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1. Introduction

Since the 1960's anthropology and Science and Technology Studies (STS) have found a way into the science of design, which has transformed how professionals understand and develop technology. Earlier on, professionals would practice processes, which in hindsight is deemed as them being dictators over their designed objects. A characteristic of these design processes would be a prejudiced awareness of what potential users would want or even demand that needs would arrive with the revelation of the design. However, transdisciplinary scientific studies would introduce less semantically loaded terms in practices to instead being about user-orientation, participation and co-designing. This would evolve the design processes into an inclusion of users of potential designs. No longer was the act of designing a process of crafting, instead it would broaden out to include a before- and after process to better understand the needs that would call for design to happen in the first place. This introduced the inclusion of several stakeholders ranging from the potential end-users to foresee their needs to managers with decision power through finances. In this thesis, I delve into a construction site, where an apartment building is slowly rising from the grounds of what used to be an institutional building: Klostergaarden. With the introduced characteristics of modern design, I claim that there might be missing links in its construction. As a Techno-Anthropologist I seek out to perform a network analysis of the site of study, whereas transdisciplinary efforts will be part of the toolkit. The research will be guided by the following problem formulation:

How might Techno-Anthropological, transdisciplinary methodology demonstrate a network of a presumed controversial technology?

Now it may seem early to deem a construction site controversial, nonetheless I have been made aware before the engagement of the study that this particular site has been under scrutiny for a very long time. Considering that the old building that is now demolished has existed longer than any currently living inhabitant of the city, in a most-centred position, it is not a big surprise that many opinions come to show in its transformation. My goal is to uncover the controversy through analysis. In the below, I further present the site that holds the subject of study. A massive apartment building construction site is ongoing at a somewhat nerve of the city, considering most of the public bus transportation (used to) transit through here. This construction site is particular because the whole area has been under development for some years. Behind the site is a skateboarding area that has existed for a handful of years and opposite of the building is a multi-building that contains leisure activities of sports. The opposite building has undergone a massive renovation, however, it has maintained its core elements. What sets this building apart from Klostergaarden is the fact that the one just mentioned has been modernised and the one for study is a completely new building that arises from the ground of an old institution: Klostergården. This is interesting because the name Klostergården is the name of the bus terminal, now neither the building, nor the terminal longer exist. By investigating the site, it appeared that the old building was demolished as a result of having caught fire and was decided to be torn down. It had not had any renovations for more than 40 years. I spoke with two bypassers at the site. One person told stories about it being a cinema when they were young and I had another conversation with strangers who explained that they were former students from the Design School and reminisced about the building being a hub for social gatherings when their own campus did not have such facilities. The below picture is from before the building was demolished.



Old Klostergården, Courtesy of Kolding Stadsarkiv

Motivation for Urban Planning

During my time as a techno-anthropological researcher, I have teamed up with colleagues who have similar interests for urban planning, which have guided my choice of the problem field of this thesis, because of the literary, academic reviews that have created a theoretical foundation. In the next section, I sum up two previous projects that are points in my string of work with urban planning with the approach that entire cities can be viewed as a technology.

To view a city as a technology is partly a critique to traditional sociology because the postmodernistic society has been built as a technotope as opposed to a biotope. Buildings and all they are made of are artefacts that surround the city for humans to settle within. In technology studies, Shirley Strum and Bruno Latour began to argue how those material contexts are scripted with certain means of perceptions, behavioural patterns and activities hence deeming the framework of cities as socio-technical systems (Strum and Latour, 1999). Techno-anthropology has, however, many roots in sociological thinking and practices. Our understanding of large systems holds ties to the scholars of the Frankfurt School. An assembly of critical thinkers, who built on the theoretical concepts in respectively Karl Marx's and Adam Smith's huge bodies of work, although most directed towards the former but simultaneously focused on the discrepancies in the sense that capitalist societies rule Western society. One former study group of mine tackled some of the prevalent assumptions of the discussions put forward in the Instrumentalization Theory of the Frankfurt School. Division of labor, Deskilling and Technological Change were analysed in the technological developments of a city-state such as Singapore (Christensen et al, 2020). Noticeably, we concluded our literature review by acknowledging that "science and technology must relate with social studies, depending on sociocultural theories of education" (Ibid: 17). Furthermore, in analysis of technological developments in Singapore, we would note a potential fear of deskilling the experts known as architects. This was found by delving into newly implemented high-technological artefacts developed to modernise urban planning to deal with more automatisation and digitisation. With this notion, we questioned whether these artefacts could hold the potential to demand less expertise from professionals. In reflection, these insights inspire this present thesis in its research

design by finding a point of departure in a theory that deals with interdependencies of systems at a large scale.

Following the above research of urban planning technologies in Singapore, another study group formed around students of Sustainable Design and how they are motivated for their work as to-be professionals. Taking form as a philosophical endeavour, the study would seek to understand and reflect on the students' expected agency as experts in various design fields. We categorised two distinctive tactics to either a) make large scale changes through radical design or b) make small design artefacts that could inspire the world around it. The latter tactic was philosophised through Peter-Paul Verbeek concept within post-phenomenology that acknowledges the held power of the designer as a result of the adaptation of modern methods to design that is ultimately searching to include more stakeholders, hence changing the experience of the expert (Christensen et al, 2020). These notions inspired my inclusion of design theory to understand processes behind the scene of artefacts that will be presented as buildings in a city. Now that a foundation of what happened before the present research design is channeled, the following chapter presents the research design for delving into more research of urban planning.

2. Research Design

2.1. Theoretical point of departure

In reflection over a construction site being the subject of study, the theoretical departure will be informed by a social constructivist scientific approach, primarily experienced through the fact that the ongoing solution to the construction site is building an apartment building, hence a concrete structure that is immovable, therefore, deeming the object in place and the observer, analyser, researcher and everyone else around it are forced to make their minds about it.

Social constructivism

In the below paragraph, I describe the ideas and points of departure that follows the approach of social constructivism in order to later be able to define the practical research domain of Science and Technology Studies. Lastly the methodology towards

empirical data and the Techno-Anthropological analysis create the offset of the network analysis.

For social constructivism, several factors set this scientific approach, therefore, was a somewhat rebellious approach in its' early days in the sense that it questioned what was previously perceived as obvious. Now, however, the perspectives of social constructivism often appear as the obvious choice of social-scientific researchers approach. First off, the scientific approach rejects that some types of knowledge are more privileged than others, merely, systems of scientific knowledge become just one of the many truth markers just as journalism and religion might be (Egholm 2014:147). One such system has the capacity to (re)open and change unwanted conditions. As this thesis will show data gathering from journalistic sources, the social constructivist approach will allow for these agencies to be analysed as they may be likely to have an impact on smaller groups within the network (Latour 2008:203-206). While briefly mentioning agency and groups within networks, I partly look to the Latourian understanding of what constitutes a network; the collective, in which the theoretical endeavour is to observe which actants in the network that surrounds the reconstruction of a public site within a city centre. With actants, Latour means the people and objects that subjectifies the connections of the analysed network. When an actant figurates in a given network it is then conceptualised as an agent, hence the subjects hold agency, in other words; acting power, power to change (Latour 2008:86-96). In analysis, these agents are identified by being followed in their networks to find out, how different actions ultimately make up the network collective surrounding the rebuilding of Klostergaarden (Latour 2008:91). In approaching the research of a building site, the study then acknowledges research of social constructivist character strives to showcase how phenomena, such as the urban planning of a specific site is not constructed by obvious facts (Egholm 2014:152). To further specify social constructivism, Berger and Luckmann promoted five fundamental recognitions, listed below (Berger and Luckmann, 1966)(next page):

- 1. Knowledge always emanates from a specific position or a social ordering
- 2. Human consciousness is determined by its' social being or ordering in the world
- 3. What is true to some can be false to others
- 4. Sociale matters or institutions are seen as things rather than factors of explanation
- 5. The scientific sociologist must work with everything that constitutes knowledge in a society

With those five notions, Berger and Luckmann pointed at interests to identify how all types of knowledge is produced and how individuals and their consciousness is constituted by repetitive interaction with other individuals. They emphasise an understanding of a reality that happens through living in a social world and how such a social world likewise plays a role for the definition of reality. Methodologically, when analysing the reality, also defined in this thesis as the network, surrounding urban planning and its' architecture it relies on interpretations that is constantly negotiated and fixated on social and locale correlations.

A commonly used analytical tool when working with a social constructivist scientific approach is the discourse analysis. Berger and Luckmann made social constructivism find its' hold in scientific research, however, Laclau and Mouffe (2001) took it further to define discourse analysis as a sociological methodology, which built a new approach system that would separate itself from the formerly more philosophical, Foucault-defined way of practising social constructivism. In their book on political theory; Hegemony and Socialist Strategy: Towards a Radical Democratic Politics, they develop divergences from Post-Marxist theory with a focus on using historical events and discourses to compare in contemporary development with the aim of avoiding traps. Similarly, in reflection to why this thesis deals with political hegemony, lies in the matter that urban planning is shared among all cities in development, however, zooming into each individual building will in social constructivist thinking appear as a sovereign network with individual actors with knowledge and experience of the society they live in. For this reason, architectural buildings cannot be mere copies of buildings in other cities, instead the study will argue for transdisciplinary efforts going into reconstructions of geographical sites that entails several development opportunities, which Laclau and Mouffe define through discourse analysis to be established in fields of discursivity. They argue that such fields of discursivity are characterised by entailing an infinite amount of diversity and meaning (Laclau & Mouffe, 2001:111). Discourses may then make assumptions but can never completely cover a specific situation. In analysis, this may be experienced as a limitation that forces insight findings to always appear insufficient. On the contrary, it opens up for deductive reasoning that prepares the ground for more research of a certain topic, ideally with empirical approaches that are not represented in the offset of the research. In other words, social constructivist science and discourse analysis consider phenomena's meaning to be constantly moving and fluid. This position finds its' place in my thesis work with the site of Klostergaarden in the sense that certain actors of expected relevance to the network wished to not participate in my empirical gathering, hence their definitions and experiences of the way they understand the reality of Klostergaarden are diminished to textual documentation. However, enforcing a network analysis through textual documentation is not a harsh setback when taking a social constructivist scientific approach. In the knowledge production of a network, there can already be found fundamental focuses in constructions that are objects for controversy. That is, in the essence of process investigation and understanding of knowledge that is settled in a specific context; a construction site, the analytical work takes a point of departure in a specific situation and process that the discourse is established in- and is negotiated in. Thus the analysis typically takes a point of departure in concrete texts, events and connections. A focus on textual or visual documentation has shown prominence in several social constructivist studies, while one case shows the importance of having contextualised knowledge production. More specifically, Latour's (1999) studies in the Amazon rainforest in which he produced what he deemed *Circulating References*. Here, he follows botanists to study how they turn empirical evidence into text and visualisations. He argues that factors may be lost in the transition from the studied site to being in the laboratory, therefore, the transformations must include standardised instruments for measurements. With it, future studies can rely on these references to conduct more research. Latour acknowledges about the sampled textual and visual documentation that (next page):

"Knowledge, it seems, does not reside in the face-to-face confrontation of a mind with an object, any more than reference designates a thing by means of a sentence verified by that thing. On the contrary, at every stage we have recognized a common operator, which belongs to matter at one end, to form at the other, and which is separated from the stage that follows it by a gap that no resemblance could fill.... An essential property of this chain is that it must remain reversible. The succession of stages must be traceable, allowing for travel in both directions. If the chain is interrupted at any point, it ceases to transport truth – ceases, that is, to produce, to construct, to trace, and to conduct" (Latour 1999: 69)

In my thesis research, Latour's work with social constructivist referencing creates a notion that texts and visualisations of the studied network of Klostergaarden can be analysed as long as the actors or agencies that surfaces are traceable. This leads back to using knowledge production such as journalism in the empirical data collection, where people and their quoted opinions will appear to hold analytical value. This factor unfolds the analysis through the coding of data section 2.4. Empirical data

With social constructivism settled as the fundamental framework of the thesis, I now move on to present the practical research domain of the study. Science and Technology Studies is the base domain for Techno-Anthropological research, which I further delve into in the below paragraphs by first looking into prior cases within the field to then follow up by going into the practical methodology of Techno-Anthropology.

2.2. Science and Technology Studies

In Science and Technology Studies (STS) researchers follow scientists in their respective fields. The researcher would witness the experts in action; sometimes with interaction and sometimes without any interference, depending on the nature of the study, which I showcase in two examples by fellow Professors at Aalborg University with their STS-studies. In Elgaards research to appear in "The New Production of Users", he took to an office space, where he studied the social atmosphere of a company. Here he conducted interviews with the employees, who attended the study, however in the interviews he would prime the interviewees with various mind experiments for them to reflect on the atmosphere, hence the researcher interferes with

the subjects so the study took active part in the network (Elgaard, 2016: 136-160). In Juhl's PhD research, he set out to document innovation science in a factory to analyse two epistemologies: Modelling practices linked to epistemic or production process, characterised by whether it stemmed from experimental science leading to epistemic content or stable technical content leading to modelling. The latter is interesting as this exoteric epistemology is more likely to link to technical domains that are not researching or designing for innovation. In several fields, a task and the process that comes with it, relies on practices that have gone on for years, generations. The tools and skills for these fields are known in the sense that they have been practised long. In another famous study in the STS domain, Collins and Harrison (1975) studied a laboratory consisting of engineers that dealt with constructing a cutting-edge technological artefact. In this laboratory, the task was to build the TEA-laser from parts and instruction manuals that had been sent to a team of scientists and engineers with no previous experience in the exact model. The study found how the team met obstacles in building and installing the model, and concluded that besides from representations, a tacit knowledge was not provided, as it was only held by the builders of the first model. Such tacit knowledge was not prevalent in artefacts of a process. Textual and visual representations, as defined in the previous chapter about social constructivism are points of interest in constructing the site's network. Reverting back to the two epistemologies, the study of the TEA-laser is hard to directly box into one of them. That is not an issue, as examples obviously are more fluid than a two-way theoretical model, while profitably it serves well to return to the domains of city planning and architecture, as they become clear examples of the Modelling exoteric epistemology, where the artefacts/representations, the expert knowledge and also the future users are already there and exist to provide for the technology. With this, a site like Klostergården can theoretically transform by taking knowledge of practice and process of other similar projects. This thesis then asks whether knowledge from similar projects is added towards the process of rebuilding Klostergaarden. This question guides throughout this research, more presently in its' empirical gathering, where sub questions ask into the process of developing an exoteric site.

With a position within social constructivism and STS, the following now start the diagnosis of the problem field. The analysis starts off by structuring the collected data

surrounding Klostergaarden to then systematise it through the Techno-Anthropological method.

2.3. Empirical Basis

Collection of data

Entering the field of urban planning in Kolding would render somewhat obscure in the fact that a prominent stakeholder in the network; the architecture company building the apartment building, did not agree to be interviewed regarding a case study of Klostergaarden. They excused their decline by mentioning how the case had already been vastly exhausted by journalists, cultural institutions and laymen interests. They instead directed me to look into those documents and discussions that could already be found. Fortunately, such setbacks in an empirical gathering with a social constructivist scientific approach did not mean a crisis. The data to be collected were many places to be found, furthermore, the processing strategy did not change by lacking field researched interviews. To further reflect on the empirical gathering, I deemed that without the practice of interviews with the exercising company, it could be cause for an imbalance in insights if they were left out from the field research. Thus the empirical gathering would adjust to deep dive into finding already available data about the case. Fortunately, and as suggested by the stakeholder, there was plenty of data to be gathered by first generally scouting the internet and then looking deeper into news sites and reports from their references. Below is a list of the sources of references that lay out the data collection to form the network analysis.

News outlet Jydske Vestkysten (JV) covered the site's development (in Danish):

- 28th August, 2018: Domea får et ekstra halvt år til at komme i gang med Klostergården-byggeri
- 27th April, 2019: Unge huserer i faldefærdig bygning: Politiet øger patruljeringen
- 2nd October, 2019: Økonomien er spændt til bristepunktet: Arkæologiske undersøgelser forringer eller ændrer byggeplanerne
- 2nd October, 2019: Byggeprojekt er stødt på flere udfordringer undervejs: Nu venter omfattende udgravninger ved Klostergården
- 23th October, 2019: Økonomien i Domea-byggeri med 92 boliger er reddet
- 5th April, 2020: Endelig: Byggestart på ny Klostergården fejret

- 16th June, 2020: Ingen købere til penthouseluksus med direkte udsigt til fjord og Lillebæltsbroen
- 30th June, 2021: Se billederne: Nu tager Klostergården midt i Kolding form fra øjebæ fyldt med fugt og rotter til attraktivt boligkompleks
- 2nd January, 2021: Boligbyggeriet buldrer fortsat frem i Kolding: 454 nye private boliger lige på trapperne

Domea Lunderskov-Kolding is the company that develops the building site. They appear in several of the articles with statements regarding the project. Their own website, however, only presents factual information about the apartment building: There is set to be a total of 92 apartments with a majority of them with 3 bedrooms. Deposits range from 28.000 to 48000 DKK. Considering the enterprise forced my network analysis to consist of desk-researched data, they can only be represented by their statements in the above mentioned public articles.

While first glancing through the articles from the news outlet JV, another stakeholder was presented by appearing in a quote from the Mayor, Jørn Pedersen. He made it known that the municipality's urban planning efforts are informed by a third party company, Exometric, which promotes themselves as a service for real estate intelligence. The Mayor stated in the last article in the row of coverage that the municipality had reports made in 2018 and in 2020, whereas the conclusion stated a need for 3500 new residences before the year 2024. I called the administration offices at the municipality, who could confirm that the reports that were referred to, are the ones publicly available at Exometric's website. The report is included in the dataset to be coded for analysis.

Lastly, the discovery that led to understanding the building site of Klostergaarden to be controversial is a Facebook discussion thread, which was posted in the official group for the city on the 6th of March, 2020. Here the Facebook user shows dissatisfaction with the urban planning of the city. The post is interesting because it, at the time, was a post with more engagement than any other posts in the Facebook group. Furthermore, the Mayor himself took part in the discussion(s). The post and the comments in the discussion within are added to the data collection by being a representation of people in the network that do not necessarily hold agency towards changing the urban planning of

the municipality. However, they hold valuable insights towards understanding the network from a social constructivist angle.

Those are the collected data points that will make up the network analysis. In the below, I go through how they are coded into notions of insight to then appear through a Techno-Anthropological scope.

Coding of data

The data sources listed above are treated as informants to the case of Klostergaarden. Each document is then processed as one would normally transcript interviews, hereby pasted into the coding programme NVivo, which allows the user to structure insights into clusters. The clusters are formulated prior to the coding as to follow the Techno-Anthropological model from which the data will be presented. There are a few theoretical notions to look out for when coding the transcripts. First and foremost I looked for central concepts and terminology in the transcripts while holding on to a focus on individual assumptions and experiences (Brinkmann & Kvale 2014:176-177). Although, in lieu of the data not having the opportunity to further elaborate on notions that may have been picked up during an interview, the transcripts are processed as being factual in their existence (Brinkmann & Kvale, 2014:160-162 and 184). In other words, the coding of the transcripts seeks to gain insights from the social constructivist approach of constructing the informants' reality. The factuality happens in the sense that e.g. written documentation from the interviews promoted in the articles and websites are processed as legitimate quotes from interviews between stakeholders of the site. However, they are assessed semantically beforehand to make sure that there is not any visible bias in the writing by the authors. Besides from the Facebook post data entry, it seems hard to notice any particular bias towards Klostergaarden. Instead, the vast coverage merely promotes an intense interest by the public. Staying within potential fallacy, it must also be noted that the data entries come from different time dates. This notion puts an emphasis on the fact that the actors within the network are already intertwined in an ongoing situation, hereby referring to the insight that the developer, Domea Lunderskov-Kolding, won the rights to the then-future construction site back in 2014 but only expect to be done with the construction of their apartments in Spring 2022. Why that is, is a premise for network analysis.

3. Analysis

3.1. Techno-Anthropology

As previously mentioned, the methodology of realising an understanding of the network surrounding Klostergaarden, the Techno-Anthropological model will be put to practice. Together with the coded data collection, the analysis looks at notions from five different aspects. I look to the anthology created by Børsen and Botin to understand a field of (trans)disciplinaries when answering "What is Techno-Anthropology" (Børsen, 2013). Research can be approached from many angles ranging from Anthropology and ethics to Science and Technology Studies. Insofar this thesis' Techno-Anthropological research takes form in the STS research domain, the science revolves from five angles and their relations and in the below I go through and attach them to insights from the empirical data (Figure 1):



Figure 1 - The adapted Techno-Anthropological Model

The three inner angles; experts, users and artefacts, Børsen and Botin further described their relation to each other. These three are called the core competencies: Interactional expertise, anthropology-driven design and social responsibility. This present study

mostly delves into the relation between users that act in the experts category as decision makers and the artefacts they promote to the field. Therefore, a main focus will be on the relation of those two segments; experts and artefacts to form an analysis on social responsibility. Børsen and Botin formulated social responsibility as:

"[E]thically sensitizing expert cultures that develop new technologies so that they are able to make informed robust and commuting ethical judgements about their own and others experts' scientific and technological production" (Ibid: 51)

The analysis zooms in to a view on the relation between designers and artefacts. However, in order to understand a technology as a whole, the relations are not to be understood as rigid because they are constructed by a multitude of connections, which is then the commonly practised understanding concept of technology in STS. Now ethics is a heavily loaded term and the study at hand does not seek to delve into great ethical discussion, rather I try to position my reflections on analysis to an ethical standard, while acknowledging that architecture and urban planning have a subjective matter, thus I strive towards a normative ethical judgment. Because I place myself in analysing social responsibility, it is of awareness to avoid potential bias, merely trying to objectify an analysis of a construction of an apartment building in the city centre. This also entails that the analysis will not find action oriented solutions, instead seek to point out notions in the professional field of urban planning.

Essentially, this study seeks to take part in branching Techno-Anthropology further into the urban planning domain by bridging it with aesthetics that would normally belong to the urban planning field. I argue for objects to be seen as artefacts of technologies for everybody and especially those that I showcase in the city because they are visibly unrestricted. Considering the great diversity in the toolbox of the researcher, it brings a question of critical assessment of human-technology relations (Birkbak et al., 2015). In that sense, it would be impractical to separate myself from the city that I live in, hence I show my interest by reflecting on the critical proximity of the researcher. I emphasise that my work as a techno-anthropologist does not serve to merely criticise the state of art in the city, insofar, it is only my chosen job to enquire into Klostergaarden to explore observations. I analyse the network because it is my theoretical interest and chosen scope. Birkbak et al., further mention how the field itself is still new and "finding its feet"¹. I can offer transdisciplinary endeavours which offer new, or at least lesser explored, subjects of study to the field of Techno-Anthropology. Moving onwards, the upcoming analysis takes a point of departure in each of the segments of the Techno-Anthropological model, where empirical insights are added to their respective segment, while also showing examples where an entry point could hold agency in more than one segment. This is dependent on the scenario, where it is used. The first insight will be shown to be one of those, when starting the network analysis by constructing the network by first looking at the societal, outer ring of the Techno-Anthropological model.

The Societal Level

Kolding, along with any other city, is a technology for living. This is to be understood separately from the methodological approach that the Techno-Anthropological model puts the technology "in the middle", as it is categorised by the segments just introduced. The primary technology for this analysis is Klostergaarden: A specific technology for housing within a city. However, to fully dive into the societal level of the model, an entire city might also appear as a technology. It can be seen from the data, where one article lists all the apartment building projects that are planned for the city (JV: 02.01.21): A total of 15 apartment building projects as per 2020. Next to this the Exometric urban planning report was shown to not be developed for the municipality of Kolding but instead was a compilation of calculations and strategies under the header of "the fight for residents". In analysis, this entails how municipalities seem to be in competition with each other to attract as many new residents as possible. This report also appears as an example of segments of the Techno-Anthropological method that bridges into closer segments, that is, being an actor on the societal level for the just mentioned reasons, while also serving as an expert actor, considering it is promoted by a company that specialises in residence trends and lastly, the report itself as a document may be understood as an artefact for the technology of housing. In the following, I stay on the societal level, though, to better understand how the city is understood as a technology. First I lay out Kolding city to then secondly borrow a model that is normally used in the domain for innovation studies to visualise the insight of several building projects in the scope for the city.

¹ Idiom used in Birkbak et al.

From a social constructivist sense, it can be phrased that the inhabitants of Kolding have dreams and ideas about "life in the city": Their experienced reality. A historic example of such understanding in expert practises was when architect Gehl (1971) introduced the use of ethnographic methods into a rigid architectural process. The result? The first ever metropological city centre without cars. Today Gehl is world renowned for promoting the inclusion of the people that are designed for when constructing cities or spaces within the city. Now, why is such an innovation spectacular? Looking at our current metropolises, especially in Europe, the introduction of walk-alleys containing shops and other activities for leisure would promote a cityscape more welcoming to tourists and their experiences.

I deemed Kolding city to be its own technology aside from the subject of study, Klostergaarden that aswell is analysed as a technology. It may be acknowledged that the city as a technology is a macro perspective, where the specific development site of Klostergaarden is zooming into a specific case technology. Staying within the city as a technology it can be explained by evolving from holding technological artefacts consisting of buildings in all their forms and uses. In that regard, the landscape is what we normally comprise as a city. It has inhabitants, shops, institutions, organisations: Buildings, infrastructure, rules. Some rules apply to the daily life of the inhabitants, while other rules are political and seek to prime the way of life and its continuity. Kolding inhabits roughly 60.000 people with a city centre that I claim to be the core of technological activity. This is because the nuanced technological artefacts happen in this part of the city. The city centre is neatly encased by a traffic road as shown in the below map.



Map of Kolding with outline of the city centre

This landscape of Kolding can be transformed into an innovation process model from Geels Multi Level Perspective (2014), which in this sense borrows from sociological studies in creating the world that surrounds the users. I draw attention to the below model of "Co-evolution of technology and user environment" (Leonard-Barton, 1988: 251)(Figure 2). Here is a separation between technology and user environment, however, I will focus on pinpointing what is visualised as loops and annotated as "small cycles" are each to be seen as buildings that are artefacts of the city as a technology. In that sense, the model is abstractified as we must understand each small loop to be one building. In adaptation, this model is then used to search for alignment after each loop. I argue for this, because architecture will trigger immediate reactions in its prominence in the landscape of the user environment. In analysis the formerly mentioned 15 apartment building development projects are each one technology cycle and for every finished development, it calls for an alignment with users. Those users are new residents. Here, a contrast appears in the data collection, as it was reported in Summer 2020 that one of the new apartment buildings had to switch from selling the apartments to renting them out (JV: 16.06.20). This is interesting considering a previous notion of a city needing even more residential buildings. The fact that these specific apartments were in a price category that would only allow the most privileged citizens to live close to the water in luxurious apartments becomes interesting further into the analyses when delving into the institutional level.



Figure 2 - Co-evolution of technology and user environment

Going back to the figure (2) presented above, it is interesting to further look at alignment cycles to frame the societal level of the network analysis by also looking at its sources within Geels Multi Level Perspective. Understanding the small cycles as individual cases of urban planning, could result in adapting the large cycles of building needs that are iterated from evaluations. The alignment model allows for a more systematic, however, realist approach in adapting the framework of Geels Multi Level Perspective. The model-thinking of innovation as streams of landscapes happening in regimes of many stakeholders is the vivid introduction to a theoretical framework. The city is a particular site, chosen for the ethnographic reason that I have settled myself within it, however, it does not entail any case specificity because it is categorically equal to many other cities in Denmark, deeming them equal in their socio-technical sense by revolving around the same sets of technology (Carlsson and Stankiewicz, 1991:111). Therefore, the examples in analysis of this research could potentially be transferred to other cities. Multi Level Perspective is a concept under what is more commonly known as Transition Theory. I notice how a city is part of a status-quo-upholding regime that is continuously adapting to innovation. These "changes" are settled in landscapes of technological development in which special interest groups hold power. A model-like tool is used to draw the assumptions of what makes up technology versus user environment alignment.

In transition theory, regime is the term for the practices and rules that make society. What is critical is that the regime also has an inert wish to maintain the status quo because the main figures of the regime are afraid to lose their power (Geels, 2007). This makes innovation take much longer and often only succeeds if some of the regime-upholders accept a niche to guide it into mainstream "world-view", which also explains why Geels transition model would mostly be understood over time. Niche innovation does not happen in an instant. In analysis this means that would tell a story of how urban planning may adjust over time and results. In spite of the insight that a newly built apartment building in the city saw issues in finding residents, it seems to be contrary to another empirical insight saying that the development plans were structured around two reports from Exometric in 2018 and then again in 2020, whereas the latter report raised the number of "needed" apartments in the city by 600.

The Institutional Level

This level of analysis was briefly mentioned in analysis of the societal segment of the network analysis when presenting the insight that a newly erected apartment building had been forced to adjust their business model to start renting out apartments instead of selling, as a result of not being able to find buyers. This is relevant to the case of Klostergaarden in the matter that, at the institutional level, there have been somewhat controversial events surrounding construction site When Domea the Kolding-Lunderskov bought the rights to demolish and construct a new building on the plot of Klostergaarden, they were warned that there might be a call from Museum Sønderjylland about the need for archeological excavation projects when the old building had been demolished. The site held the potential for significant historical findings dating all the way back to the Middle Ages. And it turned out to be the case, resulting in two rounds of major excavation projects and according to the museum law the price of 2.8 million Danish Kroner was to be paid by the housing association: Domea Lunderskov-Kolding. Apart from delaying the further construction of the initial building project, it also called for rethinking the quality of the apartment building (JV, 02.10.19). The developers' reaction to what they deemed a setback was to announce that it would result in an adjustment of rental prices in their apartment building (JV, 23.10.19). Ultimately, in analysis the institutional level had an impact in forming Klostergaarden by the fact that knowledge production in the archeological domain would deem that the future residents will need to pay a higher price to live there. This then reverts back to the societal level in which the analysis saw, how rentals with a higher price point almost a year after this decision experienced issues with finding residents for apartments at high price points. There seems to be a misalignment between the developer, a historic institution and the end-user.

The societal and the institutional level are both visualised as rings that circle the three main segments of the Techno-Anthropological method: Experts, users and artefact. This relates to the understanding that these levels do hold an agency to change the outcome of the technology, without too much resilience. The technology that is Klostergaarden can not enact power to change these factors, but the three segments may hold agency that is interdependent with each other. I now move onwards to draw insights from the

data collection that addresses these three segments to ultimately conclude on the technology itself.

Artefacts

In the first of the three segments of the inner part of the Techno-Anthropological model seeks to look for materials and objects that comprise a technology. Looking at the actual building of the development project of Klostergaarden, the analysis revisits the previous notions about the upcoming rentals to rise in price. As a result of having to spend money on developing the site for institutional efforts, the developer, next to rising prices, also had to readjust some of the building plans. The result was that the architectural blueprint changed from having regular balcones to be built with french balconies, which in a sense would be considered to be an artefact of lower standard than the initial plans. In the statements presented in the article revolving these changes, the project manager of Domea Kolding-Lunderskov made efforts to revert the conversation to focusing on another artefact in the building site, namely that a shared yard in the centre of the apartment block would make leisure activities possible (JV, 05.03.20). Besides this analytical notion, the data does not show other significant artefacts surrounding the site. That is, of course, when looking away from the already historical artefacts that were excavated from the archeological efforts. However, these artefacts will be transferred to the museum, hence not take an active part in constituting the new building at Klostergaarden. Unless it appears in a sales strategy by the housing facilitators in future endeavours to find residents. This may not be too far fetched considering that many old houses in the city have bricks from the old castle in the city in their fundament, which I have been made aware of by a realtor when I myself was at a showing for a house not far from Klostergaarden. Anecdotal notes aside, the lowering of standards along with a rise in price serves as a good analytical transition into the next segment of users, where laymen in the city hold agency by offering their opinions of the development plans.

Users

In regards to analysing the network from a user's perspective, I bring to light the Facebook post where a user shares their opinion. This sparked a huge discussion and amassed people of many opinions including the Mayor of the city Jørn Pedersen. In further analysis I wish to dive into this discussion to shed light on what I theorised with

the Multi Level Perspective with which technology and its user environment will constantly seek alignment. Considering that the Mayor of the city is a special stakeholder in the fact that he surely has been part of the decision making of what was to be done with the old Klostergården. See the image on the next page for the original post (Høegh Rask)(translation in footnote).



Facebook post

First and foremost the amount of reactions are noteworthy. Glancing through other posts on the Facebook group shows that many of the posts are advertisements from local businesses, events, some private photos of locations in the city and then rare posts like this one with topics for discussion. None of the observed other posts had near as many interactions. The Mayor appears in many posts so it could be a part of his communication strategy as a politician. For this particular topic he engages heavily in declining the people who show disinterest in the apartment building project. The

 $^{^2}$ "Cancel more new build developments in the center of Kolding". It is too massive and has nothing to do with city development but on the opposite, it is phasing out/unwinding.

majority of commenters show their excitement with having the apartments built but the tone is also set with a voice of comments like "You don't know what you're talking about", "It's not even finished yet and you're already complaining". The author does engage in debating with many opinions while also posting his own vision and adding more context to his post in separate comments. He is basically asking for an involvement of another kind of urban planning in the development of the city. This entails "green" areas with nature and bewilderment and a focus on doing proper parking for cars while making sure that bike cyclists are prioritised.

As it is commonly discussed with apartment development projects, many people hold interest in knowing who will be able to live in such new apartments. This is where the Mayor really plays his role because that is seemingly the topic he wants to discuss in more detail in spite of the posed problem. A few people mention that such new apartments are being built for the upper class of society even though it is also mentioned that the apartments will be subsidised housing. Here I wish to cut to the most saying comment about the pricings of the apartments. I am not going to analyse the political or ideological statements but instead use it to analyse an observed attempt on alignment between technology and user environment (translation in footnote):



Comment on Facebook post

Well, discussing the pricing of the apartments inside the building is already straw man argumentation from the Mayor in this discussion. In the light of the already analysed price increase in a situation where expensive apartments are not inhabited, it further increases the notions of what one of the journalistic articles discusses as a "building frenzy", the same article where the Mayor refers to Exometric's reports on the needs for new apartment buildings. Instead of discussing how a technology appears or works within a community, a main figure on the politics scene and other debaters discuss who

³ Chrstiane Rossau I do not have the money to live how I want to. I live as I can afford and so I did when I received "social security"! [money from the state while being unemployed] So yes, I have been there. I would not dream of a society that would put new apartment buildings to my disposal, when I cannot afford it myself. And yes, that is the difference between realism and sheer socialism!

will be allowed access to the technology: How much money will it take to be included? Two debates happen simultaneously, one about general urban planning and one about privilege, or maybe more precisely, financial status. Such a debate on a proposed discussion on urban planning makes me argue that there is a misalignment between the technology and the user environment. There is a division of opinions about the development of the city. To continue the analysis of the user segment, I now borrow theory from the field of design, more precisely Participatory Design. Here is the understanding that design has grown to be an effort by a multitude of actors in creation processes. Pelle Ehn is well known in the field of Participatory Design, where he has contributed to shaping how things "come to life". In collaboration with other scholars, they pin three reasons that shape how designers need to think beyond "just" designing objects (Bjögvinsson et al, 2012):

- Designers should be more involved in the big picture of socially innovative design, beyond the economic bottom line.
- Design is a collaborative effort where the design process is spread among diverse participating stakeholders and competences.
- Ideas have to be envisioned, "prototyped," and explored in a hands-on way, tried out early in the design process in ways characterized by human-centeredness, empathy, and optimism.

In reflexion to other social constructivism it relates in some degree to Latour's conceptualisation of when designs are scripted with certain aspects of use, which was also the case in Multi Level Perspective, where I recognised that artefacts are not inert objects, but instead have an impact on social movement. In Participatory Design, the experts realise that consciously working with these scripts of their designs will change their own professional practice. Instead of merely creating an object, the designers will transform their practice to what the scholars call infrastructuring while in the abstract sense they understand their agency by asking:

"How might designers participate [...] and position themselves in the "collectives of humans and non-humans?"" (Ibid, 2012: 103).

To strategize infrastructuring, they further bring a statement from architect Allen, which I relate to the case of Klostergården as he states:

"[Infrastructuring] must pay attention to how existing infrastructures condition use, but in doing so, it also must deliberately design indeterminacy and incompleteness into the infrastructure, leaving unoccupied slots and space free for unanticipated events and performances yet to be" (Allen, 2000)

I must note that I mentioned how literal infrastructure is part of the artefacts that make a city a technology, however, in this theoretical sense there is semantic distinction, where the one used here is from design theory as to how designers plan out their processes. Why this statement is compliant to the case of the apartment buildings is in the fact that the endeavours in such an urban planning effort is not new. Apartment buildings are arguably the overarching building paradigm in most cities. In that sense, the analysed building, Klostergården, is not left of unoccupied slots and is not a space that is free for unanticipated events. Quite the contrary, and so far into the analysis, it is a notion that Klostergaarden is not the first that is built on a controversial spot in the city or has experienced other types of controversy in its short lifespan. In the below paragraphs, the analysis continues with looking into the last segment of the Techno-Anthropological method.

Experts

In regards to analysing the experts that constitute the network of Klostergaarden, I mainly refer to decision makers, who either hold professional knowledge themselves or draw upon third party expertise. The latter type of decision maker could be argued to exist in a place between the user and expert segment, however their acting power often rules superior when backed by expert knowledge, hence they are experts in this analysis. First off, it is noteworthy that the ongoing urban planning of Kolding does not only include residential buildings. It entails both smaller and bigger projects, whereas the bigger projects seem to outshine the smaller in terms of the inclusion of participation from non-experts. Mentionable is the many-year planning of extending the marina of the city. A huge project to convert a local area for sailing enthusiasts into a tourist and all-welcoming area of many activities. The reason this project finds its place in this network analysis is the fact that across the street from the marina are two newly

built apartment buildings with huge posters of a discounted rent if people move in. These buildings somehow omit the same notion as the luxurious apartment building previously discussed. The actual marina development has undergone discussions for development for nearly 10 years and only last year, a process started in which the goal is to find out whether it is even possible to extend the area of the marina, because of the concern that a spillage sewer is right next to it and the waterbed needs to be approved for building. However, the topic has been high-profile for several years, taking a lot of discussion in city meetings, where city residents are allowed to take part in the discussion. This is interesting when then looking at other development plans that seems to become smaller matters of concern.

Reverting back to Klostergaarden, the road that passes by the construction site is a hub for public bus transportation. The road ends right at the beginning of the new apartment building and then is restricted to bus traffic only. Without finding any other information than updated bus plans, it was discovered that the terminal has been moved to the train station, several hundred metres away from its original position. Furthermore, the municipality made a demand to the developers of the new Klostergaarden that it must include a partly public basement parking underneath the building. Looking at the near perimeter of the building site, there are hundreds of parking spots already: Farther down the road, although on the other side of the former bus terminal, is a five storey parking lot and walking under the train tracks only a stone's throw from Klostergaarden is a newly upgraded parking lot. Three notions speaks of consequences within the urban planning of the city:

- 1. The demand for a parking lot underneath the building made the construction more expensive, where we already know the developers struggled to keep the budget and as a result raised prices for residents
- 2. A group of people, who commuted by bus to the city centre, will either have to change buses or take a long walk
- 3. The city centre makes accommodations for increasing the numbers of cars that traffic within the most inner part of the city

Furthermore, it is noteworthy that the road leading up to Klostergaarden consists of restaurants and bars, although it is the first alley in the perimeter that is not prohibited from car and bus traffic, it has narrow pavements, which is interesting when looking to

previously mentioned ethnographic efforts in modern architecture, promoted by Gehl. These factors hold social constructivist value as they are directly impactful on the users of the city, however the users have not been able to raise these concerns during the development process. The process instead has been overshadowed by societal and institutional elements, which, seen from a Techno-Anthropological angle, seems to have resulted in a construction process, where external agencies to some degree held other agencies hostage before any changes could be made. With these notions the thesis now seeks to find conclusions of the network that constitutes Klostergaarden. In regards to the Techno-Anthropological model, the below will, after concluding on the theoretical and scientific approach, conclude on the segments of the network divided between the external factors; societal and institutional level and the three inner segments of the artefacts, users and experts.

4. Conclusion

The ultimate goal for the research was to answer a problem formulation of whether a Techno-Anthropological transdisciplinary methodology could demonstrate a network of presumed controversy. With the limited empirical data collection to advance further into theoretical discussions and reflections, this was made possible by engaging in a social constructivist research approach and by borrowing theoretical frameworks from Geel's Transition Theory and Ehn's Participatory Design. With such a combination of scientific approach and methodology, I conclude that realising a network through textual documentation showed several relevant agencies to be concluded on.

The societal and institutional level of the network analysis showed how external factors can play a major role in urban planning of a city. The notion that a study of Klostergaarden as a technology can evolve into a need of also understanding the entire city as a technology, whereas Multi Level Perspectives helped to point out that one construction site calls for alignment in its relation to similar building projects. Those combined urban planning efforts are informed by external factors that may not adjust to align with societal needs. This was shown by analysing how existing apartments experience issues with finding residents. Delving into Klostergaarden as the technology "in the middle" of the Techno-Anthropological network analysis showed that external institutions as well hold power towards its realisation, as presented with the inescapable archeological excavations and the municipality's demand for a parking lot. The impactfulness happens in the insight that these factors held consequences leading to a modified result, ultimately, altering the lived experience of inhabitants in the city, which is my next conclusion:

The users of the new apartment building extends to also include users of the specific area of the city. More cars and less public transportation must be concluded as a major change enforced by the network of one apartment building. Regarding experts' promotion, the analysis concludes that when some agendas take a bigger spotlight than others in the public sphere, the laymen's interest may be neglected and instead the public discussion can take detours, in which diverse opinions are shared, despite none of them hold agency for change, as shown with the discussion on the Facebook post. In the end, I conclude that what Exometric called a "fight for residents" may sound appealing to bolster urban planning initiatives, however, there seems to be a misconnection when the efforts stay predetermined over an 8 year process without sensitising alignments

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