysis does not have an eminent answer. In order to be able to provide recommendations that can be seen to aid the workgroup in answering the identified MoC and support the values that have been expressed, we choose to perform a literature review to fill in the identified gaps and create a more comprehensive understanding of the potential benefits associated with developing a healthy, social, green, and climate resilient urban area in Albertslund and beyond.
The literature review in the following section is therefore also carried out with the aim of qualifying the responses that we are able to give.

6.7. In search of answers to the expressed matters of concern

Health

In this following section we want to present our findings from reviewing the literature on how the improvement of health is being discussed, valued, and measured in an urban context as well as, what indicators are important to be aware of, in order to utilize the improvement of health as a planning object, within urban development. At the core of our search is the linkage between expressed health benefits and sustainable infrastructure elements, such as green infrastructure (GI) and Urban green spaces (UGS), as one is found to be the outcome of the other (Barron et al., 2019; Douglas, Lennon, & Scott, 2017; Engström & Gren, 2017; Lee & Maheswaran, 2011).

In the literature, we see three main value categories of health expressed, i.e. physical activity, mental health, and social health. Within each of these categories, an array of specific benefits is presented and discussed. The categories are, however, also interrelated, as for instance increased physical activity will have a beneficial effect on mental health, and vice versa.

Starting in the category of physical activity, we learn that the positive effects from having UGS is primarily related to the recreational value it offers, i.e. urban green spaces, motivates residents to go for either a walk or a run (Adkins, Dill, Luhr, & Neal, 2012; Richardson, Pearce, Mitchell, & Kingham, 2013).
When exploring the associated benefits of increasing physical activity by having UGS available, the main benefits expressed are, lowering the risk of being obese or overweight (Richardson et al., 2013), reduced the risk of cardiovascular disease (Kumar et al., 2019), improved mental health (Annerstedt Van Den Bosch, M. et al., 2016), decrease the risk of type 2 diabetes (Kumar et al., 2019), and lastly less

chance of developing certain types of cancer e.g. colorectal cancer (Lee & Maheswaran, 2011).
If we take to the second category i.e. mental health, the values relate to the view and tranquility that the presence of UGS foster.
Within this category the associated benefits are expressed to be lower stress levels (Douglas et al., 2017), better self-esteem, mood and cognitive function (Richardson et al., 2013), and fewer depression symptoms (Douglas et al., 2017).
As the third and final identified category we have social health, which relates to the interactions that are enabled by having UGS available. The concrete benefits related to this value is found to be increased social capital (Lee & Maheswaran, 2011), enhanced personal and social communication skills (Lee & Maheswaran, 2011), maintaining neighborhood ties (Kumar et al., 2019), and increased sense of belonging (Kumar et al., 2019).

The benefits that are identified in this part of the literature review are partially based on statistical studies, where the availability of GI and UGS is studied in relation to substantial health-surveys, asking residents about their general health (Adkins et al., 2012; Kumar et al., 2019; Petersen, Schoen, Liedtke, & Zech, 2018; Richardson et al., 2013). They are, however, also based on more qualitative and case-based studies, where identified benefits are sought recreated (Annerstedt Van Den Bosch, M. et al., 2016; Engström & Gren, 2017). Lastly, they are based on other literature reviews conveying the health-based values associated with UGS (Douglas et al., 2017; Kumar et al., 2019; Lee & Maheswaran, 2011).

In regard to how the benefits are measured and qualified, we see that the quantity based, and statistical models are prone to look at historical data, from datasheets, indicating reported illnesses and general health of the local citizens before and after UGS interventions. However, with the qualitative approaches we see that specific health indicators such as cortisol-levels, blood pressure, BMI, and average amount of sleep are the commonly used metrics.

In order to achieve these stated benefits, the literature points to different indicators that can be utilized as concrete planning metrics when seeking to implement UGS with the purpose of fostering physical activity, mental health, and social health. These include, the presence and amount of green space (Barron et al., 2019), the quality of the nature (Adkins et al., 2012), the linear distance to UGS (Annerstedt Van Den Bosch, M. et al., 2016), amount of time spent in green spaces (Barron et al., 2019), and the connectivity or availability of the green spaces (Richardson et al., 2013).

Within the literature, different uncertainties are also outlined, and certain dependencies are explored. One of the stated uncertainties from the earlier literature is, if the correlation between achieving health benefits from UGS can be explained as a function of the linear distance between resident and UGS. This has however in the newer literature been tested, and they found that the actual walkable or stepwise distance was a more eloquent metric (Engström & Gren, 2017).

The last thing we want to touch upon are the expressed dependencies found in the literature. The most prominent being that gender and age are found to be impacting precautions when it comes to activating the identified health benefits.

In relation to age, it is agreed upon that not all age groups are equally represented in UGS as teenagers and elderly citizens are observed less (Lee & Maheswaran, 2011). However, the importance of exposing children and teenagers is great, as this exposure carries over to adult life (Douglas et al., 2017). In relation to gender, it is found that women are less likely to utilize UGS than men, possibly due to safety concerns (Douglas et al., 2017). These dependencies are something for us to be aware of, when interpreting the different metrics related to gaining health benefits through UGS.

Nature

In this section we dive into the literature surrounding how UGS and urban water bodies can be beneficial in countering urban issues that are related to climate change. The immediate values that are expressed in this regard are related to carbon storage and sequestration, minimizing heat island effects, reducing air pollution, and increasing biodiversity.

While much of the literature reviewed agrees that there are positive effects of green spaces in an urban context, they tend to do so in general terms, primarily stating that it is shown to be good, but not specifically how this effect is attained (Ahern, Cilliers, & Niemelä, 2014; Bonthoux, Chollet, Balat, Legay, & Voisin, 2019; Derkzen, van Teeffelen, A. J. A., & Verburg, 2017). The articles mostly regard the specific elements and how they contribute, as out of scope for the study they have conducted and prefer to develop complex assessment methods instead.

However, this seems to be a common trend as we has found several articles stating a need to create guidelines for urban designers, planners and decision makers to better equip the development and prioritization of green spaces in urban planning (Ahern et al., 2014; Bonthoux et al., 2019; Brink et

al., 2016). Here Ahern et al. (2014) argues that *"While such assessments are useful to establish specific benchmarks, and for measuring progress toward sustainability and resilience goals, they do not motivate, or support the innovations required to provide specific ecosystem services as an intentional part of routine urban and infrastructure development activity by municipalities and professionals."* (Ahern et al., 2014 p. 254).

As such, this next section will explore the four aforementioned values in relation to their associated benefits, as well as, how they are either measured or sought to be made measurable as well as discussing any shortcomings or dependencies.

Carbon storage and sequestration

It is commonly agreed upon that Trees have the ability to capture and store carbon. Furthermore, from the American study by Nowak & Crane (2002) a correlation between local carbon levels and urban forest have been identified and studied. In conducting this study, they have become more comprehensive both in terms of models created to account for the effect as well as data available for taking it into account, at least in the US. In their study, they have looked at 8 major cities in the US and they have found that the national average urban forest carbon storage density is 25.1 tC/ha, compared with 53.5 tC/ha in forest stands (Nowak & Crane, 2002). It is further highlighted that *"Large healthy trees greater than 77 cm in diameter sequester approximately 90 times more carbon than small healthy trees less than 8 cm in diameter"* and that *"Large trees also store approximately 1000 times more carbon than small trees"* (Nowak & Crane, 2002,p. 384). While these values can seem abstract when out of context, the central notion that we take with us, from this study, is that larger older trees in an urban context, while often fewer than what you would find in natural forests, are often larger in dimension and because of this better at sequestering carbon from the air. The other notion we take with us is that a substantial amount of new smaller trees would have to be put in its place if one were to match the effect of the larger tree. However, as urban trees is seldom in the range of hectares, it can also be assessed *"on a per unit tree cover basis, carbon storage by urban trees (9.25 kgC/m^2 cover) and gross sequestration (0.3 kgC/m^2 cover) assuming 100% cover"* (Nowak & Crane, 2002, p. 385)

These numbers because of the data size and the differences in geography should, as the article also argues, be taken as indicative values as they represent averages. But the recommendation and tendencies that can be shown through this large study is however consistent and can be useful for informing decisions in regard to removal of trees or establishment of new green areas where existing trees are already present.

Minimizing Heat island and cooling urban areas

Another central effect is that of reducing what is referred to as Urban Heat islands or UHI (Derkzen et al., 2017). This phenomenon has to do with the multiple dark-colored surfaces and hard-faced surfaces that often appears in an urban context like pavement, walls and roofs as they absorb the heat to then re-radiate it back out in the air creating higher temperatures in paved areas. This problem is, however, most common in densely populated cities but might also have an effect in more mundane neighborhoods with large areas of pavement and tiles.

To counter this heat island effect a multitude of the studies that we have reviewed emphasizes that *"Urban greenery can contribute to reducing UHI effects by (a) shading surfaces and (b) evapotranspiration from vegetation and soils to keep surfaces and media cool relative to their non-green counterparts."* (Pochee & Johnston, 2017, p.19). The importance in having vegetation and trees to provide a cooling effect instead of utilizing lighter colored materials (albedo effect) is set to be that *"(...) unless the thermal energy was transformed by living vegetation, the problem of excess heat in the urban environment persisted"* (Pitman, Daniels, & Ely, 2015, p. 100)

Trees and vegetation perform this positive reduction of the UHI effect by providing shade to urban surfaces from solar radiation. The measurement that is used to assess it, is the Leaf Area Index LAI (Pitman et al., 2015) indicating the ratio between leaf area and ground surface area. To perform this, trees with large dense canopies are often favored as they provide significantly better coverage (Pochee & Johnston, 2017).

Moreover, a difference in effect can be attributed the tree and vegetation type as well as the context they are acting in, and it is estimated that *"(...) surface temperatures within a green space can be 20C lower than that of the surrounding urban area, giving rise to 2– 8C cooler air temperatures and a cooling effect that extends out to the surrounding areas* (Pochee & Johnston, 2017, p. 19).

Reducing air pollutants

Another effect of rich UGS is the potential reduction of air pollutants (Pitman et al., 2015; Pochee & Johnston, 2017) this effect is described as a mixture of mechanisms including deposition, absorption and dispersal. For example, an experimental study on PM10 found that vegetated surfaces could trap up to 30 times more particulate pollution than smooth concrete surfaces (Pochee & Johnston, 2017, p. 737). Further, the aforementioned cooling effect of trees and vegetation has been shown to aid the reduction of air pollutants as higher temperatures has been found to accelerate the formation of urban smog (Pitman et al., 2015, p. 103).

Pochee & Johnston (2017 further argues that two important elements play a role in the potential effect. Firstly, the tree type, as it is found that coniferous trees, such as pine trees can have a higher potential to remove pollutants than broadleaf trees, by up to 10 times the amount (Pochee & Johnston, 2017).
The second effect is that adding trees to what is termed "street canyons" it can increase the local pollution as air and wind has a harder time moving though the area, lowering the mixing of air pollutants with fresh air (Pochee & Johnston, 2017, p. 740)

Biodiversity

While green infrastructure is often mentioned as being central to provide the needed ecosystem services for increasingly dense urban areas, bio diversity within these green areas is a subject the literature reviewed has had little focus on, this can be ascribed to the matter of local species diversity, making generalization challenging. But it is nevertheless peculiar to us that matters of species diversity and the presence or absence of flora and fauna, is not a more significant element in the suggested assessment methods and studies.
What can be said from the two article that deal with the subject is that green spaces and water bodies such as fresh water ponds can be favorable sanctuaries, rich with flora and fauna diversity if established and managed correctly (Monberg, Howe, Kepfer-Rojas, Ravn, & Jensen, 2019; Oertli & Parris, 2019)
In the sustainable urban drainage systems (SUDS) experiment carried out in one study, it was argued that especially *"(...) pollinators can be supported in urban areas by creation of pollinator-friendly habitats which include provision of nectar and pollen-rich floral species, and high plant species diversity"* (Monberg et al., 2019, p. 2) and that *"(...) sites dominated by native species have been found to attract more pollinators than sites dominated by exotic species, but exotic species known to perform well under urban conditions can prolong access to floral resources through a season"* (Monberg et al., 2019, p. 2)
Moreover, ponds and freshwater bodies in urban areas are seen to provide a space for endangered species as urban ponds are often better managed and thus have a higher degree of control in terms of pollutants (Oertli & Parris, 2019).
Lastly, a proper connection to other bodies of water and green space, can add further benefits to the presence of more biodiversity adding to the local biological cycle.
Both studies argue for more biodiversity in the urban context but argue that this can often be in conflict with people's perception of aesthetics. Even though people in general favor more diverse nature in their neighborhoods as it among other things is said to contribute to a more dynamic local area (Derkzen et al., 2017).

Social

This final section of the literature review deals with the literature surrounding the social value-elements of UGS. As with the other value elements we want to present what associated benefits are being discussed within the literature as well as how they are achieved and measured when approaching it from a planning perspective related to urban development. Contrary to the health category, benefits that are expressed within this social category is seen as more of a prerequisite i.e. if the social benefits are not achieved to an extent, it will negatively impact the potential health benefits (Dennis & James, 2016; Jennings & Bamkole, 2019; Kruizse et al., 2019; Mancus & Campbell, 2018).

Within the literature, a series of social benefits are discussed, however, a clear distinction is made between what is regarded as the primary benefits, and then the lesser proved but still acknowledged secondary benefits.

Starting with the primary benefits, these include, what is regarded as literal social benefits i.e benefitting the the social fabric, and then the derived benefits of safety.
The benefits that are related to the social fabric are an increased amount of socializing between users (Jennings & Bamkole, 2019; Keniger, Gaston, Irvine, & Fuller, 2013; Peschardt, Schipperijn, & Stigsdotter, 2012), a higher degree of social cohesion (Jennings & Bamkole, 2019; Keniger et al., 2013; Mancus & Campbell, 2018), sense of attachment, belonging and inclusion (Jennings & Bamkole, 2019; Parker & Simpson, 2018), and an increase in social empowerment (Keniger et al., 2013; Russo & Cirella, 2018).
Exploring the safety related benefits, we see that the perception of safety is regarded as a prominent enabler of gaining the associated co-beneficiaries from UGS, and as such, multiple articles in the literature expresses this observation (Dennis & James, 2016; Hunter et al., 2019; Kruizse et al., 2019; Mancus & Campbell, 2018; Russo & Cirella, 2018; Stessens, Canters, Huysmans, & Khan, 2020). Further, the reduction of crime is discussed in some of the articles as an outcome of having UGS and the increased perception of safety (Dennis & James, 2016; Hunter et al., 2019; Mancus & Campbell, 2018), however, the results are inconclusive and contradicting (Mancus & Campbell, 2018).

Looking at the secondary benefits related to the social values from UGS interventions, we see benefits identified, such as economic well-being related to the mitigation potentials of UGS (Venkataramanan et al., 2019), mental restoration, also discussed in the health section (Peschardt et al., 2012), and increased awareness derived from stimulating, curiosity and exploration (Riolo, 2019).

The identified benefits presented in this part of the literature review originates from either qualitative studies based on observations and interviews (Hunter et al., 2019; Peschardt et al., 2012), comprehensive literature reviews (Dennis & James, 2016; Jennings & Bamkole, 2019; Keniger et al., 2013; Mancus & Campbell, 2018; Parker & Simpson, 2018; Russo & Cirella, 2018; Stessens et al., 2020; Venkataramanan et al., 2019), or quantifiable surveys/questionnaires (Carrus et al., 2015; Riolo, 2019).

In regard to measuring the achievement of the stated benefits, the articles also discuss how this can be approached, and to some degree how they have gone about it. The stated metrics includes looking at the reported crime rates (Dennis & James, 2016; Keniger et al., 2013; Mancus & Campbell, 2018), incidents of vandalism (Hunter et al., 2019), local interaction between residents (Jennings & Bamkole, 2019; Keniger et al., 2013), amount of young citizens/kids that are out and at what time of the day (Kruizse et al., 2019), the number of get-togethers in the area (Jennings & Bamkole, 2019; Peschardt et al., 2012; Russo & Cirella, 2018), and lastly the willingness to pay for living close to UGS areas (Venkataramanan et al., 2019).

In addition to measuring the benefits, we were also interested in learning how current research denominates the operationalization of these benefits i.e. what are the elements that can assist planners or decision-makers in achieving these benefits when implementing UGS.
The literature points to a couple of indicators, they are however scarce, and a call for more research on this area is made, to reinforce the indicators effectiveness and to uncover more (Hunter et al., 2019; Jennings & Bamkole, 2019).

The indicators that are identified as having an impact in relation to gaining the expressed benefits are however, more and higher quality lighting (Hunter et al., 2019; Kruizse et al., 2019), clear and many footpaths (Hunter et al., 2019; Kruizse et al., 2019), well maintained and as such high quality of UGS (Jennings & Bamkole, 2019; Mancus & Campbell, 2018; Parker & Simpson, 2018; Stessens et al., 2020), and lastly a low amount of rubbish (Hunter et al., 2019).

Lastly, we want to present some of the discrepancies that we have found within the literature, besides that of the uncertain correlations between UGS and actual crime rates.

Two of such are highlighted in the literature, and the first one is that of light pollution as a function of establishing, perceived safety in relation to UGS. Here we see Hunter et al. (2019) state that the *"(...) provision of lighting in UGS may increase perceptions of safety and increase usage of the space yet reduce biodiversity due to light pollution causing birds to migrate from the area."* (p. 3). As such we see this dynamic affecting natural benefits of UGS interventions.

Further, the potential for achieving the stated benefits is most likely to happen due to a change in behavior (Kruizse et al., 2019) leading to non-users becoming users. Moreover, it is argued by Kruizse et al. (2019) that *"(...) behavior change can best be achieved at moments in people's lives when contexts change and during periods of transition"* (p. 6). Thus, aligning well with the development of a new neighborhood, as people move there, changing their context.


96-'02
SOLUTION

In this chapter, we are presenting our proposal, as well as detailing its different elements and intricacies. The solution is to be seen as a series of recommendations addressed to first and foremost the workgroup dealing with the development of Hyldagerkvarteret, and secondly urban planners, decisionmakers, and other practitioners within the field of sustainable urban planning and development. A total of 6 recommendation areas are put forward i.e. Navigating towards local urban sustainability, Urban Health, Urban Greening, Urban Happiness, and Urban Mobility, the latter five of these relate to desirable and concrete values related to urban planning.

The former of the recommendations, is to be seen as a prerequisite for the successful achievement of the others, as it relates to the overall process of working with and approaching the remaining recommendations.

The recommendations are based on the synthetization outlined in the previous chapter, in conjunction with the supportive literature review. As a final measure, we have further reinforced and supported our findings and established knowledge, in regard to developing these recommendations, with findings from grey literature on established cases and the takeaway from these, both international, as well as Danish.

The framework that we are recommending is set-up based on the values and benefits that the planners seek to plan for, i.e. What are the value and its associated benefits, in what planning area(s) is it possible to plan for it, what are the elements that can be changed and configured to achieve this, and lastly, how can it be assessed if the benefits and as such the values have been implemented.

The information that can be found in each of the five latter recommendations is structured as depicted in figure 26, but will be further described in the following section:

Header
The kind of urban area one is seeking to plan for.

Introduction
An elaboration or explanation of what the header entails, as well as a brief statement on why it is important. Furthermore, it is stated how it has been talked about or expressed in our study, and where it is expressed in Albertslund's municipal strategy *Mere Albertslund*

Values and associated benefits
This details the value that is sought to implement in the urban environment, as well as outlining the benefits that can potentially come from offering the value.

Planning area
The physical area(s), that can be utilized to offer the desired **values and their co-beneficiaries.**

Triggers
The physical elements that have either a direct or indirect effect on the successful delivery/achievement of the **values and their co-beneficiaries**. As such these elements are what one can alter, change, form, mitigate, add or remove, to create the best possible selection environment for the stated **values**.

Indicators
The quantitative and qualitative measures that can be used to indicate the degree of which the **values** have been achieved

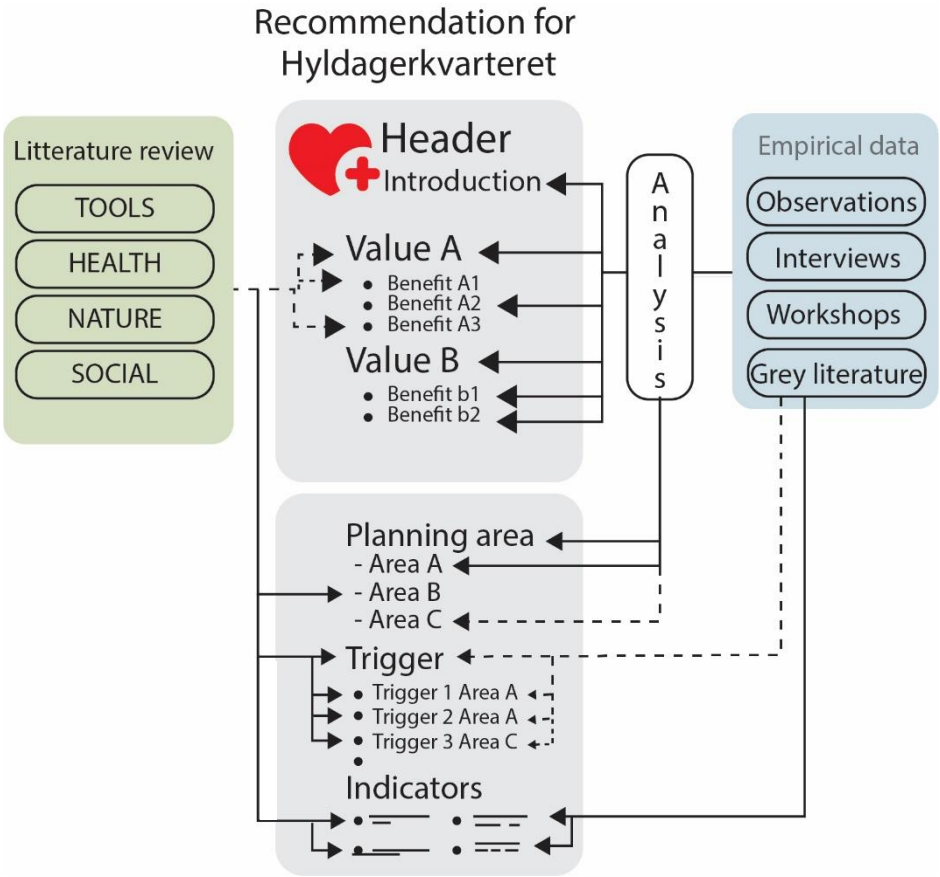

Figure 26: Structure of the 5 planning element recommendations, and how our research feeds into them

7.1. Navigating towards local urban sustainability

Navigating urban development projects such as the case of Hyldagerkvarteret towards being established with an emphasis on cohesion, more sustainable holistic solutions, and climate adaptation aspects is a complex affair to say the least, uncertainties and compromises can become even more present as these new stakes and MoC, not previously articulated, comes into focus and demands recognition in the network. The result can however also turn out much more far reaching and favorable, beyond the site-specific context.

The proposed recommendation, that is the solution, where we have seen a correlation and opportunities for experimentation (understood in reference to the TM perspective)
Here we have further sought to support these expressed opportunities through the values that speak for these directions and the benefits that they can enable. The foundation of these recommendation can further be seen to give the proposed experiments agency and a network that are able to talk on its behalf.
Indicators and measurements are not only proposed to enable the foundation for comparison and static assessment. But is there to contribute as a driving force and navigational reference point in these experiments (Nevens et al., 2013).

We have therefore sought to create alternative metrics and parameters that can contribute to this necessary navigation that evidently will be necessary.
We do however see and wish to emphasize that there will always be an inherent shortcoming in creating a static approach to measuring and talking about benefits and values. As these will dynamically develop in relation to the experiments, that they help to frame.
Therefore, they should rather be seen as an outset for creating a language about moving towards more urban sustainability.
This vocabulary or language can however only be learned by actually using it and only survive and gain agency as an actor by being shared with others, that in turn will adapt it and innovate on its original premise. By sharing and using this vocabulary with others though the inclusion of these new disciplines and local actors in urban development process, enabling that wider thoughts and wishes about the future capacity of cities and urban areas can be exerted
When navigating this process, one should therefore always seek contemporary and local knowledge to affirm or displace the perceived issues that are seen to exist as well as the perceived values and benefits that are sought to be established. By taking these new softer disciplines and local

actors such as: schoolteachers and students, pedagogues, health care workers, people engaged with youth and culture, and nature enthusiasts, and use them as co-navigators or maybe more accurate pilots. We gain the affirmation of perceived affordances, the stabilization of the proposed benefits in relation to the site-specific context as well as the knowledge of local specificities that can be reinforced and support a more prosperous arrival at the desired "shore" of a new urban area.

Furthermore a central aspect in bringing in local actors and stakeholders early on in the process but also during it, can maybe best be described as a matter of anchoring values that are created in actors that stays with the project after it has been initially developed, when the urban planners have left for another shore, and iterates and improves on the bases that they have taken part in creating.
From our interview with Jan Holm he talks about the importance in bringing in actors when developing new areas: here he argues that: *But of course, the citizens should be able to put their mark on the landscape, that is to be developed there. It is the city of the citizens, it is them that are going to be here, use it and therefore value it. We are just transiting through and facilitating while we are here, and tomorrow we might be somewhere different entirely* (Jan Holm, 2020).

In relation to navigating towards a more engaging local urban sustainability practice we recommend the following:

- Map out potential actors in and around the area, its use, and its connection to the surroundings. This enables you to engage potential stakeholders and disciplines that could benefit or have concerns related to the case.
- Initiate a simple "startup" workshop early on, to establish the project and process and engage the different actors in it.
    - As tested in the workshop part one, mapping out areas of interest and/or concerns can create an overview of overlaps and gaps in knowledge and interests.
    - From the workshop part two we saw that having actors, at the workshop, bring something from their own professional field, or of interest, to the table and boast about it, can be a great way to explore the set of values they represent, and what MoC and opportunities they see. Doing this as a knowledge sharing exercise greatly helps to create alignment and the boasting examples act as boundary objects (Carlile, 2002) for future engagement as well as reference points.

- A shared vision should be developed that enables alignment and outset for further action and experiments
    - Creating a common piloting mark that is broad enough to include the multiplicity of actors, their interests and concerns but narrow enough to create collaboration and alignment, is a tightrope, but evidently what enables a successful process.
    - From the workshop part four we see that having physical examples, maps as well as a common language to talk about the values, enables both common knowledge sharing and vision building
- Create a common set of indicators and metrics that the project and the specific experiments, (that are aimed at overcoming the identified barriers, or seek out opportunities) can be held up against as well as drive them forward.
    - Indicators and metrics will always develop with the project and it is therefore crucial to iterate them as well as align the different actors engaged in the overall project, often.

7.2. Urban Health

When planning for Urban Health, we refer to the general health of the citizens that live there. The general health of citizens is of great importance in maintaining a high degree of social engagement, and a desirable city.
In conducting this study, we have seen two apparent branches of health being discussed in relation to what we have stated as Urban Health i.e. that of physical health, and that of mental health and well-being.
Furthermore, values related to the health of citizens are also expressed in *Mere Albertslund* in values 1, 5, 6, and 8.

Values and their associated benefits

- Improved physical health
    - Lowering the risk of becoming obese or overweight
    - Reduces the risk of getting cardiovascular disease
    - Improved mental health
    - Decreases the risk of getting type 2 diabetes
    - Reduces the chance of developing certain types of cancer e.g. colorectal cancer
    - Increased level of energy
    - Reducing pressure on the health system

    - Reducing costs for the public system

- Improved mental health and well-being
    - Reduces the stress levels
    - Increases self-esteem, mood and cognitive function
    - Reduces the symptoms of, and tendency to, depression
    - Increase social engagement
    - Increased level of energy
    - Reducing pressure on the health system
    - Reducing costs for the public system

Planning area - The areas within which the benefits can be achieved/planned for, in relation to their value

- Urban nature
- Recreational spaces
- Climate adaptation solutions with recreational elements
- Mobility infrastructure - Roads, tracks, paths

Triggers - The specific planning elements that the planner can use to enable the value creation and its benefits

- Attractions that give citizens a destination, or along the way, and thus the motivation, to get out and go for a walk or a run
- Tracks and pathways, increasing the amount and quality of infrastructure that enables citizens to walk, run and bike
- Noise, mitigating noise-pollution by slowing down motorized traffic, changing the road surface, and limiting the number of vehicles will positively impact the well-being of the citizens. Alternatively, trees or other natural elements can be put in place, as a barrier for the noise
- Accessibility/Connectivity, minimizing the barriers between the home and the aforementioned planning areas in regard to road crossings or perceived obstacles
- Proximity, both the perceived nearness and stepwise walking distance to the planning areas can greatly affect people's willingness to get out
- Safety, having a high feeling of safety will motivate citizens to go out, and will also contribute to their well-being
- Quality in management of the area, having a high quality in regard to upkeep, maintenance and litter within the planning areas, can motivate citizens to use them

- Involve citizens in creating activities and alternative use of public areas

Indicators

- Normal BMI of citizens
- Regular blood Pressure
- Regular cortisol-levels
- Average amount of sleep
- Average amount of people taking a walk in the area (pass point counting)
- Average amount of individuals that sits in or use the planning area
- Ratio of people engaged in outdoor physical activities on a day-to-day basis
- Perceived quality of life - asking citizens about how they perceive their quality of life, is considered a way for practitioners to estimate the general health of the local community

7.3. Urban Greening

When planning for Urban Greening, we refer to the health and quality of the nature that is present within the local environment. The quality and health of urban nature is crucial in relation to biodiversity retention and enabling a healthy and resilient nature and protecting and equipping ecosystems.

In this study, we have seen this matter being appointed two primary values i.e. that of increasing biodiversity, as well as protecting and equipping ecosystems and natural habitats to be more resilient and self-sustaining.
Furthermore, values related to urban nature are also expressed in *Mere Albertslund* in values 1 and 2.

Values and their associated benefits

- Increasing biodiversity
    - Increase habitat fragmentation and contribute to species diversity and health
    - Improved ecosystem health and function
    - Improve Species richness
    - Creates species resilience
    - Potential for educational and classroom activities

- Protecting and equipping ecosystems
    - Increases the amount of pollinators
    - Increasing accessibility and mobility for species between blue/green areas
    - Increase amount of mating habitats
    - Increase amount of nesting habitats

    - Increase amount of natural cover and shelters
    - Increase availability of natural nutrient sources
    - Enable conservation of local species
    - Ensuring connectivity between habitats
    - Cleaning water, soil, and air

Planning area - The areas within which the benefits can be achieved/planned for, in relation to their value

- Urban nature
- Recreational spaces
- Climate adaptation solutions with green or recreational elements
- Mobility infrastructure - Roads, tracks, paths

Triggers - The specific planning elements that the planner can use to enable the value creation and its benefits

- Changing grass areas to wild nature
- Reduce management pressure allowing the appearance of moderate spontaneous vegetation
- Using rich soil or enriching the present soil
- Closing the nutrients cycles thought ecological means
- Diversifying pond types and design of the established water bodies
    - Making steep slopes at the margin of ponds can benefit some elements of biodiversity
- Increased green spaces, covered by lawns, meadows, shrubs, and trees (e.g., in parks or gardens), can also benefit biodiversity
- The establishment of bioretention basins can contribute positively to biodiversity conservation
- Minimize large infrastructures that can acts as barriers
- Decrease light pollution
- Preserve old and dead trees, as they act as habitats and biotopes

Indicators

- Rich and diverse bird life
- Level of nest building activity
- Increase in the amount of species
- Increased spread of plant species
- Increased quality of water
- Increased quality of soil
- Improved health of soil
- Presence of fauna on the different ecosystem levels
- Identification of key (healthy ecosystem) fauna / floras
- Spread of flora other than grass types outside of established green areas
- Amount of kindergartens and schools visiting for field trips

7.4. Urban Climate Resilience

When planning for Urban Climate Resilience, we refer to the robustness, and resilience related to climate change dynamics, of local urban areas. Having robust and resilient urban areas is essential in preparing for and reducing the impact from weather events related to climate change.
Through this study, we have identified four apparent values assigned to what we attribute Urban Climate Resilience. These are carbon storage, minimizing heat island effects, reducing air pollutants, and managing cloudbursts and rainwater.
Furthermore, values related to urban nature are also expressed in *Mere Albertslund* in values 3 and 9.

Values and their associated benefits

- Carbon storage
  - Mitigating climate change
  - Reducing carbon footprint of local area and city in general
- Minimizing heat island effects and cooling cities
  - Mitigating heat strokes
  - Quality of life
  - Minimizing energy used to cool buildings and cars
- Reducing air pollutants
  - Healthy air to breath
  - Quality of life with citizens with respiratory illnesses (asthma, reduced lung capacity, allergies)
  - Improved general health
- Rainwater and cloudburst management
  - Flood mitigation
  - Reducing capacity demand for sewage systems
  - Economic benefit in reducing property damage related caused by rainwater
  - Cleaning of the surrounding air

Planning area - The areas within which the benefits can be achieved/planned for, in relation to their value

- Urban nature
- Climate adaptation solutions with recreational elements
- Mobility infrastructure - Roads, tracks, paths
- Recreational areas
- Housing
- Public institutions

Triggers - The specific planning elements that the planner can use to enable the value creation and its benefits

- Preserve large trees as larger trees are able to store exponentially more carbon than smaller trees
- Manage water in public area and iterate solution to the dynamic development
- Prioritize surface solutions for water management
- Ensure that natural elements are present in different vertical levels
- Priorities coniferous trees, such as pine trees, as they have a significantly better potential to remove pollutants
- Avoid street canyons near roads with high traffic intensity
- Reduce the amount of dark colored surfaces like pavement, walls and roofs
- Use vegetation to mitigate thermal energy through photosynthesis

Indicators

- Lower amount of pollution particles in the air
- Decreased air temperature
- Decreased local Pollen levels
- Lower surface temperature
- Increased Leaf area index
- Increased total biomass of trees in area
- Perceived physical wellbeing in relation to temperature in open environments
- Perceived safety in relation to extreme weather events

7.5. Urban Happiness

When planning for Urban Happiness, we refer to the coherence between, and safety of, the local citizens. These elements are crucial in maintaining a strong social fabric as well as a livable city.

In conducting this study, we have seen two apparent values of planning for Urban Happiness. These values relate to the safety/perceived safety, and community.

Furthermore, values related to the happiness of citizens are also expressed in *Mere Albertslund* in values 1, 2, 4, 5, and 6.

Values and their associated benefits

- Safety
  - Enabling the citizens to gain benefits related to both, physical and mental health, as well as engage in community activities
  - Reduction of crime and vandalism
- Community
  - Increased amount of socializing between citizens
  - A higher degree of social cohesion
  - Sense of attachment, belonging and inclusion
  - An increase in social empowerment
  - Increase in associations, which enables more recreational activities for the citizens
  - Potential increase in social innovation

Planning area - The areas within which the benefits can be achieved/planned for, in relation to their value

- Mobility infrastructure - Roads, tracks, paths
- Community areas - green spaces, recreational areas, dedicated community areas
- Housing

Triggers - The areas within which the benefits can be achieved/planned for, in relation to their value

- More and higher quality lighting, gives a better overview, enables citizens to be seen by others
- Clear and plenty of footpaths, as it makes traveling by foot accessible and gives alternatives in regard to what route you take if you are not comfortable going past someone else
- Minimizing obstructions such as bushes near mobility infrastructure, ensuring good overview and visual contact
- Well maintained and high-quality community areas
- Amount of trash cans or trash management solutions, lowering the amount of litter
- Socio cultural elements - using or referring to cultural elements can increase sense of attachment, and belonging
- Institutions for citizens to engage in and gather at
- Diversifying the housing types in the area, thus catering to a diverse demographic
- Amount of private area in relation to community areas
- Increasing the amount of places to dwell and meet others, either sitting or standing

Indicators

- Amount of associations in the local community
- Amount of litter in the planning area
- Reported crime rates
- Number of local initiatives that are taken to improve the area
- Incidents of vandalism
- Perceived safety hazards in the area
- Perceived attractiveness of area
- Amount of random/casual encounters between residents
- Amount of intentional day-to-day local interaction between residents
- The amount of young citizens/kids that are out and at what time of the day
- The number of both formal and informal get-togethers in the area

7.6. Urban Mobility

When planning for Urban Mobility, we refer to the accessibility related to different forms of mobility. Offering good accessibility in relation to mobility is instrumental for the citizens engagement with the outside-areas, as well as connecting the different parts of the city, and even different cities

In conducting this study, we have seen two apparent values when planning for Urban Mobility. These values relate to the accessibility and safety of traveling locally, as well as fostering healthy and green mobility.

Furthermore, values related to the citizens' mobility are also expressed in *Mere Albertslund* in values 1, 6, 7, and 8.

Values and their associated benefits

- Accessible and safe mobility
    - Enabling citizens to engage with their area, and their surroundings
    - Enabling citizens to commute
    - The area caters to a larger demographic
    - Improved well-being
    - Reduced levels of stress
- Healthy and green mobility
    - Reduced Co2 emissions
    - Less road congestion

- Less noise pollution
- Reduction in air pollution
- Less need for big investments
- Reduction in maintenance tasks

Planning area - The areas within which the benefits can be achieved/planned for, in relation to their value

- Mobility infrastructure - Roads, tracks, paths.
- Electrical infrastructure
- Public transport infrastructure

Triggers - The areas within which the benefits can be achieved/planned for, in relation to their value

- The amount and quality of roads, tracks and paths
- Granting cyclists and pedestrians priority when crossing roads
- Diversifying the infrastructure for different modes of mobility
- Separating tracks and paths from the road net
- Good lighting in the planning area
- Clear and comprehensible signage
- Clear and transparent road and path system
- The presence of public transport
- The ability for public transport to answer to citizens needs for mobility
- Charging infrastructure for e-mobility
- Ensure that bike racks are available
- Ease of changing transportation mode on the journey

Indicators

- Utilization of public transport
- Amount of cyclists
- Amount of pedestrians
- Amount of kids that are able to commute to school on their own
- Level of road near air pollution
- Amount of free spaces for bike parking,
- Frequency between day and night of bike parking
- Perceived accessibility of citizens
- Perceived safety when traveling by foot or bike

DISCUSSION

8.1. Digital workshop as a modern means to actor engagement.

As elaborated in the research design section 1.2 the physical workshop and co-design process that we intended for, was converted into a digital one. We therefore see a point in discussing our experience with digital co-design, its benefits, and limitations.

Setting up a space for designerly interaction can affect how the individuals engage in the process and physical space (Pedersen, 2016). With the digital workshop as opposed to a physical, we were able to manipulate the "whole space", framing reference material and case studies in relation to the design game that we engaged the actors in. Setting up everything is, however, also more extensive than what would regularly be the case, and information overflow and focus can thus in the same way become a hindrance in enabling interaction and contributions from the participants. A whole element in itself is the lack of immersiveness, for while one can engage oneself in a digital space and participate in the on-screen activities. You are still sitting in your living room or kitchen. Presence and immersiveness that is maybe normally taken for granted, in physical workshops can therefore be seen to become key for a fruitful interaction output for all parties involved.

One of the positive experiences we have had in conducting workshops and interactions digitally, is that the accessibility of simple interactions and basic knowledge mapping elements is enabled remotely without the resources and time that is normally demanded for people to get together.

At present there is however still a gap, in what kind of participation that people are able to do.

While we, from our interaction in this project, have had rather good experiences with individual interaction and using a digital platform to simply map or elaborate on MoC, the more creative part of designing and developing things together is where the digital media becomes a barrier, discouraging participants to perform in.

The tacit skills and abilities that most people have to perform creatively in a digital space, is simply not present in our experience. A screen and in most cases a touchpad do not lend themselves as viable tools in relation to the kind of broad interaction that we find important. Demographics and professions can of course have a clear effect on people's ability to interact through digital media, but we still see an increased need to qualify participants to be able to engage in workshops digitally. Learning to navigate and interact with and create elements in a program or digital design space, is not a prerequisite for non-designers and people with limited digital capacities in the same way as making a playdough house or drawing a person next to a pond might be in a physical workshop setting. Developing tools and ways to

develop such skills that easily enable people to partake in designerly engagements digitally, could therefore be of interest to explore further.

In the workshops we performed we chose to interact with individuals of the work group separately instead of as a group. This was a very conscious choice related both to the digital capabilities of the people we engaged but also the chaos that we ourselves had already experienced through webinars, online workshops, and classes, where people tried to do things together. We however also clearly acknowledge from our experience with physical workshops and interactions, that doing workshops with several people, if done well, can create major benefits as knotworking, knowledge sharing, and alignment happens when different actors' matters of concerns and values are shared and explored in a common space, such as in a workshop setting.

8.2. Participation as key to more urban sustainability?

A central aspect in both our approach to the field, the literature we have reviewed and the recommendation we have made has been the matter of participation, but much in the same way as we have experienced the perceived "good of green" as a unqualified notion. Creating "new" thought the participatory engagement of actors from different fields, with different intentions and agendas, can quickly become a matter of great concern for those who wish to facilitate such a process and come out on top with a useful outcome. So why is participation even important and how does it measure up against the extra resource that is poured into such a process. From the literature we have used throughout this study it is evident that because more and more people choose to live in the city and the cities therefore also grow, to the point where we now have half of the world population living in an urban environment (Frantzeskaki, Hölscher, Bach, & Avelino, 2018). Cities and municipalities have moved from just being a provider of services to taking a strong role in creating more livable and sustainable cities with more ambitious policies and strategies popping up every day. There is a clear shift from just acting and performing these services effectively to taking action and create value in a broad sense. (Nevens et al., 2013)

Providing these values however also demands a need for new knowledge and competencies from disciplines not inherently related to the field of planning and development of cities, as well as the ability to integrate a larger degree of citizen interaction in public action (Frank Brodersen, 2020). For some, this can be seen as a greater challenge and a cumbersome process of trying to draw things together, only to increase complexity and the correlated extra time used on it. However, we have thought this, and former studies only experienced the opposite, because while the planning practice and incumbent regime might not presently enable a higher degree of participation, in public matters. We see that if done right, with aligned actors that move towards a shared vision, communities in an urban context can move beyond just living in a space and create a more innovative, versatile, and sustainable space to inhabit (Manzini & Coad, 2015). Central to achieving this is however the ability to facilitate and integrate other views, values and concerns than presently and have a language to discuss the envisioned future with.

8.3. Protecting ourselves from the present, rather than dreaming about the future.

A popular definition of sustainability is that *"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."* (Our common future, 1987). However, when studying and planning for sustainability there is an inherent tendency to focus on protecting ourselves and future generations from what is coming, rather than dreaming about what could be. We have also seen this in our work, developing this thesis, as we have engaged with different actors, all expressing their desire to either mitigate, reduce, prepare for, and prevent climate change effects.

"It derives from the fact that most people in our modern society, and especially our large social institutions, subscribe to the concepts of an outdated worldview, a perception of reality inadequate for dealing with our overpopulated, globally interconnected world." (Irwin, 2015, p. 235). Taking this stance as decision-makers, planners, or society sets a strong discourse on what we can allow and accept in relation to developing solutions for a sustainable future. As such, the proposal found in this thesis, is in part also a result of this. Seeing as it is our intention for it to be adopted by the planners and used to foster the development of more sustainable elements and initiatives within urban planning

and development, it has bridged with the existing discourse to find agency. However, conforming to the existing discourse does not necessarily entail that we aren't taking action towards a more desirable future. We have, though this project, strived to develop and express visions through participatory means, together with the actors we have engaged with, cognizant to not juxtapose these visions with that of outright dreams, as they are still founded in the conceived reality of the participating actors. Taking this approach is also what Gaziulusoy & Cheschin (2020) discuss as being at the forefront of 'design for sustainability' (DfS) in stating that *"(...) we are just starting to think of the ways in which DfS can really make a difference by assisting in the creation of collective imaginaries about long-term futures that are sustainable and desirable to live in, and by helping the large stakeholder base to articulate pathways to achieving these alternative futures."* (p. 163). The creation of visions and imaginaries should, therefore, be seen as crucial steps in a transition, as they allow us to dream about desired futures together.

8.4. Sustainable Design Engineering?

Approaching this project from a sustainable design engineering perspective and being able to develop a series of recommendations for the urban planning process, in regard to the design and development of sustainable, valuable, and beneficial elements in the urban environment.
Goes to show that these process and recommendation designs, are notions that can be added to the established catalog of fields and processes that sustainable design engineering is capable of engaging in.
On that note, we do feel the need to discuss how generalizable our contribution is.
The recommendations that we make are heavily founded on the identification and analysis of local networks related to the case that we have been engaged in, here drawing on local actors and peculiarities, and is therefore regarded primarily as a local contribution. However, due to the unexpected circumstances of having to develop the thesis under a global pandemic, has meant that we have navigated towards incorporating more general knowledge e.g. by drawing on other research in the supportive literature review. We see this as both an opportunity, and a limitation for the recommendations. The opportunity lies in the potential for our recommendations to be more applicable in relation to other urban planning and development projects, both in Albertslund municipality but also beyond the municipal

borders. The limitations lie in our ability to actually create a stronger local representation by engaging the different sectors in a more interdisciplinary co-design process, as we see there is a clear need to fulfill. Here, we believe that drawing on the knowledge of health workers, physiotherapists, nature-groups, care-takers etc. To develop and qualify the co-beneficiaries and how these elements of the urban environment could make a valuable contribution to achieve these benefits. As such, strengthening our recommendations in relation to the local context and peculiarities of this case and the actors that are engaged in it.

9. Conclusion

This thesis presents the story of our journey, into the field of urban development. Four months ago we set out to study this field from a transition designerly perspective, with the aim of exploring the existing urban planning processes, thus qualifying ourselves to develop more inclusive and sustainable planning objects, in collaboration with the workgroup engaged in development of the new neighborhood; Hyldagerkvarteret, in Albertslund.

Utilizing a multi-level perspective, we have been able to identify some of the barriers that are currently hindering a more holistic and externally engaging urban planning process, in the Danish municipalities. The barriers, we found, relates to the resilience created, within the urban planning regime, due to its strong institutionalization of best practice and perception of what is "good". We ascribe this resilience to hinder the integration of the more qualitative metrics, and ways of valuing more complex matters related to sustainability, urban population growth and climate change.

Through our engagement with the actors in the workgroup designated to plan the development of Hyldagerkvarteret we have been able to map out the expressed and perceived MoC surrounding this development. These included: *Infrastructure, Institutions, Housing, Accessibility, Water management, Nature & Recreation, Health & Wellbeing, Safety, and Community*. Finding 9, such diverse, areas of shared matters of concern goes to show the complexity of reconfiguring a network like the one found on the Hyldager site, but maybe more importantly the overlapping values and concerns, that is at present time only sought mitigated in matters, that the planning group, perceive as governable from where they sit.

As a response to the identified insufficiencies and MoC, we have developed an extensive set of interrelated recommendation outlining the values and their associated benefits, that one can aim to establish in different planning areas. We are further recommending tangible triggers that the planners can pull to increase the achievement of these benefits, and lastly a complementary set of indicators that can be used to assess the value created. We see that these recommendations can contribute to the creation of a more

elaborate vocabulary for the actors engaged in urban planning process, such as in the case of Hyldagerkvarteret, and help to drive a more sustainable and holistic approach when carrying out these processes.

10. Reflection

Having completed our journey of developing this thesis we find ourselves on the shores of sustainable urban development. Looking far out we see the potential it holds for enabling a grand sustainability transition. Whether our approach to try and enable new ways of approaching and co-designing an urban space is right, is in the hands of the actors that take up our recommendations. Iteration and learning from failure are an inherent part of design, the central aspect will always be to try, as only by trying things can change. We see an important research agenda in qualifying new actors to partake in creating change in cities, as they are not blinded by institutional paradigms, and are able to call out the regime saying: "But he has nothing on!" and steer cities on a better heading

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