

# An evaluation of the presence of EU-imposed sustainability policies and investments in sustainable urban development strategies of Berlin, Copenhagen, and Paris

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## Abstract

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Cities are at the forefront of the developments involving climate change. Furthermore, cities are responsible for a major amount of global energy production and consumption. The European Union (EU) has an extensive framework of sustainable urban development policies and investments. Therefore it is interesting to evaluate whether European cities benefit from the framework of sustainable urban development policies and investments provided by the EU. From the Arcadis Sustainable Cities Index, the top three sustainable cities from Europe are chosen to evaluate as a leading example (Berlin, Copenhagen, and Paris). This research is already conducted on the cities and communities of LMICs (Low to Middle-Income Countries), which brings forth scientific relevance to evaluate it for high-income countries. Furthermore, this research will provide societal relevance in the form of a leading example of how to benefit from the SUD policies and investments of the European Union. The research was done through a policy performance study in ATLAS.TI on the guidance of two coding schemes: one for EU SUD policies and one for EU SUD funding initiatives. EU SUD policies were evaluated on the basis of no presence, low presence, and high presence. EU SUD funding initiatives were evaluated on the basis of no presence and presence. Findings indicate that EU SUD policies are mainly of a normative character and stimulate and inspire cities to deal with sustainable urban development in a way lead by the European Union. Besides that, cities remain dependent on national, regional, and municipal policies that fit to their local needs and contexts. The instrumentalization of EU SUD policies is often neglected, and cities fail to benefit from the EU policy frameworks in an applied way. EU funding initiatives involve a lot of unclarity, and cities are mainly dependent on existing (national) financial frameworks. Furthermore, the governmental layer and the type of sector to which the EU funding initiatives flow is unclear from this research.

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## Colophon

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# 1. Introduction

## 1.1 Background

Climate change is threatening the health of planet Earth and is especially threatening to urban regions according to Bazbauers (2021). Therefore cities are at the forefront of proposing climate-resilient and adaptive solutions to for instance combat heat stress, flooding, and more extreme weather. Furthermore, according to the UN (2021), cities are responsible for a major amount of global energy consumption and carbon emissions. The European Union (EU) has multiple international agreements and cooperations with regard to sustainable cities. For instance; the Green Deal, the Urban Agenda, and the European Environmental Agency (EEA, 2022). Therefore it is interesting to evaluate how cities are performing in terms of sustainable urban development (SUD) concerning the current developments when imposing and implementing EU sustainability policies and investments in sustainable urban planning.

## 1.2 Research Problem

Urban Sustainable Development Goals (USDGs) are used as a policy tool for sustainable and climate resilient city improvement (Klopp & Petretta, 2017). The difficulty of measuring whether these USDGs are actually helping cities is a problem, often these goals are top-down imposed and do not touch the practical reality of sustainable urban development (SUD). Klopp & Petretta (2017), state that the problems with localization (the uptake of these USDGs in their practical context), are thus a major problem for SUD. Bazbauers (2021), also found problems with localization in his research on Multilateral Development Banks (MDBs) and their directed investments towards SUD. Directed investments can be explained as the direction of the types of funding toward different sectors in sustainable urban planning. According to Bazbauers (2021), current funding initiatives from the MDBs are directed towards sectors with low-risk characteristics like infrastructural projects and quick technocratic fixes in the spatial domain. These are mainly the sectors of transport, sanitation, energy, and water (*see Figure 1.*), while long-term sustainable and social investments in sectors like urban planning, economy, and culture are deemed uncertain and thus high-risk investments. Burton et al. (2002), state that climate adaptation policies should be integrated into a framework of general policies to have profound effects. Climate adaptation measures cannot be a standalone practice with technocratic interventions, climate adaptation also has to have long-term social - and economic effects according to Burton et al. (2002). Ayers et al. (2014), confirm this with a practical example. According to Ayers et al. (2014), the policies and investments from the World Bank are prone to short-term mediation, and long-term climate adaptation is therefore often not reached by vulnerable communities. Furthermore, ambitious goals and visions are often set out in these communities but the actualization is often far more conservative (Bazbauers, 2021). In the articles mentioned, supporting these arguments, it is mainly examined for LMICs (Low to Middle-Income Countries), it is, therefore, relevant to evaluate how the direction of investments and the formulation of urban sustainability policies plays out in practice in high-income countries. Do, for instance, cities benefit from the policies and investments provided by the EU, or is there still room left for improvement, which will help the European cities in their SUD practices. Europe provides the perfect framework to evaluate this with institutions like the EEA

and others that provide member states with sustainability policies and investments. Besides this scientific relevance, the societal relevance in this research is the forthcoming of a leading example of how EU cities that are not yet involved with sustainable urban development could implement sustainable policies and investments similarly or differently. Furthermore, the role of the European Union in the provision of sustainable urban development policies and investments is considered.

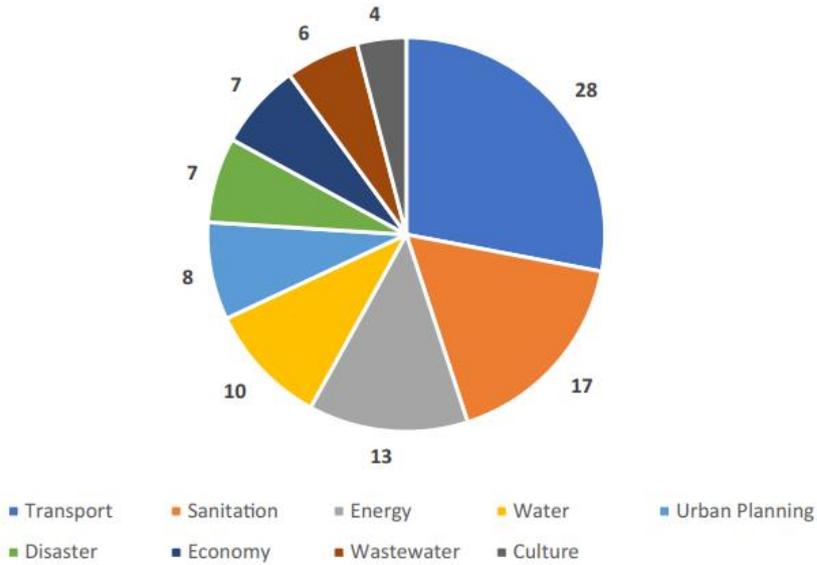


Figure 1. MDB expenditures for SUD projects per sector (%) (Source: Bazbauers, 2021)

### 1.3 Research Aim and Research Questions

The main aim of this research is to evaluate whether EU sustainability policies are localized properly and if investments are allocated efficiently in leading sustainable European cities when implementing sustainable urban projects. From the Arcadis Top 100 Sustainable Cities Index, the three leading sustainable EU cities are chosen for this article; Copenhagen, Berlin and Paris. These leading cities lead in example in terms of sustainability and are therefore a good representation of how EU policies and investments are currently implemented or not. From this main research aim the main research question is as follows:

**Main RQ** How are sustainability policies and investments from the institutions of the European Union used in sustainable urban development strategies in leading European sustainable cities?

Berlin, Copenhagen, and Paris (Arcadis, 2022)

The sub-questions that will help to answer the main research questions build on the different aspects of the main research question and give this research article the formation of its different research chapters; theoretical framework, content analysis, and finally a recommendation.

**SubQ1** What does the existing framework of EU sustainability goals, investments, and, policies for sustainable urban planning, include?

**SubQ2** What is defined as proper sustainable urban development (and its projects)?

**SubQ3** In what ways are EU sustainability policies and investments present in the sustainable urban development strategies of EU European cities?

**SubQ4** How can European (EU) cities benefit (*even*) more efficiently and properly from sustainability policies and investment created by the EU?

## 1.4 Structure

In this research article, there is chosen for a qualitative research in the form of a content analysis. In the theoretical framework, the EU framework of sustainability policies and investments is explored and sustainable urban development (SUD) is defined properly. Based on of the theoretical framework assessment criteria (indicators) are formed. Following is the assessment of urban strategy documents of EU European cities which produces the results of the analysis. Finally is the conclusion, discussion, and recommendation on future sustainable urban development strategies for cities in the European Union.

## 2. Theoretical framework

### 2.1 Framework of EU Urban Sustainability Policies and Investments

It is important to explore some of the main policies and investments from the EU concerning the SUD strategies and to take a brief look at the background of these policies and investments. The EU have taken the Sustainable Development Goals as leading principles for their sustainable development policies, for cities in particular SDG11 on sustainable cities and communities is important (UN, 2021). The main principles of the European Union formed for sustainable urban development are guided on the basis of four pillars economic growth, social inclusiveness, environmental sustainability, and governmental cooperation (UN-Habitat and DFID, 2002). From these pillars, the Environmental European Agency of the EU gives nine main indicators of sustainable urban development in European cities (among which; safe and inclusive housing, efficient urban densities, circularity, resiliency, etc.) (EEA, 2021). Furthermore, various leading concepts and factors are mentioned to help the implementation of EU sustainability goals. The goals and visions are the basis for the EU its urban sustainability policies and investments. Where the goals and visions are set up very broadly and ambiguous, the policies and investments are more practically connected to the SUD strategies of cities. To explore the different policies and investments, Table 1. and Table 2. describe the main EU policies and investments dealing with sustainable urban development.

Table 1. EU policies concerning sustainable urban development

Policy	Year developed/published	Goals	Tools and instruments
European Green deal	2019	No net emissions of GHGs in Europe, cities included in policy-making processes, and integration of sustainability in different policy sectors	<ul style="list-style-type: none"> <li>- New European Bauhaus (creative room for sustainable urban solutions)</li> <li>- Funding methods under Cohesion policy, European Structural Investment Funds (<i>see Table 2.</i>)</li> </ul>
(New) Urban Agenda	2021	Improving the quality of life in urban areas: better regulation, better funding, and better knowledge	<ul style="list-style-type: none"> <li>- Renewed Ljubljana Agreement and Multiannual Working Programme (including; operational parameters, work method, and steps)</li> <li>- Revised Urban agenda for multi-level governance</li> <li>- DEGURBA, measuring the degree of urbanisation (SDGs)</li> </ul>
International Urban and Regional Cooperation Programme (IURC)	2021	Supporting cooperation between cities and regions globally (especially sustainable solutions and green and digital transitions)	<ul style="list-style-type: none"> <li>- Renewed programme; including new countries, regions, and cities</li> </ul>
EU Mission: Climate-Neutral and Smart Cities	2021	Using European cities as experimental hubs to test innovative sustainable urban development ideas & Using these cities as inspiration for the rest of the world	<ul style="list-style-type: none"> <li>o Covenant of mayors</li> <li>o Cross-sectoral and demand-led approach, creating connections between cities and adjusting sustainable policies to the need of cities</li> </ul>

Sustainable Urban Mobility	2021/2022	Sustainable urban mobility; zero emissions, multimodal hubs, and digital solutions and services	<ul style="list-style-type: none"> <li>○ Sustainable Urban Mobility plans (public transport, walking, and cycling)</li> <li>○ Ten-T networks</li> <li>○ DUT program (Driving Urban Transitions)</li> </ul>
URBAN2030-2 Project	2020	Localising the Sustainable Development Goals	<ul style="list-style-type: none"> <li>○ Methodological support and inspiration for implementing the SDGs</li> </ul>
Various awards and initiatives	-	Supporting and awarding cities in developments in sustainable contexts	<ul style="list-style-type: none"> <li>○ European Green Capital Award</li> <li>○ European Green Leaf Award</li> <li>○ Green City Accord</li> <li>○ Innovating cities initiative</li> <li>○ Urban Greening Platform</li> </ul>

Note. Data are from; European Commission(1), (2019), European Commission(2), (2019) and United Nations Human Settlements Programme, (2020)

Table 2. EU investment funds applying to sustainable urban development

Investment fund	Year developed/initiated	Goals	Investment budget
European Regional Development Fund (ERDF)	2021	Smarter, greener, and more connected Europe that is closer to its inhabitants	- Budget of 213.9 billion
Cohesion Fund (CF)	2021	Investments in lower to middle-income countries in the EU and trans-European networks	- Budget of 36.6 billion
European Social Fund + (ESF+)	2021	Employment, social inclusiveness, and education (in cities)	- Budget of 99.3 billion
Just Transition Fund (JTF)	2021	Support regions that are most impacted by climate change	- Budget of 19.2 billion
Horizon Europe	-	EU research and innovation on UN SDGs and EU competitiveness and growth	○ Budget of 95.5 billion

LIFE program	2014	Tackling environmental issues in cities (air quality, noise, water, and energy)	<ul style="list-style-type: none"> <li>○ Budget of 1.4 billion</li> </ul>
InvestEU Fund	2015	Supporting the recovery of Europe and a green, resilient, and more digital Europe	<ul style="list-style-type: none"> <li>○ Budget of 372 billion in public and private investments</li> <li>○ InvestEU portal (marketplace for private investments)</li> </ul>
URBACT-3	2021	Learning program that supports cities in sustainable urban development	<ul style="list-style-type: none"> <li>○ Budget of 96.3 million</li> </ul>
Urban Innovative Actions	2015	To test new and unproven sustainable solutions for cities	<ul style="list-style-type: none"> <li>○ Budget of 371 million</li> </ul>

Note. Data are from; European Commission, (n.d.), European Commission, (2021), and United Nations Human Settlements Programme, (2020)

## 2.2 Sustainable Urban Development

Besides the framework of EU sustainability policies and investments, sustainable urban development is a concept that is important in this research article and is therefore good to illustrate on. Bazbauers (2021), suggests the concept of Sustainable Green and Resilient cities (SGR cities), as a concept of how cities should aim to perform in terms of sustainability. This includes low carbon emissions, social inclusion, and sustained growth. Furthermore, cities are expected to be environmentally healthy cities with sufficient green and blue networks that are able to withstand extreme weather patterns and other effects of climate change (Bazbauers, 2021). The EEA (European Environment Agency, 2022), defines urban environmental sustainability as the revitalisation and transition of cities to enhance liveability, innovation, and economic and social benefits. Besides that building resiliency against environmental impacts is also important according to the EEA (2022). Ayers et al. (2014), state that only mitigating environmental impacts and building resiliency against environmental impacts with technological measures is insufficient. Building adaptation in the local context of vulnerable communities and places is far more important, this means dealing with underlying problems such as poverty (Ayers et al., 2014).

Arcadis focuses in their Sustainable Cities Index 2022 on three main indicators; people, planet, and profit. The EEA also builds on these three pillars and gives governance as a fourth pillar for EU sustainable urban development and is therefore also taken into consideration (EEA, 2021). Therefore in this research article, urban strategy documents are analysed also based on these four indicators. Instead of only focusing on technocratic solutions such as climate mitigation and building resiliency, long-term climate adaptation aspects like; governmental cooperation, social inclusion, sustained growth, and economic benefits of sustainability are also taken into account as sustainable urban development.

### 2.3 Conceptual Model

The conceptual model below is a visual representation of the main research question, relations, theories, and underpinnings that will be evaluated in this research article (see Figure 2.). The model represents the various steps that will be taken in this research article to answer the main research question.

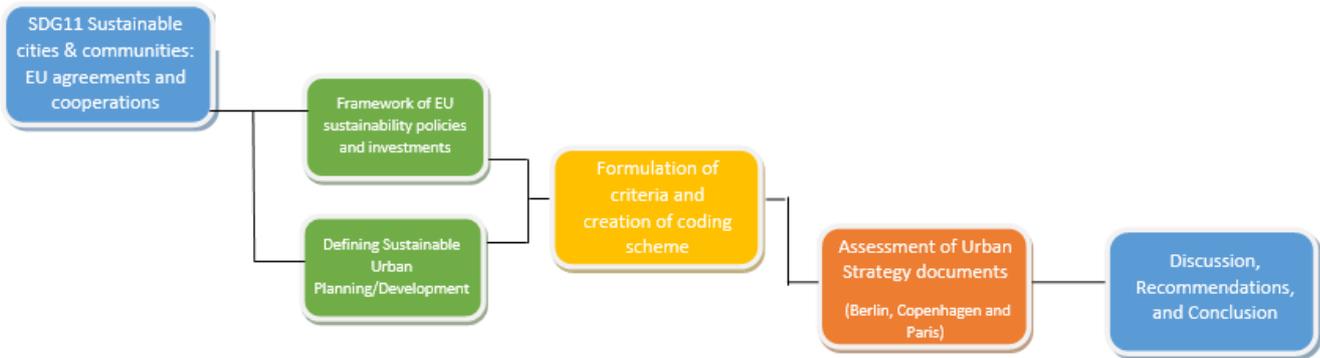


Figure 2. (Conceptual model)

### 2.4 Hypotheses

Expectations for the research in this article are built upon the relation how EU sustainability policies and investments are imposed on European EU cities in their SUD strategies. In the article of Klopp & Petretta (2017) problems are given with the lack of localization of USDGs and other policies, in the article of Bazbauers (2021) this is also confirmed. Furthermore, Bazbauers (2021), stated that many of the current investments are flowing to the transport sector (infrastructural projects) instead of the other sectors in urban planning. Other sectors would include, sectors that deal with sustainable urban planning like; ecology, water management, and energy. Therefore this research paper insists on the following (twofold) hypothesis: The absence of practical translation of sustainability policies and improperly directed investment from EU-related funds towards EU European cities. Which is causing EU cities to miss out on important tools and funds to assist them in their SUD strategies.

## 3. Methodology

### 3.1 Data Collection and Analysis

In this research paper, there is chosen for a qualitative research method. A qualitative research method enables a deeper understanding of how and why sustainable urban planning is applied through the policies and investment from the European Union in European cities. The data collection is done by retrieving urban planning visions and strategies from online open (governmental) sources. Governmental websites are used since these are the most reliable official websites. A selection was made on the most representative and recent documents for

each city. The quality of the data is sufficient for the analysis, furthermore, the differences between the documents in size, context, and other characteristics are briefly reflected upon in section 3.3 (*Context per the Strategy documents*). The analysis of the SUD strategies of the leading EU European cities constitutes the qualitative part of this research: a policy performance study (content analysis). A policy performance study is suitable because the analysis can be conducted in a way that allows not only for evaluating the presence of policies and investments but also for interpretations behind the data, which provides this research with more depth and explanations behind the certain phenomenon. Furthermore, this type of analysis provides reliable and reproduceable results. The indicators will be checked in ATLAS.TI in various urban sustainable planning projects and city plans from Berlin, Copenhagen, and Paris. The program ATLAS.TI allows for a smooth online policy performance study since the program is designed for reading and analysing academic articles. In addition, the three urban development strategy documents all go into three to four pillars of sustainable urban development (people, planet, profit, and governance) which coincides with the definition on sustainable urban development given in the theoretical framework and are therefore deemed suitable for analysis.

### 3.2 Indicators and Criteria

In this section the formulation of indicators and criteria is explained, furthermore, a coding scheme is added (*see Table 3. & Table 4.*). For the variable ‘policies’, three types of criteria are formed ranging from no presence, low presence, and high presence. For the variable ‘investments’, two types of criteria are formed, no presence and presence. European Union SUD policies can correspond with the SUD policies of a city or can be literally reproduced in their municipal SUD policy. Investments are present or not present and thus can’t correspond to the SUD investment framework of a city. To evaluate whether European Union investments are used by EU European cities in their SUD strategies, correspondence is not applicable. Thus investments show either no presence or presence. Furthermore, two types of values are presented to make a clear distinction between low presence and high presence for EU SUD policies; normative values (prescriptive, values that correspond to a certain standard) and instrumental values (true values that are a means to certain objectives). The criterium of low presence of policies is defined on the basis of the correspondence of EU policies with municipal SUD policies. Therefore the criterium shows high normative values. The criterium of high presence is defined as the (literal) reproduction and usage of EU SUD policies. Therefore the criterium shows high instrumental values. The framework of EU sustainability policies and investments (*see Theoretical framework*) will be included in the analysis to provide context for the keywords. However, the section ‘*may include*’ is not restricted to this list only. The keywords will provide a comprehensive list of indicators that are related to or a literal reproduction of EU SUD policies and investments. This set of indicators and criteria will help to answer the third research question and eventually, the main research question of this article because the relationship will be analysed between the framework of EU policies and investments and the presence of it in the SUD strategies of the EU European cities.

Table 3. Coding scheme: SUD policies (blue)

Code (what?)	Illustration	May include	Keywords	Shorthand
0 EU Policies Not Present	Strategy chapter shows no sign of either correspondence or literal reproduction of EU SUD policies	A. (New) Urban Agenda, Ljubljana Agreement B. International Urban and Regional Cooperation program (IURC) C. EU Mission: Climate-Neutral and Smart Cities D. Sustainable Urban Mobility E. URBAN2030-2 Project	<i>Literal</i> (New) Urban Agenda, International Urban and Regional Cooperation programme (IURC), EU Mission: Climate-Neutral and Smart Cities, Sustainable Urban Mobility, URBAN2030-2 Project, European Green Deal, European Green Capital Award, European Green Leaf Award, Green City Accord, Innovating cities initiative, Urban Greening Platform  <i>Correspondence</i> A. Thematic intergovernmental partnerships across MS, Covenant of mayors, DEGURBA, social rights, sustainable tourism, greening cities, equalities in the city and food, social inclusiveness, participative society B. Global network, sustainable urban innovation, city to city, region to region, city to region (vice versa), digital transition C. (100) Climate neutral and smart cities by 2030, Cities as experimentation hubs for 2050, zero-emission mobility, positive clean energy districts, urban greening and re-naturing D. Connectedness for citizens, improve safety and security, reduce air and noise pollution, lower emissions and energy consumption, improve the efficiency of transportation, contribution to quality of the urban environment, Ten-T, DUT program E. Urban Socio-technical transitions, more connected, more compact and net-zero neighbourhoods in city plots with inclusive participation F. Zero emissions by 2050 (55% by 2030), Economic growth without depletion of resources, no person or place left behind, three million trees planted, climate adaptation, resiliency, circular economy, biodiversity/ G. N/A	Policies NP (P0)
1 EU Policies Low Presence	Strategy chapter shows correspondence with EU SUD policies and shows high normative values, (e.g. corresponding goals, visions, and targets as EU SUD policies)	F. European Green Deal G. Various awards and initiatives; European Green Capital Award, European Green Leaf Award, Green City Accord, Innovating cities initiative, Urban Greening Platform		Policies LP (P1)
2 EU Policies High Presence	Strategy chapter shows (literal) reproduction of EU SUD policies and shows high instrumental values			Policies HP (P2)

Table 4. Coding scheme: SUD investments (green)

<i>Code (what?)</i>	<i>Illustration</i>	<i>May include</i>	<i>Key words</i>	<i>Shorthand</i>
0 EU Funding initiatives Not Present	Strategy chapter shows no funding initiatives or reliance on for instance national, regional or municipal funds	European Regional Development Fund (ERDF) Cohesion Fund (CF) European Social Fund + (ESF +) Just Transition Fund (JTF) Horizon Europe LIFE program	<i>Literal</i> <i>ERDF, Cohesion fund, European Social fund, Just Transition Fund, Horizon Europe or Horizon programme, LIFE program, InvestEU fund (&amp; InvestEU portal), URBACT-3, Urban Innovative Actions, ...</i> <i>EU budgets, EU financing, EU funds, grants from the EU, ...</i>	Funding NP (F0)
1 EU Funding initiatives Present	Strategy chapter shows detailed finance plans with corresponding EU budgets	InvestEU Fund (& InvestEU portal) URBACT-3 Urban Innovative Actions		Funding P (F1)

### 3.3 Contextual Factors

In this section the position and function of the three urban strategy plans are briefly discussed to provide some context and reflection. These contextual factors will be taken into account in the analysis. In the Berlin 2030 Strategy document, the focus lies on ten transformation areas and thus not the entire city (Senate Department for Urban Development and the Environment, 2013). The strategy document is focused on local interventions aided by the national policy - and funding system and therefore is expected to be less directly involved with EU policies and funding initiatives. Furthermore, the document is presented as a starting point for community dialogue and as a guideline for urban development (Senate Department for Urban Development and the Environment, 2013). The CPH Climate plan is the smallest document however, it is clearly representing more presence of EU policies and funding initiatives in its urban development strategy, for instance; the Horizon 2020 program and EU renewables directive (Technical and Environmental Administration and City of Copenhagen, 2020). Furthermore, the CPH Climate plan also sets out tangible spatial interventions planned top-down. These interventions focus, differently from the other strategy documents, exclusively on energy, energy efficiency, and emissions and therefore are expected to contain more EU sustainability policies and funding initiatives. Different action areas with various initiatives are proposed, which are mainly initiated by the government of Copenhagen in cooperation with the EU. The Paris Resilience Strategy plan is the biggest document and sets out a vision, with three pillars focussing on building resiliency in urban areas and in socio-urban domains. The three pillars set up a broad framework of action plans which mainly involve local governmental bodies and social organizations (or community groups).

## 4. Results

### 4.1 Sustainable Urban Development Policies

In this section the third sub question of this research paper is answered and the results are presented. The third sub question, which evaluates the presence of EU sustainability policies and investments in SUD strategies of EU European cities, will be answered on the basis of the analysis done in ATLAS.TI. First of all, the presence of EU sustainable urban development policies.

	BerlinStrategy2030.pdf	CPH2025ClimatePlan.pdf	ParisResilienceStrategy.pdf
EU SUD policies - high presence 2	6	4	3
EU SUD policies - low presence 1	127	105	213
EU SUD policies - no presence 0	79	29	94

Figure 3. Table of SUD policy quotations per strategy document

#### 4.1.1 Low Presence

The overarching pattern in the evaluation of the SUD policies in the strategy documents of EU European cities is that the criteria of low presence is most frequently quoted (*see Figure 3.*). An example of the correspondence of municipal SUD policies with the SUD policies of the EU is demonstrated in the following quote: *“There have also been visible and tangible changes in resource-saving mobility, with the modal share shifting clearly towards eco-mobility (on foot, by bicycle or by using public transport). In addition, great strides have been made in new mobility concepts and electromobility.”* (Senate Department for Urban Development and the Environment, 2013, p. 46). This quotation demonstrates the correspondence of the SUD policies of the municipality of Berlin with the sustainable urban mobility goals of the EU. A possible reason for the high number of ‘low presence’ quotations could be the normative nature of the framework of SUD policies of the EU. The EU provides various policies with broad sustainability goals ranging from social measures to more technical measures like climate mitigation and adaptation. Therefore the EU policy framework easily corresponds with general sustainable urban development goals and visions also found in the strategy documents. However, another explanation is that the EU is doing a good job of promoting and stimulating sustainable urban development on the guidance of their SUD policy framework. Cities are additionally also aware of the SUD policy framework and take advantage of it in terms of inspiration and stimulation.

#### 4.1.2 No Presence

The criteria of no presence (0), is in terms of frequency second and is as expected quoted mainly in the Berlin document. Although, the criteria of no presence is also abundantly present in the Paris document which was not expected at forehand. In both strategy documents this points towards a strong reliance on national, regional, or municipal policies. This is often the case for urban planning issues that are only applicable to the local situation. In the BerlinStrategy2030, a quote demonstrates the importance of policies that are aligned with the local identity: *“At the same time, the city will be characterised by ambitious urban planning*

*and architecture that reflects Berlin's dynamism and international status. Architectural diversity tolerant of structures outside the mainstream will have made Berlin even more popular.*'' (Senate Department for Urban Development and the Environment, 2013, p. 42). The municipality of Berlin develops sustainable urban planning policies to enhance the strengths of the city, like; education, research & innovation, and industry. In the Paris Resilience Strategy besides resilience in sustainable urban development, a focus is laid on resilience in a number of other fields of interest like; terrorism, migration, and disaster management. In these local fields of interest, the deviation from sustainable urban development policies from the EU is displayed. However, also from some sustainable urban development action plans in which the municipality of Paris takes matters into its own hands, as the following quote demonstrates: *''It will also be necessary to create a map that simulates the rise of the Seine and its impacts on groundwater levels; and to anticipate ground movements, which will be accelerated by periods of drought and other climatic changes. Outcomes from these activities will inform the creation of an insurance fund and a resilience bond''* (MAIRIE DE PARIS, 2018, p. 71). In the Copenhagen strategy document, no presence is relatively less quoted. The CPH2025ClimatePlan is different from the other two strategy documents, in that it is a document with more reliance on EU SUD policies. However, since it is a smaller document in size, the number of quotations is fewer compared to the other documents. Besides national, regional, or municipal SUD policies examples like the C40 global network of cities, Big City Partnerships (CPH2025ClimatePlan), or the 100CR cities network (Paris Resiliency Strategy) are also mentioned as policy incentives for sustainable urban development. These networks are internationally oriented and mainly outside the EU and thus have little to nothing to do with the European Union.

#### 4.1.3 High Presence

The criteria of high presence (2), is less frequently quoted than the latter two criteria. This indicates that EU SUD policies are in fewer extent present in terms of literal mentioning and instrumentalization in the strategy documents. Mainly EU concepts, principles, and flagship projects like the RESIN project, the SEQUEANA project, and ATELIER are mentioned in the strategy documents. Besides that, an exception is the mentioning and instrumentalization of the EU Renewable Energy Directive for biomass production in the Copenhagen strategy document. Comparing this to the criteria of low presence, there is a staggering difference between the two criteria in terms of quoted frequency. Low presence or correspondence of EU SUD policies with municipal policies (with high normative values) seems far more present than literal mentioning and instrumentalization of EU SUD policies. This indicates that the EU European cities do follow a certain prescriptive standard when it comes to sustainable urban development policies which coincides with that of the EU. However, EU European cities take almost no advantage of the EU SUD policies in terms of applying for instance a policy or policy framework like the sustainable mobility plans in their own policy plans to for instance lower the emission originating from traffic. The ATELIER project, as mentioned before, is an exception to this overarching pattern. The five-year project supported by investments from the Horizon 2020 program is mentioned in the Copenhagen strategy document as a tool for working out how the current building stock can be converted from an energy-consuming to an energy-producing building stock. Furthermore, for the sake of innovation and knowledge sharing, EU European cities are cooperating within this project to find solutions for the creation of 'energy-positive urban areas'. This is a perfect example of how EU policies and projects can be instrumentalized in local contexts and how EU European cities can cooperate to innovate. The SEQUEANA project is also such an example. In the Paris resilience strategy, the project is involved with crisis management for flood risks. The crisis management is practiced in the form of an exercise near the river Seine in Paris, the EU provides

financial aid to carry out the project. EU European cities seem to miss out on these types of opportunities, much reliance is focused on policies corresponding with EU SUD policies and on national, regional, and municipal policies. For some local urban planning issues this is important, but this is not always the case. The chance of EU European cities cooperating and applying EU policy frameworks (including investments) is often missed out on.

#### 4.2 Sustainable Urban Development Funding Initiatives

Secondly, the presence of EU investments (funding initiatives) in sustainable urban development strategies of EU European cities. Here two criteria were evaluated; EU SUD funding initiatives not present and - present. Overall the number of quotations is far lower than with the EU SUD policies criteria. A possible explanation for this could be the form and content of the strategy documents. The strategy documents for all three cities are mainly presented as a vision statement, with corresponding goals and intervention plans. Finances are often not described in detail.

	BerlinStrategy2030.pdf	CPH2025ClimatePlan.pdf	ParisResilienceStrategy.pdf
EU SUD funding initiatives - not present	15	31	51
EU SUD funding initiatives - present	0	4	1

Figure 4. Table of EU Funding initiatives per strategy document

##### 4.2.1 Not Present

First of all the criteria EU SUD funding initiatives not present (*see Figure 4.*). The strategy documents of Berlin, Copenhagen, and Paris show that funding initiatives are not extensively described and if so, the main reliance in financial terms is on national, regional, or municipal funds. In the Paris Resilience Strategy, this is illustrated: “*Shift municipal investments, concession treaties, public service delegations and public procurement towards resilience by using new indicators*” and “*Develop new finance mechanisms for resilience solutions in Paris: from sustainability bonds to resilience bonds*” (MAIRIE DE PARIS, 2018, p. 35). In these two examples, a strong reliance on municipal investments and finance mechanisms is demonstrated. This pattern repeats itself in the Berlin2030Strategy and the CPH2025ClimatePlan. In the Berlin2030Strategy action plans and spatial interventions are extensively described, but funding initiatives are rarely mentioned. Some stances towards budgets and investments are mentioned which rely mainly on national or municipal finance mechanisms: “*Consolidating the budget will have increased the state’s scope for harnessing politics and local government in the interests of a common future*” (Senate Department for Urban Development and the Environment, 2013, p. 54). In the CPH2025ClimatePlan, public parties (e.g. the municipality) and some private parties like companies or private individuals are mainly mentioned as funding sources.

##### 4.2.2 Present

Secondly the criteria EU SUD funding initiatives present. Just as the EU SUD policies - high presence the number of quotations for EU SUD funding initiatives is astonishingly low.

The Berlin2030Strategy document contains no EU SUD funding initiatives at all. The CPH2025ClimatePlan and the Paris Resilience Strategy contain a few quotations. These go often hand in hand with EU policies such as; the SEQUEANA project, ATELIER, and ESCO financing as mentioned earlier in the EU SUD policy section. Other funding initiatives like the InvestEU fund, URB-ACT 3, and Urban Innovative actions are remarkably enough, not mentioned in the urban strategy documents. While these funds do provide valuable investments in terms of learning programs, innovation, and other priority areas (European Commission, n.d.). Furthermore, European Structural Investment Funds (ESIFs) like ERDF, CF, JTF, etc. are also rarely mentioned in strategy documents. According to the European Commission (2021), these regional funds focus on regions as well as on cities. Comparing the criteria of present to the criteria of no presence there is again a staggering difference forthcoming in all three strategy documents. Cities seem to rely much more on national and municipal budgets, furthermore, private funding sources like companies, private individuals, and other organizations are also often called upon by cities. Cities, therefore, fail to benefit from the existing framework of funding initiatives provided by the European Union. Only through policy projects the EU seems to get their investments towards cities, this however is also restrained to a few cases.

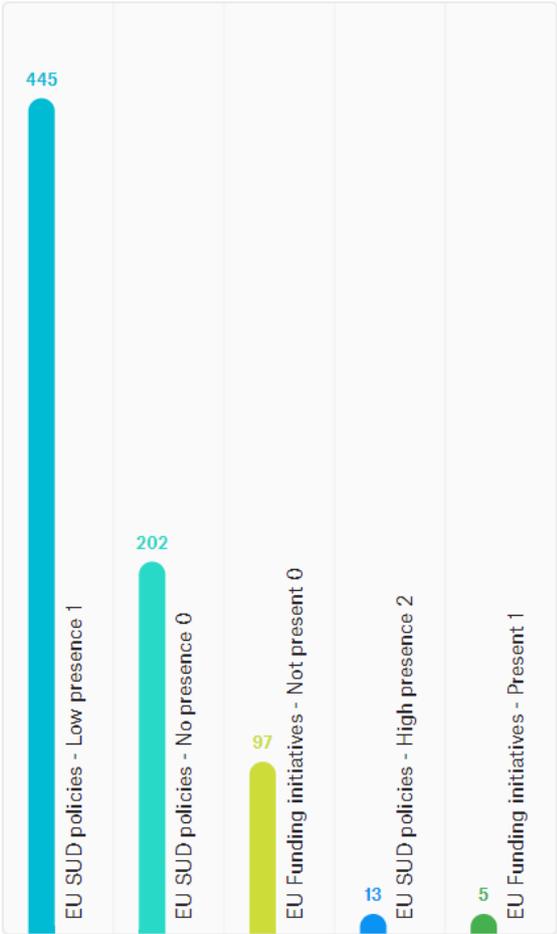


Figure 5. Frequency quotations (bar chart)

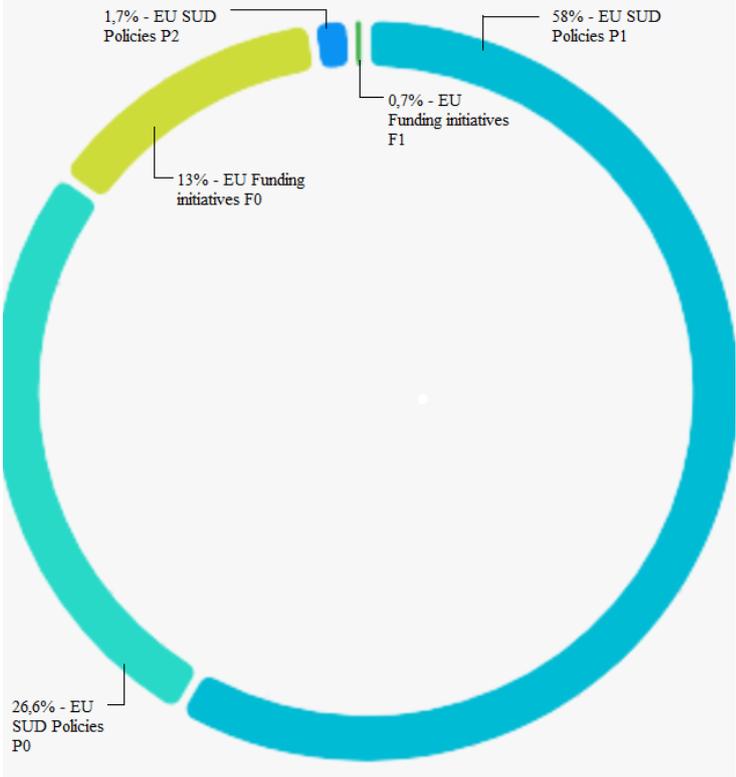


Figure 6. Frequency quotations (pie chart)

## 5. Recommendation

To answer the fourth sub-question on how European (EU) cities can benefit more efficiently and properly from the sustainability policies and investments incentivized by the EU a general recommendation will be given in this section and future research points will be touched upon.

The EU sustainable urban development policy frameworks currently inspire and stimulate sustainable urban development in EU cities. It is advised to promote sustainable urban development in the same way but provide EU cities with more hands-on policy frameworks that can be properly actualized (or localized). Besides that, EU cities should keep their dependence on national, regional, or municipal policy frameworks since multiple examples throughout this research paper indicate that this type of approach allows cities to deal with local problems properly. Future research is needed on how the EU can provide policy frameworks that can and will be properly actualized by cities. The funding initiatives of the European Union turned out to involve a lot of unclarity in terms of direction through the responsible governmental layer and through the type of sector. Furthermore, some funds were mentioned in cooperation with EU policy projects while others like the ESIFs and other urban-related funds were barely mentioned in the strategy documents. It is advised for cities to examine possible EU funding opportunities much more than is currently done. Cities seem to miss out on a lot of financial benefits that are provided by the European Union. Future research should be conducted on how these funds are allocated, looking at the responsible governmental layer and which types of sectors these funds flow into when initiated for sustainable urban development.

## 6. Discussion

In this section the results are summarized, interpreted and their implications are given. With the intention to provide a more general and theoretical discussion.

The analysis showed that inspiration and stimulation of sustainable urban development seems to be the main effect of the SUD policies of the European Union. Cities remain in an understandable sense dependent on national, regional or municipal policies. Municipal policies such as insurance and resilience bonds that deal with the floods of the river the Seine (Paris), emphasize the importance of policies that deal with local problems and local contexts. When evaluating the results based on size, content, and position & function, the strategy documents show that patterns turn out as expected (*see Chapter 3.3*). The Paris Resilience Strategy showed a lot of dependence on national, regional, or municipal policies, but also, a lot of low presence was quoted. The CPH climate plan had a lot less reliance on national, regional, or municipal policies and was relative to size (number of pages), the document with the highest involvement of EU SUD policies. The only exception is the Berlin2030 Strategy document, EU SUD policies were quoted much more often than was previously expected. Many of the goals and objectives of the German government are aligned with European urban sustainability aims. Klopp & Petretta (2017), argued that policies often fall short in terms of localization and therefore are not practically applicable. However, the analysis showed that not all EU SUD policies have to handle practical (often local) problems. Some form of national, regional, or municipal

dependence is needed to create applicable policies for local problems and contexts. Nevertheless, in the analysis, it turned out that EU SUD policies are often more of an inspiring and stimulating nature than practical instrumentalization. Therefore the EU SUD policies do fall short in terms of practical applicability, as Klopp & Petretta (2017) confirm in their example with USDGs applied worldwide. This is also illustrated in the analysis of this research paper. The SUD policies of cities showed to often have correspondence with the SUD policies of the European Union, 58% (see Figure 7.). The reproduction and instrumentalization of EU SUD policies in the SUD policies of cities on the other hand seems to be much less present in the strategy document, an astonishingly low 1,7%. (see Figure 7.). Here as noted in the results section, cities miss out on benefiting from the policy framework provided by the European Union. Not only do these policy frameworks provide hands-on policies and projects that can be applied in local contexts, but supporting investments from the EU often go hand in hand with these policies. Furthermore, international (EU) cooperations for innovation and knowledge sharing are also valuable benefits of the policy frameworks of the EU.

Funding initiatives showed in the analysis to be to an even fewer extent present in the strategy documents of cities than the EU SUD policies. Funding initiatives seemed to be 97 times not present and only five times to be present (see Figure 6.). Funding initiatives were namely present in combination with other policy projects from the EU. A main finding was that funds, budgets, and investments are described very briefly in the strategy documents. More detailed descriptions of EU funding initiatives could perhaps be provided in other documents. Another main finding for the low number of EU funding initiatives present is that public parties (e.g. national governments or municipalities) and private parties (e.g. companies, organizations, and private individuals) were often addressed for financial support. Moreover, combining this finding with the expected contextual factors of the strategy documents (see Chapter 3.3). One quickly can note that expectations are met, (with the exception of the CPH climate plan), funding initiatives are heavily derived from the national government and other public and private local actors. Only the CPH climate plan showed unexpected patterns since it is initiated by the government of Copenhagen in cooperation with the EU and shows hamper signs of EU funding initiatives.

Finally, various specific EU funds although established, do not generate the desired impact for what they are intended. Among which, the regional funds (ESIFs) and various urban-related funds like the InvestEU fund, URB-ACT 3, and Urban Innovative actions. Meastasia et al. (2019) argue, that the investments that stem from the ESIFs are often directed through different policy projects. Therefore the investments from the European Structural Investment Funds might be less visible in a direct manner. However, indirectly these investments could be extended much more often as is visible in the strategy documents. In the analysis this also turned out to be the case since the ESIFs like the ERDF were barely mentioned, the focus was predominantly on policy projects as Meastasia et al. (2019), argued. The low number of EU funding initiatives present and the unclarity of where these investments actually flow in terms of the type of sector and responsible governmental layer cannot confirm what Bazbauers (2021) stated. According to Bazbauers (2021), investments in SUD strategies are often improperly directed towards different sectors however, this turned out to be unclear in the analysis.

## 7. Conclusion

This research paper aimed to evaluate whether EU sustainability policies are localised properly and if investments are allocated efficiently in leading sustainable European cities when implementing sustainable urban projects. The main research question for this research is as follows:

*'How are sustainability policies and investments from the institutions of the European Union used in sustainable urban development strategies in leading European sustainable cities?'*

Three strategy documents from leading EU European cities in terms of sustainable urban development (Berlin, Copenhagen, and Paris) were evaluated through a policy performance study. Two coding schemes underpinned the evaluation in ATLAS.TI: one for EU SUD policies and one for EU SUD funding initiatives. The SUD policies of the EU were mainly present in the form of 'low presence', which indicates that the SUD policies of the European Union mainly correspond with the SUD policies of cities. Furthermore, cities seemed to rely on national, regional, or municipal SUD policies. The criteria of 'high presence' which is the literal reproduction and instrumentalization of EU SUD policies, were last quoted. This indicated that cities do not benefit directly from the EU SUD policy frameworks through instrumentalization. This means that although EU SUD policies are in place, European cities do not apply them literally. Important benefits like cooperation between European cities, innovation, knowledge sharing, and investment opportunities are thus missed out on. Only through policy projects such as ATELIER, the SEQUEANA project, and the RESIN project do the EU SUD policies seem to be practically applied. Funding initiatives seemed to be present to an even lesser extent than the EU SUD policies. The strategy documents did not contain lots of financial descriptions, and if so, cities mainly relied on existing financial frameworks from public and private parties. Furthermore, some funding initiatives from the EU, like the ESIFs and other urban-related funds, were barely mentioned, and it is therefore questioned if these do reach their desired impact. Again, the only way through which these funding initiatives came forward was through the policy projects of the European Union, in which policy and investment often go hand in hand.

Thus, to conclude and answer the main research question, sustainability policies from the European Union seem to mainly be of a normative character, the SUD policies of the EU inspire and stimulate cities to conduct sustainable urban development. Besides that, a strong local dependence remains. The instrumentalization of EU SUD policies is often neglected, and cities fail to benefit from the EU policy frameworks in an applied and direct manner. EU funding initiatives involve a lot of unclarity, and cities are mainly dependent on existing financial frameworks. Furthermore, the governmental layer and the type of sector to which the EU funding initiatives flow is unclear from this analysis. Therefore, future research is needed on how EU SUD funding initiatives are allocated, examining the responsible governmental layer and the types of sectors these funds flow into when targeted for sustainable urban development. Moreover, future research should be conducted on how the EU can provide policy frameworks that can and will be properly instrumentalized by cities. Examples like ATELIER provide the perfect illustration of how EU SUD policies can be instrumentalized and how, through cooperation and innovation between EU cities, the SUD policies of the European Union can make an impact.

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## 9. Appendix

### 9.1 Timetable

<i>W</i>	<i>Content</i>	<i>Deadline</i>	<i>To do</i>	<i>Time planning</i>
9	Research proposal	<i>Deadline 3 march</i>	<ul style="list-style-type: none"> <li>- <i>Edit Prelude to theoretical framework</i></li> <li>- <i>Start working on Research proposal step 2: background, research problem, conceptual model, hypotheses, methodology &amp; timetable</i></li> </ul>	<p><i>Mon: 8 hrs</i>  <i>Tue: 8hrs</i>  <i>Thu: 8 hrs</i>  <i>Fri: 8 hrs</i></p>

10	<i>Research proposal (RESIT)</i>	<i>Deadline 10 march</i>	<ul style="list-style-type: none"> <li>- <i>Work on (remainder) of theoretical framework</i></li> <li>- <i>Edit Research proposal</i></li> </ul>	<p><i>Mon: 8hrs</i>  <i>Tue: 8hrs</i>  <i>Thu: 4hrs</i>  <i>Fri: 4hrs</i></p>
11	<i>Data collection instrument</i>	<i>Deadline 17 march</i>	<ul style="list-style-type: none"> <li>- <i>Edit texts</i></li> <li>- <i>Create methodology and coding scheme</i></li> </ul>	<p><i>Mon: 8hrs</i>  <i>Tue: 8hrs</i>  <i>Fri: 4hrs</i></p>
12			<ul style="list-style-type: none"> <li>- <i>Meeting (feedback)</i></li> <li>- <i>Processing feedback</i></li> </ul>	<p><i>Thu: 4hrs</i>  <i>Fri: 8hrs</i></p>
13			<ul style="list-style-type: none"> <li>- <i>Edit texts</i></li> <li>- <i>Improving on Methodology and Coding scheme</i></li> </ul>	<p><i>Mon: 8hrs</i>  <i>Tue: 8hrs</i>  <i>Thu: 8hrs</i>  <i>Fri: 4hrs</i>  <i>Sun: 4hrs</i></p>
14			<ul style="list-style-type: none"> <li>- <i>Working on methodology</i></li> <li>- <i>Starting with analysis via ATLAS.TI</i></li> </ul>	<p><i>Mon: 8hrs</i>  <i>Tue: 4hrs</i>  <i>Wed: 8hrs</i>  <i>Fri: 4hrs</i></p>
15	<i>Exam E&amp;E</i>	<i>Exam 14 April – Environment &amp; Engineering</i>	<ul style="list-style-type: none"> <li>- <i>Study for Exam E&amp;E</i></li> <li>- <i>Some minor edits on Preliminary findings</i></li> </ul>	<p><i>Mon: 8hrs</i>  <i>Tue: 4hrs</i>  <i>Wed: 8hrs</i>  <i>Thu: 8hrs</i>  <i>Fri: 8hrs</i></p>
16	<i>Preliminary findings</i>	<i>Deadline 21 April</i>	<ul style="list-style-type: none"> <li>- <i>Explorative analysis in ATLAS.TI</i></li> <li>- <i>Meeting Prof. Woltjer</i></li> <li>- <i>Adjustments on Methodology</i></li> </ul>	<p><i>Mon: 4hrs</i>  <i>Tue: 8hrs</i>  <i>Wed: 8hrs</i>  <i>Thu: 8hrs</i>  <i>Fri: 8hrs</i></p>
17			<ul style="list-style-type: none"> <li>- <i>Define key words</i></li> <li>- <i>Work on analysis</i></li> </ul>	<p><i>Mon: 4hrs</i>  <i>Tue: 8hrs</i>  <i>Thu: 4hrs</i>  <i>Fri: 8hrs</i></p>

18		<i>Deadline 4 May</i>	<ul style="list-style-type: none"> <li>- <i>Work on analysis</i></li> <li>- <i>Make ppt and prepare presentation</i></li> </ul>	<p><i>Mon: 8hrs</i> <i>Tue: 8hrs</i> <i>Thu: 8hrs</i></p>
19			<ul style="list-style-type: none"> <li>- <i>Finish data analysis process and some minor edits</i></li> <li>- <i>Write results chapter</i></li> </ul>	<p><i>Mon: 8hrs</i> <i>Tue: 8hrs</i> <i>Wed: 8hrs</i> <i>Thu: 4hrs</i> <i>Fri: 8hrs</i></p>
20	<i>Full Concept of Bachelor Thesis (version 1)</i>	<i>Deadline 19 may</i>	<ul style="list-style-type: none"> <li>- <i>Write and rewrite results chapter</i></li> <li>- <i>Provide context and ideas for conclusions and recommendation</i></li> </ul>	<p><i>Mon: 8hrs</i> <i>Tue: 8hrs</i> <i>Wed: 8hrs</i></p>
21	<i>Peer-review of Thesis</i>	<i>Deadline 26 may</i>	<ul style="list-style-type: none"> <li>- <i>Write Discussion</i></li> <li>- <i>Write Recommendation</i></li> <li>- <i>Do peer-review</i></li> </ul>	<p><i>Mon: 8hrs</i> <i>Tue: 8hrs</i> <i>Wed: 8hrs</i> <i>Fri: 8hrs</i></p>
22	<i>Full Concept of Bachelor Thesis (version 2)</i>	<i>Deadline 2 June</i>	<ul style="list-style-type: none"> <li>- <i>Edits: plagiarism, grammar, and timetable</i></li> <li>- <i>Process feedback from peer-review</i></li> <li>- <i>Write conclusion &amp; summary</i></li> </ul>	<p><i>Tue: 8hrs</i> <i>Wed: 8hrs</i> <i>Thu: 4hrs</i> <i>Fri: 8hrs</i></p>
23			<ul style="list-style-type: none"> <li>- <i>Write final parts and some small improvements</i></li> <li>- <i>Individual session J. Woltjer</i></li> <li>- <i>Process feedback</i></li> </ul>	<p><i>Mon: 8hrs</i> <i>Tue: 8hrs</i> <i>Wed: 8hrs</i> <i>Thu: 4hrs</i> <i>Fri: 8hrs</i></p>
24	<i>Final Version Bachelor Thesis</i>	<i>Deadline 16 June</i>	<ul style="list-style-type: none"> <li>- <i>Process feedback</i></li> <li>- <i>Last edits and make the document ready to submit</i></li> </ul>	<p><i>Mon: 8hrs</i> <i>Tue: 8hrs</i> <i>Wed: 8hrs</i> <i>Thu: 8hrs</i></p>

25				
26				
27	<i>Final Version Bachelor Thesis (RESIT)</i>	<i>(Deadline 7 July)</i>		