How to measure livability in cities: A case study of Aalborg

Culture, Communication & Globalisation

International &/or intercultural Dimension

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Abstract

Sustainability is a complex phenomenon that has been getting a lot more attention in an effort to secure the natural environment as the population number of the entire planet keeps increasing. Resulting in more and more natural resources being depleted to keep up with the high demand for goods and services. The massive influx of people moving to bigger metropolitan areas puts a strain on the cities resources, threatening not only the citizens quality of life but also the biodiversity within and surrounding the cities. This has forced governments and municipalities to rethink how they approach urban development to create more livable and sustainable cities. While the more underdeveloped cities have barely begun their transition into a more sustainable city, other cities are now competing for the role of being recognized as the most sustainable or livable city. Resulting in different indexes and lists being developed, measuring, and comparing cities on their sustainability and livability levels. A quick run through of all these lists and indexes revealed that the city of Aalborg was nowhere to be mentioned, which sparked the notion: how livable is Aalborg? Thus, this master's thesis seeks to investigating this subject further. It also seeks to uncover how Aalborg Municipality defines and perceives livability for Aalborg in order to compare it with the citizens experiences of the city. Through the use of reports, interviews, and a survey it was discovered that Aalborg Municipality defines sustainability through focus areas namely climate, resources, biodiversity, and inequalities that all embraces all aspects of the three pillars of sustainability and the 17 Sustainable Development goals. These four focus areas have guided the Municipality's work in ensuring an acceptable level of livability among the citizens, as they perceive Aalborg to be a safe, inclusive, and affordable city to live in. Because Singapore is a city that has managed to turn their city into a sustainable and livable one, their Livability Framework was assessed and found highly applicable as a tool to improve Aalborg's level of livability.

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TABLE OF ABBREVIATIONS

AM	Aalborg Municipality
CCG	Culture, Communication & Globalization
CLC	Centre for Liveable Cities
CO^2	Carbon Dioxide
DUC	Dynamic Urban Centres
DUG	Dynamic Urban Governance
EIU	Economist Intelligence Unit
EU	European Union
GHG	Greenhouse Gas Emission
GEF	Global Environment Facility
IMPD	Integrated Master Planning & Development
KBUD	Knowledge-based Urban Development
LIB	Livability
QOL	Quality of Life
SDGs	Sustainable Development Goals
TA	Thematic Analysis
UN	United Nations

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1. Introduction

Sustainability is a complex phenomenon that has been around for decades. It has become more popular than ever due to the rapid alarming changes to our climate and ecosystems. One of the reasons for these changes is the rapid technological advancements setting in motion the industrialized society to now a post-modern consumers-based society where mass production and overconsumption is an everyday occurrence (Edinburgh Sensors, 2021). That along with the ever-increasing population number on the planet, and the depletion of more and more natural resources to keep up with the high demand for goods and services (Lorek & Fuchs, 2011).

One could be quick to put the blame on multinational corporations as they are the ones mass producing the goods and service that the population wants. However, cities play an important role when it comes to fighting climate changes (Roberts, 2019). How so you might be wondering? Well greenhouse gas emission (GHG) is what causes global warming and thereby climate changes stem from a particular place and from a particular sector (Roberts, 2019). Today, cities are responsible for 70% of GHG emissions and consumes 80% of the global energy. This also means that cities are generating massive amounts of waste and pollution while rapidly encroaching into natural habitats (Global Environment Facility, 2023). Cities also contain a high concentrated amount of people as more people than ever are leaving rural areas for urban ones instead (Global Environment Facility, 2023).

The massive influx of people to urban areas puts a strain on the cities threatening the living conditions within the cities and biodiversity within and surrounding the cities. It has also made the cities vulnerable toward climate changes as temperature keeps rising and heatwaves has become more frequent, along with water- and food scarcity becoming a growing concern (Roberts, 2019). The Global Environment Facility (GEF) predicts that 70% of the global population will be living in cities by 2050 making it more important than ever to recognize that cities are key to a sustainable future (Global Environment Facility, 2023). However, as sustainability is a complex concept to start integrating and there is no universal definition of what constitutes a ‘sustainable city’, many cities find it hard to know exactly where to start (Cohen, 2018). To counter the negative trend of climate change and to make the concept of sustainability easier to grasp and more tangible, the United Nations (UN) developed 17 goals to help guide countries, governments, and cities in becoming more sustainable (United Nations, 2023). One of these 17 Sustainable Development Goals (SDGs) is directly target at

cities, namely goal 11: ‘Make cities and human settlements inclusive, safe, resilient and sustainable’ (United Nations, 2023). Here the UN has set forth 10 objectives that cities must achieve to fulfill the 11th goal (United Nations, 2023). This is a notion that Dr. Laura Wendling, agrees with. “Ultimately we need to have cities that are more liveable, more resilient to environment and social perturbations” (Dr. Wending, 2019, as cited in Gillman, 2019).

While the more underdeveloped cities has barely begun their transition into a more sustainable city, other cities are now competing for the role of being recognized as the most sustainable, or as Dr. Wendling puts it ‘livable city’ in an effort to not only improve their environmental footprint but also ensuring a healthy and prosperous population (European Commission, 2023). However, Dr. Steven Cohen believes that it is nearly impossible to design a city that is in perfect harmony with nature as cities are human settlements designed for humans rather than ecological well-being (2018). If it is nearly impossible to create perfect harmony between humans and nature, how does a city then go about creating a sustainable city? It also raises the questions: What constitutes a sustainable city? And how should a sustainable city operate? And because sustainability is so closely linked to livability one could ask the same questions: What constitutes a livable city and how should it operate?

One city who has managed to turn their city into a sustainable and livable one, is Singapore (Macomber & Alamsyah, 2019). Singapore started out, as their Minister for the Environment and Water Resources calls it, ‘a dirty, pollutant city’ that lacked proper sanitation and was dealing with high unemployment (Zulkifli, 2018). Singapore’s Livability Framework emphasized the three pillars of sustainability integrating social, environmental, and economic into their urban development. By integrating these elements into their urban planning, Singapore managed to (re)build their city and capture the outcomes of what they believe a livable city is, namely, a competitive economy, a high quality of life, and a sustainable environment. Singapore’s integrated master planning system also enabled its government to create and manage urban systems that balances the different priorities of the city (Centre for Livable Cities, 2018). As a result, this framework earned them ‘most sustainable city’ in all of Asia, and fourth in the world in 2018 (Mercer, 2018; Arcadis 2018).

This suggests that becoming a sustainable and livable city is no longer merely enough, they have, and want, to be ‘the most sustainable or livable’ ones. As such, Singapore’s success in

turning their city into a sustainable one suggests that livability is of great importance when making cities sustainable. This claim is supported by the many Sustainability indexes and Livability indexes that ranks and compares cities to one another in pursuit of become the most sustainable or livable city. This notion made the author wonder where on such ranking lists and indexes the city of Aalborg, would be placed. The author examined several lists and indexes and nowhere on any of those lists were the city of Aalborg mentioned. However, cities such as Prague, Budapest and even Copenhagen, the capital of Denmark, was on these lists. So why not Aalborg?

Aalborg is, just as many of the other cities on those lists, a multinational and multicultural city. A city that is bursting with life, innovation, and opportunities. A historic city with visionary urban development and world-class architecture (Invest In Aalborg, 2023). According to EIU, Aalborg was not mentioned because Aalborg had not paid to their list. Most of the cities mentioned on their ranking list had paid to be on there, however size, population, density, and other factors play a part in who gets mentioned on their lists. However, they also have an unofficial list where every city can get rated. This let the author to wonder if livability was a concept that the Aalborg Municipality used at all in their strategies as well as wondering how livable Aalborg is as a city?

Even though there is no way of comparing livability in Aalborg to those on EIU's The Global Livability Index, Aalborg's livability could still be determined from the perspectives of Aalborg Municipality and the citizens.

As such, this thesis seeks to investigate and determine if and how Aalborg Municipality makes use of the concept of livability and how the level of livability is experienced by those who reside in the city. Moreover, this thesis seeks to investigate if, and how, the Singapore Livability Framework can be applied on already existing urban area, such as Aalborg. However, the premises for the Singapore Livability Framework to be successful seems to be highly connected to creating new urban areas. But how could this framework work in an already established / existing old urban area? According to Raúl Sánchez-Francés, "It can be very difficult to change a city, especially if they are old, but we need to consider cities as an ecosystem and the human as part of this ecosystem" (Sánchez-Francés, 2019, as cited in Gillman, 2019). All these reflections outlined in this section have led to the following problem formulation:

What is Aalborg's strategy to ensure Livability as a part of their sustainability initiatives?

To substantiate the problem formulation above and in order to be able to find answers to it, three research questions have been identified, which will also serve to provide structure for the analysis:

Research question 1: How does Aalborg Municipality perceive and define livability for Aalborg compared to how the citizens of Aalborg experience it?

Research question 2: How livable is Aalborg as a city?

Research question 3: Could Aalborg Municipality implement the Singapore Livability Framework to improve its livability and, if so, how?

By exploring the above problem formulation and research questions, the aim is to gain an understanding of not only how Aalborg Municipality perceives and defines livability for Aalborg but also how the citizens of Aalborg perceives and experience the quality of what Aalborg Municipality defines as a livable Aalborg. This understanding will help assess the livability of Aalborg by comparing Aalborg municipalities ranking with the ranking of the citizens and thereby answer the second research question. Comparing the two will help reveal areas in need of improvement that could be improved by implementing Singapore's Livability Framework. Adjusting Singapore's livability framework to the Danish culture ensures the intercultural and international dimensions of the CCG study programme. The structural setup resulting in a conclusion where the problem formulation will be answered, is provided in the following section.

1.1 Thesis Structure

To effectively answer the posed problem formulation and research questions, a foundational understanding of key concept utilized throughout this thesis is provided in a literature review (section 2). This is followed by an outline of a theoretical framework livability which will be

utilized throughout the analysis. Thereafter, the methodological considerations they author had, in the construction and execution of the thesis will be presented, including philosophy of science and the chosen research design, namely a case study, as well as methods of data collection and analysis. This leads to an outline of the structural setup of the analysis, as well as an operationalization of the method of analysis. The analysis will address the abovementioned research questions. On the basis of the analysis, a discussion containing reflections, as well as limitations to theory and method based on the findings will be presented. Finally, the problem formulation will be answered in the conclusion (section 8). The above mentioned structure is visualized in figure 1 below.

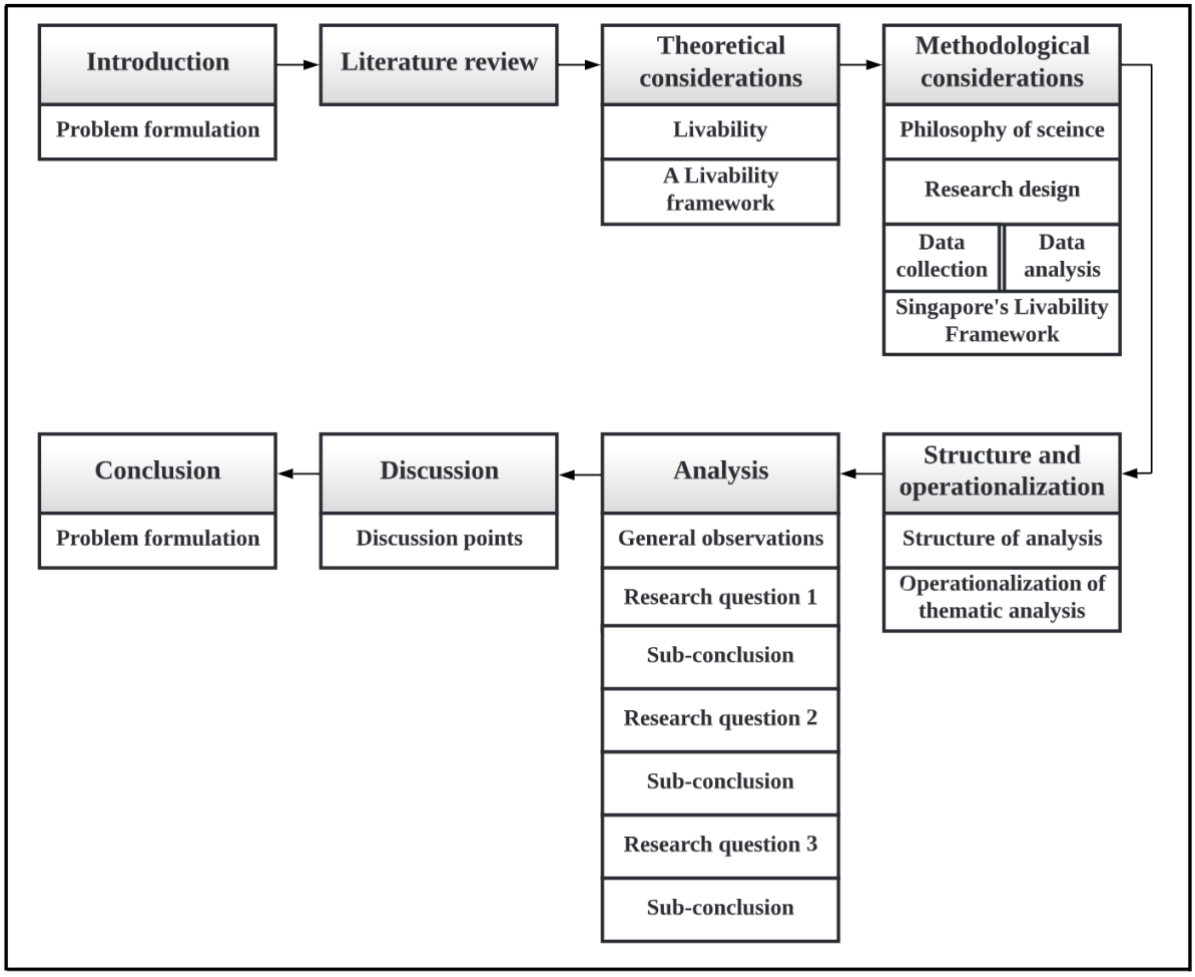

Figure 1: The structural setup of the thesis (Made by the author)

2. Literature Review

This chapter presents the literature review which is based on the review of academic books and articles, reports and studies gathered for the purpose of providing the reader with a common understanding of how the key concepts are utilized throughout this thesis. This will allow for a comprehension of the present academic material available for this field of study as well as where this thesis fits into such. The focal points of this literature review are the concepts of sustainability, urban areas, and urban development.

2.1 Sustainability

The concept of sustainability is hard to define because it is extremely complex and does not have a universal definition. Because there is no universal definition, the terminology of the word has become broad and the meaning varying depending on in which context it is being utilized. Every nation, every government, every city for that matter has their own way of interpreting sustainability but what they all can agree on is that sustainability is multifaceted, multidimensional, and multidisciplinary.

Sustainability is mainly used in policies as a tool to fight environmental issues, primarily climate changes (Kuhlman & Farrington, 2010). Though the concept of sustainability in policy is considered relatively[1] new, the notion of sustainability is not. The notion of sustainability first came about back in 1713 in Germany in regard to forestry (Kuhlman & Farrington, 2010). Here the meaning of the word meant never to harvest more threes than the forest would be able to regenerate. Thereby, preserving a natural balance and avoiding depletion of natural resources that we as humans depend on for survival. The concept was simple, nature and humans must co-exist (Kuhlman & Farrington, 2010).

This notion sparked a growing concern among economist in 1798 that the world might not offer unlimited supply of resources and eventually these resources would be depleted. That meant in order to preserve the world consumption patterns needed to change (Kuhlman & Farrington, 2010). However, it was not until 1987 that a new definition for sustainability, which included these concerns, were develop by the UN Brundtland Commission. Here they defined sustainability as: “meeting the needs of the present without compromising the ability of future generations to meet their own needs.” (Brundtland Report, 1987, para. 27). The

[1] Within the last 50 years

issue with this definition is that it is still exceedingly broad. It does not explain what sustainability is other than 'meeting the needs' which can be interpreted a hundred different ways. Nor does it offer any explanation for what needs to be changed and how. However, it does install a notion that people in the present cannot live carefree without any preservations because they cannot compromise the planets' ability 'to meet the needs' of future generations to come. Yet, this definition is still one of the most accepted and recognized definition for sustainability within the literature to date.

Since then, three dimensions have been added to the concept of sustainability, namely social, economic, and environmental dimensions which all must be in unison. Today sustainability is almost always defined by these three dimensions (Kuhlman & Farrington, 2010) and as such, sustainability, for the purpose of this thesis, will also be defined through the use of the three dimensions. These three dimensions will be further discussed in section 2.1.1.

Nevertheless, Kuhlman and Farrington beliefs that the social and economic dimensions of sustainability have become excessive and replaced the dimensions with well-being instead. They belief well-being as a single dimension covers both the social and economic aspects of sustainability under one this dimension (Kuhlman & Farrington, 2010), and argues is makes a better choice as well-being in itself is a policy goal. On one hand simplifying two dimensions under one concept makes sense as well-being does encompass both social and economic aspects. On the other hand, it makes no sense at all social and economic dimensions individually embodies so many different things. The risk by simplifying the two dimensions into one could result in elements of these aspects being neglected or forgotten entirely. Thereby delaying or making it impossible to achieve sustainable outcomes.

Besides the three already well-known dimensions of sustainability, Martínez Castillo and Martínez Chaves (2016) identify four more which they believe are just as important as the three first ones, particularly political, cultural, educational, and geographical. Castillo and Chaves define them as such:

- Political: To enhance the direct participation of the population in decision-making, in a decentralized and democratic manner, and in the management of sociocultural and environmental assets.

- Cultural: To rethink the evolution of society toward sustainable production and consumption styles, which implies a change in the cultural patterns of society–nature relationship.

- Educational: To generate a process of awareness and social action on social and environmental problems and their alternative solutions, in a practical and objective way, without ideological ties.

- Geographical: To guarantee that the productive activities of regional economies promote the quality of life of the population and protect their natural and cultural heritage.

Though these dimensions are central to sustainability, one could argue that these already exist within the original three dimension. However, by separating them from the original dimensions the importance of the objectives of the four becomes much clearer.

What also make sustainability a complex concept is the fact that environmental issues are considered global concerns that are being fought on a local level. And because environmental issues take time to remedy, sustainability is defined by Benson and Craig as: "the long-term ability to continue to engage in a particular activity, process, or use of natural resources" (Benson & Craig, 2014). The long-term dimension is a key component of sustainability. The problem with considering the concept of sustainability long-term assumes that some objectives in the future needs to be achieved. And because these objectives are in the future, they are being postponed in the 'here and now' resulting in nothing being achieved in the future. It is this mindset of postponing sustainability objectives the last couple of decades that has gotten us in to the mess of severe climate change that we now are confronted with. Long-term or in the future is not cutting it anymore, change and sustainability objectives need to be achieved now if we are not to, as the Brundtland Commissions definition states, 'compromise the future for generations to come'.

Because sustainability is a global concept, this raises the issue of with whom lies the responsibility of fixing global environmental issues that affect us all? The UN has taken this task upon themselves to answer with their 17 SDGs, forcing each of their 170-member

country to take responsibility for the global environmental issues by lowering their own carbon footprint (United Nations, 2023). In an ideal world all member countries would do their part to meet the goals set forward by the UN. However, we do not live in an ideal world and such commitment is rarely being upheld. The reason that these commitments are rarely being withheld, in this case, is that the UN have not set up a unit or entity to hold their member countries accountable for meeting the goals they have set forward. Because there is no unit checking up on the member countries progress towards becoming more sustainable, they face no consequences for not meeting the goals. No consequence means that actions and step towards more sustainable outcome is yet again being postponed without any form of guilty conscious. To break this unfortunate tendency and for sustainability to be taken seriously and for actual change to happen, the author believes establishment of a unite or entity is needed for holding these countries accountable for their actions or their lack thereof for that matter. Thereby actually forcing them to reduce their environmental footprint. Until this happens no noticeable changes and carbon reduction in the atmosphere will take place.

For either of these countries to start making changes and remedy environmental problems, they need to start at a city level. That is why the UN dedicated the 11th goal to sustainable cities, making sustainability more tangible. Thus, this thesis will now move on to defining sustainability from a city perceptive as well as present what constitutes a sustainable city and how should it operate.

2.1.1 Sustainable Cities

Just as the word ‘sustainability’ does not have a clear agreed upon definition in the literature nor has the concept of ‘sustainable cities’. According to Dr. Steven Cohen a sustainable city is one that:

> “Minimizes its emissions of conventional air pollutants and greenhouse gases; uses as few nonrenewable resources as possible; discharges effluents into waterways after treatment that removes the most harmful pollutants; uses energy and water as efficiently as possible; and attempts to reduce and recycle waste and minimize the impact of whatever waste disposal is needed” (Cohen, 2018).

Compared to other definitions within the literature relating to sustainable cities, including ones that will be cited further on, Dr. Steven Cohen’s suggestion provides concrete actionables for what and how a sustainable city should function. While Cohen goes into

details with actionable suggestions, the United Nations Environment Programme defines sustainable cities as those that "combine greater productivity and innovation with lower costs and reduced environmental impacts while providing increased opportunities for consumer choices and sustainable lifestyles" (UNEP, 2012). Kent Portney takes the definition even further stating that efforts such as reducing solid waste, redeveloping brownfield sites, protecting biodiversity, improving public transit policy, and enacting climate action goals is the type of actions that reflects a sustainable oriented city (Portney, 2013).

The UN through the 17 SDGs has framed sustainable cities through their 11th goal: "Make cities and human settlements inclusive, safe, resilient and sustainable" (UN, 2023). Compared to the other definitions this is exceedingly broad as it does not explain the parameters for what inclusive, safe, resilient nor sustainable constitutes in a city related subject. However, this definition does provide four objectives to work with. To better understand what inclusive in a city setting entails, the author turns to The UCLG Congress World Summit of Local and Regional Leaders who has defined an inclusive city as:

> "An inclusive and accessible city is a place where everyone, regardless of their economic means, gender, ethnicity, disability, age, sexual identity, migration status or religion, is enabled and empowered to fully participate in the social, economic, cultural, and political opportunities that cities have to offer" (2019).

By this definition, an inclusive city is one that accommodate everyone and provides equal opportunities. Though this is a nice sentimentality this is however hardly ever the case as growing disparity in wealth and income as well as gentrification still creates some form of exclusions and discriminations (Cohen 2006; Rebernik et al., 2019). For a city to be considered an inclusive city according to Liang et al. it needs to offer spatial, social, economic, environmental, and political inclusion (2021).

The spatial inclusion enables everyone in the city to have access to public housing, transportation, and public infrastructure. The social inclusion enables everyone to migrate to and participate in social activities in the city. The economic inclusion of the city should seek to eliminate segregation and material inequities and instead focus on increasing the access to employment opportunities. The environmental inclusion of a city should require that its citizen and businesses operate in a way that does not compromise the future for generations to come. While the political inclusion should offer everyone equal political right (Liang et al., 2021).

The safe objective of a city for one entail protecting the city from harm and in extension the residents and businesses who reside there. Kehoe et al. defines a safe city as one that "addresses the health and safety of residents and visitors through innovations in local healthcare networks, disease management and prevention, social services, food safety, public safety, and individual information privacy" (Kehoe et al., 2011, as cited in Risdiana & Susanto, 2019). Besides residents and businesses Kehoe et al. also mention visitors. As visitor, or tourism in general, bring in much needed capital infusion to cities economy (Murillo et al., 2013), it makes sense to make cities safe for them to travel around in. The safety objective according to Kehoe et al.'s definition also involves ensuring that a city has enough nutritious food to sustain its' residents. Food scarcity is already an issue affecting millions of people worldwide (Smith & Wesselbaum, 2020) and with the Ukrainian war, pandemics such as, the recent, still ongoing, COVID-19 virus (Caprile & Pichon, 2022) and the ever-increasing population of the world, food scarcity will only increase, which makes it an important resources to preserve.

A way to make a city safe and feel more comfortable for the residents to reside in is through technology. According to Risdiana and Susanto the government, communities and businesses can use the latest technology to prevent, detect, investigate, and reduce the impact of various security incidents, such as threat of terror, crime, riots, accidents, or natural disasters to ensure their safety (2019). Though technology is a big part of what makes a city safe it cannot stand alone. Risdiana and Susanto (2019) as well as the Economist Intelligence Unit (EIU) has identified 5 indicators to a safe city, namely, Digital security, Health security, Infrastructure security, Personal security, and Environmental security.

Here digital security indicator evaluates a city's ability to protect its' citizens and businesses online activities, data, and other assets from being hacked often. This can be ensured through the installment of security systems or tools such as biometrics, GDPR rules, policies etc. (Risdiana and Susanto, 2019; EIU, 2021). The health security, as the name implies, evaluates a city's ability to handle everyday medical assistance as well as unforeseen pandemics. It investigates number of doctors per 1000 citizens, infant mortality, life expectancy etc. The infrastructure security evaluates the city's ability to maintain and improve on highway, roads, bridges, power grids etc. The personal security indicator assesses a city's ability to protect its citizen from criminal incidents such as petty thefts, substance abuse, corruption etc. Lastly the environmental security indicator evaluates the city's policies to protect the environment

as well as its carbon footprint (Risdiana and Susanto, 2019; EIU, 2021). These indicators are objective by design and therefore lack the perceptions and opinions from the citizens. Without them a precise picture of what a safe city, or a sustainable city, is cannot be achieved.

This leads us to the third objective, 'resilient' cities. What is understood by a resilient city is its ability to absorb, adapt and respond to changes within in its economic, environmental, social, and institutional system (Desouza & Flanery, 2013). Because cities have become more susceptible and vulnerable toward natural and man-made disasters such as financial crisis, epidemics, wars, tsunamis, floods, earthquakes etc. the need for resilient cities has grown (Sharma & Chandrakanta, 2019). Resilience has often been measured in how fast a city can 'bounce back' from a disaster, the better a city is in recovering from such events the more resilient it is considered to be (Patel & Nosal, 2016). However, Garcia and Vale are of that opinion that a framework for measuring resilience should help us understand where the city and its systems are now, how fragile they are, and what is at stake (2017). But in reality, as Cheek and Chmutina points out the frameworks can only measure what can be measured, which means that vital elements that makes up the cities are being excluded from the measurements (Cheek & Chmutina, 2022). If certain elements are being excluded from the resilient measuring, then what exactly is it that they measure?

The frameworks that do attempt to measure resilience anyways, such as the Rockefellers' 100 Resilient Cities, UNDRR's Making Cities Resilient Campaign, City Resilience Index and UN-Habits' City Resilience Profiling Programme are extremely complicated to utilize. Many of them require workshops and focus groups of several individuals to measures resilience. Others require a group of experts to answer surveys with over 100 questions to determine a city's resiliency. Furthermore, most of these frameworks focus on the 'bounce back' principle which essentially brings the city back to the state it was in before the crisis or shock to the system occurred and not 'bounce forward' which is what improves the system and thereby increases the city's resiliency. As such, the resilient objective will not be investigated further in this thesis.

The sustainable objective refers to the cities' ability to lower their environmental footprint as well as offers greenery and culturally inspiring living conditions through intelligent urban planning. The notion of sustainable urban development is not new, it was first put on the

agenda back in 1972 at the United Nations Conference on the Human Environment in Stockholm, Sweden. Here they adopted the Stockholm Declaration which featured a principle on sustainable urban development:

> "Planning must be applied to human settlements and urbanization with a view to avoiding adverse effects on the environment and obtaining maximum social economic and environmental benefits for all. In this respect, projects which are designed for colonialist and racist domination must be abandoned" (Stockholm Declaration, principle 15, 1972).

The United Nations Conference on the Human Environment were not the only ones who included social, economic, and environmental factors when it came to sustainability. The United Nations Centre for Human Settlements 'Sustainable Cities Programme' in 1991, defined a sustainable city as one "where achievements on social, economic and physical development are made to last" (UN-Habitat, 2001). This was later followed by a report in 2013, also by the UN, stating that they believed sustainable cities could be achieved when integrating four pillars, social development, economic development, environmental development, and urban governance (United Nations, 2013). Here they expanded on the pillars to include urban governance, but often only three of them are referenced as the three pillars of sustainability. That same year, the World Bank defined sustainable cities as "resilient cities that are able to adapt to, mitigate, and promote economic, social and environmental changes" (2013).

Though the resilient part of the World Banks definition already has been excluded from this thesis, the social, economic and environment pillars are all repeated in the principle and statements above, making them essential within the urban settings. Because sustainable cities are tied to social, economic, and environmental pillars, the reader will now be introduced to the three pillars. The three aspects of sustainability social, economic, and environmental are also known as the three pillars of sustainability and has been accounted for and addressed by numerous authors such as (Basiago, 1999; Pope et al., 2004; Gibson, 2006; Waas et al., 2011; Moldan et al., 2012; Schoolman et al., 2012; Boyer et al., 2016). The terminology in which these pillars have been addressed has differed, at times they have been referred to as 'aspects' (Goodland, 1995; Lozano, 2008; Tanguay et al., 2010), 'perspectives' (Brown et al., 1987; Arushanyan et al., 2017), 'dimensions' (Stirling, 1999; Lehtonen 2004; Carter and Moir, 2012; Mori and Christodoulou, 2012), 'components' (Du Pisani, 2006; Zijp et al. 2015) or even 'stool legs'(Dawe and Ryan, 2003; Vos, 2007), interchangeably.

The concept of the three pillars of sustainability stems from the Triple Bottom Line concept invented by Elkington. A concept that originally was intended to operationalize corporate social responsibility (Elkington, 1994). The three pillars are often visualized either, as the name gives away, three pillars supporting a 'roof', where the roof constitutes sustainable development or as three intersecting circles where sustainability is found at the intersection of the three circles, as presented in figure 2 and 3.

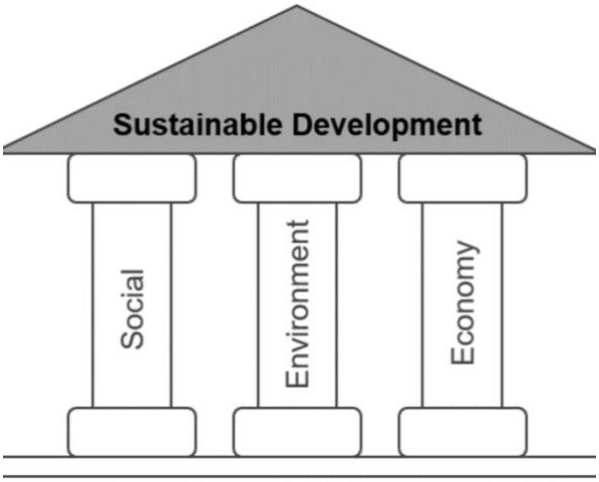

Figure 2: 3 pillars of sustainability (Purvis et al., 2019)

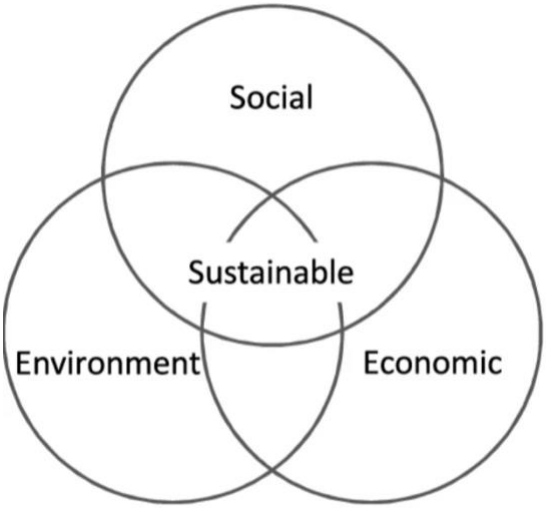

Figure 3: 3 circles of sustainability (Purvis et al., 2019)

No matter which way you choose to visualize it, they are all interconnected, influencing one another. It is therefore a balancing act between the three in an attempt to fulfill them all that will result in a sustainable city thereby fulfilling the 11th goal of the 17 SDGs. However, fulfilling all of the pillars simultaneously has proven difficult as most cities prioritize one pillar above the other. Hence, the main problem with sustainability is a lack of balance between the three pillars. This unbalance or conflict, as Campbell calls it, comes into play when development conflicts with social justice on property matters which conflicts with environmental protection (urban sprawl turning into development conflicts), which then conflicts with economic development for resources (Martinez et al., 2021). The pillar's underlying meaning is outlined below.

Social

The social pillar of sustainability focuses on ensuring important social elements of society. It includes a set of values and perceptions that lead to consumption and behavioral choices that minimize human impact on the environment (Cohen, 2018). Mario Polése defines social sustainability in cities as:

> "Development (and/or growth) that is compatible with the harmonious evolution of civil society, fostering an environment conducive to the compatible cohabitation of culturally and socially diverse groups while at the same time encouraging social integration, with improvement in the quality of life for all segments of the population" (2000, p. 15).

Quality of live (QOL), as Polése mentions in his quote above, encompasses a whole range of things that are highly subjective (Gough, 2015) depending on where one is in one's life cycle. But looking at it from a city setting QOL relates to cost of living, affordability of housing, health, community, culture, education, security, access to green energy, clean air, and water (Hegazy et al., 2017; Meuresiduo, 2023; Allen, 2022). The best way to secure QOL is developing and improving politics and policies to support these areas which influences both environmental and economic sustainability. The concept of QOL will be further examine in section 2.2.

Economic

Economic sustainability by definition means 'maintenance of capital' or to keep capital intact (Goodland, 1995). Whilst social sustainability focuses on improving social equality, the economic sustainability within a city should aim to support these equalities and improve the standard of living. Often by investing in infrastructure, renewable energy sources, technology, and innovation. Economic sustainability also focuses on attracting domestic as well as foreign businesses to the cities, resulting in job creations and economic growth (Goodland, 1995).

Environmental

Besides improving some of the social sustainability elements, environmental sustainability aims at reducing cities negative impact on the environment, while protecting, preserving, and restoring natural resources. This includes water quality, air quality, green energy efficiency, reduce GHG emission, foster biodiversity, waste, and recycling management (Hegazy et al., 2017). All of this requires good infrastructure as well. Dunphy, Benveniste, Griffiths, and

Sutton describe environmental sustainability as placing emphasis on how cities can achieve positive economic outcomes without doing any harm, in the short- or long-term, to the environment (2000). It is therefore important that cities help facilitate sustainable production, sustainable consumption, and sustainable urban development within its city limits to maintain economic growth and create sustainable livable cities (Goodland, 1995).

A visualization of what constitutes the three pillars of sustainability has been provided below in figure 4, to provide the reader view a quick and easy overview.

Figure 4: The three pillars of sustainable cities (Hegazy et al., 2017)

To determine which city is the 'most sustainable' one can create an index that ranks the cities based on certain indicators. A company that has managed just that is Arcadis[2]. Arcadis' Sustainable Cities Index examines urban sustainability in relation to prosperity by using planet (environment), people (social), and profit (economic) as indicators (Arcadis, 2022). They believe that without a thriving urban landscape, that puts the planet first while providing inclusive opportunities for its citizens, cannot position itself for long-term success, and therefore cannot sustain its prosperity (Arcadis, 2022).

[2] https://www.arcadis.com/en/knowledge-hub/perspectives/global/sustainable-cities-index

Their planet indicator assesses the immediate needs of citizen, long-term impacts, and the investment in low-carbon infrastructure. It includes air pollution, green spaces, waste management, energy consumption, GHG emission, renewable energy solutions etc. The people indicator evaluates cities' ability to ensure QOL and protect it citizen. It includes health, education, crime, income inequalities, reliable public transport infrastructure etc. The last indicator, profit, assesses the business environment and the economic performance of the cities. Here the indicator includes affordability, economic development, ease of doing business etc. (Arcadis, 2022).

Sustainability is a topic covered heavily in the academic field and this thesis do not seek to fill a gap in the already somewhat exhaustive sustainability research. Rather, the focus will be filling a seeming gap in investigating livability in Aalborg, along with uncovering the possibility of implementing Singapore's Livability Framework tool to improve livability in Aalborg. In order to make a city sustainable one first has to make it livable. As livability lies at the core of what constitutes a sustainable city this concept will form the theoretical scope of this thesis. The theoretical scope will be presented in section 3, which seeks to present all the elements that livability will embrace for this thesis and turn those elements into a framework for detecting livability. But first, the reader will be presented to the concept of QOL an important dimension of both sustainability and livability.

2.2 Quality of Life

Yet again the reader is introduced to a rather complicated and elusive concept with no agreed upon definition within the literature. To this end, Baker and Intagliata pointed out back in (1982) that the concept had as many definitions as the number of people studying the concept. This perception being over 40 years old now has still not changed. The concept nevertheless is used as an assessment tool to measure the well-being of either a society or community through the use of social indicators (Flax, 1972; Liu,1976; Schneider, 1976), or individuals or groups through the use of social and psychological indicators (Bigelow et al., 1991; Bradburn, 1969; Campbell et al., 1976; Heal & Chadsey-Rusch, 1985). Borthwick-Duffy offered three perspectives to how QOL could be defined: a) quality of life defined as the quality of one's life conditions, (b) quality of life defined as one's satisfaction with life conditions, and (c) quality of life defined as a combination of both life conditions and satisfaction (1992). All three perspectives are depicted below in figure 5.

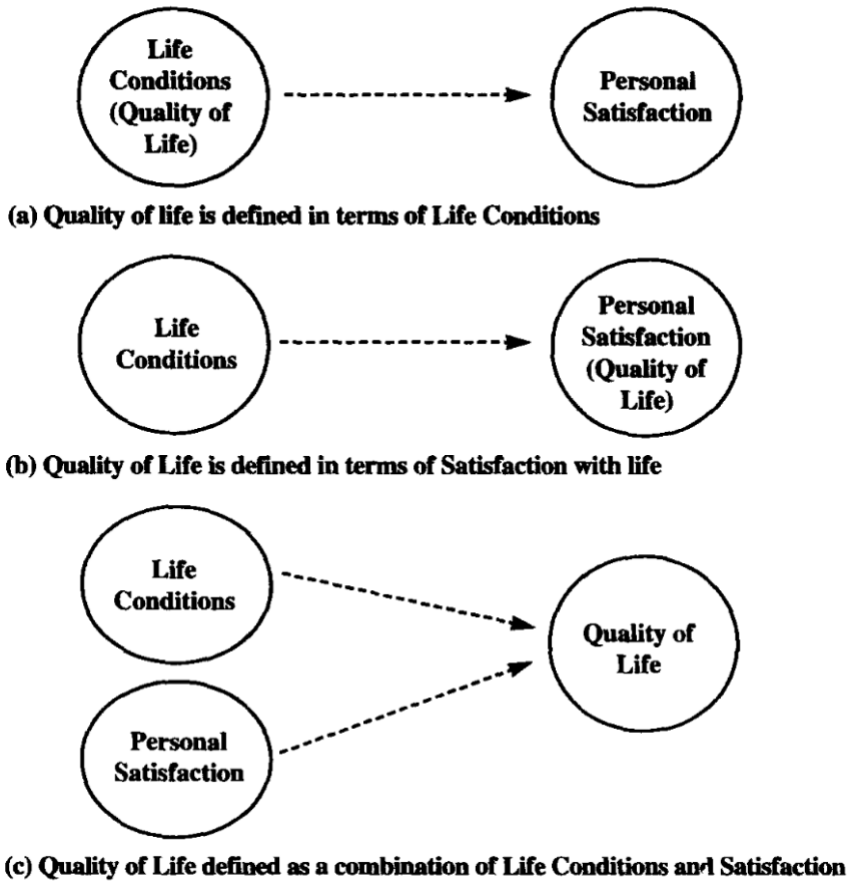

Figure 5: Perspectives of QOL (Felce & Perry, 1995).

By this definition Borthwick-Duffy argues that QOL consists of two elements: 'Life conditions' and 'satisfaction'. Life conditions, in this instance, is considered objective as it consists of a range of experiences had by the citizen. These objective life conditions might entail physical health, wealth, living conditions, social relationships, varies activities and pursuits, yet even societal and economic influences. While subjective responses to those life conditions are considered the satisfaction element (Borthwick-Duffy, 1992). Other life conditions and satisfaction elements that constitute QOL count: finances, safety, health, work, education, recreation, leisure, creative expression, standard of living, family life, marriage, friendships, social relations, religion, neighborhood, city or town of residence, the state of the nation, and the self, according to (Campbell, 1981; Flanagan, 1978; Lehman, 1988).

Stating that either one's life conditions (a) or one's satisfaction with life (b) only defines what QOL is, is a gross simplification of the complexity that is QOL. Both are equally important

aspects of QOL and as such should not be viewed alone. Combining them both as in Borthwick-Duffy's third perspective provides a better picture of what QOL is. However, these two elements alone are still not enough to construct QOL from (Felce & Perry, 1995). Felce and Perry defines satisfaction as "a personal assessment, the frame of reference is personal and affected by experience and the judgement of what is possible and typical for a person in one's situation" (1995). They therefore added a perspective to this notion claiming that their perspective was superior to the one's of Borthwick-Duffy. Their perspective builds on Borthwick-Duffy's third perspective C, but emphasize the need to take personal values, aspirations, and expectations in to account as well (1995).

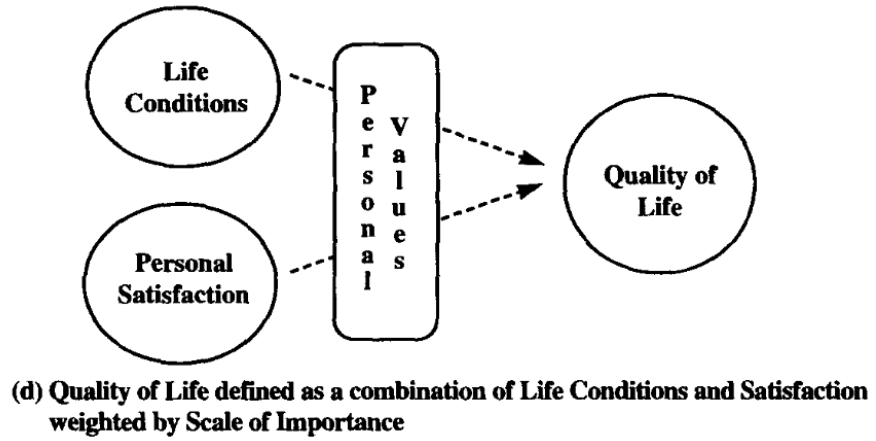

Figure 6: The fourth perspective of QOL (Felce & Perry, 1995)

Felce and Perry believes that personal values as well as life conditions and life satisfaction combined is what determines QOL because the life conditions and satisfaction with life is 'interpretable' by the importance the individual places on it (Felce & Perry, 1995). Appleyard et al. perceives the life conditions as a set of 'livability opportunities' but agrees with Felce and Perry that the satisfaction with these livability opportunities are greatly influences by an individual's personal values which in the end accumulates to one's QOL (2014). The author too agree that personal values are essential for determination QOL as personal values are what shapes a person. These personal values impact the way a person views and interprets one's life condition an ultimately influences the degree to which one is satisfied with these conditions. As such, QOL for this thesis is defined as a combination of life conditions and satisfaction weighted by scales of importance to an individual's personal values. Because life conditions and satisfaction with life vary across individuals in all groups within society

measuring QOL can be rather difficult. However, Felce and Perry seems to claim that this obstacle can be overcome by concentrating on the data from a defined group of interest and comparing this data to the population as a whole. Their life conditions and satisfaction in various domains can therefore reflect the general perception of the population (1995).

QOL is an essential part of sustainability and livability. The latter is centralized around creating and improving QOL for all inhabitants in their respectively different stages of life (Wagner & Caves, 2020). According to Ruth and Franklin, QOL is provided by the laws and regulations within a city. The laws and regulations help ensure the promotion and maintenance of safe buildings, reliable provision of water and energy, a clean environment, education, jobs, public health, accessibility, equity, public safety, comfort, available services, neighborhood walkability, transit, access to park and green spaces, cultural offerings, and participation. All elements that give substance to the concept of livability (Ruth & Franklin, 2014; Gough, 2015; Ahmed et al., 2019). Felce and Perry also identified 15 aspects of QOL with the literature that they grouped into five domains of well-being. They created a conceptual model to provide a quick overview of how these 15 aspects could be grouped under the 5 domains of well-being. This conceptual model is illustrated below.

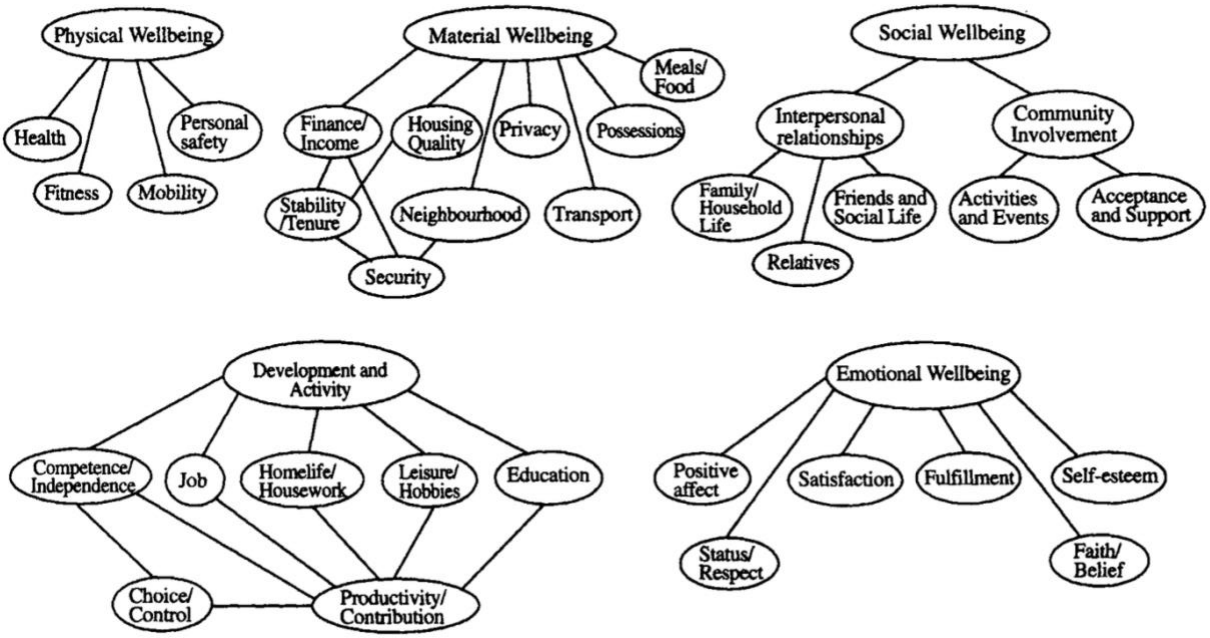

Figure 7: Domains relevant to QOL (Felce & Perry, 1995)

Because QOL and livability are closely linked to what constitutes a sustainable city, one could argue that the conceptual model by Felce and Perry frames the elements or conditions a city needs to offer and fulfill to be considered livable, and by extention, sustainable.

2.3 Urban Areas

Urban areas are the regions surrounding cities as well as the cities itself. It refers to towns, cities, and suburbs. Even though the concept has been discussed at length in the literature, no clear agreed upon definition has been reached. Weeks defines the "urban" in urban areas as a complex concept. Mainly because it is a function of (1) sheer population size, (2) space (land area), (3) the ratio of population to space (density or concentration), and (4) economic and social organization (Weeks, 2010). Urban is therefore seen as a place-based characteristic that describes the degree to which the lives of a geographical concentration of people are organized around nonagricultural activities.

Rural areas, on the other hand, are often referred to as ‘the countryside’ where a lower population density of people is mostly organized around agricultural activities. One could therefore say that rural areas are the opposite of urban areas (Weeks, 2010). But the line between a rural area and an urban one has become less clear over the years and certainly more subjective. This is partly due to technological advancements, being able to control mortality rates, bringing urban infrastructure to rural villages, better and more provision of food, shelter and clothing, optimization of agricultural machinery etc. (Weeks, 2010). Further, what seems to define urban areas one place in the world seems to be different in another. E.g., an urban area in the United States is defined by a human settlement of 2,500 inhabitants or more. While in Japan, a human settlement with 30,000 inhabitants or more is considered an urban area (Weeks, 2010).

This worldview is backed up by a study by Brockerhoff did back in 2000 where 51 countries distinguish between urban and rural areas based on sheer size and density. 39 countries from economic activities, 22 countries had no definition for urban areas at all and eight countries considered all of their populations as living in urban areas (Brockerhoff, 2000). Because of the unclear line between rural and urban, Weeks presents a third way of looking at it. He

believes that because the 'urbanness' of a place is determined based on a range of elements[3] that all varies across space and time, that urban and rural areas are continuums of one another (Weeks, 2010).

Kushwaha agrees with Weeks definition of urban areas but also stresses the importance that all urban areas be defined as having local government of some sort either through municipalities, municipal corporation, cantonment board[4] or notified town area committee (Kushwaha, (n.d)). Despite the concept not having a clear definition, one common factor the literature seemed to agree on as a criteria for defining urban area were size. Even though size is perceived subjectively, as made clear from the example above, it is the common denominator to the concept. The census of India 1981 made use of this criteria to define urban area as:

1. A minimum population of 5000
2. Having at least 75 % of the working population engaged in nonagricultural activities
3. A population density of at least 400 persons per square kilometers (i.e., 1000 persons per square meter) (LAL, 1981)

This definition provides more clear parameters, in relation to size, for what constitutes an urban area.

2.4 Urban Development

Weeks defines urban development as turning agricultural land into nonagricultural land for human settlement and planning how that settlement best meets the needs and wants of their inhabitants in the present while also being able to accommodate population growth in the future. It does so by subdividing the land or space into lots or plots and blocks, and installing water and sewer lines, constructing streets accessibility and railroad tracks (Carrillo et al., 2014). As a concept it refers to the capacity of infrastructures and services created by the city. The European Union (EU) defines it as "infrastructure for education, health, justice, solid waste, markets, street pavements and cultural heritage protection" (2023). This definition is very similar to the one William Robert Avis proposed back in (2016), namely that "urban development is the social, cultural, economic and physical development of cities, and the underlying causes of these processes". Urban development also focuses on improving

[3] All the elements mentioned in the beginning of this section (population size, density, space, economic and social organization)
[4] A military garrison or camp.

existing constellations for residential, institutional, commercial, industrial, transportation, public flood control, and recreational usages (Carrillo et al., 2014). This way urban development functions as a network between the main sectors in cities, such as renewable energy, information technology, services, and mobility.

Today urban development is not just about developing cities, it is about developing sustainable cities. The UN defined sustainable urban development back in 2016 during the Habitat III–Conference on Housing and Sustainable Urban Development as:

> "Fulfill their social function, including the social and ecological function of land, with a view to progressively achieving the full realization of the right to adequate housing as a component of the right to an adequate standard of living, without discrimination, universal access to safe and affordable drinking water and sanitation, as well as equal access for all to public goods and quality services in areas such as food security and nutrition, health, education, infrastructure, mobility and transportation, energy, air quality and livelihoods" (United Nations, 2016).

This definition of sustainable urban development if highly linked to the notion of livability, more precisely to what constitutes a 'livable' city. Not only are these requirements highly ambitious they are also highly subjective, and to make matter even more complicated the UN made a statement declaring that urban development must be centered around people (2016). Centering sustainable urban development around people is going to be extremely difficult to achieve as each individual's preferences, wants and needs are going to be different. However, it is, at the same time, a really smart strategic move in order to attract more people. And with more people, cities will gain more talent and with talent, more knowledge which is the key to sustainable cities.

To get to knowledge, one first must understand the process of how urban development came to be. The first human settlements were built back in 3,500 BC as agricultural settlements. These settlements gave birth to civilization and formation of the first cities and their development processes (Kotkin, 2006; Mumford, 1961; Yigitcanlar, 2011). Ancient Greek city-states continued advancing urban development centuries later when they introduced urban planning principles where settlements were laid out using orthogonal principles from mathematics. Here the streets formed a checkerboard pattern of identical units as displayed in the figure 8 below (Carrillo et al., 2014).

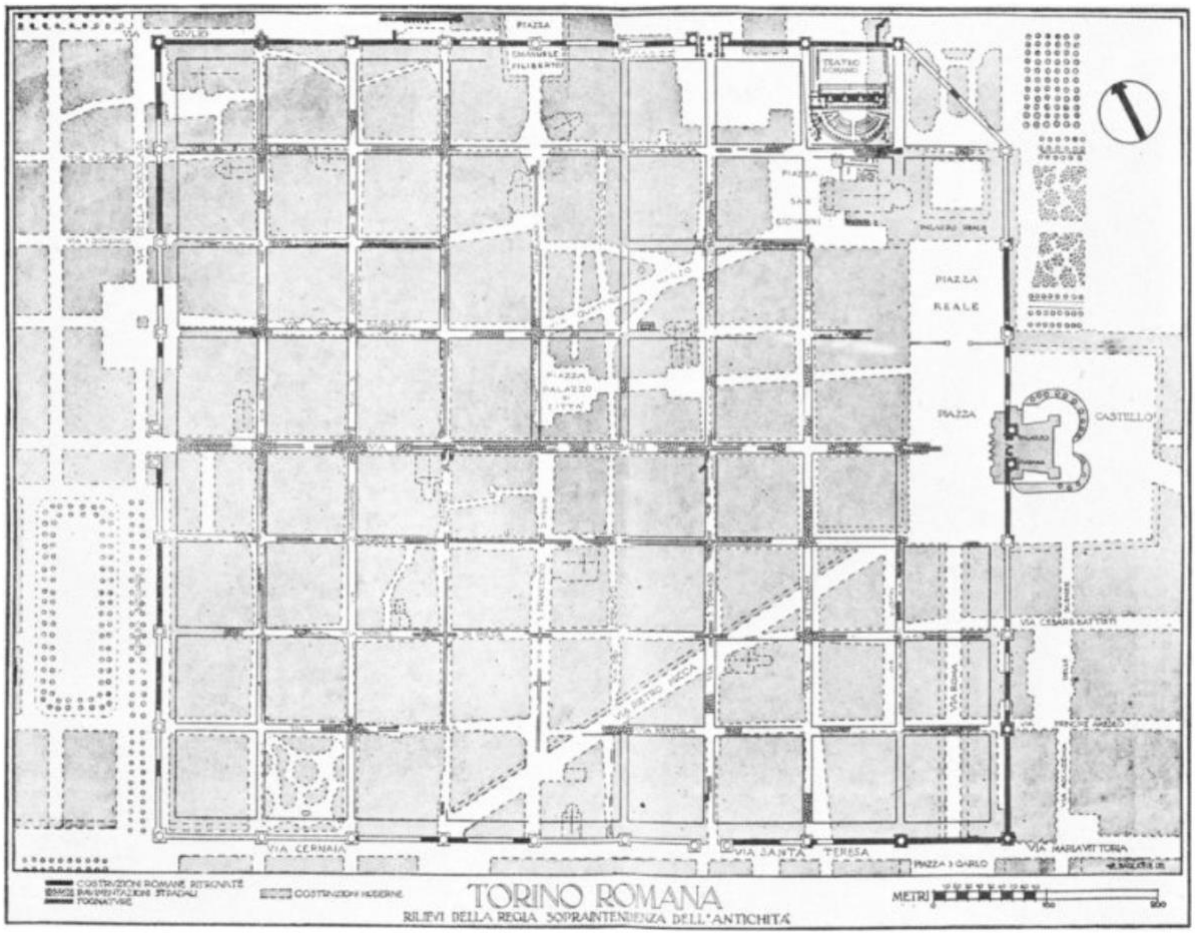

Figure 8: Orthogonal Urban Planning (Castagnoli, 2021)

The Roman civilization learned from the Greek one and expanded on the notion of urban development by using law, citizenship, and infrastructure to support their urban development. This meant that urban planning and designing urban spaces had to follow clear regulations. Here cities were constructed by a number of identical components laid out in a parallel and equidistant way separated by streets (van Doren, 1992). It was not until the Industrial Revolution that the modern way of urban development and planning, as we know it today, came about. Mainly to fix the problems that this era brought with it and the increased migration from rural areas to cities. This led to environmental problems such as, sanitation, insufficient infrastructure, and pollution (Carrillo et al., 2014).

Carrillo, Yigitcanlar, García and Lönnqvist argues that today's society with impacts of globalization, knowledge economy and technological advancements, especially within the fields of information, communication and transportation has changed our society from a postmodern society to one of information or, as they call it, a knowledge society (2014). A

new society requires new understanding, new approaches to urban planning and a new development paradigm according to scholars. These scholars emphasize that a new development paradigm is essential "to better deal with social, environmental and urbanization problems and the development of resilient infrastructures for cities" (Friedmann, 1998; 2005; 2007, as cited in Carrillo et al., 2014). They end their argument by stating "all these advancements in technology are concrete proofs of the significant role that knowledge (in the forms of technology and culture) plays in development, including our cities" (Carrillo et al., 2014). Knowledge has always been at the core of urban development, but it was not until recent that knowledge was acknowledge as a primary factor that drives urban development as well (Gabe, 2009; Knight, 2008).

The reader has now been presented with the key concepts that has been utilized throughout the thesis. As such, the focus will now shift to the theoretical framework, containing the theoretical considerations and a livability framework used to help answer the problem formulation will be presented.

3. Theoretical Framework

This section aims to provide an overview of the chosen theoretical framework used in this thesis. First, as defined in the literature review, the three pillars of sustainability will function as the overall framework in understanding the concept of sustainability utilized throughout this thesis. Such understanding is integral when examining what constitutes livability in Aalborg as these to concepts sustainability and livability are highly interconnected.

3.1 Livability

Just like with 'sustainability' or 'sustainable cities', the term livability does not either have a clear agreed upon definition within the literature. Peterson defines livability as "the symbiotic interdependence of ecological, social, and economic systems in a city" (2017). By this definition, livability is merely sustainability. If that were true, there would be no need for livability and research into the concept itself would be considered redundant which is simply not the case. Unlike Peterson, the National Research Council views livability to be interconnected with sustainability, quality of life, the characteristics of the 'place' and the health of communities (2002), which makes it an 'ensemble concept' according to Myers (1988) and Andrews (2001). By their definition, livability encapsulates all the elements of

sustainability, QOL, place, and community that would make the concept extremely broad, which the literature will show later. However, unlike sustainability, that focuses on long-term goals, livability is defined by Ruth and Franklin to be dealing with the 'here and now' focusing on immediate and tangible conditions and interventions (2014).

Godschalk on the other hand interpret the term livability as an aesthetic concept that puts emphasis on urban design and the built environment which primarily focuses on capital accumulation and consumption (2004). And he is not the only one. The term became a popular topic back in the late 1980s and early 1990s among city planners and policymakers as a sort of buzzword for creating and maintaining livable cities (Balsas, 2004; McArthur & Robin, 2019). Here they use livability as "a guiding principle for investment and decision-making that shapes the urban social, economic, physical and biological environment" (Benzeval et al., 1995; hills, 1995; Pacione, 1982, 2003). In that sense, livability became a political term to be used in policies in dealing with sustainability.

The definition that comes closest to sum up what livability is or what constitutes livability is Gough's definition. She defines livability from a community perspective:

> "Community livability is constructed by the sum of the physical and social characteristics experienced in place – including the natural environment and a walkable and mixed-use built environment, economic potential near diverse housing options, and access to a broad range of services, facilities, and amenities – that add up to a community's quality of life" (Gough, 2015).

Once again place and QOL is mentioned as being a part of what constitutes livability, but it does not explain what it is or what it means in this context. According to Myers (1988), in a community livability context, QOL refers to a citizen's satisfaction with the residential environment, the traffic, the crime rate, the employment opportunities or the number of open spaces available. While place, which also considers these factors, in a community context, refers to how a community's health is affected by the air quality and access to health services (National Research Council, 2002). This notion again emphasizes the importance of citizen involvement in determining a city's livability. Hermansen even goes as far as to state that urban livability must start with identifying what type of city the residents are seeking, which Ruth and Franklin (2014) seems to agree with. She also states that "livability begins with a holistic understanding of a city's collective identity, behavior, and needs" (Hermansen, 2014, as cited in Peterson, 2017). The mentioning of the livability index brings forward yet again

the notion of ‘most livable city’, just as with sustainability. Here EIU have divided livability into five categories cities then can be compared across to rank them and find the most livable one. The five livability categories are: stability, healthcare, culture and environment, education, and infrastructure (EIU, 2022).

Much like the UN’s objectives, the first category stability assesses a city’s ability to protect its citizen from criminal incidents such as petty thefts, violent crime, threat of terror etc. (EIU, 2022). It also corresponds somewhat to the people indicator under sustainable cities as that indicator also consider crime. The second category Healthcare evaluates the cities availability and quality of private and public healthcare. The third category culture and environment assess array condition with the cities, such as the cities climate and whether this climate would pose discomfort for those visiting the cities. Moreover, it also assesses the level of corruption, social or religious restrictions along with cultural and sporting availability, and restaurant options (EIU, 2022). This category encapsulates indicators from both the inclusive objective (social & environmental), the safe objective (environmental security) and the planet indicator of sustainable cities. The fourth category being education, evaluates the availability and quality of private and public education that the cities offer. This category corresponds to the inclusive objective of the UN under social- and economic inclusion along with the people indicator for sustainable cities. The fifth and last category infrastructure which correspond to both safe, infrastructure security and the planet indicator of sustainable cities assesses the quality of public infrastructure, such as road network, public transportation, public housing, energy, and water provision etc.

With all this in mind, one could be tempted to argue that livability essentially deals with finding ‘areas’ in need of improvement. Improving cities within the economic, social, and environmental dimensions to become more livable, but for whom? This is something the literature as well as all the indicators and indexes does not always specify, who is all these improvement and livable initiatives really for?

This is also a question Tolfo and Doucet have asked and argues that if livability is measured through QOL then only the elite or, as they call them, ‘the lucky few’ will experience the qualities that make their city livable (2022). That suggest that experiences of livability are influenced by one’s socioeconomic position and that livability is for the ones who have the means to experience it (Tolfo & Doucet, 2022). In some respect, that might be true, as there

would be experiences that middle- and lower-income citizens would not have the money for to be able to experience it. However, that does not mean that middle- or lower-income citizens does not experience qualities that make a livable city. Tolfo and Doucet seems to have forgotten that livability and what makes a livable city is subjective and therefore is experience differently. There could be qualities experienced by the middle- or lower-income citizens that make the cities extremely livable for them that high income citizens might take for granted. Livability is, and should be, judged by the ones who experience what they believe is the quality thereof.

Appleyard et al. have proposed, what they consider, a more concise definition for livability to best be understood as "an individual's ability to readily access opportunities to improve his or her personal quality of life" (2014). They also belief that livability must be provided for all and not just 'the lucky few'. However, they seem to have limited livability or the mean to experience the qualities of a livable city to an individual's ability. If an individual simply does not possess the abilities to access opportunities to improve his or her own personal quality of life, does that then mean that they cannot experience livability? Or worse, that it is their own fault that they cannot experience qualities of a livable city? Ability or not, a city should always offer 'readily and equal' accesses for all its citizens.

Another problem livability seems inevitably to bring forth when improving urban areas of the city is gentrification. As certain urban areas undergo neighborhood upgrades, rejuvenations, or reinvestment the value or those urban areas increases. As a result, housing prices and rent also increases, leading to displacement of unwanted resident as well as businesses (Doucet et al., 2011; Smith, 1996). E.g., before its rejuvenation and reinvestment, Aalborg east was deemed a ghetto area mostly inhabited by second generation immigrant with a lower income level (Jørgensen, 2020). After its rejuvenation and reinvestment, the area had completely transformed, former housing blocks had been torn down to make way for a new health center. New shopping opportunities were added to the area along with restaurants. As a result, the market value and housing prices went up displacing many of the second-generation immigrant. This was just one of the Danish governments goals to eradicate ghetto areas in Denmark (Jørgensen, 2020; Schouenborg, 2016; Videbæk et al., 2019).

These actions merely confirms that livability is for the ones who have the means to experience the qualities that make a livable city as Tolfo and Doucet claimed. In the case of

Singapore, livability was for businesses and the government. They utilized livability to attract foreign and domestic businesses to help boost its economic growth (Macomber & Alamsyah, 2019). Another major challenges that policymakers and city planners faces with reorganizing urban areas in an effort to maintain a standard of livability is the ever-shifting preferences and migration status of citizens. The definition of livability does not only change across people's life course but also across generations according to Ruth and Franklin: "the preferences of young families yesterday are different from today and will likely be different again tomorrow" (2014). Which ultimately means that maintain a constant standard of livability is extremely difficult. Other external elements that problematize cities in maintaining a constant standard of livability is extreme weather events like droughts, heatwaves, floods, hurricanes etc. and globalization (O'Brian & Leichenko, 2000). The recent Covid-19 pandemic is a great example of how globalization through supply chains directly affected the livability in many cities (EIU, 2022).

One important factor to livability and QOL that the literature does not seem to mention, which is a side effect from urbanization, is noise. Instead, the literature focuses on the inconvenience of traffic congestion and pollution generated from those congestions by cars, but not the noise these cars make. Today, the planet house about eight billion people and 1.45 billion vehicles according to Hedge & Company (2021) and 48.7 million motorcycles, scooters, and mopeds according to businesswire (2022). This amount of people and motor vehicles produces a high level of noise. The noise level from cars and other motor driven vehicles can and will be eradicated with electrical visions, a development that is already taking place. However, the noise level accumulated by the sheer population density cannot be. Exposure to noise harms citizen psychologically and not only severally influences their overall QOL but also can have severe adverse consequences globally in relation to economic production according to (Seidman & Standring, 2010). One could say that this is the paradox of livability. A livable city attracts more people, and more people ultimately decreases the livability of a city. It is therefore safe to say, that livability is a complex multidimensional concept that is highly subjective. What might be considered a livable city in one part of the world might not be considered livable in another. And because it's meaning varies from country to country or even stakeholder to stakeholder, diverse groups of the population can come together and make public policy goals for livability as a mean to achieve global sustainability goals.

The purpose of this thesis is not only to examine how Aalborg can make the city more livable for existing inhabitants but also how it can make it more attractive for non-domestic and foreign talent and businesses. Talent and foreign businesses mean more knowledge and innovation will be generated which ultimately will result in a better or even a more profitable city. More economic growth means more economic investment into improving livability can take place.

3.2 A Livability Framework

Most of the frameworks or indexes mentioned in this thesis makes use of in-house expert as well as a field correspondent based in each city to determine whether they believe a city can be considered sustainable or livable (Arcadis, 2022; EIU, 2022). Such expertise knowledge is essential in determining a city's sustainability and livability level. However, what these frameworks and indexes are forgetting is the other side to determine a city's livability, namely the inhabitants' opinions and experiences of that city. As such, to be able to determine livability for Aalborg, a livability framework based on the objectives and characteristic of the UN's 11th goal, Felce and Perry's domain of QOL, and EIU's Global Livability index, has been developed. The objectives, characteristics and domains are displayed in figure 9 below.

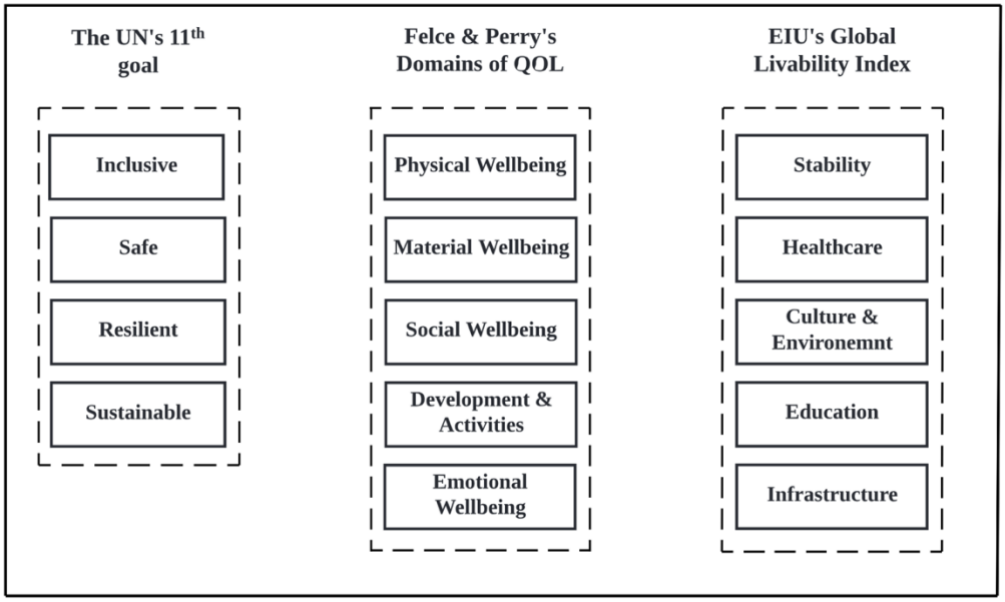

Figure 9: The Assemblement of Livability (Made by the author)

The three concepts above all embrace some of the same components or domains as Felce and Perry calls it. To avoid repetition and to make sure that the framework embraces all the component from the three concepts, the domains were divided into seven themes: Inclusive, Safe, Health, Culture, Environment, Economic, and Infrastructure. The purpose of developing the Livability Framework was firstly to take a rather complex concept and make it more tangible, visual, and easier to comprehend. Secondly, to help focus what data the author needed to collect to answer the second research question. The Livability Framework is illustrated below in figure 10.

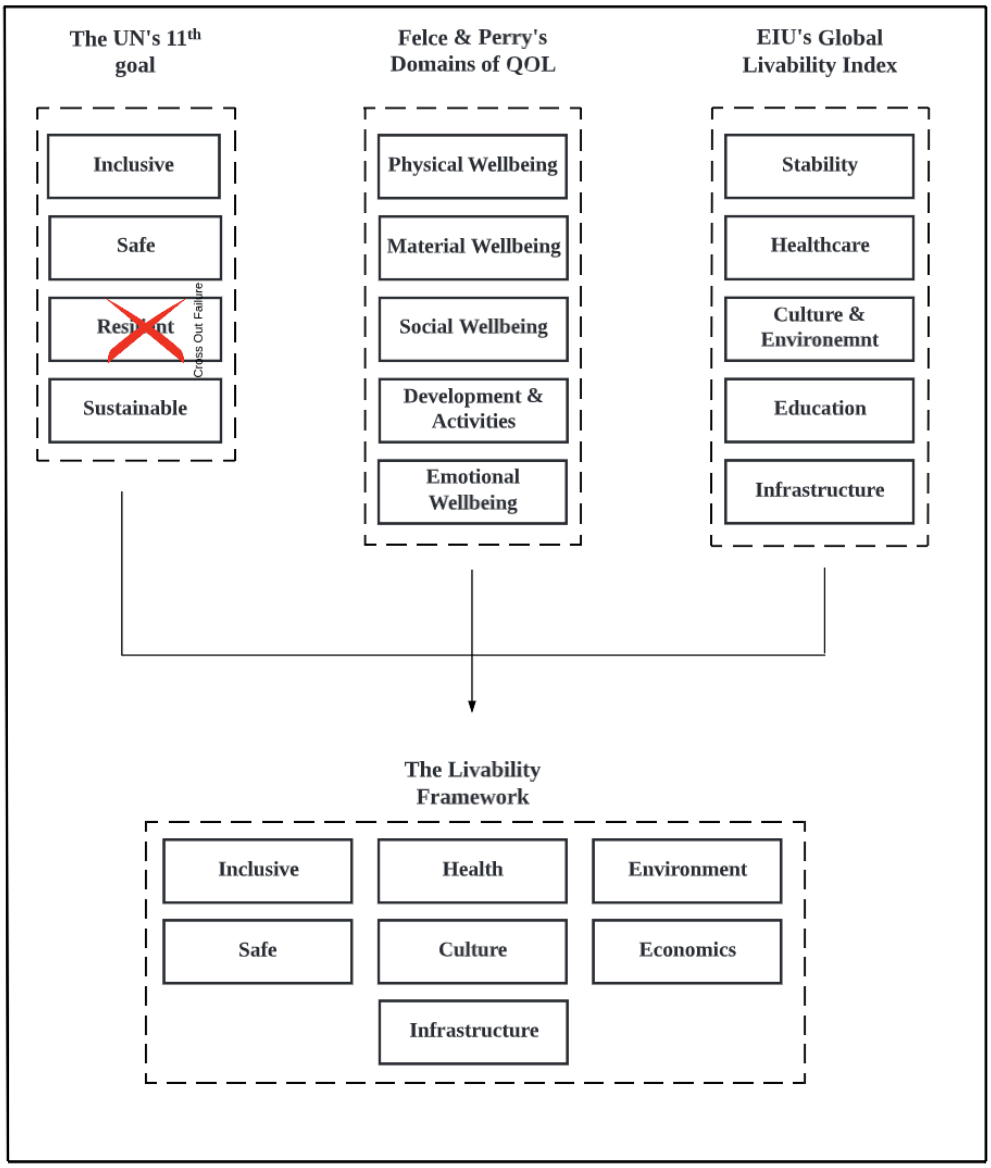

Figure 10: A Livability Framework (Made by the author)

Inclusive

Within the livability framework the inclusive theme embraces citizen's equal access to education. How good the city is to integrate migrants or immigrants into society. Is it easy to get a job in the city, does it offer the right jobs, is the community welcoming, does the city make room for their religious beliefs? etc.

Safe

The theme of safe evaluates how safe the citizens believe they are within the city and thus looks at the prevalence of petty crime, hate crime, threat of terror, threat of corruption as well as how capable the city is to protect its citizens online among other things.

Health

Just as with EIU's Global livability index the health theme here allows the citizen to assess the quality and accessibility to the medical health system in Aalborg, both the public and the private. Unlike, the other indexes and objectives this theme also embraces noise as a factor that potentially can reduce the citizens QOL.

Culture

The culture theme of this framework allows the citizens to evaluate the amount, quality and accessibility of sports activities, restaurants, festivals, museums, and theaters available in Aalborg.

Infrastructure

The infrastructure really embraces the components of EIU's infrastructure pillar as well as UN's safe objective by allowing the citizen to assess for themselves how they perceive the quality of the road network, bridges, tunnels, pedestrian streets, public transportation, water provision, energy provision to name a few.

Environment

The environment theme provides the citizen of Aalborg to voice their opinions and experiences with the amount of available green spaces, air quality, the temperature, prevalence of biodiversity and whether they believe Aalborg Municipality is doing enough to protect and preserve the environment.

Economics

The economic themes of the livability framework provided the citizens with the possibility to assess the economic situation in Aalborg by looking at housing prices, rental prices, wages, governmental support distribution, prices of public transportation etc.

Now that the theoretical framework has been presented the reader will now be introduced to the methodological consideration of how the data was collected.

4. Methodological Considerations

The following section presents the methodological approaches and choices made to examine and understand the problem formulation of what is Aalborg's strategy to ensure Livability as a part of their sustainability initiatives? Methodological consideration entails using specific procedures or techniques to identify, select, process, and ultimately, analyse the obtained information to understand the problem areas. To do this, one first must choose a philosophical standpoint in which one views the world.

4.1 Philosophy of Science

In a case such as this it becomes relevant to ask how science is viewed philosophically as different approaches to knowledge have different impacts on the choices made throughout one's research (Fuglsang et al., 2013).

As this thesis is dealing with investigating subjects such as, sustainability, livability, and QOL, all which are highly subjective, open for interpretation and constantly changing, the paradigmatic stance will be viewed from that of interpretivism. Interpretivism is based on the assumption that reality is subjective, multiple, and socially constructed. That means someone's reality can only be understood through their experience of that reality (Chowdhury, 2014). Because realities keep changing as people move through different stages in life, along with cities going through constant development, new knowledge is being generated and this is a never-ending process. To better explain the process of finding new knowledge and uncover new meaning to be interpreted, the hermeneutic spiral will be applied to help describe interpretivism for this thesis. As such, hermeneutics can, in its essence, be described as a constant seeking of meaning through interpretation (Gadamer, 2008). The

constant seeking of meaning through interpretation can be visualized as a circle or a never-ending spiral which means that new meaning can always be discovered (Gilje & Grimen, 2002). Understanding how livability is defined in the literature, by Aalborg Municipality, and how the citizens of Aalborg experience the qualities of livability is key to understand how livable Aalborg as a city is. It is also key in understanding if, how and what Aalborg should improve to become more livable.

Throughout this thesis, different theoretical approaches to livability, QOL and sustainability along with analytical tools continuously create new meaning and opportunities for interpretations in the search for an understanding in relation to the problem formulation.

4.1.1 Ontology

Ontology concerns itself with reality (Bryman, 2016). Reality according to Moon and Blackman is 'relative' according to how individuals experience it at any given time and place (2017). As such, the ontology for this thesis concerned itself with multiple context-specific realities. The realities of those within the literature, the reality of Aalborg Municipality in how and why they defined livability for Aalborg as they did, and the realities of those who experience the qualities of that livability on a daily basis, the citizens. As meaning is created through interpretations of social interactions within the city, the ontological scope made use of Social Constructionism to help understand how the above-mentioned realities were constructed. Social Constructionism originates from the Kantian understanding of what 'constitutes the self' but is seen through a social lens rather than by an individual one. This understanding assumes that knowledge is co-created by more than one 'actor' (the literature, Aalborg Municipality, and Aalborg's citizens) and remains sustained over time (Young & Collin, 2004). The ontological stance of this thesis is evident in the literature review, the theoretical framework, and in the analysis as the author has made interpretation throughout these sections.

4.1.2 Epistemology

Epistemology is concerned with the nature of knowledge and ways of knowing and learning about social reality, for this thesis the social reality of Aalborg (Bryman, 2016). It is important because it influences how researchers frame their research in their attempts to discover knowledge (Crotty, 1998, p. 2). As interpretivism was chosen as the paradigmatic

stance for this thesis the epistemological stance will follow suit. The purpose of this thesis is to understand how Aalborg Municipality perceives livability for the city and why. As well as to understand how livable the city really is from the perception of its inhabitants to ultimately determine if the city lives up to the needs and desires of its citizen. As such, the object of study is both the citizens and their opinion and experiences with Aalborg as a city but also the city itself. To obtain this kind of knowledge this thesis made use of documented-based sources, interviews, and a qualitative survey. As such, the interpretivist stance allowed for a deeper understanding than surface level knowledge of an area (Dudovskiy, 2012).

4.1.3 The Abductive Reasoning Process

This thesis makes use of the abductive reasoning process also called the abductive approach or the retroductive reasoning. The abductive reasoning method seek to find the best or most likely conclusion to observations made by explaining how the effect to cause come to pass (Paul, 1993).

The abductive reasoning process for this thesis started with observation from the case study 'Exporting livability: Investing in New Urban Center' where the concept of livability was first introduced to the author. This observation triggered curiosity in wanting to know more about the concept of livability, which led to different livability indexes mentioning Singapore and Copenhagen among others. But nowhere on these indexes was the city of Aalborg mentioned? These observations led the author to wonder how come the city of Aalborg were not included in these indexes along with pondering how, or if at all, livability had been defined for Aalborg. And if in fact Aalborg did prioritize livability, what would its ranking be on these indexes? Reading up on the literature as well as finding the livability indexes opened up for new observations and insights that led to new wondering that led to more theory explaining concept which led to interpretation and understanding. As such, the abductive reasoning process fits perfectly with the hermeneutic spiral and to the iterative process.

The iterative process is expressed in how this thesis was constructed, refined, and improved as more knowledge and understanding from the core concepts, interview, and answers from the survey was obtained (Miyake, 1986).

4.2 Research Design

According to Thomas, a research design function as the plan for how to reach or answer the given problem formulation (2017). As the purpose of this thesis was to examine livability in relation to the city of Aalborg, this thesis therefore adopted a case study approach. A case study is a detailed study of a specific subject such as a phenomenon or place (Crowe, et al., 2011), which in this case is the phenomenon of livability in the place of Aalborg. A case study approach allowed the author to explore key characteristics, meanings, and implications of livability in Aalborg in dept and in its natural context (Crowe, et al., 2011). The case study started out intrinsic to investigate the phenomenon of livability in Aalborg but turned into an instrumental case study through seeking to understand how Aalborg Municipality defined livability for Aalborg and understand how the citizens of Aalborg experienced the qualities of this supposed livability (Crowe, et al., 2011).

As such, the case study is of a qualitative nature. The reasons for choosing a case study approach were because the approach lends itself to capture information in a more explanatory manner, seeking to answer 'how', 'what' and 'why' questions (Crowe, et al., 2011). Furthermore, the case study approach fits well with the interpretivist epistemological standpoint as Stake defined it "Involves understanding meanings/contexts and processes as perceived from different perspectives, trying to understand individual and shared social meanings. Focus is on theory building" (Stake, 1995).

The decisions on how this case were selected stems from the author being introduced to the concept or phenomenon of livability on the 9th semester abroad at Columbia University. Here the author studied Sustainability Management and was given the case study of 'Exporting Livability: Investing in New Urban Centers' taking place in Singapore and later in China. The author's designated group had to create a memo presenting whether the case or more specifically, the framework, could be applied to New York. This piqued the author's interest wondering if set framework also could be applied to the city of Aalborg? – the interest in Aalborg stems from previously having investigated Aalborg in relation to examining how Aalborg Municipality could make use of nudging to make 'families with children' become more sustainable. The section below presents the reader with which methods were used for gathering the data and how they were utilized.

4.2.1 Method of data Collection

Dudovskiy defined data collection as the process of collecting information from all the relevant sources to find answers to the posed problem formulation(s), test the hypothesis, and evaluate the outcomes (Dudovskiy, 2023). The process of collecting and preparing data for analysis is therefore crucial for any research. As data and methods of collecting data all provides different aspects of reality, a deeper understanding of the issue(s) can be gained by combining several collecting methods and types of data in a single project. (Dudovskiy, 2019). Table 1 illustrates the usages and purpose of the different data collated for this thesis.

	Source	No. of Sources used	How it is used (practically)	Purpose
Preliminary data	Academic articles and books	50 academic articles 20 books	In the introduction, literature review, theoretical framework, and methodological considerations sections.	To provide a foundational understanding of the field of study and the concept of livability.
	Online newspaper articles	30 online newspaper articles	In the introduction.	To obtain knowledge regarding the challenges cities face in integrating livability, as well how to improve it.
	Reports	25 reports	In the introduction.	To know where Aalborg is placed in the livability rankings.
Population insights	Survey / questionnaire with current inhabitants	71 respondents	In the second part of the analysis	To obtain in-depth knowledge of what makes Aalborg a livable city in the inhabitants' mind and what is it missing.
Aalborg Municipality insights	Aalborg Municipality document: Planstrategi 2019 & Verdensstrategimål	2019 & 2021	In the first and last part of the analysis.	To gain knowledge on what Aalborg Municipality's goals are and which strategies they are employing to reach these goals.
	Aalborg Municipality document: Erhvervsstrategi		In the first and last part of the analysis.	To understand what Aalborg Municipality's strategies are for livability, if any, in the future.
	Interviews with Aalborg Municipality	2 interviews	In the first and last part of the analysis.	To obtain knowledge regarding how Aalborg Municipality view livability.

Table 1: Methods and Data Collected (Made by the author)

4.2.1.1 Interviews

Two in-depth interviews were conducted with two from Aalborg municipality. The interviews were conducted using the semi-structured approach. As such, open-ended questions were prepared in advance to make sure that point of interest were answered (Kitchin & Tate, 2013). This approach allowed the interviewer (the author) to explore other paths of interest not considered beforehand as it enables follow-up questions as well as the freedom to ask the interviewee to elaborate on what s/he just said (Kitchin & Tate, 2013). To follow the principles of this approach an interview guide was assembled to structure the interview and can be found in appendix 2 – Interview Guide.

4.2.1.2 Document-based sources

The document-based sources gather for this thesis was conducted through academic articles and books, Aalborg Municipality's Planstrategi 2019, Aalborg Municipality's 'Erhvervsstrategi, Aalborg Municipality's Verdensstrategimål, a case study, and reports. The case study 'Exporting Livability: Investing in New Urban Centers' was what inspired this thesis and thus, serves as one mean for improving livability in Aalborg. The academic books and articles as well as the online new articles helped create a fundamental understanding for the core concepts of this thesis, namely, livability, QOL and sustainability. The 'Planstrategi', 'Erhvervsstrategi' reports along with their 'Verdensstrategimål' was collected from Aalborg Municipality's website to investigate how Aalborg Municipality defines livability for its' city as well as to examine which strategies they make or will make use of to ensure livability.

4.2.1.3 Survey

The reason the author adopted for a survey was because no prior examination or investigation had been conducted about livability from a citizen perspective in Aalborg before. Therefore, the aim with the survey was to gain knowledge about, and an understanding for, how the citizens of Aalborg experienced the qualities of livability that the Aalborg Municipality has provided. The method of using a survey to collect that data allowed the author to reach a larger population number as well.

The survey consisted of multiple questions that were divided under the seven themes from the Livability Framework and consisted mostly of a closed ended questions with fixed response categories made in advance. The fixed response categories were used throughout the

questionnaire and were ranked using an ordinal ranking scale (Kitchin & Tate, 2013). The ordinal ranking scale allowed the observations and experiences the citizens have had to choose among a ranking order. The ranking order was as mentioned pre-fixed by the author and ranked from intolerable, unacceptable, don't know, to acceptable and ideal. After the citizens had placed their ranking, they would be presented with qualitative open-ended questions that allowed them to elaborate on why they chose that specific ranking. The survey was extensive and took approximately 25 to 30 minutes to complete. The author was aware of the risk of developing such a comprehensive survey as it might lead to participants opting out of taking the survey or stop halfway producing half results. However, the author felt that the comprehensiveness of the survey was a necessity to obtain the answer to what or what not makes Aalborg a livable city.

People that lived in Aalborg Municipality was the main target group for the survey. However, the survey also accommodated people that had lived in Aalborg, by inquiring about way the moved. And lastly the survey accommodated people who have never lived in Aalborg by inquiring about what would make them move to Aalborg (Kitchin & Tate, 2013). One might argue that that is an extensive target group to be targeting and that one should perhaps have divided the target group into smaller groups to get a more representative result. However, the aim here was not to perform a statistical analysis of the population stating 'this part perceives this' and 'this part perceives that' notion but rather utilize the survey to obtain as many opinions and experiences as possible. As such, the author understands that the results would not represent the entire population of Aalborg and therefore cannot be generalized. Instead, the result can help indicated how the participants perceive livability Aalborg. Along with help identify problematic areas that Aalborg Municipality needs to sort out for the city to become even more livable but also uncover where the strength of Aalborg lies.

The survey was created in Surveyxact by Ramboll and was tested before it was distributed on social media via post containing a link to the survey. The survey was distributed in different groups on Facebook with permission granted from the administrators and on LinkedIn and was made available in both Danish and English to ensure as many participants as possible. The survey ran for two weeks.

To determine or assess the validity of qualitative data one must consider its trustworthiness first. Thus, the reader is now introduced to the concept of trustworthiness and how this was ensured for this thesis.

4.2.1.4 Trustworthiness

To ensure that the qualitative data were academically sound for this thesis, the author applied the concept of trustworthiness, as it measures things that numbers might not be able to define, such as interpretations. When applying the notion of trustworthiness one also must consider its four key components: credibility, transferability, dependability, and confirmability (Shenton, 2004).

Credibility

The credibility component looks to how researchers can ensure the validity or truth of their data by asking "How congruent are the findings with reality?" (Shenton, 2004). This was achieved by comparing Aalborg Municipality's reports and interview with Interviewee 1 and Interviewee 2 of how they perceive livability for Aalborg with the perceptions and experiences of the citizens.

Transferability

Transferability refers to the external validity or generalisability of a study and is used to establish whether the study is transferable to similar situations and populations (Shenton, 2004). The transferability of this thesis has been ensured by using thick descriptions in the methodology section as well as the theoretical framework. It also allows the readers to know how the data was collected and through which methods followed by a reasoning as to why each method was chosen. It also demonstrates how the data was analysed and offers a conclusion as to how livable Aalborg is and what Aalborg Municipality needs to improve to make it even more so. Essentially, the thick description provides the readers with the possibility of deciding if the data collecting methods, the analysis, along with the tools utilizes throughout are transferable to similar situations and populations for comparisons to be made.

Dependability

While creditability relates to the validity of one's research, dependability addresses the issues of reliability within it. According to Shenton, the purpose of dependability is to ensure the

work can be replicated by other researchers (2004). All aspects of the thesis has been fully accounted for using thick description, as mentioned above in transferability. These thick descriptions will allow other research to carry out the same study, indicating that the thesis is dependable. Except on one account, the conclusion would not be the same due to the authors interpretation of literature, interview, and survey answers. As the thesis relies heavily on interpretation it is therefore nearly impossible to ensure the dependability were other researchers to conduct the same study. Their interpretation of the events might be significantly different from those of this author leading to a completely different conclusion.

Confirmability

The last component one has to consider when assessing the trustworthiness of one's research, is the confirmability. Confirmability ensures that the researchers own predisposition and biases are not affecting the interpretations and findings from the data (Tobin & Begley, 2004). As such, to reduce the effect of this authors own biases and intrusion, the different data-collecting methods are emphasised to promote the confirmability for this thesis. Additionally, the questions asked during the interview and within the survey were articulated in a way that did not express or reveal the authors own predisposition.

4.2.2 Thematic Analysis

To help organize and analyse the collected data from the interview, the reports, and answers from the survey the author made use of the thematic analysis framework (TA). The TA is a method for systematically analyzing collected qualitative data by identifying patterns of meaning and generated it into codes and themes that is driven by the problem formulation (Clarke & Braun, 2017).

The main advantages of using a TA to help organize the author's collected data was its flexibility as it is a widely applicable apparatus of exploratory research (Clarke & Braun, 2017). Adversely, the flexibility is also the frameworks biggest disadvantage as there are many ways meaning from a data set can be interpreted. Moreover, knowing what data to classify as important and what not to also poses a challenge (Clarke & Braun, 2017).

4.2.2.1 Approach to Thematic Analysis

The iterative process of this thesis allowed me to explore the data and see what emerged and thereby allowed me to derive meaning from the data without any preconceptions. It also helped to ensure that the underlying meaning of Interviewee 1 and Interviewee 2 from the Aalborg Municipality who was interviewed was properly analysed (Crosley, 2021). The reflexive TA type was selected as it allowed me to change, remove, and add codes as the author worked through the data, thereby not limiting me to a fixed set of codes (Crosley, 2921).

4.2.2.2 The six phases of thematic analysis

There were six different phases to conducting the TA with concise step-by-step guide for how to start noticing and looking for patterns of meaning or in other words 'themes'. The first phase 'familiarise yourself with your data' were where the author looked for emerging themes by reading and re-reading the data, taking notes, or marking down initial ideas for coding. This first phase were essentially about getting an initial understanding for the data as the coding process continuously developed throughout the entire analysis proceedings (Clarke & Braun, 2017).

The second phase of 'generating initial codes', were where the process moved from ideas to producing the initial codes. This was done by identifying features of the data that seem of interest. Braun and Clarke defined coding as organising data into meaningful groups. Essentially, that meant one must group the codes under the themes one has decide upon earlier. Furthermore, Braun & Clarke provided three pieces of advice for handling this phase. The first advice was 'code for as many potential themes/patterns as possible'. This advice ensured a thorough inspection of the collected data. The second advice was about ensuring a little of the surrounding text around the code to provide some context to the code extracted. The third and last advice emphasised that one code can potentially fit into more than one theme and that one should keep that in mind (Clarke & Braun, 2017).

The third phase 'searching for the themes' refocused the analysis from the coding level to the theme level. It did that by making the author sort through the different codes and putting them into potential themes, including the extracts (Braun & Clarke, 2006). An example of this when analysing cities could be codes such as pollution, waste, and energy saving

emerging, all codes that would fit the theme: environment. When the themes were identified, the fourth phase ‘reviewing the themes’ started by ensuring that all the codes had been accurately and comprehensively identified and put into themes that fit the actual data (Crosley, 2021). The fifth phase dealt with ‘defining and naming the themes’ along with refining them. This was done by identifying what the themes explicitly consisted of and determining what aspects of the data they captured. Ultimately, this last phase checked whether the themes align with that of the problem formulation (Braun & Clarke, 2006).

Normally the last and final phase of the TA entails ‘producing the report’. This report is written after all the data has been analysed presenting one’s findings. This is usually done by providing the reader with the exact process of how the analysis was conducted and was being investigated. However, as this TA is a part of a ‘bigger scope’, this phase were divide across the methodology, analysis, and discussion sections (Crosley, 2921).

4.2.3 The Singapore Livability Framework

The Singapore Livability Framework emphasizes the three pillars of sustainability and focuses on integrating social, environmental, and economic development in its urban planning thereby avoiding the ‘develop first, clean up later’ mindset (Macomber & Alamsyah, 2019). The framework is built upon Singapore’s urban development experiences and the framework captures the outcome of what they believe makes a livable city, namely a competitive economy, a high quality of life and a sustainable environment. The competitive economy was envisioned because Singapore wanted to attract investments domestic and foreign and create job opportunities. A high QOL was envisioned to ensure the well-being of the population by focusing on the economic, social, and environmental aspects of a city life. The sustainable environment was envisioned because Singapore was limited in their natural resources, especially in terms of land and water. Thus, to ensure the city’s survival they chose to incorporate the sustainable environment into their framework (CLC, 2014).

The outcomes of a livable city were achieved according to Centre for Liveable Cities (CLC) through Integrated Master Planning and Dynamic Urban Governance. Each of these two components: Integrated Master Planning and Development (IMPD), a system, and Dynamic Urban Governance (DUG) an approach, is composed of five principles that helped, and is still helping, guide Singapore's urban development. Singapore's Livability Framework is illustrated in figure 11 below.

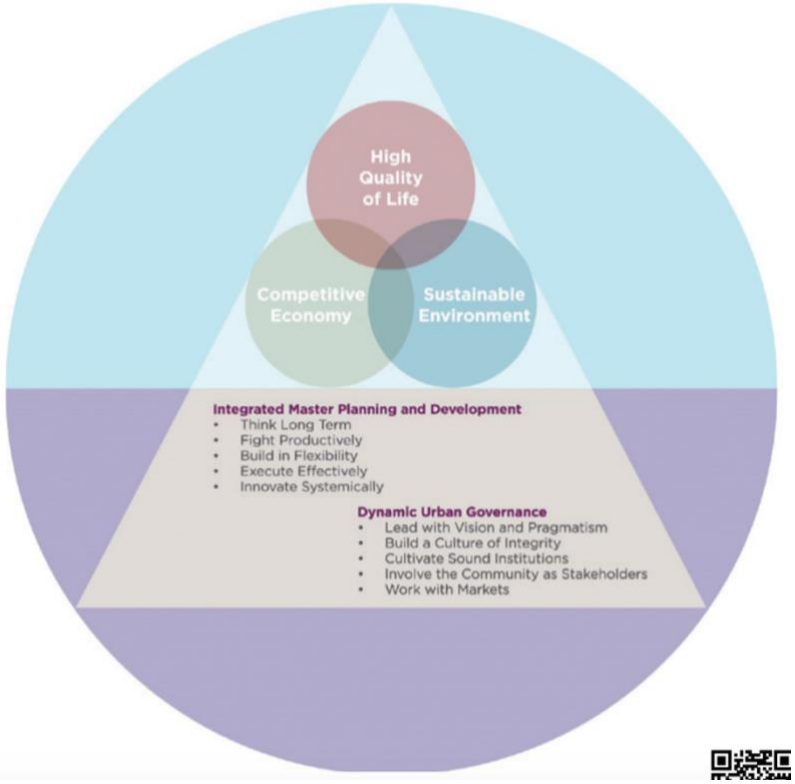

Figure 11: The Singapore Livability Framework (Centre for Livable Cities, 2018)

Integrated Master Planning and Development (IMPD)

The IMPD is a system that enabled the Singapore government to create and manage their urban systems by balancing the outcomes of a livable city, namely, the environment, economy and QOL. The system is, as can be seen from figure 11 above, comprised of five principles being: Think long-term, fight productively, build in flexibility, execute effectively, and innovative systemically.

The first principle, Think Long Term, provided the framework with a 50-year time frame, which were, and still is, reviewed very 10 years. Having a 50-year timeframe helped the planners of Singapore make smart decision and embark on projects that might not seem pressing at the present but would be of great importance in the future, like their greenery

initiative. The long-term view also helped the government identify problems that they would meet in the future and implemented steps in the present to prevent or forestall these problems from occurring in the future (CLC, 2014). An example of a long-term goal that was set in place years before, was Singapore's goal to recycle water. They had not been able previously to realize that goal because of lacking technology, however, when the technology for dual reticulation finally was a viable option, Singapore swiftly developed NEWater because it had been on the backburner for years and they were not starting from scratch when the technology became available (CLC, 2014).

The second principle, Fight Productively, was targeted at the government itself, forcing each government agency to focus on their own targets rather than the goals of the government. However, each agency was still encouraged to acknowledge the other agencies different concerns and goals. They called this an inter-agency structure, and this structure taught the officials to have fights that were productive, encouraging critical thinking that in the end would lead to collective decisions being made among the different agencies on planning and implementation (CLC, 2014). However, because the culture of Singapore's government also placed value on rational thinking, expert studies and cost-benefit analysis were utilized to resolve many debates productively. The productive fights were enabled by a Cabinet that collaboratively served the government as the ultimate conflict mediator (CLC, 2014).

The third principle, Build in some Flexibility, emphasized that no long-term plan is perfect as circumstances and conditions in economic, social and in the environment changes. As such, the principle allowed the city planners of Singapore to change or tweak the plan, if necessary to accommodate new knowledge or experiences made. The fourth principle, Execute Effectively, refers to the careful preparation that needs to be conducted before implementation can happen. This entails extensive research into the problem. Further the CLC believes that good inter-agency understanding among the different governmental departments was and is key to execute governmental plans effectively (CLC, 2014). For Singapore the coordinated efforts among the operational agencies set up by the government for implementing policies and programmes has been key in them living up to the fourth principle. However, executing a plan or project is one thing and another is to consider how to maintain it, which is equally important to the principle (CLC, 2014).

An example of this is from Singapore's sewage system. Here they chose to maintain the sewage system instead of digging up the old system for replacement making it more cost effective. New technology enabled them to reline the old sewage system making them last another 50 years according to Lee Ek Tieng, former head of Civil Service (CLC, 2014). The innovation of their deep tunnel sewerage system won Singapore the 'Water project of the Year' at the Global water awards in 2009 (CLC, 2014). This leads us to the fifth and final principle under the IMPD, namely, the Innovate Systematically principle. The Innovative Systematically principle was a necessity but also essential for Singapore as they were limited in natural, physical, and financial resources when it came to developing their urban areas. This principle required their officials to go beyond conventional wisdom and see thing differently. They needed to 'dream big and think big' and they managed that with their Semakau landfill and being the first country to implement an electronic road pricing system to manage traffic congestion in 1998 (CLC, 2014).

Dynamic Urban Governance (DUG)

The CLC defines DUG as "the manner in which public leadership interacts with citizens and other stakeholder to make decisions on and have oversight of how a city plans, develops, and utilizes and manages its physical and environmental resources to achieve national outcomes" (CLC, 2014). They believe that planning will amount to nothing if a city's urban governance system, or the lack thereof, does not prioritize good plans to be developed and realized (CLC, 2014). DUG is an approach that allowed Singapore's leaders to make the most favorable decisions and choices in an unpredictable, complex, and constantly changing environment along with equipping their society to handle challenging situations (CLC, 2014). The approach consists of five principles being: Lead with Vision and Pragmatism, Build a Culture of Integrity, Cultivate Sound Institutions, Involve the Community as Stakeholders, and Work with Markets.

The first principle of DUG, Lead with Vision and Pragmatism, suggest that leadership with vision and political will is of the upmost importance in creating a livable city. Even when realizing policies and projects that sometimes are considered unpopular or politically difficult in the present moment but will in the long-term benefit the city and its people. E.g., the land

acquisition by the government back in the 1960s was considered somewhat draconian[5] but necessary in Singapore (CLC, 2014).

The second principle, Build a Culture of Integrity, reflects the public sector officers and politicians ability to execute their responsibilities in a legitimatized way. It encourages public officials and politicians to carry put their responsibilities with integrity so that they can gain credibility and build legitimacy with the citizens. In other word, they need to live up to the commitments they have made and the words they have given. Thus, the principle emphasizes strong governance based on accountability, transparency, and incorruptibility (CLC, 2014). E.g., Singapore managed to ensure this by publishing Singapore's city planning which forced the government agencies to ensure effective implementations as each Ministry was held accountable for the progress they made. They further, guarded against corruption by implementing formal structures, such as systems which were made transparent had high disclosure requirements. Breaching any of those disclosure requirements would lead to severe public punishments (CLC, 2014).

The third principle, Cultivate Sound Institutions, emphasizes the importance of creating strong institutions because strong institutions with well thought out systems and processes ultimately results in better decision making. Those strong institution should consist of political leadership but also professional bureaucrats according to the principle, but the politics and professional services should be separated for the agencies to be as effective as possible. The politicians should focus on strategy and policy while the professional and technical issues should be handled by the bureaucrats (CLC, 2014). Cultivating sound institutions this way should according to CLC lead to greater accountability and responsibility (CLC, 2014). The fourth principle, Involve the Community as Stakeholders, indicates that in order to create a livable city, the city planners need the support of the city's inhabitants for policies and projects to succeed. No government has all the answers, and the community knows best what helps increase its' QOL. Getting the government and the community to work together ensures the quality of the city in the long run (CLC, 2014). This can be done be creating avenues for participation in and on policy-forming processes between the public and private sector and the citizens.

[5] Landowners were only reimbursed 20% of their properties value during the land acquisition in the late 1960s (Shatkin, 2014)

The fifth principle, Work with Markets, is the last principle under the DUG approach which focuses on "harnessing market forces where they would improve efficiency" (CLC, 2014). Here the private sector plays a huge role in providing services the government is not able to provide or no long wishes to provide because the want to redirect those funding for other purposes. However, the services provided by the private sector should by carefully assessed by the government (CLC, 2014). Singapore privatized the power production and some parts of their public transportation. This framework has since been exported to China creating the Sino-Singapore Guangzhou Knowledge City (SSGKC) through a partnership, training Chinese officials to build a sustainable city and provide them with 'Singapore Software' an administrative, organizational, commercial, and legal apparatus that ensures transparency and integrity (Macomber & Alamsyah, 2019).

The notion of being able to export livability to another country with another culture was what captured the authors interest and made her wonder if such framework also would work in Aalborg. To test this, the Singapore Livability Framework was applied in the last part of the analysis to help answer the third research question: Could Aalborg Municipality implement the Singapore Livability Framework to improve its' livability and, if so, how?

The reader has now been presented with the choices of methods for collecting and analyzing the data for this thesis. Thus, the thesis moves on to demonstrate how these methods were utilised.

5. Structure of the Analysis and Operationalization

This section of the thesis provides the reader with an overview of how the analysis in section 6 will be structured, as well as account for where the TA and the Singapore Livability Framework will be applied. Additionally, this section seeks to provide the reader with an operationalization of the TA. To best answer the posed problem formulation and, in extension, the three research questions, the analysis has therefore been divided into four parts. The first part of the analysis will present the reader with a general observation of the collected data, while the second, third and fourth part of the analysis attempts to answer the three research questions. To best answer the research questions, the TA along with the theoretical considerations defined in section 3 will be utilized throughout the entire analysis. The first part, second part and the third part of the analysis will be exclusively supported by

the TA. While the fourth part of the analysis will apply the Singapore Livability Framework by analyzing Aalborg to determine if such framework fits the Danish culture or not. The knowledge obtained from conducting the analysis will allow the author to make certain conclusions on the matters. Now that the structure of the analysis has been accounted for, the thesis moves on to present the readers with an operationalization of the TA.

5.1 Operationalization of the TA

To perform the TA a codebook based on the livability framework was developed containing the codes and themes to look for when gathering and going through the collected data as seen in appendix 3. Normally, the process of conducting a TA starts with identifying the chosen codes, however that was not how it began for the author. Instead, the author started with identifying the themes where the codes would fit into. These themes were, as stated in the beginning of this section, based upon the seven themes identified in the theoretical livability framework as they firstly embrace all aspects of the concept itself. Secondly, the themes were found appropriately as this whole thesis relates to the matter of livability and thirdly, as these themes ensures an answer to the first two research questions. The codes were identified after the initial research into livability and QOL, which ensured their relevancy.

The TA helped categorize the extracts from the interview conducted with interviewee 1 and interviewee 2 from Aalborg Municipality and from the survey. To help provide a quick overview of the data, the data gathered from Aalborg Municipality was organized in one TA, referred to as TA-AM for Aalborg Municipality. And the data gathered from the survey in another, just referred to as TA. These extracts were of great importance in answering the first and second research questions, and in parts, the problem formulation. The extracts were assigned codes, which were then considered and reconsidered throughout the entire process of gathering the data to ensure the codes were transferable and credible. The extracts within the TA have been translated to English as the interview was conducted in Danish.

After having presented the reader with an overview of how the analysis will be structured along with clarifying the operationalization of how the data will be organized through the TA, this thesis moves on to present the actual analysis.

6. Analysis

The following section contains the analysis part of this thesis. It starts with presenting the general observation made from the collected data in the TA. Thereafter, the analysis deals with providing an answer for the first research question, and as such, this part of the analysis is divided in two. The first part seeks to uncover Aalborg Municipality's perception and definition of livability by examining the extracts from the interview, the reports and document inserted into the TA. The second part look to uncover what experiences the citizens have had with this supposed livability. These experiences will help identify areas in need of improvement. From here the analysis concerns itself with answering the second research question by presenting the scores of livability given by and the citizens. Lastly, the analysis examines if and how Aalborg Municipality can make use of the Singapore Livability Framework to improve these areas in need of improvement and thereby help increase the city's livability. All this in an effort to answer the posed problem formulation.

6.1 General observations from the data collection

The online tool Surveyxact from where the survey was made and distributed, has a new service called an Overview Report. This service makes all the data collected manageable by presenting it in an easy comprehensible report.

This overview report showed that of the 71 respondent who took the survey, 33 completed it while 20 partially completed it and 18 distributed it. The respondent ended up consisting of people who lived in Aalborg, people who had lived in Aalborg at some point, and people who have never lived in Aalborg. The ones that did in fact live in Aalborg made up 72% of the respondent, while those who did not live in Aalborg made up the remaining 28%. Those respondents who did not live in Aalborg received a follow up question inquiring about if the respondents had ever lived in Aalborg at any point to which 73% of them answered yes, while 27% answered no. When asked why the respondent who had lived in Aalborg moved away from the city, most of them stated that it had to do with job opportunities elsewhere followed by education purposes or just wanting to be closer to nature. These respondents received a follow up question asking them what it would take for them to move back to Aalborg again and here the answer varied between job opportunities and having either their family or their social circle moving with them. The respondent who had never lived in

Aalborg got a similar question of what would make them move to Aalborg and their answer were similar to the once who moved away, namely job opportunities or family.

The overview report further showed that the respondents who did indeed live in Aalborg resided all over the Municipality. Quite a few lives in Nørresundby or in the center of the city, a few reside in Visse and the eastern part of Aalborg, one lives in Gug. The survey also inquired the respondents about where they originally originate from. Here the overview report depicts Aalborg as a multinational and multicultural city with inhabitant coming from all over the world. Some of the places mentioned in the report were Romania, Hungary, Bristol UK, Asia, and Argentina. 83% of those respondents who lives in Aalborg but originates from else were moved to the city to study, indicating that the educational system in Aalborg has an attractive quality. The respondents, who managed to complete the survey, ended up consisting of 60% male and 40% females with most of them being in the age group of 26-35, followed closely by 18-25 years old and 56-65 years old. These respondents possessed very different kinds of occupations, some were students, others worked in IT or in HR, one was a civil engineer, another a bus driver, and one was on maternity leave. Finally, the overview report showed a fluctuation in the answers given in the text boxes throughout the survey. At times multiple respondents elaborated on the follow up questions, other time only a few elaborated. Now that the general findings have been presented, the second part of the analysis will seek to answer the first research question.

Research question 1: How does the Aalborg Municipality perceive and define livability for Aalborg compared to how the citizens of Aalborg experience it?

This section of the analysis will firstly explore how livability is defined and perceived by Aalborg Municipality by applying A Livability Framework created by the author. Secondly, the analysis will explore how the citizens of Aalborg experience the quality of the livability provided by the Aalborg Municipality. Lastly, a comparison of the two will be presented in a sub-conclusion.

6.2 Aalborg municipalities definition and perception of livability

To uncover Aalborg municipalities perception of livability in Aalborg as well as how the Municipality has chosen to define livability, if at all, data was gathered firstly from reports and interviews. The predetermined codes from the codebook helped ensure that relevant extracts and comments were included in the data collection sample. This process helped filtrate unrelated reports, documents, and comments out not relevant in answering the first research question.

From the data it could be seen that Aalborg Municipality recognizes that sustainability consists of three main elements, as they call them, namely economic, environmental, and social (p.7-8, [TA-AM]). And has first and foremost chosen to define sustainability, and the way that they work with sustainability, in the Municipality, based on the UN's 17 SDGs. However, the Municipality refers to these goals as the World Goals Strategy, in which they have divided the 17 goals and their 169 shared goal into four political focus areas, such as Climate, Resources, Biodiversity, and Inequalities:

> "Our world's goals strategy consists of four areas of politics which are actually the four challenges, big challenges we globally are facing it is climate, resources, biodiversity, and inequalities. These are the four areas of politics we have in our world's goals strategy" (Interviewee 1, p. 11, [TA-AM]).

And though it is evident from their webpage and reports that they work with these four, the data seem to illustrate two other special focus areas, in particular on partnerships and involvement. These two concepts seem to be the overall focus areas that sits on top of the four areas of politics. The reason for thinking so lies in the fact that the two concepts seem to be continuously mentioned throughout the data, e.g., "What we are doing now is to strengthen the community about task solving across our organization and in collaboration with citizens and businesses" and "It is important that Aalborg Municipality continues to actively participate in public-private partnerships that help support higher resource efficiency" and "The city council wants to organize the future in close partnership with citizens, businesses, associations etc." and "Citizen involvement helps to ensure that we are together about urban development and enables us to balance the citizens' many interests and attitudes towards the areas strengths, special qualities, challenges and dilemmas" (TA-AM). Aalborg Municipality have even stated in their 'Planstrategi 2019' report how they engage

their citizens. They do this through a multitude of interviews, focus groups, questionnaires, public meeting, even through city walks.

Further, when the author inquired about it during the interview with Interviewee 1 stated "you can say that doing things in partnerships is probably still what binds it all together", confirming the authors suspicion that partnership and involvement are the overall focus areas when it comes to sustainability. Partnership and involvement both belongs to the inclusion theme as does one of their four political focus areas, inequalities, which in turn belongs to or corresponds to the social pillar of sustainability. This suggest that what Aalborg Municipality is focus on, is social sustainability. They have even defined social sustainability for the Municipality, as the only pillar, in their Planstrategi 2019 report: "Social sustainability deals with topics such as demographic changes, identity, attachment to place, safety, cohesion, community and access to meeting places, services, education and health – just to name a sample" (p.8, [TA-AM]). Even though the Municipality refers to this as social sustainability it also encompasses all the component that makes up livability, except economy, which the author will get back to later. The word livability is not mentioned in any of their reports or documents, but QOL is. QOL, as one knows, constitute a large part of the livability concept which means every time Aalborg Municipality refers to QOL, they are in large parts defining livability for the city. However, when Aalborg Municipality in fact refers to QOL, they do it so in the form of a securing a good life and a meaningful existence (TA-AM).

However, the social pillar is not the only pillar that Aalborg Municipality focus on. They also focus on the environmental pillar. And the data seems to suggest that the environmental pillar is defined based on the three remaining political focus areas: Climate, Resources, and Biodiversity (TA-AM). The reason for thinking so, just as with partnerships and involvement, lies in the fact that these three focus areas were continuously mentioned throughout the data, e.g., "The climate crisis is linked to the resource crisis. Both are connected to the biodiversity crisis, and all three can only be solved if the social foundation is laid" (TA-AM, p.1) – which nicely ties the environmental pillar to the social one and:

> "In the Municipality we have a relatively high emission of greenhouse gases and the Municipality's location by the Limfjord as well as the many watercourse systems and large river valleys mean that water level rises, increased rainfall and higher ground water levels will lead to an increased risk of flooding of the city, infrastructure, agricultural land and nature" (p.3, [TA-AM]).

This last statement emphasizes the huge influence or rather severe negative impact the climate could have on our infrastructure for one. This also suggest that Aalborg Municipality defines the climate focus areas as dealing with water. In the interview with Interviewee 2, she stated:

> "'Its a lot about the water we have to manage. I mean, the sky bridge, it's from above, and the groundwater is higher, and the storm flow and the water flow, it's all. It's the entire water cycle we look at" (Interviewee 2, p. 19-20, [TA-AM]).

This statement confirms that Aalborg Municipality defines the impacts of the climate as water. However, it also emphasizes the importance of having a good infrastructure in Aalborg. Infrastructure was also the theme most referred to in the data. Here the data showed that because approximately 14% of the Municipality's total land area is constituted by 'protected nature', such as meadows, bogs, grassland, heaths, lakes, and streams (TA-AM, p. 6). And the fact that Aalborg is located on and is surrounded by chalk hills to the east and to vest, the city has been prevented from expanding.

> "We are geographically squeezed in between some chalk hills. We are laying on the chalk hills, and then the landscape, the flat landscape and the river valley, around it. And the city does not really have the opportunity to expand out of the landscape" (Interviewee 2, p. 22, [TA-AM]).

Instead for being able to expand, the city's only option was transforming its' already existing urban landscape. "We have gone through a transition from being a heavy industry city to being a science city over the last 30 years" (Interviewee 2, p. 21, [TA-AM]).

Now returning to economy, as Aalborg Municipality is evidently focusing on the social and environmental pillar, the economic pillar is apparently being overlooked. Having overlooked the economic pillar could be the reason why Aalborg Municipality is experiencing a bad economy (TA-AM). Of course, having the state cut its funding to the Municipality is not help on the problem but having to cut three billion in Aalborg Municipality does not signify a booming economy either (TA-AM). The reason to why the economy in Aalborg Municipality is looking so grim seems to be the result of loss in income from farms sold and bad investment (TA-AM). However, how bad can the economy be considering that infrastructure is tied to the economic pillar, and the last couple of years has continuously consisted of urban transformation. And as infrastructure is central to the city's development: "It's clear that we

work a lot with number 11[6], it's completely central" (Interviewee 2, p. 19, [TA-AM]). It has become clear that Aalborg Municipality has not overlooked the economic pillar at all. Aalborg Municipality's perception of the economic pillar is more centered around what financial means they have available to perform their job. The restriction for Aalborg Municipality in not being able to expand the city further has instead resulted in a dense and historic city (TA-AM). As such, development has taken place in the 11 identified towns or suburban areas that shows growth potential, making Aalborg a city and a countryside Municipality, characteristic that makes Aalborg special compared to Aarhus, Oddense, and Copenhagen (TA-AM, p. 22). Had these chalk hills, creeks and streams not prevented the city itself from expanding, the author strongly believes that the city would have encroached even further into nature. Diminishing and harming the environment and the biodiversity even more then the city already has. Stating so boldly that the Municipality has harmed the environment and the biodiversity is evident from the data: "We have a biodiversity crisis" (Interviewee 1, p. 14, [TA-AM]). This crisis is not Aalborg specific but has resulted in the Municipality having to make space for wild nature to increase the biodiversity again (TA-AM).

Aalborg perceives itself as big and small at the same time, small in square footage: "We are probably known for being the smallest big city", and big in population size: "We have 120.000 people that live in Aalborg but 220.000 that live in the whole Municipality. A big Municipality" (TA-AM). It further perceives itself as a business-friendly, attractive, innovative, and sustainable place: "Aalborg Municipality is known as a frontrunner in the green transition and for being the place where public and private actors together develop and implement sustainable and innovative solutions to the challenges of the future" (Erhvervsstrategi, p. 9, [TA-AM]) and "we assert ourselves with the green transition, and actually also with robot technology, even though it's not that well known, which we are really good at in Aalborg" (Interviewee 2, p. 20, [TA-AM]). Besides, the technology Aalborg Municipality also perceives its' city as a convenient, peaceful city with little crime (TA-AM). Convenient refers to the city's size as one can get anywhere around the city in 20 minutes (TA-AM). In fact, the mentioning of size was another code that was referred to quite often in the TA. Lastly, along with being a front runner in green transition, the data also showed that Aalborg wants to be known as a city that is as sustainable as possible with a high degree of livability (TA-AM). Wanting to be a place that is as sustainable and livable as possible does

[6] The 11th sustainability goal.

not really imply anything about what they need to focus on to get there. Had they instead said 'We want to be the safest city, the most cultural city etc.' then they would have concrete areas, actions, and goals to act from and a high change for success. Stating their wishes without stating how to get there, is just that, wishes.

Sub-conclusion

Aalborg Municipality defines sustainability through the three pillars of sustainability, embracing all at once and through the 17 SDGs. To make the goals and the concept of sustainability more tangible and relevant for Aalborg Municipality, they have divided its' context into four political focus areas, Climate, Resources, Biodiversity, and Inequalities. Though Aalborg Municipality do not use the term livability, they do work with it and defines it through QOL and social sustainability. Creating the framework for cultivating the good life, is extremely important for Aalborg Municipality, which is also way they perceive the city as a business-friendly, attractive, innovative, convenient, peaceful, and sustainable place.

6.3 The citizens experiences

Just as with Aalborg Municipality, a survey was created and distributed on different groups on Facebook and LinkedIn, as a method for collection data, to uncover the opinions and experiences the citizens have with the level of livability Aalborg possesses at the current moment. The survey ran for two weeks, and the collected data was inserted into the TA to provide an easy and quick overview of the extracts of opinions and experiences. The data from the survey which did not come in the form of text but instead as rankings will be gathered directly from the Overview Report (See appendix 7).

6.3.1 Safe

The first couple of questions the respondents were introduced to, after establishing their connection to Aalborg, were on the matter of safety. Here the data from the Overview report showed that in most of the cases the efforts Aalborg Municipality were carrying out to ensure the citizens safety only added the respondents QOL. Such as, the prevalence of petty theft did not, for most of the respondents, affect nor deteriorate their QOL. On the contrary, most of them found it to be at an acceptable or ideal level. Nor were their QOL really impacted by hate crime, assumingly, because these respondents must have been fortunate enough to not experience petty theft or hate crime first handed. It could also simply be because of their

perception on Aalborg, being the smallest big city, crime is not as frequent as it would be in Aarhus or Copenhagen (Eriksen, 2018). However, five did indeed experience some sort of hate crime which naturally affected their QOL significantly enough for them to rank this unacceptable and intolerable. The data showed that lack of transparency from the Municipality has resulted in some of the respondents experiencing an unacceptable level of corruption which has affected not only their QOL negatively but also their confidence in the Municipality. E.g., the recent scandal about a marketing video for a 100.000 kr. or the 220.000 kr. money transferred to 3F without any note or brief made as to why (Lee, 2022; Frederiksen, 2022). Whether the citizens are losing confidence in Aalborg Municipality would only truly be known by carrying out the survey again next year to determining if this perception has changed or increased. Whether or not the corruption has indirectly influenced the respondents overall QOL, the survey does not show. Despite this perception, most of the respondents do still seems to believe in the political system in Aalborg.

The respondents were also asked about what they thought the risks of terrorism in Aalborg would be. A legitimate question to be asking, considering the time we are living in, with terrorist acts being performed more frequently in the last decade (Ritchie et al., 2022) but also the impact it would have on the respondents' ability to feel safe. Here 55% of the respondent ranked the risk of terrorism in Aalborg to be practically nonexistent, indicating that this factor does not impact their QOL in any way. However, 19% of the respondents surprisingly did find the risk possible enough to occur by ranking it unacceptable. Additionally, the respondents were asked if they thought there was a risk of civil conflicts to occur to which 64% found it highly unlikely and 14% likely. The data also showed that no one had experienced identity theft before, indicating that this form of crime has not had a deteriorating effect on the respondents' QOL. However, that cannot be said for their digital security of their personal information and assets. Two found the level of digital security intolerable. Seven found it unacceptable. Six had no idea about the level of digital security, while nine found it acceptable and four found the level ideal.

The data also showed that people suffering from a drug abuse problem is significantly influencing the citizens' QOL. The respondents believed that Aalborg does indeed have a serious drug abuse problem. 18% found it at an intolerable level and 32% at an unacceptable level. Nobody ranked it ideal. This perception might have been influence by the media, such as Nordjyske, who wrote an article with the headline "Explosion in the number of citizens

who want substance abuse treatment" (Stenbro, 2022). Whether this is true is hard to verify, however, a statistical yearbook from 2021 on Substance abuse treatment in Aalborg Municipality do confirm that more people have been seeking treatment for their substances abuse over the years (Aalborg municipality, 2021). Having a next of kin, whether it be family, friends, or close neighbors, struggling with substance abuse is a terrible experience, which ultimately affects the people around that person and their QOL. These experiences could be the reason why the respondents deemed it a problem. Lastly, the respondents were inquired about if Aalborg possessed enough police officers to keep the city safe. Here the data showed that more than 50% found the number of police officers either acceptable or ideal, while 22% found it insufficient. Having enough police officers in a city provides a sense of safety. Feeling safe lowers stress and concerns which results in a high QOL.

Sub-conclusion

Overall, the safety measures implemented by Aalborg to keep and ensure their citizens' safety is adding to their QOL. The citizens seem to experience Aalborg as a safe city to live and travel around in. However, the city does have some problem areas that needs to be improved, such as ensuring the citizens' digital information, making them feel safer when being online. But also, reducing drug substances in circulation from being distributed and used. Fascinatingly, in relation to substances abuse, what the respondents did not comment on was how many people or addicts it takes in their perception for the situation to constitute a problem for the society. Is one enough or is the limit 20 - this perception or an agreed upon number would most likely change the outcome in this case. Further, the survey only referred to people with a drug abuse, not people suffering from alcohol abuse, would the respondents have experienced the same or would it have been different as people with an alcohol abuse is in the authors' opinion more visible in the public space.

Lastly, the data also highlighted a lack in confidence in the political system from the citizens, which needs to be improved. What the author has gained from the safe theme and the theory behind it, is that safety plays an important, if not, the most important role, when it comes to ensuring the citizens' QOL and citizens having a good QOL is fundamental to creating a livable city. But also, that the sense of feeling safe is highly subjective and depends on a person's previous experiences and expectations to the city they now live in.

6.3.2 Inclusion

Aalborg's ability to provide quality education in public institutions has increased the citizens QOL as they ranked it mostly acceptable and easy to be admitted into. However, what the respondents are not so sure about is on matter regarding private educational institutions. That might be due to most educational institutions in Aalborg being public institutions (Aalborg Kommune, 2023). The data showed that the job market in Aalborg provides plenty of opportunities for its citizen. One respondent commented "it is my impression that it is an active job market with many opportunities" (p. 4, TA). Another commented "It seems as if the city is developing well and more people are moving here, so that must also mean that the job opportunities are quite good" (p. 4 & 5, TA). A quick search at Jobindex the 25th of May revealed 773 vacant jobs in Aalborg Municipality. This does indeed indicate that there are plenty of opportunities to find a job within the Municipality. However, what it also indicates is labour shortages. Which begs the question, can Aalborg retain and attract new citizens to the city?

Among the ones who did not experience the job opportunities in Aalborg as favourable towards them seemed all to be internationals that do not speak Danish. The data showed that job opportunities among internationals were rare. One seemed to believe that the reason for this was because of the city's size: "too small a city, being international it really reduces the available qualified jobs by a lot". These experiences suggest some inequalities and exclusions when it comes to internationals looking for jobs in Aalborg, which ultimately results in worse QOL among internationals. If they are not able to find a job, they will leave which affects knowledge sharing and talent acquisition but also the overall livability of the city. The respondents received a follow up question inquiring if Aalborg were missing any job opportunities. The question was included as it could help identify job opportunities that possibly would attract more people to move to the city as well as make Aalborg Municipality aware of what the city is missing. With the notion of internationals' finding it hard to find a job in Aalborg, not surprisingly, the most suggested job opportunities that can improve not only the internationals but also the Danish speaking citizens QOL, are either companies that can accommodate internationals or medium to large internationals companies. Others suggested creative or social jobs, jobs in natural science, jobs with focus on green transition, while one suggested jobs within the maritime area. Stating "Aalborg has absolutely no competences in terms of everything within the maritime area, in other words, the second

largest cogwheel within the Danish economy or after Industry". And the person continues elaborating:

> "Not to mention, that the Job House and the Municipality directly counteracts the unemployed with 'only' the skills limited within the maritime area (seafaring, Offshore, course activity, oma.). The Municipality also has a nepotism that is obvious if you don't have a "friend" (shortcut) in the party who can ease you through the system, which is common practice in municipalities with maritime experience (staff). You are left to yourself if you have just this competence. The solution could be to get municipalities to assist Aalborg with experience and competence now that the system is tax-paid" (p. 6 & 7, TA).

This person not only seems to believe that Aalborg is lacking competency (talent) when it comes to the maritime area but also that the two institutions that are supposed to help the citizens find work are counteracting each other. Further this person believes that Aalborg Municipality is practicing inequalities through friend services, which are some serious accusations. And maybe that perception is the reason why some of the respondents do not have confidence in the Municipality, which again is a serious problem.

The notion of equality or inequalities was the next subject the respondents were inquired about. Here the respondents were asked if they thought that Aalborg as a city treated its' citizens equal. The data showed that 50% of the respondents perceived equality in Aalborg to be at an acceptable level as most of them had not encountered discrimination, except for the ones being international. Though the international respondents feel discriminated against all the respondents, except one, feels that they have been accepted and welcomed into the society. Attributing this to the friendly and open-minded demeanour of the people who lives in the city. Lastly, the respondents were asked if they thought there was room for their religious beliefs in Aalborg and they unanimously voted yes. However, what the survey did not inquired about was the respondents own religious believes. For all the author knows, all the respondents could have had the same religious beliefs. As such, there is no way of knowing if Aalborg can accommodate all religious believes within its urban boundaries.

Sub-conclusion

The livability framework states that an inclusive city must embrace all its' citizens equal, which is not entirely the case with Aalborg. Yes, Aalborg provides equality when it comes to education and integration into the society. The citizens are friendly and open-minded but

where the city fails to be inclusive is on the job market when it comes to is internationals or English-speaking people. As such, it can be concluded that Aalborg Municipality contributes to the deterioration of internationals QOL. Known from the literature and the theory attracting and retaining internationals improves knowledge development, diversity, and a city's overall livability. Aalborg not being able to retain its international students (Hansen, 2020), which is a national problem in Denmark, contributes negatively to the city's livability. However, having the government closing several international educations does not contribute positively to the issue either (Hansen, 2020). In the theory, inclusion focus a lot on equality and with the exception of one, no one mentioned gender equality being an issue. This is interesting as it has been a subject that has been much debated ever since the beginning of the MeToo movement in 2017 (Politiken, 2021). The anonymity provided the respondents with every opportunity to address it without fear of repercussions. And still, only one mentioned it and the mentioning was even to remove the focus from the subject to other more current and pressing equality matters. Equality is also one of the four sustainability focus areas that Alborg Municipality is working on. What was not mentioned in the data was the citizens experience with being involve or not being involved in matters regarding the city's development. It could be very interesting to know how being involved in city matters would affect the citizens QOL.

6.3.3 Culture

The questions related to the culture in Aalborg investigated how satisfied the citizens were with the cultural experiences the city is offering and whether the city is offering enough. Overall, that data showed that all of the cultural experiences are adding to the citizens' QOL. First the respondents were asked about how the thought the access to the different social and sports activities were. Here the data showed that most of the respondent found it either at an acceptable or ideal level. They were further inquired about if they were missing any social or sporting activities to which the data showed that 10 out of 11, in the case of social, and everyone, in the case of sports, were satisfied with what Aalborg had to offer. However, the locations of the different sporting activities could be more widespread. One respondent commented:

> "Missing is not the right word, but the access to them. There are sports to be able to get to and up to several gyms, but most are very centrally located. You could perhaps

> spread them out a bit or not hoard them in the center as much as they are right now" (p. 17-18, TA).

The citizens do not seem to believe that there is an even distribution across the Municipality of sporting activities. However, every single sports activity cannot be present in every town or suburb. Perhaps this perception speaks to what kind of (unrealistic) expectations the citizens sometimes have to the Municipality (Jønsson & Petersen, 2012). Nevertheless, other respondents were missing offers such as athletics for seniors, basketball clubs and more badminton to increase their QOL (TA, p. 15 -18). One respondent even commented "There is a lot of focus on the harbor front and the harbor park. However, there is not much reference to other places such as forests, hiking, other leisure activities besides going down and sunbathing, playing ball or swimming" (p.20, TA).

In relation to gastronomic experiences, the respondents were inquired about what they thought about the quality and selection of the restaurants available in Aalborg to which all, except one, found increased their QOL. The one respondent who did not think the selection added to his or hers QOL, found it to be the exact opposite, strictly speaking intolerable. An answer to why this person was unsatisfied with the selection of restaurants or food chains is not clear. However, the suggestions provided an indicator. One needed a good Indian restaurant, which Aalborg has two of at the moment (Google, 2023). Whether they are considered good is up to the citizens to decide. Other suggestions were running sushi, Latin American food, Bao Bao, even Weber's grill concept competition.

The survey went on to investigate the citizens shopping experiences in which the data showed added to the citizens QOL. However, were stores like, the New Yorker, JD shoes and Labfresh to open in Aalborg, that would add even more QOL to one respondent in particular. The respondents were also posed with the question if there were anything that made their shopping experiences difficult. Here the data showed that there were two things that made the respondents shopping experiences difficult, short opening hours and parking. The respondents found it hard to find parking spaces in the center and the spaces available expensive. The data also reveal that communication towards the citizens had either been lost or worse not been had at all. Offers about social activities going on in the city is not being effectively communicated to the citizens. Or in some cases are being communicated towards the wrong target group decreasing the citizens QOL as they don't identify with the messaged being sent.

> “I don't know if they are missing, but the advertising could have been made sharper/better. Perhaps you could make a little better advertising channels and make people believe that an event is suitable for them, instead of spreading an idea of "no, it's for strange people" or some that you don't identify as, or at worst you feel should not identify as!” (p. 15-16, TA).

Sub-conclusion

The citizens’ QOL is being ensured by Aalborg doing a good job providing its citizens with quality and equal access to all its’ cultural offerings. However, things can also be improved, and the respondents would certainly appreciate more gastronomical experiences and shopping stores. Problem areas that the data has identified is parking condition in the center of the city and short opening hours. The opening hours will be hard for Aalborg Municipality to influence, as it is up to each store to decide their own opening hours, but the parking situation is something that Aalborg Municipality can rectify by changing the infrastructure. If they want to, is another matter entirely. Because Denmark is a welfare state the citizens has become accustomed to expecting that everything should be possible and should be located in a convenient distance from where one live. This is often the case with Aalborg because of its’ relatively small size. The size of Aalborg makes the city densely and compact which facilitates the convenience of being able to get anywhere within the city in approximately 5 minutes. This is a special feature that is Aalborg specific.

6.3.4 Health

The questions related to the theme health were asked to discover how the citizens perceived the healthcare system in Aalborg. As such, the respondents were asked what they thought of the accessibility and quality delivered by the medical professionals, like doctors. Here the data showed, when it came to accessibility, that most of the respondents experience the access to doctors to be at an acceptable level. However, three experienced this level unacceptable, and when it came to the quality, it got even worse. 20% experienced the quality they received by medical professional to be of an unacceptable level. To this, one commented that “the healthcare system has become an assembly line, where you are often tossed around between doctors and specialists with very long waiting times” (p. 22, TA). Another commented that “Sometimes the author had to go to the doctor two or three times for

something that could have been done in one go" (p. 22, TA). And the last unsatisfied respondent even commented "I've only had bad experiences with doctors here. They don't help much" (p. 23, TA). Having citizens believe and experience that they cannot receive the medical attention that they need or is feeling like they are being tossed around in the system is unacceptable does not resemble a livable city. These 'bad' experiences indicates that the healthcare system is not running as smoothly and efficiently as it should and that might be something Aalborg Municipality needs to take a closer look at. The citizens feeling like that they cannot receive proper medical care from the medical professionals significantly decreased their QOL.

However, when it came to the accessibility and quality of hospital care in Aalborg, the data showed a slight improvement. Two to three respondents were still dissatisfied, while the rest experienced it to be of an acceptable or ideal level. The respondents were also inquired about accessibility and quality of private hospitals to which the data showed none of them really had any experiences with those. The data showed when it came to evaluate Aalborg's handle on the corona crisis, that 50% of the respondent though that Aalborg managed it at an acceptable level. Here one commented "don't think they could have done it differently" and another commented "The city did what it had to, and the opportunities to be tested were very good" (p. 25-26, TA). Among the ones who considered Aalborg's handle on the corona crisis for intolerable and unacceptable, which only consisted of three respondents, the comments had a different tune. E.g., one commented that "Sweden did it better", while another focused on the consequences their handle led to: "lockdown killed some of the small shops and was generally unnecessary" (p. 25, TA).

The survey also inquired about the balance between the respondents work and free time. Over 70% found this balance to be either at an acceptable or ideal level. Lastly, the survey investigated how the citizens experienced the levels of noise in the city. Three found the noise level totally intolerable, two unacceptable, one had no preference, 10 found it acceptable and four, ideal. The mixed experiences with noise do not really indicate a problem. However, when the respondents were asked about what could improve the level of noise for them in the city, different suggestion emerged. One complained about the noise coming from the seagulls, commenting "the seagulls make SO much noise! But now we are the ones who have taken over their natural place to live, so I take it" (p. 26, TA). Noise from birds of all kinds has always been a problem in Aalborg, however, since the closure of mink

farms in and around Aalborg this problem has only increased. Experts however do believe that that problem will resolve itself in time (Hansen, 2022; Bach, 2021). Besides the noise coming from seagulls, the data also showed that quite a few believed that the noise levels could be improved through either fewer car present in the city or through electrical cars. Fewer cars would certainly help on the parking situation, however banning cars could lead to fewer citizens traveling into the city center, ultimately killing the stores in there.

Sub-conclusion

Overall, the citizens seem to be pleased with the healthcare system that Aalborg is providing. A few are having some bad experiences with both the accessibility to and the quality of the medical professionals within the city. As mentioned before, Denmark is a welfare state which means most of the citizens has been used to free access to medical care all their life. With that comes certain expectations to the quality and how fast one's access to medical treatment should be. The important factor here which the author thinks many takes for granted is the fact that medical care is free and always accessible. Having regulations change as to how many things can be examined in one visit at the doctors, does not prohibit or hinder the citizens in accessing their doctors, it does however make it less convenient. Inconvenient does not automatically translate into less QOL, not being able to go to the doctors does. E.g., this perception with Aalborg's healthcare system might haven being completely different had more respondents from underdeveloped countries such as Zambia or Yemen, taken the survey. Or even respondents from a developed country such as America. In America, going to the doctors is a costly affair which has resulted in one in four Americans not seeking out medical care (Leonhardt, 2020). Not having the burden of worrying about how to pay for medical treatment is a luxury that does improve QOL for the citizens of Aalborg, whether they know it or not. Noise is a factor that seriously negatively can impact QOL. Fortunately, this is not considered a problem per say but a quieter city is still preferable. This perception might change once the new Limfjord connection has been built as that connection would generate even more traffic and because that traffic noise could be in closer proximity to the city.

6.3.5 Infrastructure

The questions exploring the citizens' perception of Aalborg's infrastructure consisted primarily of questions ranking the different elements of the city. As a mean to get around in the city public transportation plays a vital role, and as such, the respondents were inquired about their perception on the quality and the reliability thereof. When it came to the quality of public transportation the data showed two of the respondents experienced it to be of an intolerable level. Three experienced it as unacceptable, another three had no preference about it while nine experienced it as being acceptable and another three as ideal. These negative experiences could be since Aalborg the last couple of years has been developing its' urban areas and its road networks to accommodate the plus bus, resulting in bus routes and departure times changing. This could also explain the reason why one of the respondents found the reliability of the public transportation to be intolerable, while 5 found it to be unacceptable. When being dependent on the public transportation for either work or study, whether the bus or train is on time does influence the citizens QOL especially if they are commuters.

The next question the respondents were exposed to dealt with the prevalence or distribution of the road network and the quality thereof. In relation to the latter, the data showed that 55% of the respondent QOL were not affected by the quality of the road network, as they experienced it to be of an acceptable level. However, when it came to the distribution of the road network the respondents were torn between finding it acceptable (40%) and unacceptable (30%). As no follow up question were made to uncover the reasons why the respondents thought this way, it cannot be known why some are dissatisfied with the current distribution of the road network. Those questions were followed by questions regarding the quality of bridges and tunnels, important constellations that connects the northern parts of Aalborg Municipality to the rest of Aalborg Municipality. Here the data showed that 12 out of 20 respondents QOL were not influenced by the quality thereof. Though the citizens QOL is not affected by the quality of the tunnel might indicate that most of them are not one of the 80.000 people who does drive through it every day and is dependent on it to get to work or study (Videbæk, 2019). Were something to happen to the tunnel or was the lifetime simply up, that would cause extreme pressure on the Limfjords bridge impacting thousands of citizens QOL. And for a long time to, as a new tunnel could take two years to build, as it did

back in 1966 when the Municipality started building the Limfjords tunnel (Videbæk et al., 2019).

Moving on from the road network, bridges and tunnels, the survey inquired about the quality of energy and water provision as well as the internet. The data in that regards showed that the vast majority experienced the quality it be acceptable, followed closely by being ideal. In other word, the quality of the energy, the water, and the internet helps the citizens sustain a good QOL. However, there were three cases in which the internet did not sustain the citizens' QOL, as it was experienced to be insufficient. When it came to the quality of the waste management in Aalborg, the respondents had quite different experiences on that matter. Three experienced the quality as being intolerable, three unacceptable, two were indifferent, seven experienced it as acceptable and five as ideal. All the new initiatives in sorting waste could be the reason why some perceives this quality in a negative light. Ironically enough, waste management is a necessity for the city to improve its' sustainability and most of the citizens knows this (Granding & Pedersen, 2022), yet still they find the execution bothersome and inconvenient. If the citizens' want a sustainable and green city, they must do their share to get it there. It could however also be the reason why some many perceive it in a positive light. And as more initiatives for handling and sorting waste is on its way, it could be interesting to see whether this perception changes.

Next, the survey investigated the distribution and quality of public housing[7] in Aalborg to which the data displayed a lot of the respondents having either no idea or no preference to the matter. Simultaneously, the data also displayed the levels to be acceptable for distribution and quality. Citizens not having a preference or not knowing is not necessarily a bad thing, it could just mean that they do not have anyone in the family living in such places, and therefore have not become acquainted with places like that. The survey also inquired about walkability to the city, green spaces, and institutions etc. This showed that 55% of the respondents experienced the walkability to be of an acceptable level, even 30% though it was ideal. The reason why this is interesting relates to the matter of making or reducing the number of cars in the city center. Though a lot of citizens are complaining about that fact (Sonne, 2020), this inquiry shows that if Aalborg Municipality were to enforce that initiative, the citizens would still be able to get into the city simply by walking, and walk would be

[7] Public housing refers to nursing homes, senior homes, housing for people in need of support etc.

more beneficial for their health as well. This also indicates that there are a sufficient number of green spaces present in Aalborg, which if true, will be uncover when the thesis investigates the environment theme next.

Sub-conclusion

The citizens QOL is dependent upon having parking spaces for their cars, reliable public transportation, and internet connection, and even if they don't think so functional bridges and tunnels, and stable provision of water and energy. A city's development always causes inconvenience to its' citizens, and from the data it is clear that the public transportation in Aalborg is lacking in both quality and reliability. However, it is only a few whose QOL is affected by it. As well is the distribution of road networks, whether this is due to the upcoming third Limfjord connection or not, which has caused a lot of debate, is not known. However, it seems that the distribution of road networks is not living up to a portion of the citizen's satisfaction. The citizens are happy with the water and energy provision but not completely with the internet. Further is seems that people are still having problems with waste management. A problem that Aalborg Municipality still needs to address. A thought-provoking paradox that emerged from the data was the fact that the citizens of Aalborg want to be able to access the center of the city with their cars, but they also want more green spaces. They want two things at once, but the fact is the cars, and their parking spaces takes up most of the infrastructure in the city. If the citizens are set on having more green spaces, they will have to compromise on the space available for cars.

6.3.6 Environment

Though the infrastructure theme inquired about green spaces in relation to walkability the environment theme dug a little deeper. And it did so by investigating the perception of the number of, accessibility to, and quality of the green spaces available in Aalborg. The data demonstrated that the respondents overall QOL were improved by the green spaces available. The respondents experienced them as acceptable and ideal levels. Only three to four respondents were not completely satisfied and ranked them intolerable and unacceptable. The reasons why some of the respondents experienced the green spaces as being unacceptable and intolerable were identified in the TA to be because of garbage and trash. "Garbage is floating around. Spooky green spaces" (p. 29, TA) one commented, while another though "Karolinelund is creepy and uncomfortable, everywhere else is great" (p. 28, TA). A third

seemed to believe “as housing is built around the Municipality, there will be fewer green areas. The quality of the green areas there is poor” (p. 28, TA), which suggest that newly developed green areas are not being prioritize or taken as well care of as other green spaces. However, is could also just be because the new green spaces have just been developed, meaning grass, flowers and other plants needs time to sprout and bloom before the full effect of the green space can be experiences fully, as with Karolinelund.

Among the ones who were satisfied with the green spaces were such because they thought that the parks and green places are nice. One even commented:

> “I actually think there are good green areas that I really appreciate, but I think you can easily remove some parking spaces in the city center and turn them into small cozy green oases, which I think will make more people want to live there” (p. 27, TA).

Utilizing parking spaces to create more green spaces would certainly increase QOL, reduce noise levels from cars and provide the citizens with more stress reliefs areas. If it were to come to this, turning parking spaces into green spaces would be a great suggestion. Furthermore, the respondents being satisfied with the number of green spaces available proves that the indication made last in the infrastructure theme was correct. The respondents were further inquired about the biodiversity in Aalborg to which most of the respondents found lacking. Two experienced the level of biodiversity intolerable, six found it unacceptable, seven had no idea and five found it acceptable. This indicates that the biodiversity or the widespread thereof is of concern, however, most of the respondents has unconsciously contributed to the worsening of the biodiversity. They have done so by transforming their gardens into plain grass areas. But they also possess the powers necessary to help improve the matter again. For biodiversity to thrive it requires wild nature, by letting all or part of their gardens grow wild they are creating livable spaces for the biodiversity.

When it came to the air quality the data showed that almost all the respondents experience the air quality to be either at an acceptable or ideal level, which means that the citizens are satisfied with the air quality in Aalborg. This experience also affected the respondents’ opinion about the levels of pollution present in Aalborg. Here 65% of the respondents did not experience the levels of pollution to negatively affect their QOL. Which to some extent is surprising considering that Northern Europe's largest cement factory is located in Aalborg, Aalborg Portland. A factory that contributes significantly to the city’s overall GHG emission. Nevertheless, levels of pollution are not considered a problem in Aalborg. The respondent

when then asked about what they thought about the weather conditions in general, the humidity and the temperatures. 13 of the respondents found the temperatures in Aalborg to be acceptable, which could indicate that tourist and visitors would also find it pleasing.

Lastly, the environment themed questions examined if the respondents thought Aalborg Municipality is doing enough to protect the city's environment. Here the data illustrated a division between the respondents. 10 answered yes to the questions while 11 answered no. The reasons why so many saw this in a negative light according to the respondents themselves were due to multiple factors. One commented that the city needed:

> "More green areas, and initiatives that promote electric cars, bicycles, and public transport and initiatives for solar cells. Maybe also some sorting of food waste, which can probably be used for something other than just being thrown out with the rest of the waste" (p. 29, TA).

Another, respondents also commented on waste being the issue, stating "stop with the in-ground waste containers that make life difficult - and focus on apartment-friendly waste management that doesn't involve four+ different bins" (p. 29, TA). Apparently, sorting waste, the new molochs, and having multiple bins at home is perceived to be an issue, along with food waste not being repurposed. The reasons a third respondent did not believe the Municipality were doing enough was because the city needed "more diverse nature and less asphalt and tall buildings" (p. 30, TA). Tall buildings have been shooting up all over the city in the last couple of years, some closer to each other than other, which not all citizens are pleased with, according to the TA. Lastly, one thought it was because of trash lying around all over the city.

Having 55% of the respondent believe that the Municipality still is not doing enough for the environment is a problem, significantly influences that city's overall livability. A problem that Aalborg Municipality needs to do something about in the future if they want to increase the city's livability.

Sub-conclusion

Overall, the respondents were satisfied with the green spaces available in the city, however they still want more. Trash lying around in the streets is a major problem and a concern, as it indicates a problem in people's behavior but also a problem within the system among those whose responsibility it is to collect the trash. Additionally, biodiversity or more the lack

thereof is also a problem for Aalborg. Air quality and air pollution is under control, however, the humidity in the city is cause some discomfort among the citizens. Aalborg Municipality also have a major problem in having 55% of the respondent believe that the Municipality does not do enough for the environment. The citizens seem to have defined the pillar environment based solely on green spaces. Nothing was mentioned about reducing the city's negative impact on the environment per say, nor did they mention anything about protecting, preserving, or restoring natural resources or recycling management, all parts that constitutes the environmental pillar (Hegazy et al., 2017).

6.3.7 Economy

The questions related to the economy themes were asked to uncover the affordability of living in Aalborg. As such, the first question inquired about the prices of rent and houses to which the data showed was mostly considered to be of an acceptable level. This indicates that purchasing or renting an apartment is affordable in Aalborg. The price for groceries however is considered highly expensive as nine of the respondents found it unacceptable while 3 found it intolerable. Unlike the prices for groceries, the price for restaurants visits were mostly considered acceptable. Suggesting that the respondents find the prices at restaurant reasonable, which also could suggest that they are willing and able to pay for restaurant visits. This perception of prices also applies to cultural experiences, as 80% of the respondents found the price for cultural experiences to be of an acceptable level. When it came to the price for public transportation a lot more respondents found the price to be unacceptable and intolerable compared to before. Here three found the price intolerable, while five found it unacceptable. Suggesting that the prices to some extent may be too high or unaffordable. Yet, eight of the respondents found the price to be acceptable. The survey also inquired about the financial support the Municipality offers some of its' citizen and whether that support is sufficient, to which most of the respondents had no idea. Lastly the questions inquired about the prices for energy and electricity which again illustrated difference of opinions among the respondents. 45% found the price either intolerable or unacceptable, while 45% found it acceptable and 5% found it ideal.

Sub-conclusion

In relation to economy, though the cost of things impacts the citizens' wallet, it does not however, negatively impact their QOL. Aalborg is an affordable city to live in especially

compared to what citizens are paying in Århus, Odense and Copenhagen (Madsen, 2023). Prices on groceries, public transportation and electricity is expensive to some which decrease their livability. However, prices on groceries are starting to come down again, so that should not continue to be an issue.

6.3.8 Reflections

Interestingly enough the citizens or respondents seems to have define the concept of sustainability in Aalborg from the social and environmental pillar. Most of their responses given addresses their set of values or indicates where their behavioral choices are going to be difficult to change. Further, the focus on QOL is highly subjective which is obvious from the data, which also makes it relate more to the social pillar. At least their answers given reflects more on the social pillar than any other pillar. Of course, the environmental pillar is being referred to when talking about green spaces and their desire for more. However, as soon as they turn it into desire, it automatically becomes a subjective and social dilemma. The reason for this is that they do not mention environmental reasons, such as the biodiversity, the air quality, or for trying to reduce the city's GHG emission, for why having more green spaces or areas would be a good idea. Instead, the environment is almost address in a negative light focusing on trash. Here it is evident to see the citizens resisting to change their behavior for the better of the environment as the initiatives from the Municipality in relation to sorting waste has become nuisance. The reasons why waste sorting, in their own home and in the new Moloch's, has become a nuisance is due to lack of knowledge and understanding. Ineffective communication from Aalborg Municipality as has explained or created an understanding, firstly, for why it is so important for the citizens to sort their waste. Secondly, created an understanding for what happens with the waste once the waste is being transported to the waste facilities (Granding & Pedersen, 2022). Not to mention, that the respondents hardly mention the economic pillar at all when they elaborated on their experiences with the city's livability. Of course, job opportunities do refer to the economic pillar, however, the way the respondents address the subject is again from a social standpoint. Instead, of primarily focusing on the jobs itself or the salaries, they turn it into a discussion of inequalities. Inequalities towards internationals or inequalities towards citizens who does not have a friend that can help them attain the job.

Further, what the theory and the data seem to illustrate is that sustainable cities are the way of the future. The thought of a sustainable city is pleasing and the aim for many countries, governments, municipalities, yes even the citizens. However, even it gets to the nitty-gritty part of implementing the steps into society that makes is possible, the citizens tend to resist as they don't like change (Kanter, 2012). They want to reap the benefits of a livable and sustainable society as long as it does not cost or inconveniences them in any way, shape or form.

6.4 Comparison

In most cases, the Municipality and the citizens seems to agree on the qualities of livability present in Aalborg, such as it being a safe, inclusive, convenient, and an affordable city to live in. However, where they seem to disagree, is on the level of inclusiveness towards internationals as they experience finding a job to be a struggle. This indicate that Aalborg might not be as attractive and as inclusive as the Municipality seems to think it is. That and the fact that the city can't retain the international students after graduation further indicate that the inclusive initiatives are lacking. The Municipality and the citizens also agree on that the city is missing biodiversity and that initiatives to boost the biodiversity needs to be implemented. However, if the citizens knew that the only way to incorporate more biodiversity into the city would be to transform parking spaces into wild nature, they might change their perception on biodiversity to keep their parking spaces. However, there is a clear discrepancy between the citizens expectation towards the Municipality and what realistically is possible for the Municipality to adhere to. As Interviewee 2 puts it: "people have to manage their own lives. But we can work for the physical framework to be able to facilitate that you can do things with each other and benefit from it" (p. 25, TA-AM).

Now that the first research question has been uncovered and answered, the question regarding how livable the city is, will be explored in the next part of the analysis.

Research question 2: How livable is Aalborg as a city?

This part of the analysis seeks to determine just how livable Aalborg as a city is. This section starts with presenting how the overall score for the themes was calculated. Then moves on to

present the themes overall score based on the citizens experiences and finally Aalborg's livability score. The data needed to answer this research question was gather through the surveys. The survey questions consisted of a mix ranking and text boxes. However, this part of the analysis only makes use of the ranking. The ranking system went from intolerable (1), unacceptable (2), don't know, to acceptable (3) and ideal (4).

Each category was rewarded a value to be able to calculate the overall score. Intolerable was valued a 1, representing the worst conditions and no livability whatsoever, while ideal was valued a 4, representing the best condition and Aalborg as a very livable city. As such, if a score falls under [1 - 1,5] that theme is considered intolerable and if the score lands between]1,5 - 2,5], the theme is considered unacceptable. However, does the score land on in]2,5 - 3,5], the theme is instead considered acceptable. And lastly, does the score manage to get a]3,5 - 4] the theme is considered ideal. The value and category of 'don't know' was excluded from the calculations but was included in the survey to provide the respondents with an option to not voice their opinion on certain matters. The perception of the citizens constituted 71 respondents, as such the score was calculated using the average calculation approach. As each theme within the survey consisted of multiple questions and opportunities to rank, the themes rankings were calculated by adding all of the values from the questions under that specific theme together and divide that number with the total number of respondents for all those questions. To provide the reader with a visual of how the calculations looks like, and example below demonstrates how the first question in the safe theme was calculated:

First question: 1+2+2+2+2+2+3+3+3+3+3+3+3+3+3+3+3+3+3+3+3+3+4+4+4+4+4+4+4+4 = 91 / 30 respondents = 3,03

However, instead of stopping to calculate the first question only, the author continued the process with all the questions in that specific theme and divided it with total number of all respondents to find the theme score. To see how all the themes were calculated please go to appendix 9. After adding all the values together and dividing it with the total number of respondents, the themes score from the citizens experiences with livability in Aalborg can be seen in table 2 below.

Themes	Scores	Category
Safe	2,9	Acceptable
Inclusion	3,1	Acceptable
Culture	3,4	Acceptable
Health	3,0	Acceptable
Infrastructure	3,0	Acceptable
Environment	2,9	Acceptable
Economy	2,6	Acceptable

Table 2: The theme scores (Made by the author)

As illustrated by table 3 above, all the themes managed to end up in the acceptable category, some more positive than other. The safe theme ended up scoring a 2,9 which seems rather low considering Aalborg Municipality hardly mention it. However, a few did have some bad experiences with hate crime, petty theft etc. But what must have influenced the overall score negatively is the experiences with corruption and the citizens experiences with digital security. That the economy theme also only scored a 2,6, nearly being on the verge of unacceptable perhaps does demonstrate, as the data first illustrated, that Aalborg Municipality does have a bad economy. However, the citizens do not know that which means that their experiences with prices of groceries, public transportation and electricity is what lowered the score. The theme that has the best score is culture with a 3,4. The theme is only 0.1 point aware from being experienced as ideal. Where the shops to have longer opening hours, the city more diverse shops and more gastronomical restaurants it might push it into ideal. Table 2 only illustrates each themes overall score and not the city's overall score in livability. To determine how livable Aalborg is, all of the themes need to be added together and divided with the number of themes to find the overall score. As such, Aalborg's overall livability score is 2,9 which falls into the acceptable category. This means that the level of livability present in Aalborg experienced by the citizens is at an acceptable level. If Aalborg, as they stated, want to be a city with a high degree of livability, they must improve on issues identified in section 6.3 to increase the score of 2,9.

After having identified and answered the second research question, the thesis moves on to explore how these improvement to the city could be executive.

Research question 3: Could Aalborg Municipality implement the Singapore Livability Framework to improve its' livability and, if so, how?

This section being the last part of the analysis investigates whether it is possible for Aalborg to implement Singapore's livability framework to improve its' overall score in livability. To determine this, the findings from the last two research questions along with the data gather through the interviews will be utilized. The section starts with investigating IMPD system, the first part of Singapore's Livability Framework, followed by the DUG approach.

6.5 Integrated Master Planning and Development

As mentioned in section 4.2.3, the IMPD is a system that could enable Aalborg Municipality in managing their urban system, resulting in a more livable city by balancing the environment, economy, and QOL. The system is comprised of five principles: Think long-term, fight productively, build in flexibility, execute effectively, and innovative systemically.

6.5.1 Think Long Term

Here the data showed that Aalborg Municipality is working from several plans and strategies, none as long-term as Singapore's. The Plan Strategy which is the city council's strategy is changed every four years when a new representative has been elected to run the city. This plan is also the main strategy that the Municipality works from. The Main Structure plan last 12 years and the local plan last in theory forever. The plan for climate adaption is longer than 12 years, but how long-term it really is, the data did not reveal (TA-AM). Having a Plan strategy that changes every fourth year does not prevent the 'develop first, clean up later' mindset that is fundamental not only for Singapore's framework but also to ensure livability (Macomber & Alamsyah, 2019). As such, the main plan that the Municipality works from should be longer than four years. However, the way the political system works in Denmark prevents this from being possible. However, it does not mean that this principle could not be implemented in Aalborg, it just needs to be adjusted to the Danish political system.

6.5.2 Fight Productively

Aalborg Municipality consist of 20.000 employees spread out across seven administrations which just recently did not work together: "we have some administrations that have started to talk together and the internal cooperation in the Municipality works really" (Interviewee 1,

p.13, [TA-AM]). Because of the UN's 17 SDGs Aalborg Municipality created a work group and a board consisting of managers from all seven administration. In collaboration this work group and board of managers created the Municipality's World Goal Strategy. Which indicates that Aalborg Municipality is fighting productively together, which also indicates that this part of the framework, would easily work in Aalborg.

6.5.3. Build in Flexibility

As the main strategy, the Plan Strategy 2019 only last for four years, it is only reviewed when the elected representative period is up. Four years does build in some flexibility however, as it is not reviewed or tweaked during that time to accommodate new knowledge it takes some flexibility out of their planning. Because Aalborg Municipality is lacking in flexibility, this part of the framework would be a beneficial principle.

6.5.4 Execute Effectively

In regard to the fourth principle, execute effectively Aalborg Municipality has had several issues executing effectively. E.g., the road for the new plus bus. Here Aalborg Municipality had not conducted the extensive research needed to determine exactly what it required to build new roads for the plus bus. This resulted in the project going over budget as the Municipality had to lay down another layer of asphalt on top of the layer they had already put down. This was done because new information had surfaced reporting that the first layer would not be able to withstand the weight from the new plus busses, as it turns out, are heavier the regular busses (Schouenborg, 2021). Nor has the Municipality been able to execute effectively with the new Super Hospital being build in Aalborg east. This major project has been hit by one scandal after another, resulting in delays and major budget exceedings (Hukiær & Jacobsen, 2022). From these two major projects, still going on in Aalborg, it is safe to say that Aalborg Municipality is severely lacking the skills to execute effectively. As such, implementing this part of the framework in Aalborg, would be highly beneficial to the city and its' citizens.

6.5.5 Innovate Systemically

Aalborg was the first city to implement district heating according to interviewee 2. Moreover, the Municipality is now in the process of upgrading the district heating system so it will be available for testing and further development of renewable technologies. This suggest that

Aalborg is prioritizing and displaying systemically innovation. However, if one where to look at the two examples mentioned in the Execute Effectively section above one could argue that innovation is not being prioritized in all aspects of the city's urban development. As the principle innovative systemically is an approach that increases innovation, it could be implemented in Aalborg.

6.6 Dynamic Urban Governance

The DUG approach is an approach that could enable Aalborg Municipality's leaders to make more favorable decision and choices in an unpredictable, complex, and constantly changing environment. But also help equip the society to handle challenging situations (CLC, 2014).

6.6.1 Lead with Vision and Pragmatism

As Aalborg Municipality has created said work and board to define and develop sustainable goals for the city, suggest a vision and political will power to create a livable city. However, the leadership in Aalborg has been lacking due to scandals involving the city's own mayor. This has resulted in Aalborg Municipality losing its' mayor and leaving the city in a state of crisis (Stougaard, 2023). Of course, vision and pragmatism has being demonstrated in relation to the third Limfjord connection, which is considered a very controversy and unpopular case. However, this display of vision and pragmatism does not stem from the Municipality but from the Danish governments, as the third Limfjord connection is a part of their plan. A plan the Municipality still must facilitate (TA-AM). The Danish government and the Municipality do possess the same leadership power as Singapore, to acquire land by force, if need be, for urban transformation. As such, this part of the framework could be implemented in Aalborg.

6.6.2 Build a Culture of Integrity

Aalborg Municipality and especially its' politicians have had a rough time trying to build a culture of integrity in the city. This is mostly due to lack of transparency as the data illustrated in section 6.3 as to what the citizens money are being used for. But also because of illegal transactions made by the city's own mayor (Stougaard, 2023). To make matters more frustrating for the citizens, the politicians and the Municipality do not face any real consequences from not living up to their responsibility, especially in relation to sustainability (TA-AM). Because of this, Aalborg Municipality is not considered practicing strong

governance when it comes to accountability, transparency, and incorruptibility. Because integrity is a hard think for Aalborg Municipality to build, implementing this part of is Singapore's framework is possible and would benefit the citizens experience of their Municipality and politicians.

6.6.3 Cultivate Sound Institutions

By dividing the Municipality into seven administrations run by political leadership as well as professional bureaucrats, that collaborates across administrations, suggest that the Municipality is well on its' way to cultivate sound institutions. It also suggests that Aalborg Municipality has already, in their own way, implemented this principle. However, learning from Singapore and their 50 years of experience on this matter might help cultivate better accountability and responsibility (CLC, 2014).

6.6.4 Involve the Community as Stakeholders

Aalborg Municipality is already doing this with the citizens, as it is required by law (TA-AM). But they are also doing it to cultivate inclusion and equality in the city. And as the data demonstrated in section 6.3, they are cultivating involvement through interviews, focus groups, questionnaire, public meetings, and city walks (TA-AM). Implementing this part of the framework might identify more avenues for citizens involvement.

6.6.5 Work with Markets

Aalborg is also already working with the markets as partnerships is fundamental to developing the city. Parts of the public transportations and energy supply is privatized in Denmark, the rest is owned by the Danish government (Finansministeriet, 2023). Implementing this principle even more into the Municipality's strategies might help improve the city economy, as it would free up fundings that could be distributed to areas really in need of improvement.

6.7 Sub-conclusion

Singapore's Livability Framework could be exported and implemented in Aalborg Municipality, if it was adjusted to accommodate the Danish culture. Many of the principle in the framework are already integrated into how the Municipality works. Where Aalborg Municipality really would benefit from integrating the framework is on the matter of execute

effectively, innovative systemically, lead with vision and pragmatic, build a culture of integrity and perhaps work with market.

After having been presented with the analysis part, the thesis moves on to present the discussion psection, reflecting the author's consideration throughout the entire process of writing the thesis.

7. Discussion

In this section the reader will be exposed to certain discussion points that was considered with respect to the choices made in the thesis, as well as present other perspectives on the covered topics and suggestions for potential future research. Such points of discussion will pertain to why the author has chosen to work with Aalborg Municipality, certain reflections resulting from the above analysis, as well as the potential for future research regarding the livability in Aalborg. Finally, certain limitations the author found in this process when it comes to the theoretical and methodological choices made will be examined.

From the very beginning the author knew she wanted to investigate Aalborg, as she had collaborated with the Municipality before. Here she investigated how the Municipality could reach families with children to make them become more sustainable. Thus, the author had a good understanding for how the Municipality and the target group families with children perceived and defined sustainability. But as the author became acquainted with the concept of livability and discovered that Aalborg was not mentioned on any of the indexes or lists over most sustainable or livable cities. The author became curious as to why that was. Though there was plenty of literature on both sustainability and livability, there was no literature pertaining to Aalborg on the matter. As such, the author wanted to fill the gap in the literature on the matters of livability in Aalborg as well as provide the literature and future scholars with a tool to determine livability for other cities. Thus, this case on Aalborg Municipality should be viewed as the initial groundwork for future research into livability in Aalborg. Not only does this research contribute to the literature by filling a gap in the livability research it also provides Aalborg Municipality with knowledge on problematic areas in need of improvement as well as how their citizens perceive and experiences the city daily.

Though the concept of livability focuses quite a lot on securing QOL, one could also argue that it has also become a concept that embraces communities. Because a city or a Municipality can never fully ensure QOL if they do not involve and listen to the ones, they are trying to create QOL for, namely the communities and the citizens. When one works with the three pillars of sustainability is become very clear that balancing all at once is a difficult task to handle, often resulting in one or two being neglected. As such, the author had an expectation to uncover which of the pillars the Municipality had forgotten to prioritize. Which surprisingly was not the case for Aalborg Municipality. Though from the first glance on their four political focus areas it would seem that they have forgotten the economic pillar. However, as the data reveal, this is simply not the case. Aalborg Municipality has unconsciously managed to prioritize and balanced all pillars at once. On closer reflection, because the framework easily can be adjusted to fit any culture makes it a universal framework that can be implemented into any society. And because Singapore has more than 50 years of experiences supporting the framework makes it a powerful tool as well. Surprisingly, discovering how many of the principles of the framework Aalborg Municipality is already working with would mean that the transition of implementing the framework would be almost non-existing.

During the process of conducting the research and analysis for this thesis, certain limitations of the chosen theoretical and methodological perspectives came to light. The academic literature available, in particular, a theoretical framework for understanding all the different aspects of livability was missing. And as there was no theoretical framework, there was no methodological way to measure livability. As such, the author had to find a way to measure livability. The author was set on collecting data regarding Aalborg Municipality's perception on the city by having them take the same survey as the citizens to be able to compare the experiences one to one. Unfortunately, this was not possible and instead this case is built on the citizens perceptions and experiences. Regarding the question of reliability, the author has put a focus on the transparency of the research. Throughout the thesis, thick descriptions of the choices made, in terms of methods and analyzing tools have been provided. Moreover, appendices giving access to raw data have been included and referred to throughout. This transparency should provide the reader with an understanding of how the conclusion was reached as well as demonstrate for future researchers how attainable and transferable the approaches are. In relation to the transferability, also referred to as the external validity, the theories and methods could easily be transferred to another research. The findings, however,

would likely differ significantly thus lowering the level of transferability. In answering the proposed problem formulation, sustainability, QOL and a livability framework along with Singapore's Livability Framework method was applied when analyzing the data. To obtain a high degree of internal validity, the theories and the method was reconsidered and reexamined throughout the research.

8. Conclusion

The case study of Aalborg Municipality ended up being examined through three research questions, which in addition to provide structure, helped the author shed light on different aspects of the problem formulation: What is Aalborg's strategy to ensure livability as a part of their sustainability initiatives?

Aalborg Municipality ensures the city' and their citizens' livability through plans and strategies developed and agreed upon across the seven administrations that constitutes the Municipality. They do so by having identified four political focus areas: Climate, Resources, Biodiversity, and Inequalities, from which they to ensure QOL. The focus areas are based on the three pillars of sustainability and the UN's 17 SDGs, wherein the 11th goal in particular is being prioritized. Though the Municipality states that they define sustainability as climate, resources, biodiversity, and inequalities, the data however showed that sustainability in the Municipality is defined through partnerships and involvement. While livability, not a term utilized by Aalborg Municipality is defined through QOL. Aalborg Municipality further perceives the city as a business-friendly, attractive, innovative, convenient, peaceful, and sustainable place to live. A city that fosters partnerships and cultivates the conditions for 'the good life' by including the citizens in their urban development projects. A perception the citizens seems to agree with for the most part as they perceive Aalborg to be a safe, inclusive, and affordable city to live in. As such, it can be concluded that Aalborg's livability is at an acceptable level. Since the level is acceptable and not ideal there is room for improvements. These improvements can easily be managed through Singapore's Livability Framework, with minor adjusted, of course, to accommodate the Danish culture. The framework would in particular improve Aalborg Municipality's abilities to execute effectively, innovative systemically, lead with vision and pragmatic, build a culture of integrity and perhaps work with market.

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