

Aalborg University  
Masters in Urban Planning and Management  
2020 Spring semester research project  
Master's thesis

## **Research, Adapt, Innovate**

What is the process of transition to a Sustainable Urban Mobility Plan in Riga and why is this important for the city and the metropolitan area of it?

Author:  
4<sup>th</sup> semester Master of Science student  
In Urban Planning and Management  
Mihails Potihonins

Supervisor:  
PhD in urban and regional planning and public policy  
Associate professor of Department of Planning at Aalborg University  
Enza Lissandrello

June 4, 2020



**AALBORG UNIVERSITY**  
DENMARK

**Title:**

Research, Adapt, Innovate: What is the process of transition to a Sustainable Urban Mobility Plan in Riga and how can the process of transition be handled in the future?

**Project:**

UPM4 Masters Thesis

**Author:**

Mihails Potihonins

**Supervisor:**

Enza Lissandrello ([enza@plan.aau.dk](mailto:enza@plan.aau.dk))

**Pages number:** 71

**Hand-in date:** 04.06.2020

**The Study Board of Planning, Geography  
and Surveying**

Urban Planning and Management

Rendsburggade 14

9000 Aalborg

Denmark

Tlf. 99 40 72 16

Sekretariat-pgl-sn@plan.aau.dk

[www.bem.aau.dk](http://www.bem.aau.dk)

**Synopsis:**

The research project investigates the issue of sustainable urban mobility and the concept of Sustainable Urban Mobility Plan. It is based around the case of the municipality of Riga and the agglomeration territory known as Pieriga, where sustainable urban mobility is mentioned a lot in development plans on various scales, but the policy for sustainable urban mobility planning is not yet introduced. The work includes the analysis of planning documents of mid-term (2014-2020 and 2019-2025) and long-term (until 2030) Riga municipality, Riga Planning Region and Latvia in general. As the result of empirical analysis, knowledge of transition process, the management of transition, as well as obstacles and threats of sustainable urban mobility policy implementation are identified. Consequential discussions of analysed data are carried around the importance of sustainable urban mobility policy implications and potential benefits that can be achieved by establishing sustainable mobility system in Riga and the metropolitan area.

## Acknowledgements

This thesis is a final project developed during the 4th semester of Master of Science in Urban Planning and Management studies at Aalborg University, Denmark. The thesis

The project was developed individually, but there are people whom I would like to thank for contribution to this project. Firstly, I would like to thank my both academic and professional supervisors. I would like to thank professor Enza Lissandrello for providing me with necessary information and support, guiding me through academic requirements for successful thesis report result accomplishment,. Secondly, I would also like to thank Dr. Sc. Ing Evelīna Budiloviča, Leading project manager at Mobility Planning Division of Urban Development Board of Riga City Council Development Department, for providing me with documents, access to project events and seminar and guiding me through it for successful internship work result during Fall semester of 2019/2020 academic year. The outcomes of the internship were feasible in academic and professional way. Secondly, I express gratitude to professors of Department of Planning at Aalborg University and fellow UPM4 groupmates for expressing detailed and feasible recommendations for research work escalation during internship seminar on the 20th of April 2020. Thirdly, I would like to thank secretariat of Department of Planning at Aalborg for providing all the 'need-to-know' information over e-mail during COVID-19 outbreak. Finally, I would like to thank everyone who took less evident but still significant role in helping me academically and personally to bring this opportunity to life – professors at Aalborg University, Riga City Council Development Department workers, fellow students and family members for all the moral support I needed to fulfill the work and assignment requirements.

The author:

Masters student in Urban Planning and management at Aalborg University, Mihails Potihonins.

## Reading guide

Throughout the report text references will appear with a link to the bibliography with further details available at the end of the main text part of the report. The referencing format is American Psychological Association 6th Edition style of referencing, using the link formula of (Authors last name, Year). In bibliography, If available, scientific article, book or journal have ISBN and/or DOI number in the reference, while publications in the format of web-page include the URL as the final source information.

The report consists of 7 chapters and 71 pages (not including the Bibliography). Chapters that have sub-chapter have an according numeration (example. 1.2.). If there is a numbered paragraph heading to a sub-chapter, the numeration is done in respect to the hierarchy (e.g.. 1.2.3., where 1 is the number of the chapter, 2 is the number of chapter section, and 3 is the number of sub-section in the chapter). Figures are numbered in chronological order with the respect of the chapter they are presented in (e.g. Figure 1.2., where 1 is the number of the chapter and 2. is the number of figure presented in the chapter in the chronological order). Tables are numbered in the same way, but the numerations are come separately from the figures (e.g. Figure 5.1. and Table 5.1. are two separate graphical representations of information presented in the same chapter)..

## Abstract

Nowadays, there is an ongoing transition to sustainable urban mobility facilitated in many European municipalities to develop alternative methods for car-based planning paradigm. Although cities tend to develop their own definition of the 'sustainable urban mobility' and methods and tools of planning, measuring and assessing it, there are collective practices and approaches such as Sustainable Urban Mobility Plan (SUMP) communicated on the mega-regional level in the European Union. Bureaucracy, lack of communication, the pressure of unconsolidated political vision, insufficient theoretical investigation and practical use of tools to measure mobility along several other factors are constantly challenging public sector mobility planning institution in the question of what needs to be done to implement a fully functional Sustainable Urban Mobility Plan. The main aim of this research is to investigate what is the process of transition to a Sustainable Urban Mobility Plan in Riga and how can the process of transition be handled in the future. Theoretical knowledge on the changes in socio-technical regime viewed in multi-level perspective, as well as practices and guidelines from European planning documents and projects, are retrieved through analysing planning documents to build the framework for what creates a sustainable urban mobility system. The city of Riga is taken as an empirical case study to assess the current state of the mobility monitoring system in transition. Obstacles and barriers of improving the urban mobility system, are investigated through document and analysis, brief statistical overview and two e-mail interviews of actors involved in the planning process. The report draws to investigate to the most part the documents of the current long-term (until 2030) and medium-term (2014-2020 and 2019-2025) planning periods. The outcomes of this report suggest a form of recommendation to Riga Municipality for further monitoring sustainable urban mobility policy development based on the results of the analysis and the potential benefits of it mentioned in the discussion chapter.

**Keywords:** sustainable urban mobility planning, Riga municipality, European mobility management, socio-technical regime transition, multi-level perspective on mobility planning, SUMP, policy

# Table of Contents

Acknowledgements .....	iii
Abstract .....	iv
Table of Contents .....	v
Abbreviations and definitions .....	viii
Concepts .....	x
1. Introduction .....	11
2. Approach to developing the research .....	15
2.1. Research design .....	15
2.2. Policy landscape, research strategy, theory of science .....	16
2.2.1. Policy landscape – theories of European Integration .....	16
2.2.2. Research strategy.....	16
2.2.3. Theory of science suitable for investigating policy shift and change implementations .....	17
3. Literature review .....	19
3.1. Scaling up – the processes of globalization and European Integration. ....	19
3.1.1. Regional planning approach as an outcome of European Integration.....	19
3.1.2. The structure of a metropolitan region – mobility as a link .....	20
3.2. Sustainable mobility -current literature on the shift from car-based to people-based planning ...	21
3.2.1. Sustainable mobility paradigm .....	21
3.2.2. Opening urban space and connecting it with mobility patterns .....	22
3.3. The theory of transition and policy implementation.....	23
3.3.1. The change of socio-technical regime - MLP.....	24
3.3.2. Sustainable urban mobility as a responsive regime to the user environment.....	25
3.3.3. The process of change management and policy implementation.....	26
3.4. Answer to the Sub-question 1. ....	29
4. Methods of analysis.....	30
4.1. Sampling the theoretical information for the case.....	30
4.2. Method for technical analysis .....	30
4.3. Methods of data generation .....	30
4.4. Chapter outline.....	31
5. Analysis .....	32
5.1. Sustainable Urban Mobility Plan (SUMP).....	32

5.1.1. What is the problem that SUMP is trying to solve? .....	34
5.1.2. What kind of solution does SUMP provide? .....	35
5.1.3. How is SUMP implemented by European Union Municipalities? .....	36
5.2. Introduction to the empirical case.....	37
5.2.1. Historical perspective – Railroad as a backbone.....	38
5.2.2. Spatial planning perspective in Riga.....	39
5.2.3. Public transport system in Riga.....	40
5.2.4. Statistical overview of private motorized vehicle dependency in Latvia .....	41
5.2. Transition from car-based to people-based planning in Riga in the current long-term period (until 2030) .....	44
5.2.2. The beginning of transition.....	44
5.2.3. Riga Sustainable Transport System Development medium-term Action Programme 2019-2025 .....	45
5.2.4. Riga Sustainable Development Strategy until 2030.....	47
5.2.5. Sustainable Development Strategy of Riga Planning Region until 2030 .....	48
5.3. Mobility projects on the regional scale and macro-regional scale that influence sustainable mobility planning in Riga and Pieriga .....	49
5.3.1. Interreg EU Strategy for Baltic Sea Region.....	49
5.3.2. CIVITAS.....	50
5.3.3. Rail Baltica.....	51
5.4. Policy institution for sustainable urban mobility planning on national level in Latvia .....	53
5.4.1. The main institutional actor – Ministry of Transport of Latvia .....	53
5.4.2. Ministry of Environmental Protection and Regional Development of the Republic of Latvia .	54
5.4.3. The level of consolidation of policy development documents .....	55
5.5. Obstacles and threats of sustainable urban mobility monitoring system implementation in Riga	58
5.5.1. Strictness of public sector corporate hierarchy and bureaucracy in Latvia .....	58
5.5.2. Unconsolidated planning processes in municipal administrative bodies and lack of information for cooperation .....	59
5.5.3. Insufficient means of effective sustainable urban mobility monitoring in Riga .....	59
5.5.4. Limited availability of statistics .....	61
5.5.5. Scattered political power, corruption, little trust in government .....	61
5.5.6. Mobility mode of untapped development potential – bicycle mobility .....	63
5.6. Answering Sub-question 2.....	64
6. Discussion.....	65

6.1. Why is it important for Riga Municipality to impement a Sustainable Urban Mobility Plan? .....	65
6.1.1. Implementation of viable solutions on in the localities and contribution to the urban development system of Riga .....	65
6.1.2. Improved integrity of Riga municipal strategies and mobility development plans and projects on the regional level .....	66
6.1.3. Formulation of policy for sustainable mobility planning on the national level and incorporation of developing a working structure.....	67
6.2. What opportunities can SUMP implementation provide?.....	68
6.2.1. Endorsement of best practices in planning for sustainable mobility.....	68
6.2.2. Broaden the collaboration opportunities with companies and organizations on a municipality scale .....	69
6.2.4. Serve as alignment between digital solutions and mobility planning.....	69
6.2.5. Assist in the consolidation of mobility solutions developed as a reaction to COVID-19 outbreak and isolation .....	70
6.3.     Answering Sub-question 3 .....	70
7.     Conclusions .....	71
Bibliography .....	72

## Abbreviations and definitions

APUS – American Public University System

CIVITAS – (project) City, Vitality, Sustainability

CVCE - Virtual Centre for Knowledge about Europe (*Centre Virtuel de la Connaissance sur l'Europe*)

CSB – Central Statistical Bureau of Latvia (*Centrālā statistikas pārvalde*)

EC – European Commission

ELTIS - European Urban Mobility Observatory

ESPON – European Spatial Planning Observation Network

ETC – European Territorial Cooperation (see INTERREG)

EU – The European Union

EUSBR – (in terms of Interreg) European Union Strategy for Baltic Sea Regions, one of 4 EU Macro-regional Strategies

GDP – Gross Domestic Product

Interreg – Interregional European Territorial Cooperation, a funding cooperation that is one of the two goals of European Union cohesion policy

LSM – Public broadcasting of Latvia (*Latvijas Sabiedriskie Mediji*)

MaaS – Mobility as a Service

MLG – Multi-level Governance

MLP – Multi-level Perspective

MoT – Ministry of Transport of Republic of Latvia

NGO – Non-governmental organization

OECD – Organisation for Economic Cooperation and Development

RCCDD (or RDPAD) – Riga City Council Development Department (*Rīgas Domes Pilsētas Attīstības Departaments*)

RPMP – Riga and Pieriga Mobility Plan

Saeima – Parliament of Latvian Republic

SIA – Limited liability company (*Sabiedrība ar ierobežotu atbildību*)

Soft mobility measures – solutions in mobility management system, that do not demand a lot of resources for implementation

SUMBA – Sustainable Urban Mobility and Commuting in Baltic Cities (project)

SUMP – Sustainable Urban Mobility Plan

SWOT (analysis) – Strengths, weaknesses, opportunities and threats

TEN-T – Trans-European Transit Network

UN – The United Nations Organization



UX – User experience

WBCSD - World Business Council for Sustainable Development

## Concepts

*Organization* – formal structure that is purposefully created and is fulfilling a specific function (e.g. public sector organization) (adopted partially from Edquist, 2005, p. 6)

*Institution* – [in the context of multi-level perspective] – set of laws, rules, practices and norms that regulate relations and interactions between individuals, organizations on local, regional and national levels (adopted from Edquist, 2005, p. 6)

*Critical realism* – a theory of science that seeks for interrelations between the empirical knowledge and the unobservable events and mechanisms that influence the observable knowledge (Archer, Bhaskar, Collier, Lawson, & Norrie, 1998; Bhaskar, 2008; Blunden, 2009; Mingers & Willcocks, 2004)

*Sustainable urban mobility* – an approach to mobility planning that introduced social, economic and spatial factors into the physical urban mobility paradigm. Formulated and introduced to academic community by D. Banister (2007). In the European context, put together and communicated by European commission (first 2007, then 2009, 2011)

*Sustainable Urban Mobility Plan* – a conceptualized approach that contains guidelines for sustainable urban mobility planning for European cities. It is jointly developed through summits and discussions between actors and decision makers from European Union Member States by identifying best practices and shared experiences. Incorporated into a policy form and communicated by European Commission (2013b, 2013a, 2013c)

*Transition or change* – (of sociotechnical regime) [in the context of multi-level perspective] – an ongoing chain of events influenced both in a top-down way (by landscape mechanisms) and bottom-up way (by innovative niches)

# 1. Introduction

Nowadays, urban development is highly focused around citizen accessibility and quality of life and is inclusive of various sustainable spheres of planning, where sustainable urban mobility is often a significant part of the issue. As a motorized vehicle is not considered an innovation anymore but is rather considered a bottleneck niche that does not bring positive impact, urban planners are more often looking to restructure physical dimensions of a city for it to be more open and accessible to society (Knox & Pinch, 2010, pp. 278–281).

There are different definitions developed by scientists, researchers and professionals in urban planning, that consider the question of what is sustainable mobility. Despite that some can disagree on the sub-factors of the issue, it is commonly considered that sustainable urban mobility is not only describing a transportation system of a city, but is a complex multi-factorial ‘paradigm’, consistent of environmental, social and economic concerns, that establishes a focus on the quality of the urban environment that it is located in and the accessibility of it for the citizens (Banister, 2007, pp. 73–75; Sdoukopoulos, Pitsiava-Latinopoulou, Basbas, & Papaioannou, 2019).

Investigation of complex paradigms in planning often demands the understanding of the processes happening around it. The multi-level perspective as an investigation approach is used in policy researches to uncover the processes beyond the observable and accessible measures to discover the events and mechanisms on meso-level and macro-level, that are empowering complex paradigms embedded in socio-technical context of planning (Blunden, 2009; Frank W. Geels, 2002)

Defining and institutionalizing sustainable urban mobility and the system for evaluation performance produces feasible representation of the progress of planning. It helps establish and base decisions for further development. Setting the balanced and achievable amount of targets helps planners and decision-makers identify the current and emerging problems and re-examine certain Sustainable Urban Mobility Planning domains in a timely manner (Damidavičius, Burinskienė, & Ušpalytė-vitkūnienė, 2019, pp. 159–160)

To ensure that the sustainable urban mobility development processes are going on productively and in balance with the other plans, they are usually incorporated into a Sustainable Urban Mobility Plan. Such concepts have emerged at the beginning of 2010s and, despite originating from a recommendation of European Commission (European Commission, 2013a), are commonly developed on local levels in many European Municipalities as well as nationally by European Union member states and other European countries (Gillis, Semanjski, & Lauwers, 2016, p. 1; OECD, 2019b).

This research investigates the issue of sustainable urban mobility policy emergence and gradual development. Investigating factors on a macro level such as European Integration concepts (Bergmann & Niemann, 2015), theoretical framework is built by applying the multi-factorial sustainable mobility paradigm (Banister, 2007) and socio-spatial values of urban mobility (Gehl, 2010; Gehl, Kaefer, & Reigstad, 2006) in multi-level perspective (F.W. Geels, 2005). Further on multilevel transition management approach (Kemp, Loorbach, & Rotmans, 2007) is used to investigate how socio-technical regime of sustainable urban mobility is managed in multi-level governance structures of public administration.

Analysis takes off with the description of the concept of Sustainable Urban Mobility Planning (European Commission, 2013c; Rupprecht Consult, 2019). It is then followed by history of mobility planning in Latvia (Altbergs, Augustāne, & Pētersone, 2010), statistical data on the problem of private vehicle dependency (Central Statistical Bureau of Latvia, 2020b) and implications of sustainable urban mobility in Riga municipality and the metropolitan region on the local, regional and national level.

Developing an argument on the issue of unconsolidated political processes between public sector planning institutions of Latvia, the obstacles for sustainable mobility policy implementations are analysed.

Further on, discussion carries on the concept of Sustainable Urban Mobility Plan importance on local, national and regional levels, as well as discusses the opportunities provided by the implementation of it.

## Research design

In this section of the introduction chapter the scheme of research design is presented that provides a visualization of the main research question and the 3 sub-questions that are establishing the research topic in a clear and understandable way (see Table 1.1. below).

<b>Empirical question:</b> As sustainable urban mobility solutions are envisioned to be implemented in Riga, as even the whole SUMP development is seen to be done by Riga Municipality, what are the obstacles and challenges, and what needs to be done to develop a relevant and efficient system of urban mobility? Why is this important? What opportunities might the SUMP potentially bring to the city of Riga?	
<b>Research question:</b> What is the process of transition to a Sustainable Urban Mobility Plan in Riga and how can the process of transition be handled in the future?	
<b>Sub-question 1:</b> How does transition to sustainable urban mobility happen and how it is adapted in planning?	
<b>Aims:</b> To acquire knowledge of Sustainable urban mobility paradigm and meaning, to get to know how it originated and what transition does a city need to overcome; to build a theoretical framework for further research.	<b>Methods:</b> Literature review (academic literature, scientific publications, documents that describe guidelines for planning for sustainable mobility)
<b>Sub-question 2:</b> What are the current perspectives and development directions of Sustainable urban mobility in Riga and the metropolitan area of it, and what are the barriers of implementing solutions?	
<b>Aims:</b> To investigate the current state of Sustainable Urban Mobility in Riga and what motivates the imp; to understand what are the missing links when compared to the whole SUMP cycle	<b>Methods:</b> Analysis of mobility planning documents, e-mail interviews with planners
<b>Sub-question 3:</b> Why is it important for Riga Municipality to implement a Sustainable Urban Mobility Plan and what opportunities can it provide?	
<b>Aims:</b> To provide feasible recommendations for Riga City Council Development Department SUMP planning processes	<b>Methods:</b> Discussion based on the results of analysis, as well as different conference materials and highlighting the potential proposals for planners from public sector in Riga Municipality (intrinsic case)
<b>Conclusions</b>	

*Table 1.1. Research design*

The main research question “What is the process of transition to a Sustainable Urban Mobility Plan in Riga and how can the process of transition be handled in the future?” is justified by the issue of sustainable mobility planning policy in the city of Riga. To fill in the gap of knowledge of sustainable urban mobility in planning, which was identified in the process of undergoing the internship in Riga City Council Development Department, a descriptive research question is posed that both describes the process of transition to Sustainable Urban Mobility and investigates further enhancement potential in the city of Riga and the metropolitan region (Farthing, 2016, pp. 39–45).

**Sub-question 1. How does transition to sustainable urban mobility happen and how it is adapted in planning?**

The first section introduces the reader to the literature review done to define the issue of sustainable urban mobility, the development of the policies that regulate the implementation of it, as well as the creation of Sustainable Urban Mobility Plan cycle and the aims of it to provide the theoretical framework for the section of analysis. Drawing up on both the theoretical aspect of sustainable urban mobility development and the practical implications of it, the answer to the Sub-question 1 provides an individual theoretical justification for conducting analysis in this specific report, while acknowledging and taking into the consideration the previous contributions to the topic done both academically and practically (Farthing, 2016, pp. 45–47).

**Sub-question 2: What are the current perspectives and development directions of Sustainable urban mobility in Riga and the metropolitan area of it, and what are the barriers of implementing solutions?**

Having justified the theoretical framework of the sustainable urban mobility planning issue, the second sub-question contains the analysis of developing the Sustainable Urban Mobility Plan in Riga both from the current perspectives and development directions mentioned in planning documents of medium-term (2014-2020 and 2019-2025) and long-term (until 2030) are inspected through analysing the challenges and threats of the current planning system in Riga and the surrounding metropolitan region both in spatial, technical political, planning and economic perspectives. Adopting, to a greater extent, a descriptive approach to case study, yet also investigating the cause of sustainable urban mobility policy implementation in Riga and Pieriga, there a qualitative methods of document analysis, e-mail interviews and conference materials used to acquire data, to achieve understanding of SUMP in Riga (Farthing, 2016, pp. 127–128, 136–138, 163–165).

**Sub-question 3. Why is it important for Riga Municipality to implement a Sustainable Urban Mobility Plan and what opportunities can it provide?**

The last section before summarizing conclusions achieved through conducting this research, there is a reflection on the practical meaning of sustainable urban mobility planning policy, which explains the importance and potential benefits that SUMP implementation can bring to the city of Riga and the surrounding metropolitan region .

## 2. Approach to developing the research

This chapter of the thesis introduces methodological approaches to develop theoretical knowledge of sustainable urban mobility issue. It is divided in 2 major sections.

The first section brings up the research design and elaborates on the aspects of it.

The second section provides elaboration on the approach to literature review by the description of the theory of science that describes the process of investigating policy implementations and political transformations. It rounds up with the description of the planning regime and how it influences the processes for planning for sustainable mobility.

### 2.1. Research design

Research design in Master's thesis project is a starting point which serves as a guide for the whole process of developing the research. It originated from the research proposal done accordingly to the requirements of the educational institution, Aalborg University, to make a statement of the aims and significance of the research based on the background knowledge that justifies the importance of the research problem (Blaikie, 2000, pp. 12–13). Having the empirical problem established, research design is expressed in a form of a section of working paper that is a point of reference for the author and is evolving with the process of the research through advancement in empirical theoretical and analytical findings, and constant dialogues between the researcher and the supervisor (Blaikie, 2000, p. 13; Farthing, 2016, p. 2).

Setting the direction of the research by posing an assumption about the development of Sustainable Urban Mobility Plan in Riga and an open-ended query of why it is important for Riga to implement an SUMP explains the designed research question: "What is the process of transition to a Sustainable Urban Mobility Plan in Riga and why is this important for the city and the metropolitan area of it?" and the methods used to investigate the empirical nature of the issue (APUS, 2020).

The 3 sub-questions that the main research question is divided to are developed correspondingly with the three main categories of research purposes:

- How? – The purpose of observing change
- What? – The purpose of describing the processes happening
- Why? – The purpose of achieving understanding of the idea behind the change (Blaikie, 2000, pp. 58–59)

But, the answer to descriptive empirical question is not arising from the observation only. It is the interpretation of the observed nature done by the researcher, reproduced to be case-specific through reflecting it to the analysed data and reproduced in forms of the findings and conclusions, which is subjected to reviewed and criticized by peers (Davis, 2020).

As discussed by N. Blaikie in his work "Designing social research" (2000), even though traditional meaning of academic research is producing knowledge, which is theoretical to a major extent, with the dominance of economic rationalism, academic research is capable of producing valuable contribution to a field of high priority and interest in public or private sector (Blaikie, 2000, p. 31).

A research design that is comprehensive and is responding to the defined aims of the research and the researcher is also contributing to the research being valuable and accessible by those, who are not engaged in the same academic environment (Blaikie, 2000, pp. 28–29; Farthing, 2016, pp. 2–7).

## 2.2. Policy landscape, research strategy, theory of science

### 2.2.1. Policy landscape – theories of European Integration

To achieve clear understanding of the process of appropriation the niches of another socio-technical regime on national, regional or local levels, there is a need to get to know, which changes in the policy landscape are pressuring the current system from the larger scale, international point of view. The reason behind it is that there is a necessity of coordinating the adaptable change both nationally and internationally (Ingelstam, 1999). Taking into the account that research is specifically investigating the processes in the context of European Union policies, the key theories that steer the processes of change and policy implementation are provoked by European Integration. Three main theories that are considered to be the most important in terms of building European policy are neofunctionalism, intergovernmentalism and federalism, yet the especial case of European Union is much more complex. It is rather the interrelation of different theories that reflect on the rationality of Europeans and the desire for joint policymaking and development (Bergmann & Niemann, 2015).

The theories that build up the policy landscape as described in this report (see section 2.1.) are neofunctionalism and new institutionalism. Replacing the idea of power politics with supranational style of strategic planning, the policies emphasize the need of developing common framework to develop unified solutions, that can be implemented both nationally and internationally in the Member States. With the extensive focus on economy, efficiency and synergy, planning policies developed by European Union are promoted and communicated in a centralized manner through the deeper integration discourse, but are not always understood by decision makers of different countries, cities and regions in the same way (Bergmann & Niemann, 2015; Dallhammer, Gaugitsch, Neugebauer, & Böhme, 2018).

In the context of social sciences, the essential part of researching policy is technical analysis. It begins with identifying the ‘measurables’, which are, in terms of this research project, the investigated aspects of Sustainable Urban Mobility Plan implementation policy, and continues by the methods that would provide overview of reliable information appropriated for the research. (Majchrzak, 1984b) (explained in more details in section 4.2.).

### 2.2.2. Research strategy

Researching the process of change in social sciences often requires researches to determine which mechanism or structure is responsible for the process, and what is the context that it operates within (Farthing, 2016, p. 102). It identifies the strategy of **retroductive research** to be chosen as relevant for this research. Represented as the concept of MLP (see Sub-section 2.3.1.), there is hypothetical, abstract, yet conceptual definition of change mechanism, which engages the analytical part of the work to build arguments on the evidence collected through qualitative research methods (see section 3.3.) (Blaikie, 2000, pp. 154–155).

The concept of retroductive research is bonded with the scientific philosophy of realism. In comparison to the more traditional, explicitly empirical epistemological findings of positivists and relativists, realists tend to investigate the more fundamental, deep-rooted social nature that stands behind mechanics of observable parts of objects and processes (Pawson & Tilley, 1997). The point of ‘causality’, meaning, if A is an artefact that is interacting with the natural and social environment, where it is located in, there definitely will be an effect B that is caused by the that artefact. Despite that many experiments of realists carried on to prove that there was a link between what the empirical part of knowledge and the ‘causal’ part of it, a lot of empiricists’ critiques went on to say that the whole issue of causality is only a psychological belief, and that the whole concept of realism is very ‘naive’ (Mingers & Willcocks, 2004, pp. 372–375).

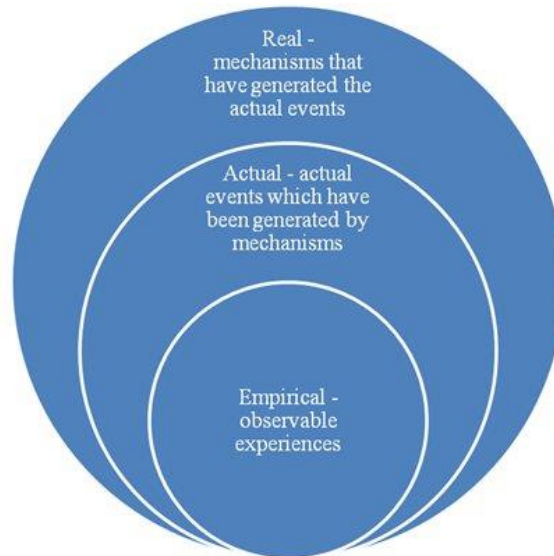


### 2.2.3. Theory of science suitable for investigating policy shift and change implementations

Around the middle of the second half of the 20th century, realism underwent numerous critiques from the side of naturalists. Conventionalists and other scientist movements of same views argued that there is one general approach to science – universal generalizations based on empirical observations – that can be generalized to any scientific research (Giddens, 1974). That provoked the development of the new wave of realism – **critical realism**. One of the ‘founding fathers’ of critical realism is considered to be Roy Bhaskar, who in his works (1975-1978) outlined that:

- There is an independently existing world of objects and structures that cause actual events the might and might not occur, at the same time accepting that the observation and knowledge (of these events) can never be seen directly, but is bonded to time and context of the happening;
- The same general approach to science can be applied to both natural and social worlds, but there are unique limits that social world places on the process of scientific experiment (Mingers & Willcocks, 2004, p. 380).

Appearing from the merging of 2 concepts, ‘transcendental realism’ and ‘critical naturalism’, critical realism underpinned the idea of social theory being evaluative (of a happening), thus cannot be separated between facts and values. The later achieved finding also drew on the transformative aspect of social theory that was defined by causal action (Archer et al., 1998).



*Figure 2.1. Schematic view on critical realism theory (created by Lyubimov, 2015) through (Mingers & Willcocks, 2004)*

The ontology of critical realism lies in the philosophical theory of being, that exists separately from observed and investigated experiences. It is a completely separate metaphysical realm that questions ‘What the world must be like for science to be possible?’ (Bhaskar, 2008, p. 26). The most common mistake in understanding critical realism is ‘*epistemic fallacy*’ – a confusion of what is ‘actual’ and what is ‘real’ in the world of science, where ‘actual’ are the epistemological events that shape empirical experiences of the research population, whereas ‘real’ are unobservable mechanisms that cause actual events to happen (see Fig. 3.1.) (Bal, 2016; Bhaskar, 2008, pp. 26–28; Lyubimov, 2015).

The latter arguments carry on the discussion about the structure of social dimensions, which cannot be tamed to and controlled in laboratorial settings. In addition to that, deeper understanding of the social

situation is required from a researcher, when investigating the dimensions past the empirical and trying to reach understanding of mechanisms that produce events (Archer et al., 1998). Having theory as a tool for explanatory benefits only, critical realism can be applied in studying how a socio-technical system works and assess the potential benefits of carrying on the transition to it (Lyubimov, 2015).

Specifically in the context of urban planning, the point of view of critical realism is related to the multi-level perspective (see sub-section 3.3.1). As the nature of planning is by many experts perceived as socially constructed, there are social science interrelations found in the process. The landscape of constant need for smart innovations pressures the current regime of high dependency of unsustainable modes of mobility in less developed and developing cities in the Eastern Europe. Thus, it provokes scientific, technical, physical and social niches of innovation to arise and then drive the change (Næss, 2015).

### 3. Literature review

In this chapter of the thesis, the theoretical framework and justification are built on understanding, how the issue of sustainable urban mobility has been developed, predominantly in terms of European city context. It begins with the investigation of spatial planning perspective in Europe and is connected to the theory of implementation of changes in the regime that took place within the end of the 20th century and the beginning of the 21st. The paradigm of sustainable mobility and the theory of opening up urban space is then brought in the discussion to investigate the integration of mobility in an urban environment. Finally, the chapter takes on the definition of Sustainable Urban Mobility Plan, the history of it, what is the problem behind it and what type of solution it brings to a city.

#### 3.1. Scaling up – the processes of globalization and European Integration.

After experiencing several recessions and crises in the economy, human resources, infrastructure and many other sectors in the first part of the 20th century, there were integrational processes established by Western European countries to achieve restoration, healthy growth and cohesion. Treaties signed over several decades since the 1950s have gradually created the structure of inter-state cooperation known as the European Union, which is rather different from what the new member states were developing previously, being focused on promoting *“economic and social progress ... to achieve balanced and sustainable development ... through the strengthening of economic and social cohesion”* (CVCE, 2016; European Portal of Integration and Development). Thus, paired with the processes of globalization, which became a trend in the late 20th century, countries in Europe progressed to develop conventional policies, agreements, as well as shared values and visions in development. Perceived as a mostly political and economic tool at the beginning, the processes of integration between the countries of Western Europe that were pressured by globalization, escalated into the development of units on both national, scale and regional levels, created for pursuing aims of cooperation and competition on the European and global arena (Held, McGrew, Goldblatt, & Perraton, 2000). The processes of European Integration in this context have a function of minimization of possible adverse effects of globalization processes. However, they are to a great extent ‘tailored’ to the context of the European Union member states, being adapted to the technological, social and political progress of developed countries (Bobică, 2010). Driven by the discourse of Western European democratic values and liberal economics, when heading towards the first steps of expansion of the European Union to the Central and Eastern part of Europe, the countries that were considered potential upcoming member states, had to appropriate *“sets of rules and norms (of Western European society) ... in the post-communist social context and construct new political realities”* (Raik, 2004, p. 571). Specifically, in the Baltic states, Latvia, Lithuania and Estonia, which were undergoing the transition of political regime that provoked economic depression and several significant waves of emigration of young, educated and skilled population, becoming competitive on the EU stage was not an easy task. With the abolishment of strict, centralized strategic Soviet planning system, the new European system in the process of development has initiated institutional, legislative, spatial and administrative changes, some of which are carried out in the latest years (Adams, 2006, pp. 155–160).

##### 3.1.1. Regional planning approach as an outcome of European Integration

Originally, the concept of regional planning was in development from the early 21st century in Great Britain and the United States of America, where one of the significant examples became the Greater London. It became one of the first metropolitan areas that was studied and planned to later become a part of the City of London administrative territory through the development of the means of infrastructure and establishment of the functions for areas of metropolitan (Hall, 2014, pp. 188–201). However, the concept of European regional planning, in the current understanding of it, appeared in the 1980s and 1990s, where economic growth became highly emphasized due to adaptation of neoliberal economic

values (Counsell & Haughton, 2003, pp. 226–230). Having sectoral policies included in planning strategies, regional planning was gradually challenged by a growing number of sustainable development objectives that provoked tension between the European vision and local government (Counsell, 2004). That became a catalyst for planning regionally, which undergoes the transformation that is motivated by the form of governance that it belongs to, nevertheless still shifting to obtain a more strategic-growth-oriented meaning under the pressure of external socioeconomic and political agendas (Galland, 2012; Healey, 2007, pp. 13–27).

### 3.1.2. The structure of a metropolitan region – mobility as a link

Planning regionally, the system of economic and industrial activities is divided to create interconnected functional urban centres. With the impact of the paradigm of suburbanization and development of the metropolitan area, the division of urban-related activities evolved to be decentralized (Rodrigue, 2017b). There are schematic representation of types of urban regions displayed on Figure 1.

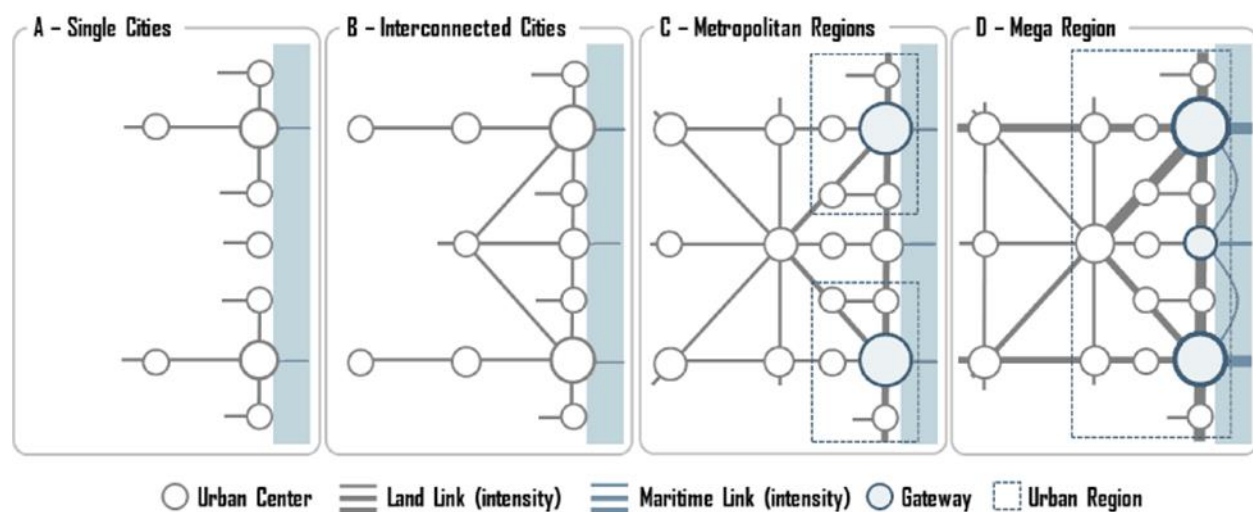


Figure 3.1. Schematic representations of urban regions (Rodrigue, 2017a).

There are various concerns about the aims and goals of urban regions. While some researchers as A. Schafran (2015) might argue that there should be historical perspective in formation of urban regions, in the modern day the emphasis is placed on the effectiveness of geo-economics and geo-politics of united metropolitan regions (Harrison & Hoyler, 2015, pp. 24–28). Urban regions are seen as an ‘innovative’ or ‘new’ patterns of global urbanization, providing interconnections within the functional centres (often capitals of countries and satellite cities of regional importance) by implementing the means of homogeneous and accessible infrastructure, production and consumption of resources (Harrison & Hoyler, 2015, pp. 25–27; Rodrigue, 2017b).

In the European context of planning, urban region is often understood through the concept of functional urban areas (Smętkowski et al., 2011, p. 46), the central part of which is still the issue of dependency on private, motorized vehicles. With the process of urban sprawl, that is provoked by distribution of activities and services, the main difficulty is to provide the system of public transportation that would meet the demand of travels, as the distances might become overly far for walking or cycling. Thus, the development of urban regions is heavily bonded with the development of sustainable transportation links, which, in case of insufficient attention, can become a barrier for connectivity. Physical planning and policy development should be combined to achieve efficient development and operations of urban regions (SWECO, 2015).

### 3.2. Sustainable mobility -current literature on the shift from car-based to people-based planning

Despite that ecology, especially air pollution is usually considered as the main concern of sustainable mobility planning, there is a number of social impacts that are brought by mobility, for example, resource use, environmental pollution on various levels (local, regional, global), land use, safety and security, community feeling and other (Holden, 2007, p. 5). In the European Union air pollution is contributing to nearly 400 thousand deaths of premature people yearly and 9,600 people died in road accidents in single 2017. Because of these facts, many European member states such as Spain, Italy, Netherlands and Estonia have gradually introduced limitations for automobile infrastructure, contributing to less emissions (at least in specific urban zones), increased safety on the road and the use of public and alternative transport types (Rupprecht Consult, 2019, pp. 13–15). Not only this is leading to nearly instant increase of public health, but it also motivates citizens to experience a more attractive and less dangerous urban environment, provides a feeling of unity with the surrounding space and promotes the public idea of liveable city (2019, pp. 13–15). The availability of infrastructures of various transport modes to access daily activity is considered a measure. Thus, the more space and the more options of travelling in the urban environment are presented to an individual, including walking, bicycle and alternative transport means, the more attractive, accessible and liveable urban environment, available becomes for this individual. Liveliness, health, safety, levels of pollution (including noise and light pollutions) and availability of space – all and several else are factors of qualitative life in a city (Gehl 2010, pp. 5–7, 33).

#### 3.2.1. Sustainable mobility paradigm

To define the ongoing transition from physical means of mobility planning and highlight the adaptation of social and environmental values, Professor David Bannister in his publication “The sustainable urban mobility paradigm” (2007) defines transport planning in a city as being at a “crisis point” and underestimating “the key challenges” of contemporary urban planning (Banister, 2007, p. 73). Though, he also provides an opposite argument, which highlights that mobility has been an inseparable part of a city through all times. For better understanding the reason behind that, there are two fundamental principles that he points out to describe the issue of mobility these are:

- A travel is rather a demand and not an activity that a user would undertake for their own sake, and the only value in the process is the activity and the destination point;
- Users are seeking to minimize their generalized transportation expenses, consisting of both financial cost and time spent for the travel (2007, p. 73).

Even though travel times did not undergo a significant change throughout the urban sprawl and decentralization trends in cities worldwide, public transport services and bicycle transport were not as popular in the beginning of the 21<sup>st</sup> century, which catalysed the increase in car use. Taking into the account, that the process is nearly irreversible, there was a need for an alternative proposition for, as stated in the previous paragraph, more sustainable, ecologically friendlier solutions (2007, p. 73). Therefore, Banister visualizes **sustainable mobility as an alternative paradigm** that supplies a broader a deeper view on the complexity of cities and strengthens interconnections between land use and transport infrastructure. As cities are accepted as the most sustainable form of living environment and is on the way to host 70-80% of world population, there are many factors to be secured, which would open space for citizens, ensure accessible walking and cycling paths and tackle the car use (2007, pp. 73–74). However, not only does sustainable mobility cover the implementation of more sustainable transport means in a city. It proposes a modal shift to an intellectual was of organizing and planning a city environment, that

would assemble a structure of various stakes for interconnected operations. Table 3.1. presented below describes the contrast of former approach to planning mobility and the contemporary, sustainable one.

The conventional approach—transport planning and engineering	An alternative approach—sustainable mobility
Physical dimensions	Social dimensions
Mobility	Accessibility
Traffic focus, particularly on the car	People focus, either in (or on) a vehicle
Large in scale	Local in scale
Street as a road	Street as a space
Forecasting traffic	Visioning on cities
Modelling approaches	Scenario development and modelling
Economic evaluation	Multicriteria analysis to take account of environmental and social concerns
Travel as a derived demand	Travel as a valued activity as well as a derived demand
Demand based	Management based
Speeding up traffic	Slowing movement down
Travel time minimization	Reasonable travel times and travel time reliability
Segregation of people and traffic	Integration of people and traffic

*Table 3.1. Contrasting approaches to transport planning (from Banister, 2007, p. 75)*

The paradigm of sustainable mobility is greatly characterized by focus on the living environment of a city and citizens living in it. As Banister describes, the modern cities not only should obtain improved mobility opportunities, but the process of mobility itself should become more attractive, safer, more accessible and definitely more resource efficient (2007, pp. 74–75).

### 3.2.2. Opening urban space and connecting it with mobility patterns

Carrying on the idea of mobility as accessibility to the urban environment, Jan Gehl, Danish architect and urban scientist, in his book “Cities for People” (2010) describes urban mobility as an access of citizens to urban space. The availability of infrastructures of various transport modes to access daily activity is considered a measure. Thus, the more space and the more options of travelling in the urban environment are presented to an individual, including walking, bicycle and alternative transport means, the more urban environment is attractive, available and liveable for this individual. Liveliness, health, safety, levels of pollution (including noise and light pollutions) and availability of space – all and several else are factors of quality of life in a city (2010, pp. 5–7, 33).

*“For decades the human dimension has been an overlooked and haphazardly addressed urban planning topic, while many other issues, such as accommodating the rocketing rise in car traffic, have come more strongly into focus. In addition, dominant planning ideologies — modernism in particular — have specifically put a low priority on public space, pedestrianism and the role of city space as a meeting place for urban dwellers.”* – Jan Gehl, Cities for People (2010, p. 3)

As the issue of sustainable urban mobility in the European Union is recognized as “essential to economic growth and welfare as well as to the quality of life in urban areas” (European Commission, 2017c, p. 5), many cities across Europe and worldwide are introducing local regulations and municipal policies to help the ‘soft mobility’ (pedestrian and cyclist mobility) measures flourish in a city. Improving the ability to interact with the public space even on the streets and sidewalks proves to make cities more secure and pedestrian-friendly. It also allows more freedom in with the urban space for pedestrians and cyclist, allowing them to develop their commuting patterns depending on their wishes and needs (Gehl et al., 2006, p. 36). Experiences and habits of citizens commuting to, from and through the urban space embraces the connection between the public spaces and mobility implications thus forming an interlinked system of sustainable and smart city (Ravazzoli & Torricelli, 2017, p. 39).

### 3.3. The theory of transition and policy implementation

Sustainable urban mobility policy in European Union has been discussed in various reports since the early 2000s, however, an official starting point is assumed to be the Green Paper “Towards a new culture for urban mobility”(2007). The paper aimed to stimulate discussion on urban mobility between the member states in a centralized way. Relevant stakeholders were brought together to identify the common urban mobility issues that take place in different European cities, where five main were defined:

- Free-flowing towns and cities;
- Greener towns and cities;
- Smarter urban transport;
- Accessible urban transport;
- Safe and secure urban transport (European Commission, 2007).

Not even the document itself, but rather the process of collective debate lead to developing an Action Plan on Urban Mobility (2009), where 5 key themes consisting of 20 actions altogether were defined and brought up as a support to member states on resolving mobility issues on local, regional and national levels (European Commission, 2017b, p. 14). Since the release of 2009 Action Plan, there were several additions to sustainable urban mobility policy done in the EU:

- White Paper “Roadmap to a Single European Transport Area” (2011);
  - Lowering the use of fuelled cars in cities by 50% by 2030;
  - Achieving essentially CO<sub>2</sub>-free logistics in major urban centres by 2030;
- Urban Mobility Package (2013c);
  - Providing the framework for local actions of planning for sustainable urban mobility done by Member States;
  - Introducing the Sustainable Urban Mobility Plan (see section 2.4)
- Paris Agreement (2015);
  - Setting out a global action plan to avoid climate change by limiting global warming to well below 2°C, pursuing efforts to limit it as low as to 1.5°C;
  - Calling for non-public sector stakeholders, subnational authorities, companies and civil society recognition of climate change to support actions and efforts to reduce emissions, increase resilience to climate change, and promote regional and international cooperation (European Commission, 2017b, p. 15)

The European framework for Sustainable Urban Mobility Policy is developed by the above-mentioned communications and actions done by European Commission. Additional initiatives and specialized action plans are developed through the constant process of evaluation and development of actions taken in different cities across Europe, that are represented in the reports. Nevertheless, the key feature of the

policy always remains the same – to provide centralized guidelines for Sustainable Urban Mobility planning on local, regional and national scales (European Commission, 2017b).

### 3.3.1. The change of socio-technical regime - MLP

The root of understanding the trend of transition to sustainable urban mobility lies in viewing this process in a form of dynamic multi-level perspective (MLP), that was introduced by Dr. Ir., F. W. Geels in his (2005) publication. What originated in the EU in 2007 as a multi-stakeholder debate, over the next decade became a process of transitioning to another socio-technical regime. Fuelled by the interest and cooperation of stakeholders from Member States' public sector organizations, became a cross-sectoral innovation system on local, regional and national scales (F.W. Geels, 2005, p. 446).

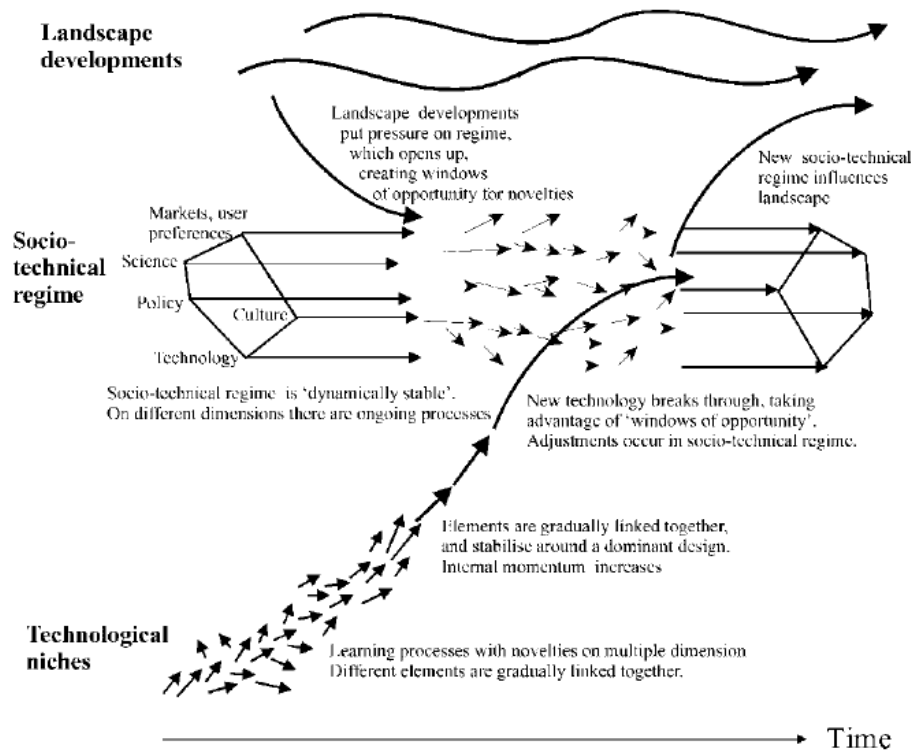
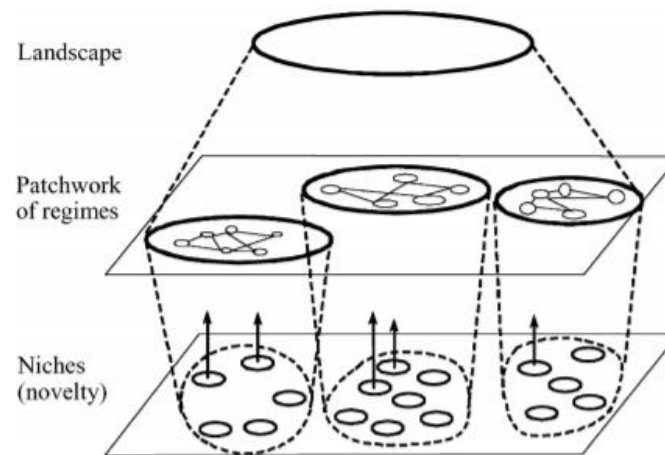


Figure 3.2. A dynamic multi-level perspective on transitions (F.W. Geels, 2005, p. 452)

When the first actions for implementing the sustainable aspect were taken at the macro level by embedding the social and environmental meanings of urban mobility in the landscape (see section 2.2. and 2.3.), it immediately put pressure on the socio-technical system that was built around the car use in cities. Actions were taken to identify the ecological threats, the economic disadvantages and the social barriers for access to public space established by car use. That catalysed some experiments for finding innovations on the micro level, which were still unstable and fragile (F.W. Geels, 2005, p. 451). Through the built up experiences of users and improvements of price/performance ratios, the promotion of technological niches was picked up by powerful actors in politics and entrepreneurship on the international scale that developed cracks and tensions, thus destabilizing the car-based mobility by restructuring urban environment, introducing intramodality and anti-car discourses in the EU (Frank W. Geels, 2012; Moradi & Vagnoni, 2018, p. 8). However, up until today, the regime of automobility is held in place by stabilizing forces such as tax revenue and increased demand for personal mobility (Moradi & Vagnoni, 2018, pp. 8–9)



Nevertheless, the complexity of sustainable urban mobility does not only limit on low-emission mobility means or car-based transportation. Instead, it contains several meso level socio technical regimes, each of which is pressured by separate innovative niches (Frank W. Geels, 2002) (see Fig. 3.3)



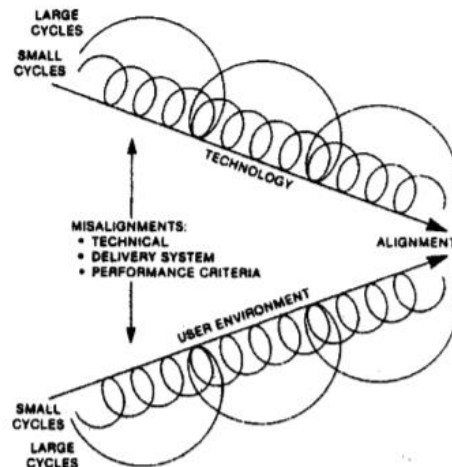
*Figure 3.3. Multiple levels as a nested hierarchy (Frank W. Geels, 2002, p. 1261)*

Specifically the ‘patchwork’ of regimes justifies the paradigm of sustainable mobility, as there are several socio-technical regimes, such as socio-technical regime of cycling or pedestrian infrastructure, which share market and user practices (accessibility to public space) and culture and symbolic meaning (feeling of freedom) (see section 2.2.) (Frank W. Geels, 2002, p. 1258). Thus, to achieve better understanding of the landscape, the relevant regimes on the meso level need to be chosen and analysed for stabilizing and destabilizing forces (Frank W. Geels, 2012; Moradi & Vagnoni, 2018).

Adopting the multi-level perspective provides a research with understanding, what is the state of the progress of transition initiated by specific policy. Taking the landscape in consideration, a socio-technical regime present in this landscape is investigated for ‘cracks’ or gaps, that arise from the pressure on this regime done by the landscape. This way the niches coming to fill in the gaps in the regime can be discovered, while also some more radical innovation-bringing niches can be identified (Frank W. Geels, 2004). However, as not every niche is able to fit the existing socio-technical regime, the ones that are the most structured apply pressure to the regime, stimulating the collapse of it and bringing up the innovation. If multi-level perspective on the ongoing change is adopted by decision makers, innovation can become more feasible and predictable. Thus, innovation can be led to the window of opportunity through adjustments in the present institution and market to later stimulate the changes in the socio-technical regime (Marx, De Mello, Zilbovicius, & De Lara, 2014).

### 3.3.2. Sustainable urban mobility as a responsive regime to the user environment

Indeed, socio-technical regimes are undergoing the process of the same transition of the landscape, and thus are exposed to the shared process of evolution. While every socio-technical regime is autonomous, there are linkages that coordinate one regime to another (Frank W. Geels, 2004, p. 905). The privilege provided by investigating the alignment of different socio-technical regimes, for instance society and technology. The processes of co-evolution of these regimes imply that there is an exchange of practices, experience and feedback between technological regime and user environments (Frank W. Geels, 2004, p. 902).



*Figure 3.4. Alignment between socio-technical regime of technology and user environment (Frank W. Geels, 2004, p. 902 through Leonard-Barton, 1988)*

Similar to the socio-technical regime of technology, sustainable urban mobility (which is also a socio-technical regime related to technology) implies that principles of use should be appropriated by users through integration of sustainable urban mobility implications into their practices, organisations and routines. Experiences of uses and feedback provided by users to the regime of sustainable urban mobility will adjust the artefacts of the regime and make it more user-oriented (Frank W. Geels, 2004, p. 902.).

### 3.3.3. The process of change management and policy implementation

The MLP view on the ongoing change in sustainable urban mobility provides feasible need for transition management from in government institutes across Europe and worldwide. The reason behind that is that the concept of transition management envisions the process of socio-technical regime change as an interaction of various actors on different levels within the context of changing landscape (Kemp et al., 2007, p. 80). Through defining the issue in a way, which would justify the actions to solve it; through identifying the network of actors and list of actions to not interrupt, but support the long-term change; through adjusting the institutional context of the issue to make it resilient for further innovations, a sociotechnical transition can be managed. A sort of a multi-level governance (MLG) is needed to facilitate the integrations of the elements of the change process (Kemp et al., 2007, pp. 80–82). The scheme of multilevel approach to transition management developed by (Kemp et al., 2007) through (Loorbach, 2004) is presented in Figure 3.5 below.

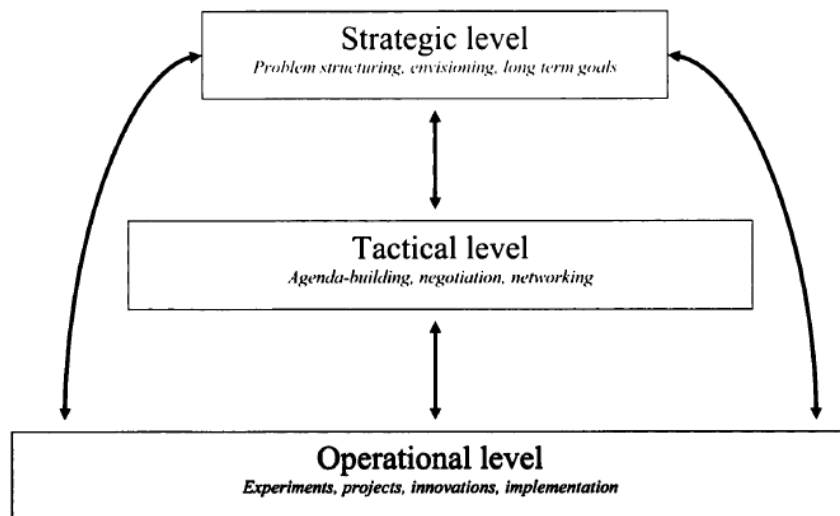


Figure 3.5. Multilevel approach to transition management (Kemp et al., 2007, p. 83)

As seen from the Figure 3.5., the processes are different on every level:

- Strategic level: problem structuring, envisioning, long-term goals;
- Tactical level: agenda-building, negotiation, networking;
- Operational level: experiments, projects, innovations, implementation (Kemp et al., 2007; Loorbach, 2004)

Therefore, transition management system relies on co-evolution achieved through cooperation of the participants on each level. Each actor on every level has their own competencies. As a result of cooperation between the actors both governmental and NGO organizations, policies appear that represent the transition resulted in feasible change (Kemp et al., 2007, p. 82).

There is a great need to understand the issue of a policy. As defined by Khan (2016), public policy is “a guide to action”, which implies a broader set of characteristics of a philosophy, principle, vision or decision. It requires a set of defined aims, goals and future actions and describes a set of actions taken to achieve them (Khan, 2016, p. 2). Defined differently by scientists and researchers, a policy is acknowledge to be an exercise of governmental intervention and related actors that deals with a specific matter or concern. Keeping that in mind, the success of a policy is measured by how successfully it is implemented in practice. The key concern of policy implementation is to understand how actors interact with the external environment to deliver a policy (Conteh, 2011; Khan, 2016).

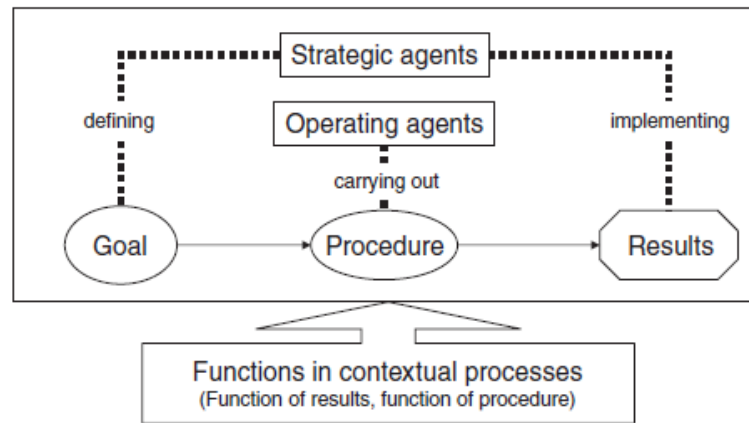


Figure 3.6. Framework of functional scenario construction (Wiek, Binder, & Scholz, 2006, p. 745)

In planning, policy is seen as functional scenario for achieving a defined result. It integrates functional, input- and output- and role-divided framework. The strategic actors (usually, the politicians) are ought to define the desired goals and implement the achieved results, whereas operational actors (planners and stakeholders) are put to carrying out the procedure of a policy (Wiek et al., 2006, pp. 744–745). It is graphically represented in Figure 3.6.

Advanced understanding of the transition management relies on the transition management model, developed in the form of a cycle. The model is a result of constant interaction with the transition arena or network, that reflects on the experimental implications and is consistent of 4 steps, which where developed through continuous co-ordinated work of actors on different levels and support from higher level political powers (see. Fig. 3.7. below) (Loorbach, 2004).

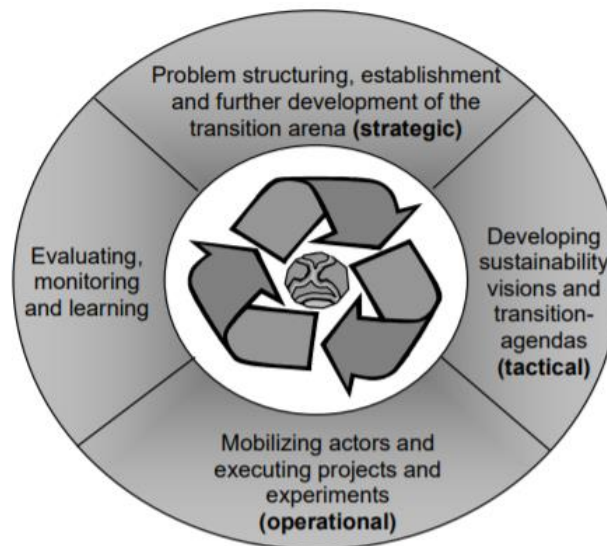


Figure 3.6. Activity clusters in transition management (Loorbach, 2004)

In comparison to the multilevel approach scheme presented in the Figure 3.5., the clustered model implies a cycle-type activity of actors and artefacts embedded in the change. That underpins that actions taken on every step 1) are more deliberately linked to the actions that will be taken on the next step, which makes the process of transition more consolidated, and 2) the outcome is re-assessed in the 4th step, thus ensuring opportunity of bringing necessary change to the transition policy (Loorbach, 2004).

### 3.4. Answering Sub-question 1.

*Sub-question 1: How does transition to sustainable urban mobility happen and how it is adapted in planning?*

Understanding the transition to sustainable urban mobility begins in understanding changes happening in European Union on the macro-level. Shifting from the idea of strict and rational politics to a cross-national cooperation for the unified goal and embracing shared values to develop a common framework (Bergmann & Niemann, 2015) has provided opportunities for initiation of European policies endorsing synergy and efficient cooperation in various planning directions (Dallhammer et al., 2018). Specifically the issue of mobility is addressed by academic researchers, as also was entrenched in the European Union context by European Commission since Green Paper “Towards a new culture for urban mobility” (European Commission, 2007). Introduction of perspectives of spatial, social and economic planning to the physical mobility planning paradigm (Banister, 2007), transformed urban mobility into a complex socio-technical structure that is constantly pressured by the narrative of change and innovations in different spheres linked to urban mobility (F.W. Geels, 2005).

Managing processes of change in planning involves interpreting transitions as interaction of various actors on different levels placed in the context of landscape in transition (Kemp et al., 2007). A sort of multi-level governance system is developed to coordinate the necessary action fulfillment between actors on various levels. Defining long-term goals, structuring the investigated problem on the strategic level, carrying out functional planning processes and networking on the tactical level, and realizing the procedure, experimenting and implementing policy on the operational level (Kemp et al., 2007; Wiek et al., 2006), the model of transition management is in a constant interaction with the transition arena or network, which provides the basis for constant evaluation of the managed change, establishes monitorable measures and provides constant basis of learned successes and failures (Loorbach, 2004)

## 4. Methods of analysis

This chapter is dedicated to the description of methods used to investigate the empirical case in the analysis chapter. It starts with the description of the approach to analysed data collection and justifies it with the method used. Further on, the each of the used methods of data collection and generation is elaborated on to substantiate the relevance of it for this research.

### 4.1. Sampling the theoretical information for the case

Correspondingly to the theory of science and the strategy of conducting research described in sub-sections 2.2.2. and 2.2.3., analytical case of this requires theoretical justification. It was developed using the aspects of **theoretical sampling** method, building a **grounded theory**. (Blaikie, 2000, p. 179). However, scientists advocating grounded theory concept, pose a conception that grounded theory is built up from many different cases, where the new are still added until the moment that theoretical sampling has no 'gaps' left in understanding the practical case in theory (Glaser & Strauss, 1967, pp. 21–30). In terms of this thesis, theoretical framework is built from investigating policy issue. Thus, sampling for theoretical data, which serves as the causal explanation for the case of Sustainable Urban Mobility Plan implementation in Riga, pre-assuming that implementation of the SUMP is a benefit for a city, while examining the current state and the effect of it, as also inquiring of what is necessary to be done for implementation of the full plan to be achieved (Farthing, 2016, pp. 39, 98–100)

### 4.2. Method for technical analysis

There are specific methods that a researcher should know that contribute to the comprehensiveness of policy research. One of them that is relevant to the case of this research is **focused synthesis** (as presented in Majchrzak, 1984, p. 58). It combines several qualitative methods of data generation that include both inspection of literature and discussion with stakeholders involved in the investigate issue, as well as findings achieved through the own experience of the researcher working with the issue of the research in practice. Put together with the literature review, which builds up theoretical framework for the investigated problem, the approach of focused synthesis, used in the analysis, brings up the technical (or practical data) for the research problem. The outcomes of the synthesis are the results of the policy research effort that can be formed in a form of recommendation for improving the process of policy planning (Majchrzak, 1984b, pp. 58–59).

### 4.3. Methods of data generation

To generate and collect the data for the analytical part of the research, qualitative methods of semi-structured interviews/questionnaires and document analysis. The overall methodological framework for the work is established by the case study that examines the issue of Sustainable Urban Mobility Planning in the context of Riga Municipality planning realm (Farthing, 2016, p. 116)

**Structured e-mail interviews (questionnaires)** were done with 2 representatives of SUMP planning process in Riga. They were:

- Dr.sc.ing. Evelīna Budiloviča, Leading project manager at Mobility Planning Division of Urban Development Board at Riga City Council Development Department;
- Ivars Bergs, Professional planning consultant and CEO at Laurus Consultation Agency;

Justification for choosing these 2 respondents lies in the assurance that these people maintain knowledge about current process of SUMP implementation and planning in Riga. I. Bergs is involved in service-based cooperation to the RCCDD, providing consultancy in researching and planning for SUMP in the city of Riga. E. Budiloviča, as the leading project manager at Mobility Planning Division, has projects such as SUMP and

SUMBA embedded in her daily working activities, and carries on constant communication with I. Bergs in terms of SUMP planning process (Farthing, 2016, pp. 128–130). Feasible results were achieved of the cooperation between I. Bergs and Mobility Division and were personally experienced by the author during professional development course at Riga City Council Development Department.

Interviews were done over the e-mail by sending questions individually to each respondent to receive that the information in the theoretical part of the research does not cover. Due to COVID-19 outbreak situation it was impossible to conduct an interview face-to-face, but to the structured and formal questions that were sent to the respondents, the replies received were less formal, but still structured, which justifies that the actors are feeling embedded in and personally concerned about the work they are realizing (Farthing, 2016, pp. 128–131).

**Document analysis** of planning documents of mid-term (2014-2020, 2019-2025) and long-term (until 2030) are analysed in this work as sources of planning policies, objectives, aims and goals described in the developed strategies. Having the theoretical justification built on the concept of investigating the socio-technical regime transition, there is a need to not only examine the ‘social world implications’, but rather specifically defined, changes and nature of planning concerns on local, regional and national levels. The information received from document analysis is considered as objective representation of current state of SUMP in Riga and the metropolitan area, and can be interpreted to discuss and justify the importance of progress in the later section of the research (Farthing, 2016, pp. 136–139). Analysing **official statistical documents** helps achieve an overview of the progress of SUMP implementation, when relevant indicators are monitored. The acquired numbers are interpreted to measure the degree of the progress (Farthing, 2016, pp. 140–142).

**Ethnography** or participating in the environment, where planning processes happen, during 2019 fall semester professional development program is considered one of the catalyst and justification for the empirical question of this research project. The contribution of being embedded in the process benefitted the process of data generated by the author, as the access to the environment provided and impression of planners and other workers perspective on the SUMP situation, as well as helped acquire both structured and unstructured pieces of information from the actors themselves under everyday cooperation context (Farthing, 2016, pp. 131–134).

#### 4.4. Chapter outline

Adopting the method of focused synthesis for policy research (Majchrzak, 1984a), qualitative research methods of planning document analysis, analysis of statistical documents and e-mail interviews (Farthing, 2016), the analytical part of the research is analysed accordingly to the concepts described in the literature review. Using theoretical sampling method (Blaikie, 2000; Glaser & Strauss, 1967), analysis investigates practical implications of sustainable urban mobility policy in Riga and Pieriga using the theoretical approach of multi-level perspective (see section 3.3.) as a guideline for case study.

## 5. Analysis

This chapter is representing the analytical work done in the research. It begins with introducing Sustainable Urban Mobility Plan as an approach to planning for sustainable mobility developed by European Commission, and follows with describing, what issue it is addressing and how. The introduction of empirical case follows with analysis of planning documents in Riga and the metropolitan area, as well as Riga Planning region, and the projects in the cross-national regional EU context. Further on the chapter uncovers institutional processes of sustainable urban mobility planning in Latvia on the national level. The analysis rounds up with identifying several obstacles and barriers of ongoing transition in physical, technical, social and planning contexts.

### 5.1. Sustainable Urban Mobility Plan (SUMP)

Through the European Union funded initiatives of bringing stakeholders and experts together for analysis of the current state of urban mobility and identification of weaknesses and best practices to implement in cities Europe-wide, Sustainable Urban Mobility Plans (further in text – SUMP) were developed (European Commission, 2013b, p. 3). Covering the most part of policy aspects of functional urban area (transport, land-use and spatial planning, environment, economic development, social policy, health, road safety, etc.) and highlighting the importance of a citizen in an urban environment, SUMP provides the planning authorities of Member States with the set of guidelines and suggestions of mobility development strategy implementation, that are built on the analysis of current situation and establish a clear vision for sustainable mobility development in an urban area (European Commission, 2013b, p. 3).

In 2013 annex “A Concept for Sustainable Urban Mobility Plans” to the Commission’s communication document, the ultimate goal of SUMP is defined as *“to improve the accessibility of the urban areas by providing higher quality and more sustainable transport infrastructure and mobility to and throughout the city”* (European Commission, 2013a, p. 2). To achieve this goal, there are key characteristics of an urban system that become adopted with the implementation of SUMP. These are:

- a) The system is accessible and meets the needs of all users daily;
- b) It is balanced and able to respond to the demand for mobility and transport services of various societal groups (private, businesses, industry etc.);
- c) It regulates a balanced development and improves the integration of different modes of transport;
- d) It is sustainable, contributes to economic growth, promotes social equity, health and environmental quality;
- e) It is operating effectively and cost-efficiently;
- f) It is using the urban space and current transport infrastructure and services efficiently;
- g) It makes the urban environment more attractive, stimulates the quality of life and public health levels;
- h) It improves security and safety of traffic;
- i) It lessens energy consumption, emissions, as well as noise and air pollution levels;
- j) It benefits the overall performance of Trans-European Transit Network (TEN-T) and the transport system of Europe in general (2013a, p. 2).

The characteristics, that are mentioned above, are often included in long-term development strategies of European Union cities, thus SUMP is often presents these strategies or is tightly link to them. In addition to this, SUMP incorporates a delivery plan of short-term strategy realization (2013a, pp. 2-3). Their timetable and budget plan, ideally for a period of 3-10 years, as well as distribution of responsibilities and resources for each action and actor (2013a, p. 3).





Figure 5.1. SUMP cycle (Rupprecht Consult, 2019)

The process of developing a Sustainable Urban Mobility Plan consists of 12 steps, that are defined on the basis of the 8 common practices. These are:

- 1) Setting up working structures;
- 2) Determining the planning framework
- 3) Analysing mobility situation
- 4) Building and jointly assessing scenarios
- 5) Developing vision and strategy with stakeholders
- 6) Setting targets and indicators
- 7) Selecting measure packages with stakeholders
- 8) Agreeing on actions and responsibilities
- 9) Preparing for adoption and financing
- 10) Managing implementation
- 11) Monitoring, adapting and communicating
- 12) Reviewing and learning lessons

Each of the 12 steps is taken in a logical path to escalate from the point of making a decision to implementation of the policy, as well as stimulating the transition to sustainable mobility (see Fig. 5.1.).

The concCurrent and future performance of an SUMP consists of 2 major factors:

- **Status analysis and baseline:** a detailed review of the present situation and the formation of the baseline through “urban mobility performance audit” that will become a comparable unit for the future progress. Institutional set-up, planning process and delivery mechanisms alongside impact assessment on the proposed features should be included in the analysis (European Commission, 2013a, p. 3).

- Every step and action take should be monitored and reviewed throughout comparison with the set aims. Therefore, a system of quality assurance is to be created by a local authority to fulfill this task and achieve feasible results (European Commission, 2013a, p. 5).

#### 5.1.1. What is the problem that SUMP is trying to solve?

Despite the increase of urban mobility level worldwide, access to objects, places, activities and services in cities has become more difficult. The constant sprawl of city territory makes commuting less comfortable and attractive not only in terms of time, travelling costs and ease to access different locations, but commuting also generates negative externalities such as air pollution, segregation and separation of areas in the city, decrease of safety and many other. Combined with growing demand for transportation services and insufficient ability of mobility systems in cities to supply the at least sufficient level of efficiency, there are desperate calls for inclusion of user-oriented improvements to be carried out (UN Habitat, 2013, p. 1). Understanding of mobility as transportation and putting the equation sign in between these two definitions has negatively impacted development in many cities worldwide, as the main priority was given to private motorized transportation means, which demand the expansion of road networks, thus taking up even more urban space gradually and complicating the development of non-motorized and public transport means through requiring constant investments and maintenance costs (2013, pp. 2–5). The split of investments in different transportation mode development over the period of 1995-2010 is available in the Figure 1 (see Fig. 1 below).

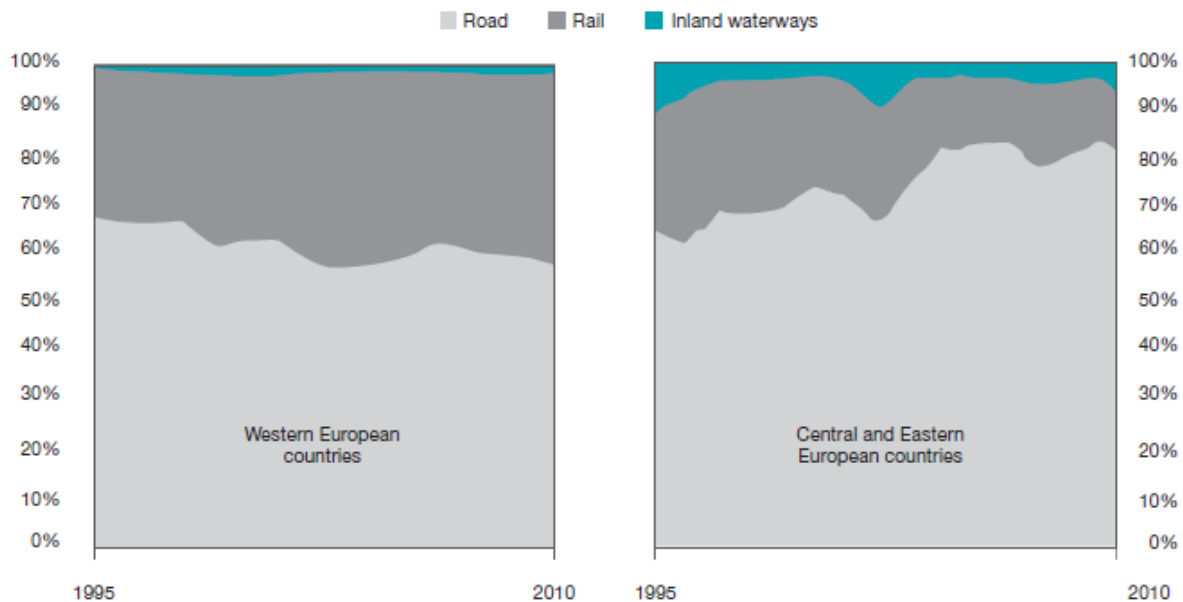


Figure 5.2. Transportation infrastructure investments by mode, Europe (1995–2010) (UN Habitat, 2013, p. 5)

As it is visible in Figure 1, trends do differ in Western and Central and Eastern parts of Europe, as in the Western Europe less investments are made in road infrastructure to maintain more control over and allow less harmful impact to be done by road infrastructure, so thus by 2010 the investment split lowered to approximately 57%. However, at the same time in the Central and Eastern European countries the trend went exactly the opposite direction, where by 2010 investments into road infrastructure continuously grew and even peaked at approximately 83% by the end of the analysed period. Despite the commonly shared recognitions by the harmful effect done by automobile infrastructure, the trend described above

in the Central and Eastern European countries has reinforced fragmentation and sectorization in mobility management, thus harming the harmonization of the system (UN Habitat, 2013, p. 5).

Overall, especially many underdeveloped territories and developing countries around the globe, the issue of individual motorized road transport use has become a bottleneck for mobility systems taking up to nearly 50% of all trips in cities worldwide by the beginning of 21<sup>st</sup> century (2013, p. 6). Degraded public transportation organization, informality of non-motorized transport mean use, as well as traffic congestions that produce harmful impact on ecological state, as well as inefficiently consume human hours of individuals, have become catalysts for radical shift to more sustainable planning of urban mobility. Introducing the four major pillars of sustainability, **social, economic, environmental** and **institutional** dimensions, is needed to ensure the accessibility to mobility services for every social group (2013, pp. 6–9).

### 5.1.2. What kind of solution does SUMP provide?

A Sustainable Urban Mobility Plan is ought to establish a balance in development of all relevant transport modes and to highlight the importance of a shift to more sustainable transport modes in the long term. A plan proposes an integrated package of technical, infrastructural, policy-based and soft measures of the following topics (2013a, p. 3):

- Public transport: providing a strategy of improving the, quality, security, accessibility of public transport services;
- Non-motorized transport: contributing to improving safety, raising awareness and security of walking and cycling infrastructure;
- Inter-modality: stimulating the integration of various available and planned transport modes in an urban environment;
- Urban road safety: analysing the main issues of road safety and preventing the further enlargement of risk areas in a city;
- Road transport (flowing and stationary): analysing and optimizing of the use of infrastructure at the present state, improving the current and potential of the identified “hotspots” (during the analysis);
- Urban logistics: developing a smarter approach to urban logistics with improving the current state and decreasing externalities;
- Mobility management: fostering a shift to more sustainable mobility templates and patterns, including the social engagement;
- Intelligent Transport Systems (ITS): formulating a strategy, implementing a policy and monitoring of all the measures under the framework of a SUMP (2013a, pp. 3–4).

Addressing the following elements is set to improve performance and cost-efficiency of a Sustainable Urban Mobility Plan in the process of achieving the defined goal and specified objectives (2013a, p. 3). A plan must be transparent and fostering the participation of civil society and economic actors, whom Local Authority should provide with higher degree of acceptance and support (2013a, p. 5). To ensure a successful implementation of a Sustainable Urban Mobility Plan, every step and action take should be monitored and reviewed throughout comparison with the set aims. Therefore, a system of quality assurance is to be created by a local authority to fulfill this task and achieve feasible results (2013a, p. 5).

### 5.1.3. How is SUMP implemented by European Union Municipalities?

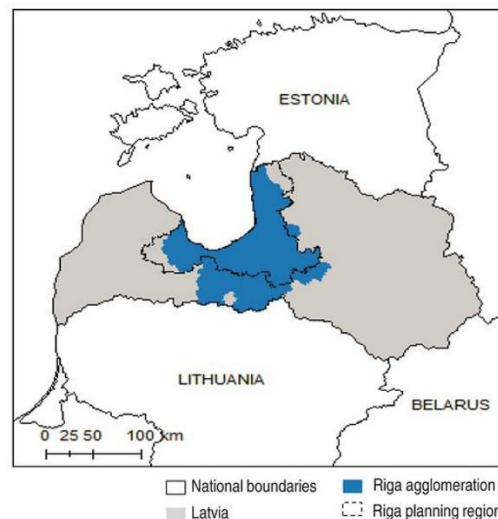
Not only the analysis of these elements is embedded in a particular city development plan, but it has already become one of key points of discussion in sustainable development strategies of European cities, where the “increasingly devastating impacts” of urban mobility are addressed (Holden, 2007, p. 1). Over the last several decades, many approaches were taken to achieve sustainable mobility, starting from implementing alternative fuel types into daily commuter transportation habits and going up to sustainable land planning and encouraging environmental awareness, but all of these are usually considered to be prerequisites (Holden, 2007, p. 1). To establish a more common approach, ELTIS, the European Urban Mobility Observatory, has highlighted and put together 8 principles that are commonly shared by municipalities which cope and plan for sustainable mobility. These are:

6. Planning for sustainable mobility in the “functional urban area” – depending on the context of local people and goods flows in and around the municipality, defining the “functional urban area”;
7. Cooperating across institutional boundaries – developing a cross-institutional working structure;
8. Involving citizens and stakeholders – following the transparent and participatory approach, actively involving citizens and other stakeholders in development planning;
9. Assessing current and future performance – identifying objectives and ambitious but realistic targets that do not conflict with the established vision;
10. Defining a long-term vision and a clear implementation plan – setting a framework for realization of long-term, medium-term and short-term plans;
11. Developing all transport modes in an integrated manner – harmonizing intermodal transport development plans;
12. Arranging for monitoring and evaluation – choosing the appropriate monitoring indicators and ensuring timely access to relevant data and statistics;
13. Assuring quality – making sure that the decisionmakers and actors are competent and confident and developing an approach to validate the compliance of the plan with the requirements (Rupprecht Consult, 2019, pp. 11–13).

By developing a SUMP cities, are able to establish a better vision of what is the current state of mobility system and how are the current means functioning. Then the parts of the socio-technical system can be restructured, when older artefacts are removed and the newer are added. Thus, cities in the Western Europe and Scandinavia can be seen to be shifting to cycling as one of the more popular and most used transportation modes by providing infrastructure for cyclists, revisioning public transport use norms and lowering car dependency by introducing measures that would be likely to make such transportation mean less attractive (Rupprecht Consult, 2019, pp. 12–15). Identifying objectives and goals that are already embedded in planning documents of medium-term and long-term, planners and decision-makers in European cities identify the gaps and objectives that are context-specific for cities they operate with. To established development activities that would help achieve the desired targets, tailored Sustainable Mobility Plans are introduced on various scales, thus addressing specialized development directions and contributing to the common goal of providing all citizens with accessible urban transport network at the same time (Mattsson, 2006, pp. 13–17).

## 5.2. Introduction to the empirical case

When discussing Sustainable Urban Mobility planning in Latvia, the first issue that is brought up is the process of implementing a Sustainable Urban Mobility Plan in Riga, the capital of Latvia, as well as the metropolitan area of the city, consisting of 41 municipalities that are allocated around the Riga municipality, that is called Pierīga. Together the capital and surrounding municipalities form a functional urban area that is 1 out of 6 NUTS III statistical regions (Ministru Kabinets, 2004), where more than 50% of Latvian population reside (OECD, 2012). The map of the metropolitan area of Riga is available in Figure 5.3. below.



*Figure 5.3. Metropolitan area of Riga (OECD, 2012).*

The agglomeration of Riga is not only the most populated region of Latvia, but it also takes up approximately a fifth of whole Latvian territory. Such impact was produced gradually by working force migrating closer to the capital due to the lack of working places in other regions of Latvia mostly between 2006 and 2016 (Krišjāne & Zīra, 2018). Because of the decrease of Gross Domestic Product that was accelerated by Global Economic Crisis in 2008 (Peterson Institute for International Economics, 2010, p. 12), some different scale companies that used to employ inhabitants of other regions shut down being incapable of paying off economic debts in unstable economic conditions (LSM, 2016), and workers of different qualifications moved closer to the capital region. This extended the GDP of the metropolitan area of Riga to 68% of national value by 2013 (OECD, 2012). Today, the metropolitan area of Riga is considered the largest in all the Baltic States and has national and international economic impact (Riga City Council Department of City Development, 2018, pp. 4, 10).

Despite that in most planning documents Riga is bonded with the whole agglomeration when described as a unit of representation, the Riga Planning Region is not odd, but rather separate planning entity. Referring to the Figure 5.3. (see Fig. 5.3. above) the borders of Riga Planning Region are different from the ones of metropolitan area, as well as the functional meaning of the area is more specifically defined. Figure 5.4. below displays the structure of Riga Planning Region.

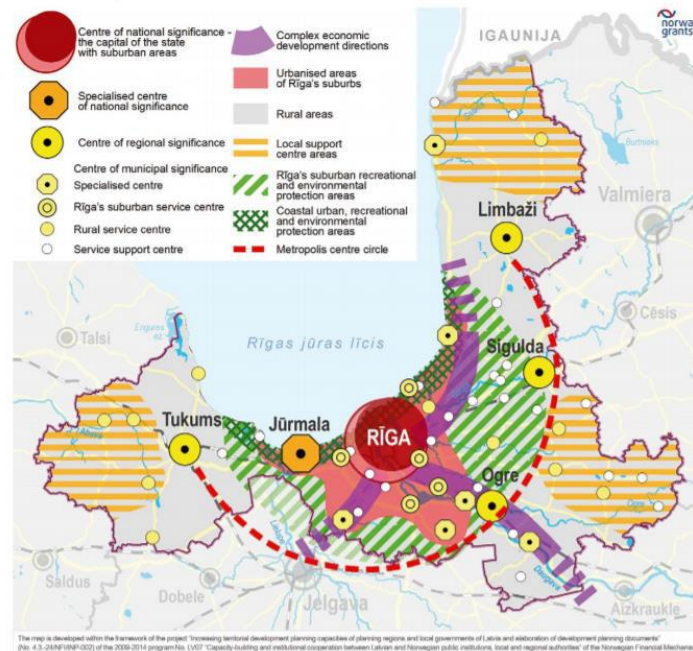


Figure 5.4. Spatial structure of Riga Planning Region (Riga Planning Region, 2014, p. 15)

Being a planning entity established out of 30 municipalities including Riga, 4 centres of regional significance and 1 specialized centre of national significance, Riga Planning Region acknowledges the situation of inhabitant migration and is working towards identifying the necessary solutions and projects for better interconnections between the centre of the region, Riga, suburban and rural centres of Riga and regional and national centres (Riga Planning Region, 2014, pp. 5–9).

### 5.2.1. Historical perspective – Railroad as a backbone

Historically, Riga was founded in 1201 and from that time was developing as a city for trade and exchange of goods. It has undergone various regimes led by power carriers of Western, Northern and Eastern Europe during all the medieval epoch, which has left a mark on architecture, infrastructure and spatial plan of the city. Following the development of industry in Europe, Riga became one of the key sea ports in Russian Empire and a railroad interconnection point of high importance. That led to the territory of Riga becoming 10 times bigger and the population growing 80 times by 1910 in comparison to the previous century (Municipal Portal of Riga, 2019). Throughout the history, despite the change of power regimes and governance, the main development priority was transit of goods. Thus, starting in the beginning of the 18th century and following to the very beginning of the World War I, there were a lot of investments into railroad transport to develop a connection between strategic inland cities and territories to a sea port. Even after the World War I, when Latvia regained independence, railroad infrastructure was a major transport and economic development concern (Altbergs, Augustāne, & Pētersone, 2010; Freeport of Riga, 2019; Municipal Portal of Riga, 2019). Before the World War II, railroad has become the main mean of passenger and goods transportation in Latvia, as also was greatly researched and taught in university from engineering perspective to provide working opportunities for graduates, and had a place in the culture of Latvia as well. Railroad development has also provoked spatial development around the lines and stops in different territories of the country (see Fig. 5.5.) (Altbergs et al., 2010).

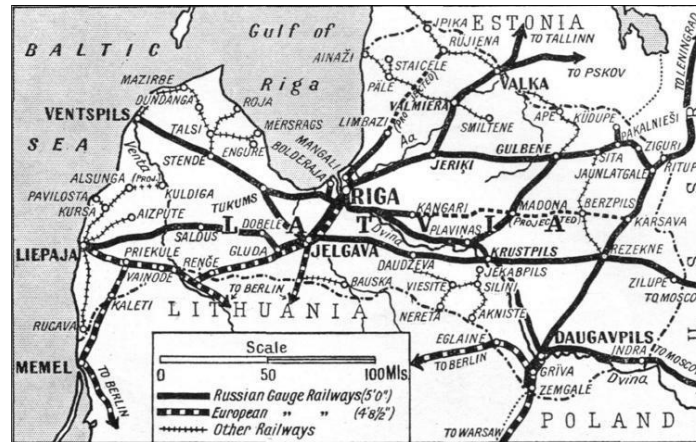


Figure 5.5. The main railroad lines of Latvia (Mike's Railway History, 2008)

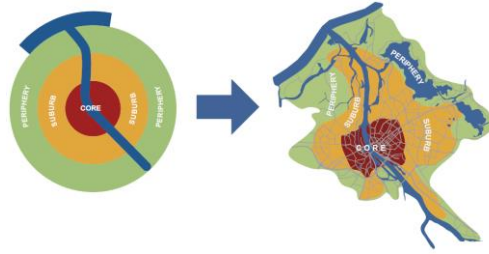
Since the late 1930's and during the times of the World War II, railway has undergone significant physical and structural changes. The functions have changed from public use and goods transit to military and cargo shipments during war and early post-World War II period. During the Soviet Era, the meaning of railroad was brought down by the development of road infrastructure and automotive industry. Despite that, the railroad still kept high importance of transnational transit mean (Altbergs et al., 2010).

Following the downfall of the Soviet Union, railroad in Latvia has returned to be used for public transportation and goods transit of different scale, but has not been in significant development. Despite that, it is more frequently brought up as a "backbone for inclusive mobility development in Latvia" (Cities & Rail, 2019, p. 25; Ministry of Transport of Republic of Latvia, 2019). Riga International Airport (RIX) that was built in 1974, is the newest inherited transport hub in the transport system of Riga (Riga International Airport, 2019). It greatly contributes to the outer mobility, servicing 5.4 millions of passengers yearly and is one of the biggest airports in all Baltic states (Riga City Council Department of City Development, 2018) and is also set to be a part of "railroad as a backbone" vision. It was announced in 2017 (Riga International Airport, 2017) and planned further on that there will be a train connection established between Riga Central Train Station and the Airport, as both objects alongside the Freeport of Riga are strategically envisioned to form a multimodal transport hub in 2022. Together with the construction of Rail Baltica project, the airport will receive its own railroad station that will establish a quick connection in both inner and outer spheres of mobility (Riga City Council Department of City Development, 2014; Riga International Airport, 2017).

### 5.2.2. Spatial planning perspective in Riga

Spatial development principle in Riga is based on the functional zones with the most central part being the core of the city, where the most impactful economic, political and social processes happen. It is surrounded by the suburb belt mainly serving the function of housing for citizens, and on the outskirts is surrounded by periphery (Riga City Council Department of City Development, 2014).





*Figure 5.6.. Spatial development principle in Riga municipality (Riga City Council Department of City Development, 2014)*

Connections between the zones are established through public transportation services that have a vast coverage in suburban and partly in peripheral area. In general, the coverage of the PT network (walking distances to stop) is evaluated as good / very good. Only 5–7% of inhabitants of Riga and 3–5% of employees need more than 5 min to reach the nearest PT stop (Yatskiv & Budilovich, 2017, p. 483) (more details in the next sub-section).

### 5.2.3. Public transport system in Riga

As several other post-soviet republic, Latvia had to undergo a transition in the public transport services. After regaining independence in the early 90s, growth in private vehicle dependency and downshift of reliance on the public transport services, as also unclear, not fully legal companies were providing service of small volume public transport (Akimov & Banister, 2011). Since the early 2000s, passenger transportation services in Riga are managed by municipal limited liability company Rigas Satiksme, that supplies both public transport service consisting of 56 bus routes, 17 trolleybus and 8 tram routes around Riga Municipality, maintains bicycle parking and rentals and handles car parking places around the central (core) area of Riga (Rigas Satiksme, 2020). The public transport network in Riga consists of 56.260 kilometre mileage within route network and nearly 140 millions of passengers carried yearly (Apkaimis, 2019; Rigas Satiksme, 2020).



*Figure 5.7. Tram in Riga (Varfolomeev, 2018)*

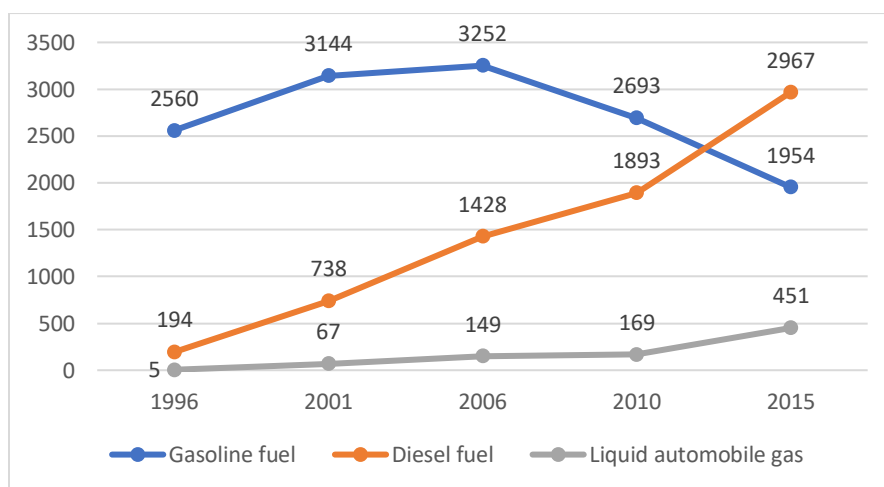
The oldest kind of public transport in Riga is tram. Electrified tram lines date back to 1901, replacing the horse-pulled carriages that were driven over rail. (Baltijas Vēstnesis, 1901; Schwandl, 2013b). The rolling stock of trams, and other types of transport is mostly updated to the modern (2012+ model years), but there are still older trams that can be seen in the city. Nevertheless, it still is considered an “efficient and easy to ride” (Schwandl, 2013a) by some users.



#### 5.2.4. Statistical overview of private motorized vehicle dependency in Latvia

Despite the opportunity of commuting by available connections of public transport that are widely placed around the core of the city and the suburban area, many citizens in Riga still choose private vehicle as a mean of their daily commuting. In 2015, nearly 70% of Eurostat survey respondents admitted to use private motorized vehicle for going to work every day, which is more than 2 times higher than it was in the previous investigated year, 2009 (OECD, 2019a, p. 18).

After Latvia regained independence in the beginning of 1990s and began developing as a separate republic, it went through several economic and organizational challenges (Peterson Institute for International Economics, 2010). One of them, that is carried on until today and shared by most of countries that underwent regime transitions, is dependency on the individual motorized vehicle. Referring to the Figure 5.2. (see Fig. 5.2.), the trend of road transportation use has steadily increased from 1995 to 2010 (UN Habitat, 2013, p. 5). While more individuals began using private vehicles, the kilometres travelled yearly by vehicles powered by fossil fuels began to grow (see Fig. 5.8).



*Figure 5.8. Kilometres travelled yearly by fuel type in Latvia (million km) (Central Statistical Bureau of Latvia, 2016)*

According to statistics presented on Figure 5.8., gasoline (or petrol) was the most used car fuel, which (out of the available dataset) peaked in 2006 with 3252 millions of kilometres travelled by drivers in Latvia, and it carried on to be most used even during the economic crisis times. But, even when the use of gasoline plunged during the period of 2010 and 2015, the use of other 2 represented types of fuel rose uninterruptedly. By 2015, the most used fuel type was diesel, which, in comparison to gasoline, was though to emit less CO<sub>2</sub> and seeming more resource efficient, but was found out to be a source of NO<sub>2</sub> that causes approximately 71,000 premature deaths across the Eurasia continent in a year (Forrest, 2017). Referring to the statistics of registered vehicle number in Latvian regions (see Fig. 5.9), the impact produced by fossil fuel exhaustions can be understood.

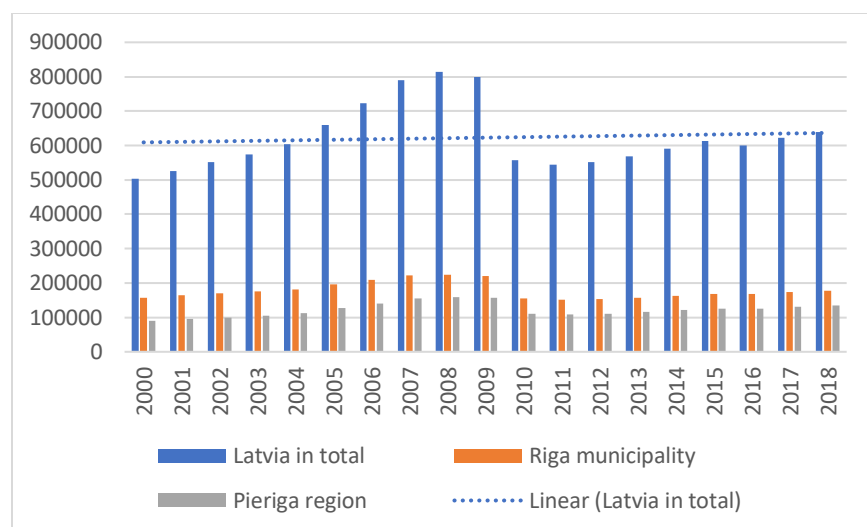


Figure 5.9. Registered personal car number in Latvian statistical regions by the end of a year (Central Statistical Bureau of Latvia, 2019a).

As seen from the Figure 5.9., total registered personal vehicle number grew by the linear progression by the year of 2018, but the trend was not stable. During the economic downfall in 2008-2009, number of registered personal vehicles descended by more than 200,000 cars in a year, but after the revival of economic situation, began growing again. A point of emphasis in this situation is that the share of single Riga municipality of personal vehicles is between 1/3 and 1/5 part and even more than 1/3 part if combined with Pieriga of all the private automobiles in Latvia equal to 274 cars per 1000 inhabitants in 2017 and 279 cars per 1000 inhabitants in 2018. Thus, despite being less inhabited in comparison to Riga municipality, Pieriga region has more cars per 1000 inhabitants, 361 in 2017 and 370 in 2018 (Central Statistical Bureau of Latvia, 2019a, 2020a) that is higher than the average in Latvia in according years (see Fig. 5.7).

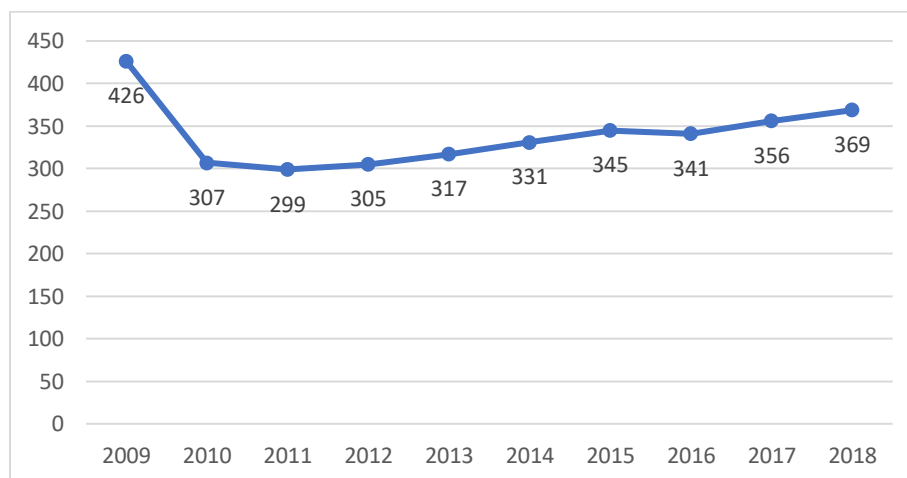
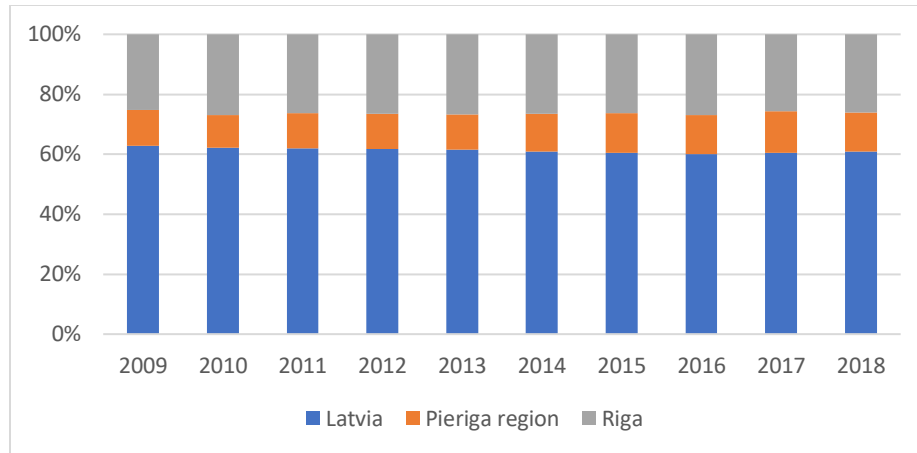


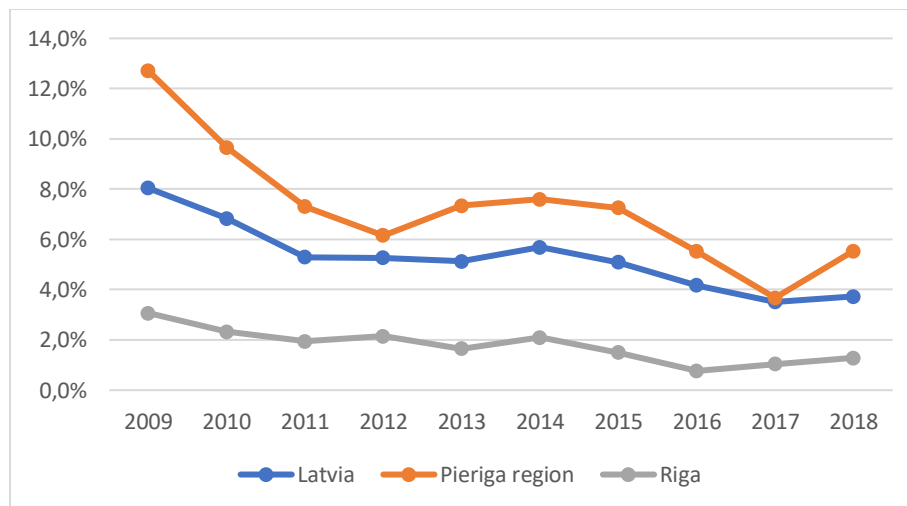
Figure 5.10. Passenger cars per 1000 inhabitants in Latvia (EUROSTAT, 2020).

As it is visible on Figure 5.10., the trendline of passenger cars per 1000 inhabitants follows the dynamics of previously described statistical indicators. After the stabilization of economic conditions, the number of cars grew from 2011 only experiencing decline by 4 in 2016. This trend does not only influence ecological situation, as was described before, but it is also a safety concern (see Fig. 5.11.).



*Figure 5.11. Traffic accidents in statistical regions of Latvia (Central Statistical Bureau of Latvia, 2019b)*

Figure 5.11. presents the percentage of traffic accidents out of whole Latvian territory that happened withing Riga and Pieriga. The share takes 40% and is hardly changing throughout the 10 year period. To have a more in-depth look at the issue, Figure 5.12. is developed to present the % of lethal outcomes of traffic accidents each year (see Fig. 5.12.).



*Figure 5.12. Fatal outcomes % out of all road accidents yearly in Latvia (Central Statistical Bureau of Latvia, 2019b).*

It is clearly seen that the situation has improved, if comparing the percentage of fatalities in traffic accidents in the end of investigated period with the beginning. However, in the yearly overview of the trend, the data has altered. There is a need of actions, which need to be taken to tackle the situation, especially in Pieriga, where the percent of fatalities grew significantly in 2012-2013 and in 2017-2018.

The analysis of the following trends in Riga Municipality brought planners to seeing car dependency as a problem. Since the late 2000s and early 2010s, there are and have been mobility programmes and plans produced on different levels to investigate the opportunities of safer, more cost-efficient, robust, more accessible and intermodal system of mobility planning. Considering the focus of this research on the case of Riga and the surrounding metropolitan area, several planning documents produced for this territory are analysed in the section 5.3. to understand, how the problems of mobility are addressed.

## 5.2. Transition from car-based to people-based planning in Riga in the current long-term period (until 2030)

### 5.2.2. The beginning of transition

The starting point of sustainable urban mobility discussion in Riga is considered the document called Riga and Pieriga Mobility Plan (Witteveen Bos, 2010b). It is a long term (20-30 years) planning strategy document, which was developed by the Witteveen Bos Consultancy Agency by the order of the Ministry of Transport of Latvia with the overall goal of “to determine a vision and necessary actions in order to promote unified transport system development in Riga and Pieriga, thus improving accessibility of the territory” (Witteveen Bos, 2010b, p. 1). The main objective of this plan was to create a general framework “in which all existing and new plans for construction and improvement of the traffic and transport system in Riga and Pieriga are evaluated and prioritized” (Witteveen Bos, 2010b, p. 1), which was developed through cooperation of public sector and private experts and consultants. The ideas of previous plans and the ongoing plans were combined with professional expertise to solve the traffic and transport problems that the Ministry of Transport of Republic of Latvia is experiencing and contribute to spatial, social, economic and institutional organization (Witteveen Bos, 2010b, p. 1). Thus, this was one of the first mobility development plans that overviewed not only transport infrastructure, but also multi-sectoral influence and impact.

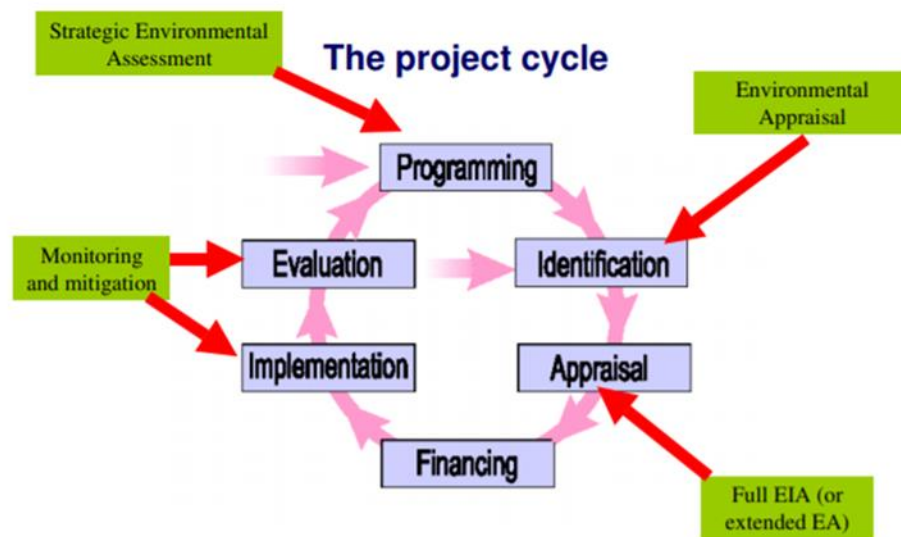


Figure 5.10. Phases of a project lifecycle (Witteveen Bos, 2010a, p. 4)

The cycle that is seen on the Fig. 5.10. above was brought up the first time in the Action Programme document of the RPMP (Witteveen Bos, 2010a). Alongside that, the working group of both higher level public sector organizations’ (ministries) and semi-public companies’ representatives, that worked together to identify the main working objectives, that included improvement of multimodal accessibility to territories in Riga and Pieriga, and developing higher quality public transportation services alongside other development measures related to traffic management. It is also stated that it met the main objective of European Transport Policy, the main concern of which is the development of sustainable transport system that meets “economic, social and environmental needs of society and is conducive to an inclusive society and a fully integrated and competitive Europe” (Witteveen Bos, 2010b, p. 2).

There are qualitative research methods such as SWOT analysis used to investigate the quality of physical artefacts and interconnections of them (Witteveen Bos, 2010b, pp. 13, 16), as well as mentions of

potential benefits of shift to non-motorized transport, but in the context of using it for shorter distances to commute to vehicle (e.g. Park and Ride principle) (Witteveen Bos, 2010a, p. 35). As it is defined in the plan, railway network is still considered a “backbone”(Witteveen Bos, 2010b, p. 54), but mobility management section does not mention anything about it (Witteveen Bos, 2010b, pp. 65–66). Despite all the mentions of proposed sustainable mobility implications, the focus is still largely put to vehicle infrastructure. Measures of using non-motorized transport are ‘advised’ (Witteveen Bos, 2010b, p. 65), but there is no specific regulation mentioned that would bring up the social values, this incorporating the shift to sustainable mobility. The RPMP plan just rather discusses how can traffic regulations be implemented and, alongside that, some novelties be introduced, that do not always interconnect with the road transport.

The key outcome of the RPMP, is that it is based on the existing traffic measures and used existing infrastructure artefacts to build further development proposals. It proposes three scenarios that are reviewed in the embedded evaluation framework and assessed with multiple factors, which include costs and benefits, accessibility, robustness of the transport network, safety, quality of life in the city and several else (Witteveen Bos, 2010b, pp. 22–30).

### 5.2.3. Riga Sustainable Transport System Development medium-term Action Programme 2019-2025

The medium-term Sustainable Transport System Development action plan is a planning document developed by Riga City Council City and Transport development departments in contract with SIA "E. Daniševska birojs", SIA "Solvers" in cooperation with SIA „Laurus konsultācijas” and SIA „Artplaneks”, also involving municipal transport company “Rīgas Satikme” (Transport for Riga), state joint stock company “Latvijas Dzelzceļš”(Railroads of Latvia), SIA “Autotransporta direkcija” (Road Transport Directorate) and also “Gehl Architects” bureau for communication, collaboration and reporting purposes (Riga City Council Development Department, 2019, p. 5). The action programme is developed in accordance to the long-term visions of Riga Sustainable Development Strategy until 2030 (see sub-section 5.2.4.) and consolidated with the defined goal of producing “convenient, safe and pleasant urban environment” (Riga City Council Department of City Development, 2014, p. 14; Riga City Council Development Department, 2019, p. 5). With the aim of defining the main development direction, in cooperation with Gehl Architects (2019) bureau, a matrix-type table was developed that is elaborating on the main visions and priorities of urban mobility development in Riga (see Table 5.1. below).

Having identified the main development directions, it is seen that planners in Riga seek resource efficiency and consolidation in various forms of mobility planning on both local and regional level. Questioning the current situation of mobility state and following the Sustainable Development Strategy guidelines, the Action programmes identifies specific tasks to be done in social, spatial and physical perspectives of urban mobility issue. The task were chosen accordingly to the assessed potential of them to be realized within the period of 2019.-2025 (Gehl Architects, 2019, p. 4).

Development directions Priorities	Public transport as a backbone of mobility	Mobility hierarchy	Foreseeing limitations	Everyday public space	Cooperation with partners
	1	2	3	4	5
1	Providing higher capacity and shorter travel times	Focusing on simple and resource efficient improvements	Prioritizing development processes in suburban areas	Integrating urban mobility and public spaces	Maximizing efficiency – smart investments of resources
2	Establishing regional approach	Prioritizing pedestrians	Developing clear road hierarchy	Visioning playgrounds as a tool for traffic planning	Empowering citizens as partnership resource
3	Using new technologies to develop solutions	Closing gaps in bicycle infrastructure	Coordinating fields of planning and development	Treating public transport nodes as a part of external urban public space	Encouraging cooperation between administrative bodies and structures
4	‘Last mile’ planning	Providing convenient and safe bicycle parking spaces	Limiting use of private motorized transport to improve overall citizen mobility	Promoting activities around the banks of Daugava river	Documenting and communicating of mobility development processes to society
5	-	Considering people with special needs	Harmonizing urban environment driving forces with mobility planning documents	Improving the quality of external urban public space	Organizing public events and piloting projects to attract attention to mobility planning

*Table 5.1. Five main mobility development directions of mobility planning in Riga (Gehl Architects, 2019; Riga City Council Development Department, 2019, p. 6)*

The actions to be taken in the programme are identified through the consideration of the gaps of current planning elements and activities. It begins with establishing a ‘mobility administration’, which is put in place to form structural organization that would be responsible for administration of activities and tasks incorporated in the action programme (Riga City Council Development Department, 2019, p. 9). It then mentions conceptualized aims for mobility and transport infrastructure planning, addressing key

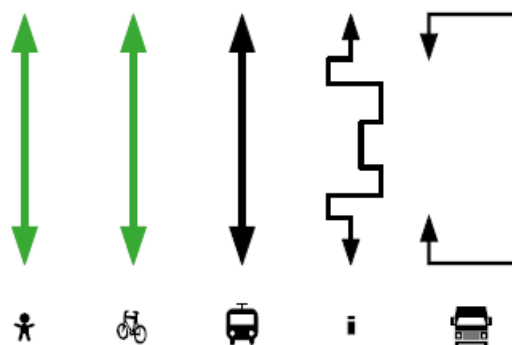
principles and transition to the new approaches with the focus on implementing technological novelties in mobility planning system by introducing technical, intellectual and social principles such as traffic flow control, digital system of street planning overview, shared space acquisition through upgrading the physical state of the streets (e.g. building speed bumps, upgrading pedestrian crosswalks and overall crossings, narrowing the car lanes and introducing speed limits) thus making urban space more secure and accessible, and many else (Riga City Council Development Department, 2019, pp. 9–12). The action programmes emphasizes a need to collect mobility data and introduce monitoring system in Riga for 5 specific purposes. These are:

1. Collecting regular traffic intensity data in the city centre and throughout the localities;
2. Annual road traffic accident monitoring;
3. Monitoring of the current infrastructure system quality;
4. Surveying household and individual mobility habits in Riga and Pieriga;
5. Updating Riga transport simulation model (Riga City Council Development Department, 2019, pp. 9–10).

In comparison with the previously described document, Riga and Pieriga Mobility Plan, the medium-term Action programme establishes the priority of planning for soft mobility measures and proposes other spheres of planning to be more consolidated with each other. The envisioned perspectives include limiting traffic flow in the city centre and developing alternative transport means, for example, exploring the potential of water transport as a crossing over Daugava river (Riga City Council Development Department, 2019, pp. 10–15)

#### 5.2.4. Riga Sustainable Development Strategy until 2030

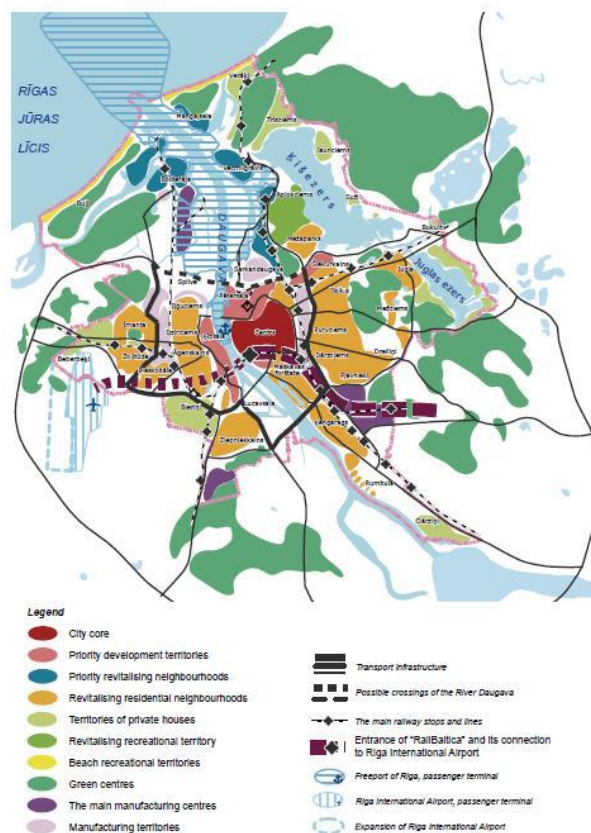
The Sustainable Development Strategy of Riga until 2030 is a long-term planning document that was developed in 2014 with the term planning for 16 years ahead. It does not only present incorporate infrastructure system guidelines and regulations, but is also inclusive of future potential development objectives, directions and infrastructural projects that will be carried out in the urban space of Riga. It is tailored to fit the change of planning paradigm in the city planning system – from liberal, fragmented and scattered planning to collective, socially inclusive and responsible, sustainable and compact development model (Riga City Council Department of City Development, 2014, pp. 20–30). One of the most important aspects of the strategy is the future mobility hierarchy allocation plan in the city of Riga. The foreseen mobility system hierarchy is available in Figure 5.11.



*Figure 5.11. Foreseen mobility principle in the core of Riga (Riga City Council Department of City Development, 2014, p. 20)*

The plan emphasizes city walkability and cyclability and allocates them on the 2 primary position of the hierarchy. Public transport is in the middle of the hierarchy as a complimentary tool for citizen mobility

opportunities enrichment, which will also have access to the core of the city. The propose principle for individual vehicle mobility implies that car use will be very limited, even partially terminated in the core of the city, which is prognosed to make car use a less attractive option when commuting to and within the core of the city. And, freight transport will be fully prohibited in the core of the city, having a road to drive outside of the core.



*Figure 5.12. Structurized plan of foreseen development in Riga Sustainable Development Strategy until 2030 (Riga City Council Department of City Development, 2014, p. 28)*

As presented in Figure 5.12, the foreseen development is focused on implementing transport infrastructure development project and mobility solutions on different scale. Defined more precisely, the core and central areas around are prognosed to have less traffic passing through, especially with the absolute prohibition of freight transport in the city center. Development priorities are allocated between areas and the emphasis is put to developing sustainable intermodal transport connections locally, regionally, nationally and even internationally with the projects like Rail Baltica, while preserving and opening spaces for green territories in the urban area (Riga City Council Department of City Development, 2014, pp. 27–29).

#### 5.2.5. Sustainable Development Strategy of Riga Planning Region until 2030

In addition to the city of Riga, the planning region also carries out the Sustainable Development Strategy of Riga Planning Region until 2030, where planning vision is synchronized the Sustainable Strategy of Riga (see Fig. 5.13.).





Figure 5.13. Transport infrastructure development strategy of Riga Planning Region until 2030 (Riga Planning Region, 2014, p. 17)

Establishing interconnections between Riga, especially the intermodal transport nodes and cities of regional and national significance is set to consolidate transport and mobility planning in the region, thus transforming it into a functional and competitive unit on the scale of North-east Baltic sea region (Riga City Council Department of City Development, 2014; Riga Planning Region, 2014). The highest priority of development in Riga Planning regions is to ensure that Riga will be connected to the centres of regional importance, while still persuading connectivity on the scale of the Baltic region (described in section 5.3.). Keeping the account of differences in territory, Riga Planning Region is given a responsibility to produce mobility plan for the whole metropolitan area of Riga, but not for Riga itself (Budiloviča, 2020; Ministry of Environmental Protection and Regional Development of Latvia, 2019a).

### 5.3. Mobility projects on the regional scale and macro-regional scale that influence sustainable mobility planning in Riga and Pieriga

Alongside the plans and action programs of various terms made on the local scale in Riga and the metropolitan area, mobility system is also influenced by projects conducted in the EU space, more specifically in the Baltic Sea region. Some of them are described below with the elaboration on their relation to mobility planning in Riga and Pieriga.

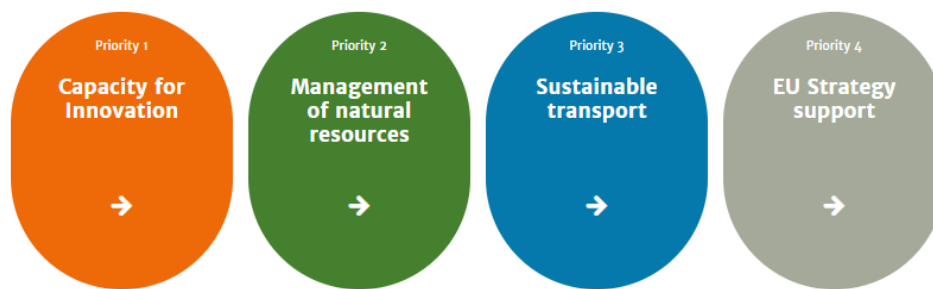
#### 5.3.1. Interreg EU Strategy for Baltic Sea Region

The EU Strategy for the Baltic Sea Region was the first out of 4 strategies adopted and endorsed by European Commission in 2009 (Council of Europe, 2017). It brought together 8 EU Member State countries: Denmark, Poland, Germany, Lithuania, Latvia, Estonia, Finland and Sweden, to foster cooperation within 3 main objectives:

- Save the sea – introducing principles of biological economy, reducing the use and impact of hazardous substances, to bring the region to the leading position in maritime safety and security and become a model for clean shipping;

- Connect the region – develop joint Energy action plan for competitive, secure and sustainable energy management, improve internal and external transportation links;
- Increase prosperity – invest in intellectual development of culture, education, health, innovation, security and tourism spheres (European Commission, 2017a).

Interreg or European Territorial Cooperation (ETC) is a funding cooperation, which is one of the two goals of EU cohesion policy. It is established with the objective to promote harmonized economic, social and territorial development in the whole EU territory and provides a framework for actors from Member States on different levels for joint actions and policy exchanges (Interreg, 2020a). In terms of Baltic Sea Region, Interreg withing the period of 2014-2020 has accumulated total of 282.4 million Euro to invest in solutions for commonly met challenges. Projects that involve three or more partners from the Programme area, that alongside Member States includes also Norway, Belarus and northwest regions of Russia, are funded to contribute to one or several of four thematic priorities (Interreg, 2020b).



*Figure 5.14. Interreg Baltic Sea Region Programme 2014-2020 development priorities (Interreg, 2020b)*

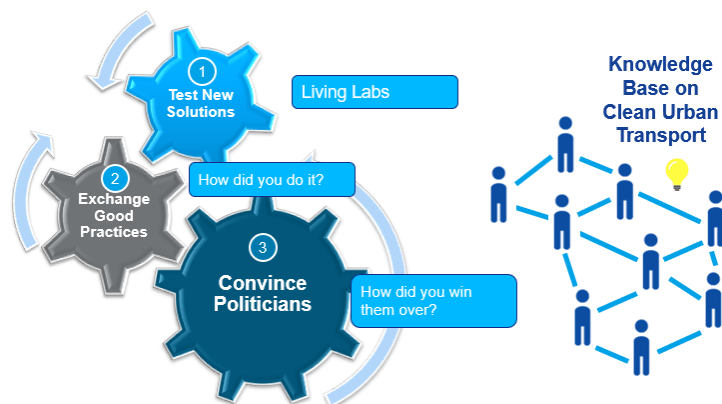
In terms of urban development, Interreg EUBSR 2014-2020 programme influences multi-modal development of urban mobility principles. It is set to stimulate the transition to low-emission and alternative mobility means, while also implementing soft mobility solutions. The influence of it is also set to attract attention of citizens to the issue of sustainability and promote the sustainable lifestyle through pilot infrastructural projects (Ministry of Environmental Protection and Regional Development of Latvia, 2019a).

### 5.3.2. CIVITAS

CIVITAS is EU based initiative, that stands for “City, Vitality, Sustainability”, and promotes implementation of sustainable, clean and energy efficient policies and technological packages across in European cities to build up ground and market for innovations. Since the beginning of 2002 until 2020 CIVITAS initiative assisted the implementation of 800 measures and urban transport solutions in 80 cities, that are considered ‘living laboratories’ with the constant research for innovations carried on (CIVITAS, 2020a).

The initiative is supported by several other projects, that bring up innovations in urban environment. There are 10 thematic areas, that are related to CIVITAS in sustainable urban mobility. These are: Car-Independent Lifestyles, Clean Fuels & Vehicles, Collective Passenger Transport, Demand Management Strategies, Integrated Planning, Mobility Management, Public Involvement, Safety & Security, Transport Telematics and Urban Freight Logistics (CIVITAS, 2020a). The research done is incorporated in the documents that share practices and solutions acquired through experiences of participating cities. The reports are made accessible over the web and are divided into separate topics by the criteria of scale and variety of investigated modes. For example, Sustainable Urban Mobility Plans would include policy

questions, strategies and physical planning on larger scale, but Sustainable Neighbourhood Mobility plans would be explored in separately (CIVITAS, 2020d).



*Figure 5.15. Coordinated activities to build a sound knowledge base (CIVITAS, 2020a)*

The privilege of the CIVITAS initiative is the ability to construct theoretical knowledge from variety of explored cases. Thus, the most efficient solutions and practices are chosen and shared via network of actors from different cities, but working in the similar context. Therefore, it provides additional support for researchers and planners in convincing politicians and decision-makers in undecided state (see figure 5.15) (CIVITAS, 2020a).

The city of Riga already has partnership with CIVITAS, but yet only in a specific framework of “CIVITAS Handshake”, which is a cycling infrastructure enhancing, socio-economically assessing and modelling project (CIVITAS, 2020b). Despite that, topics as improving the quality of infrastructure for alternative mobility means, as well as interconnectedness of modes and awareness among transport system users are address to communicate shared principles of mutual understanding and safety of cycling mobility (CIVITAS, 2020c). However, there are opportunities for extension of partnership principles based on the needs of the policy or the research conducted in a city (CIVITAS, 2020a).

### 5.3.3. Rail Baltica

Rail Baltica is a ‘green’ rail transport infrastructure project, that was initiated by the agreement of politicians of 3 Baltic states, Latvia, Lithuania and Estonia in 2010 with the support from the European Union. It involves 4 EU Member State countries – Poland, Lithuania, Latvia, Estonia, but also indirectly connects Finland and connects to the railways of Germany, Austria and Italy through Warsaw (Driksna, 2020; Rail Baltica, 2020a). In the Baltic states, Rail Baltica is referred to as “Rail Baltica Global Project” and is considered the largest Baltic-region infrastructure project in the last 100 years (Rail Baltica, 2020a). The overall term of the project is 16 years, out of which 10 years are dedicated to construction of 870 km of 1435 millimetre wide gauge, which is the standard for European countries. Completely emission-less by full electrification, thus producing less noise pollution and unnatural vibration, the project is also addressing safety aspects by minimizing the possible interconnection with other modes of physical infrastructure using two-level crossings and pathways, strict fencing and both soft and hard measures of accessibility at the stations. It is highlighted that both the rail and interconnections will be produced in the most up-to-date approach to maximize efficiency and convenience of use of both passenger and cargo rail services (Rail Baltica, 2020a).

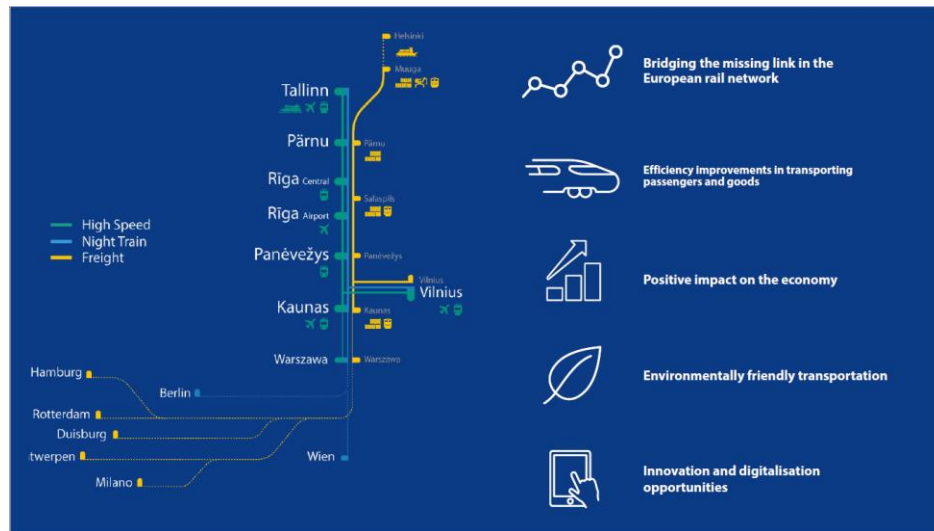


Figure 5.16. Scheme of physical connection and planning objectives fulfilled by Rail Baltica (Driksna, 2020, p. 2)

With more than 5.8 billion Euro investment in the project, it is prognosed to not only establish high-speed rail connections between the cities of Baltic states and Poland, but also remove infrastructure-related bottlenecks by promoting integration of various transport modes, which are planned to be built around the Rail Baltica infrastructure. The project is also prognosed to ensure full integration of Baltic states into North Baltic Sea Trans-European Transit Network (TEN-T) by providing missing cross-border rail connections (Rail Baltica, 2020a)

However, the contribution of Rail Baltica goes beyond physical and technical innovations. It is not only foreseen as a catalyst for cross-border cooperation and development of joint governance in the Baltics, but is also a powerful niche that addresses synergy issues and focus on green technologies in the whole European Union (Rail Baltica, 2020b).

For the city of Riga, Rail Baltica does not mean only the new railway, but rather a significant redevelopments and upgrades in architecture and functionality of 2 current largest transport nodes in the city – Riga Central Station and Riga International Airport (see Fig. 5.17. below).



Figure 5.17. Riga Central Station redevelopment project (to the left) and Riga International Airport additional infrastructure creation project (to the right) (RailTech.com, 2018; Railway Pro, 2019).

Still, even on the local scale of just city of Riga, Rail Baltica demands accurate synchronization with current hard infrastructure, as it will be passing almost throughout the whole city, thus there are planning activities carried out even now to prevent Rail Baltica from becoming a barrier for the interconnectedness of infrastructural means (Riga City Council Development Department, 2019, p. 9).

## 5.4. Policy institution for sustainable urban mobility planning on national level in Latvia

To understand the issue of sustainable urban mobility policy transition and implementation, it is necessary to analyse, what is the approach and what are the processes of planning on the national level in Latvia. In the National Development Planning System of Latvia, there are three main types of documents developed and put into the hierarchical structure by the importance of each. There is the hierarchy pyramid presented in Figure 5.18.



*Figure 5.18. National Development Planning System document hierarchy (Cross-Sectoral Coordination Centre Republic of Latvia, 2019).*

As seen from the Figure 5.18., the types of National Development Planning documents are divided by the term of realization – short-term plans, medium-term plans and long-term plans. Long-term and medium-term plans are mostly consist of spatial planning, but the policy planning documents are mostly short term. Sustainable Development Strategy of Latvia (until 2030) is considered the document of highest importance, staying on the top of the pyramid as the provider of guidelines and regulations for every minor level plan and policy (Cross-Sectoral Coordination Center Republic of Latvia, 2019). But, as this document is not a political guidance document, it does not contain detailed political decisions, that the minor level plans should be guided by. Thus, with all the development directions described in it, Sustainable Development Policy is rather a collection of current development directions than a power-expressing document.

### 5.4.1. The main institutional actor – Ministry of Transport of Latvia

The leading public sector organization in terms of steering mobility institution in Latvia, responsible for transport, infrastructure, mobility and logistics planning and development on a national level, is Ministry of Transport of Latvia. Transformed to answer the pressure of the contemporary requirements set by European Union institutions and political objectives, it has 4 key missions or tasks, that transport development of Latvia is focused on (Ministry of Transport of Republic of Latvia, 2019a). These are:

- To elaborate state policy in transport and communications sectors (documents of policy planning) and coordinate its implementation;
- To attract financial resources for implementation of the state policy in transport and communication sectors;
- To take part in elaboration of EU legal acts, identifying and defending interests of Latvia;



- To elaborate legal acts regulating the transport and communication sectors and, within the competence of the Ministry, to ensure their implementation and control (2019a).

Covering all the transport spheres – road, railway, maritime and aviation – in both passenger and cargo transportation concerns, the Ministry of Transport operates to ensure 3 key factors of infrastructure in Latvia – quality, accessibility, harmonization – both on national, regional, European and global scale (2019a).

In the document “Transport Development Guidelines 2014-2020” which was originally developed in 2013 by the order N. 683 of Latvian Republic Cabinet of Ministers and later actualized in 2018 also by the order of the Cabinet of Ministers, the Ministry of Transport describes the aims of transportation development in Latvia (Ministry of Transport of Republic of Latvia, 2018). There are two main directions of development carried out in the report, the first of which is to brand Latvia as a sustainable transport and logistics service supplier. But, even more specifically, it implies not only to renew and improve the current state of various transport infrastructure modes, but also “to build new transport system models, which use the most efficient mean of transport or the combination of several” (Ministry of Transport of Republic of Latvia, 2018, p. 6). The second, but not the least important, is the improved state of accessibility within all the territory of the country and from the outside, which includes the sub-aim of “incorporating all of the public transport modes into a single system, where rail transport would be primary due to efficiency in resource use” (Ministry of Transport of Republic of Latvia, 2018, p. 7). There is no specific scenario of an SUMP mentioned in the development strategy, but the regulations are tailored to promote the implementation of it to a significant degree. Addressing these two aims and sub-aims and following the EU provided guidelines, the Ministry has set also a direction of developing electrical vehicle infrastructure for more efficient resource use by replacing the unrenovable resources with electricity, so Latvia could lower the dependency on fossil fuels, raise the effectiveness of the resource use and develop sustainable mobility solutions and innovative technologies in the country (Ministry of Transport of Republic of Latvia, 2018, p. 8).

#### 5.4.2. Ministry of Environmental Protection and Regional Development of the Republic of Latvia

The ministry of Environmental Protection and Regional Development is not a traditional institution that influences mobility institution in Latvia, but with the appearance of environmental concerns and regional impact of mobility system in Latvia, the ministry is also engaged in mobility policy planning. Dealing with the issues of clean environment in regional perspective, the ministry ensures that natural resources are used in an effective and a sustainable manner (Ministry of Environmental Protection and Regional Development of Latvia, 2020).

In terms of the SUMP implementation, the Ministry of Environmental Protection and Regional Development coordinates relevant public sector actors for research and production of the plan, while constantly evaluating the regional policy, providing methodological guidelines and supervising the sustainable mobility planning processes. It is also ought to make sure that development processes in the local governments are well-balanced and correlate to the sustainable development strategy on the national level. Therefore, the implementation of the policy and establishment of further actions can only be done by the ministry, and is the main duty of it (Ministry of Environmental Protection and Regional Development of Latvia, 2019a, 2020)

To assess the degree to which sustainable mobility planning documents are balanced between each other on local, regional, national and EU level, Table 5.2. is created, which brings up the publicly accessible documents produced by public bodies of Latvia, where mobility development perspectives are described (see sub-section 5.4.3.).

### 5.4.3. The level of consolidation of policy development documents

To investigate the objectives of transportation and mobility development, referring to the documents brought up in Transport Development Guidelines 2014-2020, there is a list with documents created, that are representing one or several levels of planning in Latvia. The aim of the overview of the documents is acquiring the key directions of related to the topic of sustainable urban mobility planning. The results are available in Table 5.2. below.

Document	Term	Sustainable mobility development directions
Europe 2020 Strategy of smart, sustainable and inclusive growth	2011-2020	<ul style="list-style-type: none"> <li>• Resource efficient planning;</li> <li>• Low CO<sub>2</sub> emission economy;</li> <li>• Promote the efficient use of energy and renewable sources;</li> <li>• Develop transport sector in all these and related aspects;</li> </ul>
EU Strategy for Baltic Sea Region	2014-2020	<ul style="list-style-type: none"> <li>• Ensuring more sustainable transport solutions in the region;</li> <li>• Connecting the transport nodes of various level of mobility corridors to strategic cores;</li> <li>• Linking different transport modes;</li> <li>• Increasing accessibility to areas with accessibility deficits;</li> <li>• Increasing environmentally friendly mobility in cities of the region;</li> </ul>

*Table 5.2. Strategic document analysis for implications of sustainable mobility planning aspects (retrieved with the help of Transport Development Guidelines 2014-2020 (2019; 2018; 2016; 2020))*

Sustainable Development Strategy of Latvia until 2030	2011-2030	<ul style="list-style-type: none"> <li>• Develop high quality transport infrastructure;</li> <li>• Improve inner and outer accessibility;</li> <li>• Use alternative fuel transport means;</li> <li>• Lowered CO<sub>2</sub> emission level from transport sector</li> <li>• Improve the quality of regional and local roads and public transport to lessen the time spent travelling;</li> <li>• Degraded infrastructure renewal and reconstruction</li> </ul>
National Development Plan of Latvia for 2014-2020	2014-2020	<ul style="list-style-type: none"> <li>• Improve the quality of development centres</li> <li>• Improve the quality of regional and local roads;</li> <li>• Improve the quality of public transport rolling stock and services</li> </ul>
Sustainable Development Strategy of Riga Planning Region until 2030	2014-2030	<ul style="list-style-type: none"> <li>• External and internal accessibility to Riga as a centre of metropolitan area</li> <li>• Link the transport system to Rail Baltica project</li> <li>• Fast regional connections provided by railroad</li> <li>• Connecting the centre and remote areas by mobility</li> </ul>

Table 5.2 continuation



Spatial Development Plan of Riga Planning Region	2009-2030	<ul style="list-style-type: none"> <li>• Improving bicycle mobility;</li> <li>• Improving road network connectivity</li> <li>• Walking infrastructure development both in Riga and</li> </ul>
Development Programme of Riga Planning Region 2014-2020	2014-2020	<ul style="list-style-type: none"> <li>• Developing good quality, accessible public transport in Riga Planning region</li> <li>• Establishing the connections between municipalities of Riga metropolitan area using public transport</li> </ul>
Sustainable Development Strategy of Riga until 2030	2014-2020	<ul style="list-style-type: none"> <li>• Connection with international transport networks;</li> <li>• Improved inner mobility – pedestrian, cyclist and public transport friendly</li> </ul>
Riga City territorial Plan	2006-2018	<ul style="list-style-type: none"> <li>• Developing specialized transport parking places around industrial territories;</li> <li>• Lowering NO2 emissions from transport</li> </ul>
Development Programme of Riga for 2014-2020	2014-2020	<ul style="list-style-type: none"> <li>• Convenient International accessibility;</li> <li>• Well balanced traffic infrastructure and organization</li> </ul>

*Table 5.2. continuation*

As discovered from document overview incorporated in Figure 5.2. to a large extent mobility implications in both medium-term and long-term planning strategy documents are harmonized and are highlighting the same priorities and objectives. That indicates that objectives developed and communicated by the European Commission are acknowledged and understood, and are in the process of adaptation and fulfillment (Ministry of Environmental Protection and Regional Development of Latvia, 2019a; Ministry of Transport of Republic of Latvia, 2018).

Documents produced by administrative public sector bodies of Riga and Pieriga do have the same development directions and objectives. There are no disagreements between the documents that Riga should develop as the centre of metropolitan area and should obtain internal and external mobility and

accessibility factors. Thus, the concern of Riga Planning Region is undoubtedly to ensure good quality, convenient connections between municipalities of the metropolitan area and Riga road quality and public transport quality wise (Grupa 93, 2019). And there is a medium-term document of Riga City territorial Plan, where administrative regulations are summarized and specific territorial planning decisions are taken (Riga City Council, 2016).

However, despite the fact that documents highlight the same aims and development directions, there are several obstacles that are still in the way of successful implementation of sustainable urban mobility policy in Riga and Latvia in general. These are described and elaborated on in the next section (see section 5.5).

## 5.5. Obstacles and threats of sustainable urban mobility monitoring system implementation in Riga

### 5.5.1. Strictness of public sector corporate hierarchy and bureaucracy in Latvia

The current public sector planning and management system was in development from the early 1990s, when the state regained independence, until the early 2000s, when the country was joining the European Union, but the basis of jurisdiction was developed in 1918 when the Republic of Latvia had proclaimed the independence *de jure* for the first time (Latvia.eu, 2019). During the context of regaining the sovereignty, there was a need for strong political pressure from the higher levels of state political management institution to establish the general political state and the government system. Though, in the current European Union political and planning context, the system of Latvia might seem outdated due to the strictness of hierarchy and bureaucracy that is present in the system (likumi.lv, 2002). Ministries in Latvia are allocated on the higher level of public administration structure and there are a lot of public and semi-private sector bodies subordinated to them, but are not interconnected within each other.

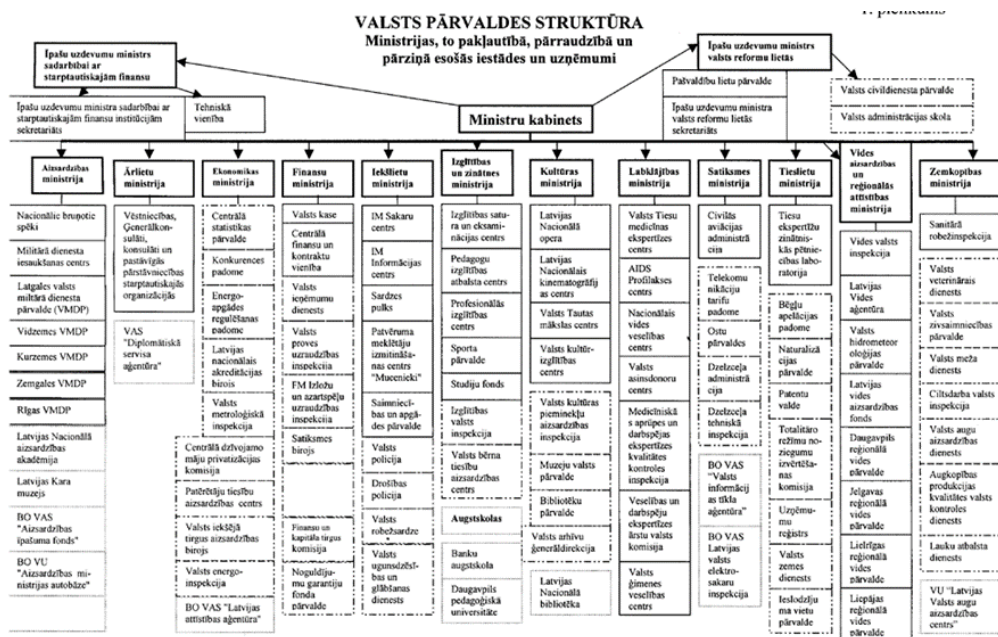


Figure 5.19. The current public administration structure. Hierarchy of ministries and subordinated organizations and companies (likumi.lv, 2002).

Concerning the structure of municipality of Riga, the working structure of it is also very bureaucratized. There are 8 committees that are responsible for separate spheres of urban administration and development, to which 7 departments are subordinated. There are no implications of neither inter-committee, nor inter-departmental cooperation, which turns it into a rather “top-down” bureaucratic

organization, which spreads also onto the lower levels of the structure (Municipal Portal of Riga, 2019). Thus, even departments or divisions that are operating within the same field, are not able to cooperate between each other without any specific agenda or special occasion. Riga City Council Development Department is split to several divisions, which, despite being the part of hierarchy of the same entity, are not interlinked in-between each other, which makes initiating an inter-divisional or interdepartmental cooperation a complex, less feasible routine in the Department. Various issues threaten the establishment of case-oriented dialogue with feasible positive outcomes. They are linked to drawbacks like small degree of internal cooperation and interdependency of projects realized. During the discussion of indicators for SUMP analysis and monitoring, no understanding or agreement between divisions was reached, thus dramatically slowing down the process (observed during discussion session for mobility measuring on the 10th of October, 2019).

#### **5.5.2. Unconsolidated planning processes in municipal administrative bodies and lack of information for cooperation**

Following up on the issue described in the previous sub-section, there is another issue linked to the public sector administration system. As the SUMP development in Riga was originally initiated by Riga City Council Development Department, all the information is gathered within this public administration body. The greater problem lies in communicating the information to ministries and public bodies on other administrative level, as the plan developed from the research is not officially confirmed by policy making institutions (Bergs, 2019). It was admitted by participating representatives of public sector administrative organizations during the seminar “Transport infrastructure development and planning in Latvia” that was held in the Ministry of Environmental Protection and Regional Development of Latvia, “Latvian policy planning principle is rational planning” (Ministry of Environmental Protection and Regional Development of Latvia, 2019b). Therefore, official initiatives can only be produced and instituted by the national level of public administration in Latvia.

Indeed, there are initiatives not only from the Mobility planning division of the Development Department, but also other divisions and even entities from other levels of public administrations, alongside various proposals of private companies and organizations. However, the quintessence of uncertainty is the issue of who will be the main actor for the SUMP development implementation. It appeared during the discussion on the 9th of December 2019 and was later confirmed in the e-mail interview with planning consultant, I. Bergs of “Laurus” consultancy agency, at this moment, there is no precise political guidance for the process of sustainable urban mobility policy development in Riga (Bergs, 2019, 2020).

The only empirical, feasible coordination of sustainable urban mobility planning that was done until today by national level organization, the Ministry of Environmental Protection and Regional Development, is the acknowledgement of importance of SUMP to be implemented in the metropolitan area of Riga. However, in this process Riga Planning Region administration is recognized as planning institution. That underpins that this research is conducted separately from Riga City Council Development Department efforts (Budiloviča, 2020; Ministry of Environmental Protection and Regional Development of Latvia, 2019a).

#### **5.5.3. Insufficient means of effective sustainable urban mobility monitoring in Riga**

As a sphere of planning and performance of cities, urban mobility is measured and by a set of specific indicators that represent performance of specific niches in the urban environment. Often, the performance is assessed from the point of view of sustainable urban development, displaying to what extent are the targets and aims set globally, nationally and locally are achieved and fulfilled. Thus, many indexes produced do differ from cases of different inspected territories (Gerlach, Richter, & Becker, 2016; Moeinaddini, Asadi-Shekari, & Zaly Shah, 2015).

In the context of European cities, many groups of indicators usually are the same, as the Sustainable Urban Mobility Policy is communicated in a centralized way from European Commission. But, there are still individual difference between various countries. Figure 5.20 presents the topics of indicators used to measure urban mobility in European Countries (see Figure 5.20 below).

Country	Climate change	Energy use/ mix	Transport intensity	Modal split	Land use	Financial sustainability	Air quality	Noise	Traffic safety	Access	Sum
Austria	x			x	x	x	x	x		x	7
Belgium			x	x			x		x		4
Bulgaria		x		x		x			x		4
Croatia	x	x	x	x			x	x		x	7
Cyprus			x	x							2
Czech Republic			x	x	x						3
Denmark	x		x	x	x		x		x	x	7
Estonia	x	x		x			x		x	x	6
Finland				x				x		x	3
France	x		x	x			x				4
Germany			x	x							2
Greece			x	x	x		x		x		5
Hungary	x	x	x	x		x	x				6
Ireland	x	x		x			x			x	5
Italy	x		x	x			x	x		x	6
Latvia				x						x	2
Lithuania	x	x	x	x	x		x	x	x	x	9
Luxembourg	x			x	x		x		x		5
Malta	x			x						x	3
Netherlands				x			x	x	x		4
Poland	x	x	x	x	x		x				6
Portugal		x		x							2
Romania		x	x	x		x			x		5
Slovakia			x								1
Slovenia				x							1
Spain	x	x					x				3
Sweden		x	x	x					x	x	5
United Kingdom	x			x				x			3
Sum	14	11	15	26	7	4	15	7	10	11	120

*Figure 5.20. Urban mobility measuring indicator groups identified by researches conducted and policies brought up in Europe (Gerlach et al., 2016)*

As identified from the Fig. 5.20., in Latvia there are only 2 urban mobility measuring indicator groups, which are modal split of transportation modes and accessibility to the urban and regional public space. The other indicators are still taken into the account, but are placed in other thematic contexts and planning fields with only a small degree of interconnection (Bergs, 2019). Moreover, the indicators provided in some planning documents also seem to have a narrow perspective on the issue of mobility, assessing only the physical implications of it. For example, in the Strategic Environmental Impact Assessment of Riga Territorial plan until 2030 (2019), there are only 3 indicators set to measure sustainable urban mobility. These are:

- Total length of bicycle lanes (kilometres);
- Parking facilities and bicycle parking places (number);

- Public transport users (number of people) (SIA Estonian Latvian & Lithuanian Environment, 2019, p. 159).

While these indicators also do provide a great use, they are just not sufficient enough to understand the issue of sustainable mobility. As far as this document is developed, monitoring indicators that are relevant for sustainable mobility, are placed under other spheres of planning. For instance, indicator 'availability of public transport stops' is placed under the topic of 'Air quality' (SIA Estonian Latvian & Lithuanian Environment, 2019, pp. 158–160). Therefore, during the internship in Mobility Division of Riga City Council Development Department conducted in Fall semester 2019, the contribution produce an inclusive list of indicators for sustainable urban mobility monitoring was proposed by author, based on available statistical resources.

#### 5.5.4. Limited availability of statistics

In the continuation of the mobility monitoring issue described in the previous sub-section, it is necessary to acknowledge and admit the limitedness of available statistics for developing monitoring indexes. The most recognized statistical source in Latvia is considered Central Statistical Bureau of Latvia, and it certainly possesses a generous thematic statistics on various themes including transport on municipal, regional and national levels (Central Statistical Bureau of Latvia, 2020b). Yet, the available datasheets tend to describe more general issues, for example, the database for road traffic accidents is available on different levels, but describes only general trend, not mentioning any transport means involved in accident.

Addressing statistics in other mobility documents, one of the key concern is limited public availability. Public administration bodies such as departments of Riga City Council tend to have planning reports done, which are not published during several months, thus are not accessible to external researchers and general public (Baltic News Network, 2020c). In addition, municipal limited liability companies do not usually publish the collected statistical data without any specific requests from the municipality. This way, Rīgas Satikme data of collected about public transport operations such as passenger flow are not available to general access in the primary form (Discussion in Riga City Council Development Department, 2019).

Another important obstruction in terms of statistics published in Latvia is the extent to which statistics are available in other languages than Latvian. While Central Statistical Bureau has the most data bases translated and published also in English language, ministries tend to only have general description of the structure and objectives translated, but the translation of planning reports is not done on the regular purpose. At the same time, private limited liability companies tend to make their web resources available in 2 or more languages, but statistical data is still mostly available only in Latvian.

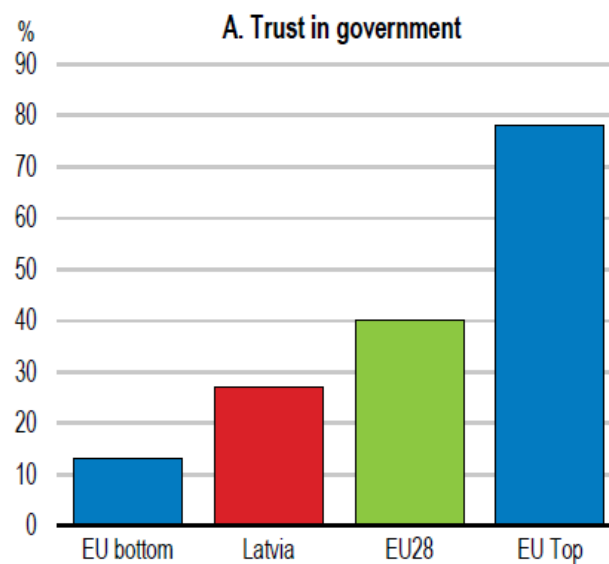
#### 5.5.5. Scattered political power, corruption, little trust in government

An obstacle, which is one of the hardest to overcome in Latvia, is scattered and unconsolidated political interests of different political parties in public administration bodies. Over the period of 2017-2019, several conflicts arose between political parties in Riga municipality, which was later investigated in Saeima, the Parliament of Latvian Republic. The accusing side though was the Ministry of Environmental Protection and Regional Development, which insisted that there was a crisis of waste management in Riga Municipality. Despite the significant attention to this conflict from the year 2018, and the change of decision-makers in 2019, the Riga City Council political administration was dissolved early in February 2020. It has put the council into the situation without stable leadership until the next elections, that were planned on 25th of April 2020 and prognosed to cost 571 thousand Euro (Baltic News Network, 2020a).

Another accentuated threat in Latvian public administration is corruption and inappropriate division of state income and financing. Several cases are related specifically to city-managed infrastructure projects, that were considered as a fraud and bribery made through procurements done by Riga City Council

through municipal transport company Rīgas Satiksme (Delna, 2019). 100 million Euro dubious investment project was found to be inclusive of private interests of small social group and was found to be connected with the higher-rank officials in Riga Municipality. The planning process remained hidden from the general public and was found out to be in the field of financial interest of the ABLV bank, which was later accused of money laundering and bribery schemes (Vancane, 2018). Other cases of corruption were found also on lower and higher levels of public administration and control during the process of financial management in transport and social security spheres (Baltic News Network, 2020b).

Such events significantly affected the societal trust in government institution processes in Latvia, which implies that citizens are less interested to be involved in governmental activities. Despite the major issue of trust taking place at the national level, the likeliness of Riga and Pierīga citizens to engage in public sector activities was never high (34% and 38% respectively) since the beginning of 2010s (Seimuskane & Vorskla, 2013).



*Figure 5.21. Shares of nationals trusting the government, %, 2017 (OECD, 2019b, p. 17)*

As Figure 5.21. uncovers, in the year 2017 in Latvia, national trust in government institutions was only around 27% of all citizens (data acquired through interviews and represented in OECD, 2019b). Despite statistics being quite general, it justifies the lack of public sector administration ability to propose major experimental ideas due to support of the programs from the side of society is the main aspect, and it is not sufficient for establishing a process of change (Ruscio, 1997).

### 5.5.6. Mobility mode of untapped development potential – bicycle mobility

Despite the awareness and understanding of the connection between cycling and sustainable lifestyle of citizens, Riga has no longstanding tradition of using bicycle as a mode of transportation on the daily basis. However, steadily growing interest in the activity demands almost immediate good quality, well-connected and safe cycling infrastructure (CIVITAS, 2020c). However, the physical means and artefacts are not the only issue of bicycle mobility development in Riga. Before the year 2015, officials' opinion was that the city cannot spare room for bicycle lanes on the expense of transport intensity on the main streets of Riga. Due to that, in May 2017 pro-cycling and pro-pedestrian activists took an extreme measure of creating of what is now remembered as 'guerrilla bicycle lanes' on the sides of the most central street of Riga, Brivibas street, which carries the most traffic in the city (O'Sullivan, 2017).

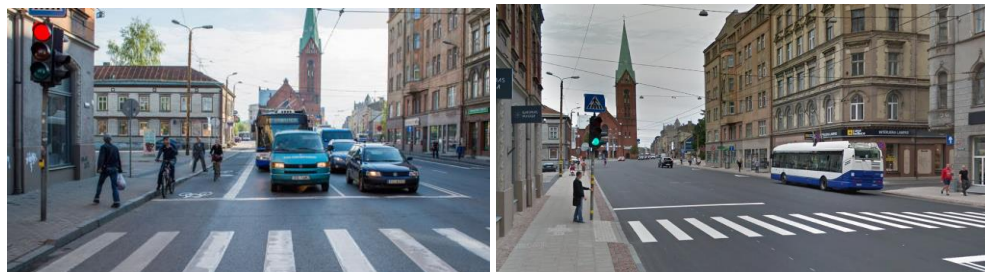


Figure 5.22. Same fragment of Brivibas street in Riga with bicycle lane (May 2017)(Pilsēta Cilvēkiem, 2017) and without (April 2018) (Google Maps, 2018)

Not only did the bicycle lanes appear literally overnight, but also were removed as fast by decision of municipality officials. However, what stayed was a real-time experience of how traffic can be readjusted by implementing easy, low-cost regulation solutions. This situation further provoked the attempts of decision-makers to experiment with cycling solution implementation and resulted in the development of short-term thematic plans and action programmes. However, lacking further actions and fulfillment of initiatives, bicycle infrastructure development did not progress much, while implementing solutions that didn't meet the demand (O'Sullivan, 2017; Pilsēta Cilvēkiem, 2017).

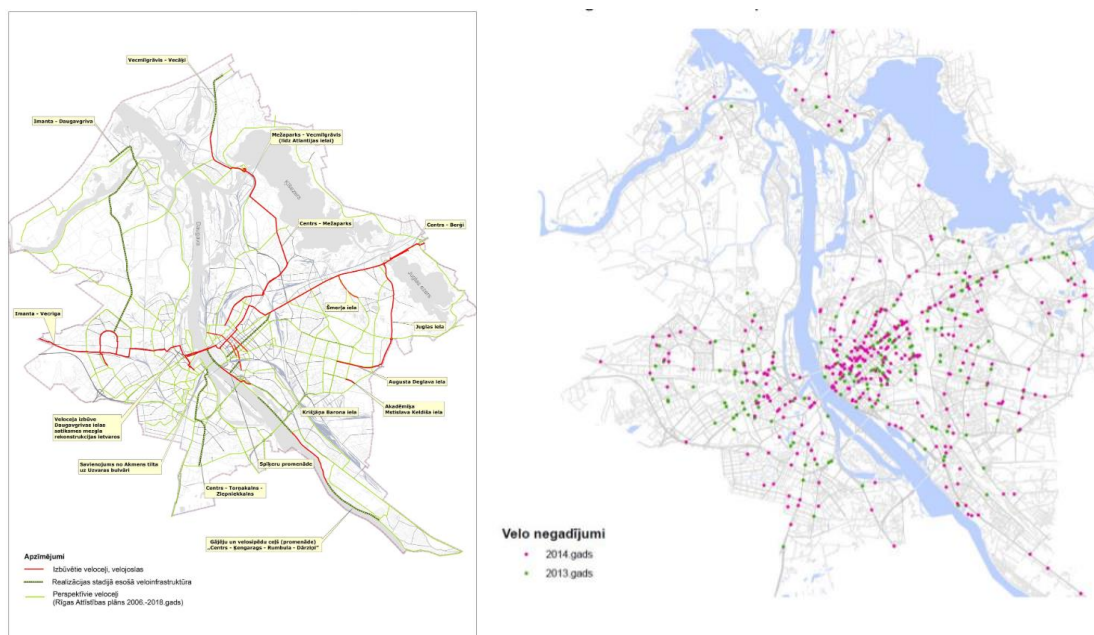


Figure 5.23. Bicycle infrastructure in Riga (Riga City Council Transport Department, 2015b, 2015a)



In Figure 5.23. there are existing bicycle lanes (highlighted in red, at the left picture) and prognosed bicycle lanes (highlighted in green and light green, at the left), as well as road accidents that involved cyclists (year 2013 marked with green dots, year 2014 marked with pink dots, at the right picture). The proposition of enhancing bicycle infrastructure was a part of the planning period of 2006-2018, but the results achieved were only few new bicycle lanes in the outskirts, that are not heavily used (O'Sullivan, 2017). Considering bicycle accidents, which, as seen from the Figure 5.23., to the most part took place in the city centre, solutions were not introduced until the recent researches (Riga City Council Development Department, 2019; Riga City Council Transport Department, 2015b).

With the emerging increase of awareness that makes nearly 10% among inhabitants annually to adopt the perspective of using bicycle as mobility mean on the daily basis, the intensity of cycling infrastructure has grown up to 600 cyclists per hour on the busiest route in the city. Thus, as bicycle is gradually integrating in the mobility system of Riga, communication of shared principles of mutual understanding in the context of road movement is essential to achieve resilient, sustainable and safe cycling model in the city and to make it accessible by all users (CIVITAS, 2020c; Pilsēta Cilvēkiem, 2017).

## 5.6. Answering Sub-question 2.

*Sub-question 2: What are the current perspectives and development directions of Sustainable urban mobility in Riga and the metropolitan area of it, and what are the barriers of implementing solutions?*

Despite the extensive vehicle use patterns identified in Riga and Pieriga region in the 21st century (Witteveen Bos, 2010b), there are observable implications of historical concepts of spatial development that steer transition to sustainable mobility (Cities & Rail, 2019). With the spatial planning based around the core activities, but still providing coverage of public transport in suburban and peripheral areas around the city (Riga City Council Department of City Development, 2014; Yatskiv & Budilovich, 2017), planning processes in Riga and Riga Planning Region embrace regional cooperation through introducing mobility means that connect Riga with other functional centres of regional importance (Riga Planning Region, 2020). Concerned with multimodal mobility solutions, Riga and Pieriga region foresee further development as a cross-border cooperation and competitiveness unit (Riga Planning Region, 2014), and participate in EU-supported initiatives and projects that foster connectivity on the macro-regional level in Baltic Sea region (Interreg, 2020b; Rail Baltica, 2020a).

Planning documents of policy development are introduced on local, regional and national level, and all are synchronized in terms of the main sustainable development directions – focusing on development of soft mobility measures (Riga City Council Development Department, 2019), prioritizing pedestrians and cyclists (Riga City Council Department of City Development, 2014; Riga City Council Development Department, 2019), as well as integrating mobility system in Riga and Pieriga region and developing multi-modal connections (Ministry of Transport of Republic of Latvia, 2018).

However, despite the planning objectives being put together in a synchronized way, there are several obstacles, such as inability of lower level planning institutions to act independently from the decisions of ministries (Bergs, 2019; Ministry of Environmental Protection and Regional Development of Latvia, 2020), unconsolidated planning visions on different levels (Bergs, 2019; Ministry of Environmental Protection and Regional Development of Latvia, 2019a), limited availability of statics and monitoring opportunities (Baltic News Network, 2020c; SIA Estonian Latvian & Lithuanian Environment, 2019) and segregation and underdevelopment of bicycle infrastructure, which is foreseen to be the second top priority in the mobility system of Riga (O'Sullivan, 2017; Pilsēta Cilvēkiem, 2017; Riga City Council Department of City Development, 2014).



## 6. Discussion

This chapter answers Sub-question 3 of the research project through investigating the importance of Sustainable Urban Mobility Plan implementation on local, regional and national level by investigating what is the function that SUMP performs when introduced as a solution. The chapter follows on by describing several examples of opportunities that SUMP can provide on different planning levels.

### 6.1. Why is it important for Riga Municipality to impement a Sustainable Urban Mobility Plan?

#### 6.1.1. Implementation of viable solutions on in the localities and contribution to the urban development system of Riga

Having sustainable urban mobility as a development goal in Riga Sustainable Development Strategy until 2030, it is essential to understand operational processes of SUMP implementation. The challenge of implementing an SUMP in a local context underpins adapting functional methods in, but on a smaller scale, while still preserving the ambitions and avoiding inappropriate compromises (Rupprecht Consult, 2019, p. 21)

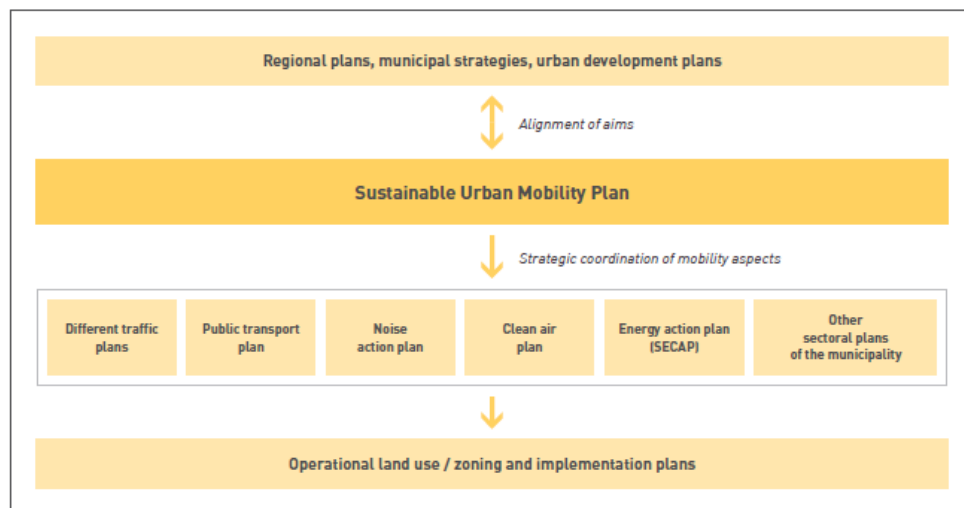


Figure 6.1. SUMP placement on the local scale (Rupprecht Consult, 2019, p. 21)

Placed as a strategic coordination unit of mobility aspects into thematic sectoral plans, SUMP is ought to align the aims of adapting the sustainable urban mobility policy implications on the smaller scale. On the example of Riga, there are 7 thematic parts of spatial development perspective distinguished in the long-term sustainable Development strategies. These are:

1. Spatial structure of the population setting;
2. Transport infrastructure;
3. Engineering infrastructure;
4. Spatial structure of natural territories;
5. Important historical, cultural, and landscape spaces of Riga;
6. Priority development territories;
7. Important elements of the spatial structure (Riga City Council Department of City Development, 2014, p. 18)

A viable example of SUMP effect of the local scale would be implementing cycling mobility (see problem description in sub-section 5.5.6.) in several thematic parts. As bicycle mobility is recognized as one of the priority aims of sustainable mobility development in Riga (Riga City Council Department of City Development, 2014; Riga City Council Development Department, 2019), the necessary implication would be adapting planning process for bicycle mobility in spatial development perspective, making it a part of spatial planning process (Rupprecht Consult, 2019, pp. 21–23).

Another good example is recommended by Gehl Architects in the review document of 2019-2025 mobility action programme of Riga. While the Action programme specifies developments in the suburban area and external (to the relation of the city core) public spaces (Riga City Council Development Department, 2019, p. 6) and assigns high or medium-high priority to these developments (see sub-section 5.2.3.), specific public space development projects outside the city core are not specified. Thus, Gehl Architects propose the implementation of the development principle (see Fig. 6.2. below).

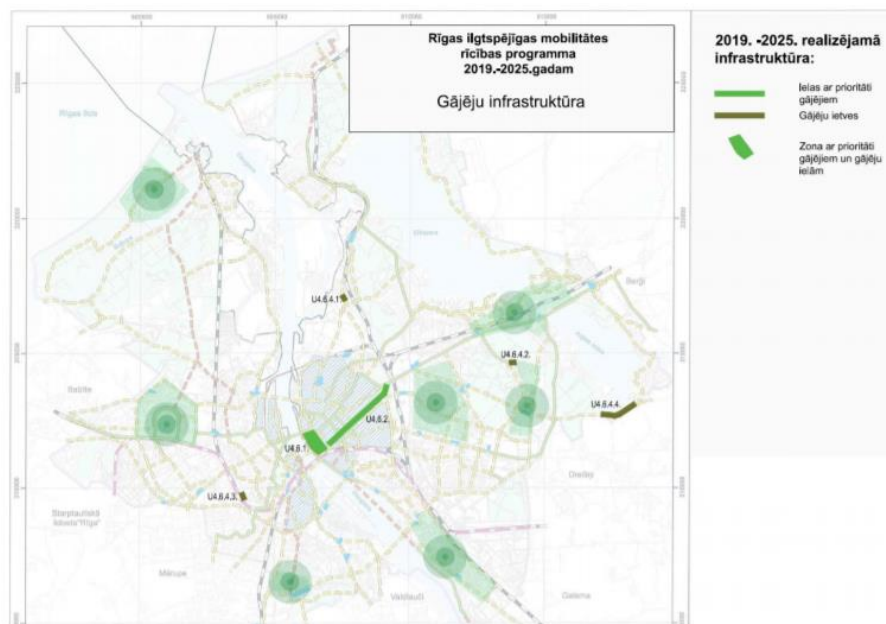


Figure 6.2. Proposed good quality public space developments outside of the city core (Gehl Architects, 2019, p. 7)

While elaborating on the action programme, Gehl Architects distinguish that the principles should be adapted in public spaces localities. Public space developments are marked with green circles with areals on the Figure 6.2. Justification for principle implementations is that such form of development comes at low expenditure, but vast effect for the surrounding areas (Gehl Architects, 2019).

### 6.1.2. Improved integrity of Riga municipal strategies and mobility development plans and projects on the regional level

While SUMP on the local level serves more as a guideline for justifying implementing planning solutions, the form of it that is more applicable on the level of urban metropolitan region is SUMP as an integration process (see Figure 6.3. below)

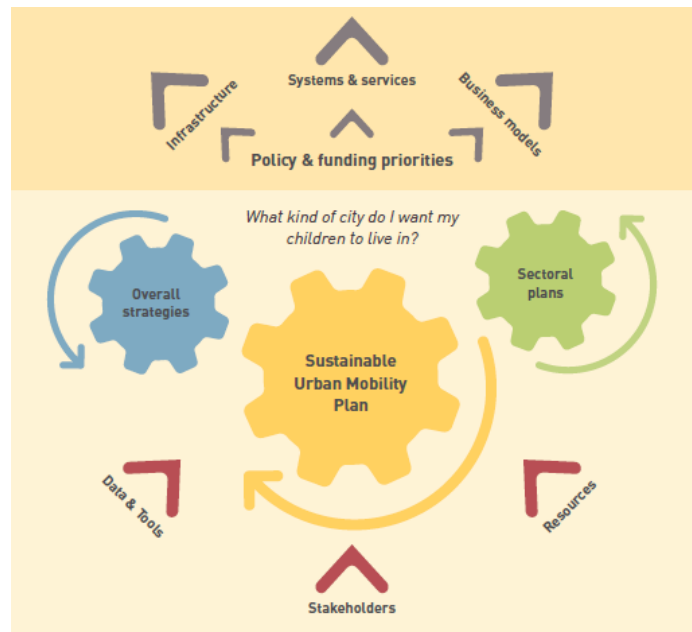


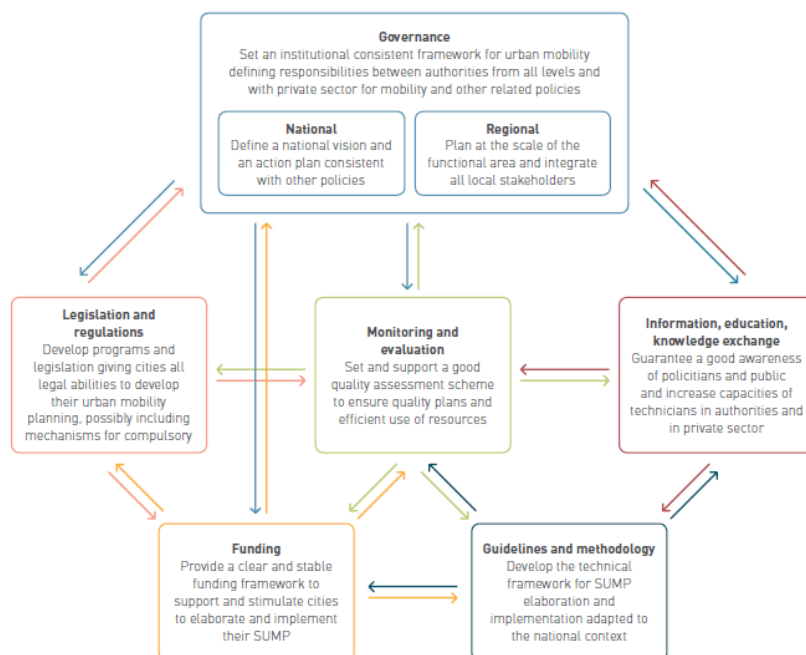
Figure 6.3. SUMP as an integration process (Rupprecht Consult, 2019, p. 22)

The privilege of developing an SUMP as an intergration process in the metropolitan region is that it will be brought to the structure of single entity of operation. Throughout persuating the aim of various strategies and sectoral plans present in the metropolitan region, an SUMP aims to achieve unified functional urban area across institutional borders (Chinellato & Morfoulaki, 2019, pp. 16–17; Rupprecht Consult, 2019, p. 25). Assuring the quality of the planning process by assessing the current and future performance of all the relevant actors in the metropolitan region and consolidating long-term development visions, the SUMP facilitates a clear implementation plan of integrated approach for mobility mean development (Chinellato & Morfoulaki, 2019, pp. 16–17).

Synchronized with other initiatives in peri-urban and rural context such as MAMBA project, SUMP is able to consolidate innovative mobility solution within the larger region, contributing to the efforts of partnership initiative (Mamba Project, 2020).

### 6.1.3. Formulation of policy for sustainable mobility planning on the national level and incorporation of developing a working structure

On the national level, SUMP requires an establishment of measures that would interrelate clearly and form an effectively operating system with the consistent institutional framework for responsibility delegation between authorities of public sector and related actors of private sector (Rupprecht Consult, 2019, p. 27). The structure that should be established is available in Figure 6.4. below.



*Figure 6.4. National level measures to foster the uptake of SUMP and the main relation (Rupprecht Consult, 2019, p. 27)*

The structure of SUMP implementation on the national level is concerned about planning processes organized in a way to cope with lack of cooperation in terms of SUMP between levels of public administration, to dismiss the limitations in coordination of planning policies developed by ministries, to improve level of awareness, political will and commitment of decision-makers, to establish quality control and evaluation of the achievable results, and to increase professional support for public administration bodies and professionals who are related to the SUMP planning processes. Thus, the deliberation behind establishing SUMP on the national level is the improvement of coherence between different sectoral policies and governance level, and to promote innovative solutions and new markets (Rupprecht Consult, 2019, pp. 25–27).

## 6.2. What opportunities can SUMP implementation provide?

### 6.2.1. Endorsement of best practices in planning for sustainable mobility

Despite the overall objectives in spatial and sustainable planning between Western and Eastern European countries being vastly addressing similar issue, there are still various differences in planning systems of Member States of different regions. Structure and position of planning within the public sector urban development activities in the Central and Eastern European countries does not carry a longer tradition and is considered of being less important of an activity then it is in Western European public institutions (Stead, 2012, p. 111). Thus, when German Federal Environment Agency funded 2 similar projects for better integration of public transport operation system for implementation in Wroclaw (Poland) and Riga (Latvia), the solution did not work out in the way it was expected to, with both projects having different outcomes (Stead, 2012, p. 112).

In terms of SUMP, not only does it imply a more unified, consolidated approach for adaptation of good practices in a municipality, but on the very first step of the plan implementation, evaluation of planning rationale is brought up. It calls for public administration bodies to analyse and understand, what are the

current planning practices an administrated territory is following, and it would determine how closely would they align with the ones set out in the guidance document. In this order, the benefit of researching for SUMP is ensures that solutions implemented in the administrated unit will be relevant and synchronised with the actual capabilities of the unit (Rupprecht Consult, 2019, p. 34).

#### **6.2.2. Broaden the collaboration opportunities with companies and organizations on a municipality scale**

Cooperation for sustainable development has been a highlighted aspect of sustainable mobility planning issue since the very beginning of communication of the policy. It emphasized the importance of interdepartmental cooperation withing the planning institutions of public sector, but it also carried on to broaden the borders for partnerships also with non-governmental organizations. Today, developing a partnership between a municipality and a private company, which is operating in an urban development sphere, is not a rare scenario, as a lot of data is produced externally (Rupprecht Consult, 2019, pp. 11, 16, 18, 34–41). Engagement of stakeholders is admitted to be a fundamental process of ensuring legitimacy and quality of decision making, while also being a requirement posed by the EU and international planning conventions (Rupprecht Consult, 2019, p. 44). Therefore, Riga City Council signed several contracts with consultancy agencies that are lead by experts in planning processes (see sub-section 5.2.3.). In the e-mail interview with I. Bergs of Laurus planning consultancy, it was uncovered that he does not pursue any personal vision, but is rather trying to represent the interest of society in coordination with the key sustainable mobility principles indicated in Riga (Bergs, 2020).

#### **6.2.4. Serve as alignment between digital solutions and mobility planning**

A popular emerging concept of alignment of sustainable urban mobility services and the needs and experience of user is called MaaS – Mobility as a Service. The core principle of this solution is a digital platform, that integrates end-to-end trip planning, electronic booking and ticketing, as well as payment services for all modes of transportation both of public and private sector (Goodall, Dovey, Bronstein, & Bonthron, 2017). Addressing major urban planning concerns such as urban growth, it accentuates the 21st mobility concerns and measures such as increase of passive mobility means, excessive use of private motorized transportation means, but also studies the coming up solutions and available statistics to uncover the potential of digital mobility solutions (Goodall et al., 2017, pp. 115–119).

Another good example of digital mobility solutions has a tremendous focus specifically on urban space. HERE company operates with the mission to uncover, collect and incorporate large amounts of raw data into organized data sets and transform those into valuable services and solutions that would provide benefits for quality of life in cities and broaden citizen's perception of living, moving and interaction with urban environment. The key differentiators in the issue for improving urban mobility for HERE are (1) to improve planning by including broader data sets and using high-quality data to make appropriate decisions for roadways, (2) relieving congestions in a city by managing and planning future traffic conditions and (3) increasing road safety through analysing data of transport incidents, accidents and advisories using data collected by car sensor (HERE, 2020). But, there are several larger scale aspects of this company that make the effect of their operations beneficial for urban planning.

At first, without taking an insight on company's accolades, it might seem that the emphasis in their development direction is set on car drivers mainly, but this point is proven wrong. In the electronical publication "Harmonizing urban mobility: How location intelligence is transforming movement in cities" HERE provides a view from different perspectives onto the issue of citizen mobility, by that reaching out to a very different layers of audience such as private users, companies and public sector bodies (HERE, 2019, pp. 3–4). The result product is 'location intelligence', the process of acquiring meaningful insights

from understanding the relationships between various sets of geospatial data (2019, p. 4). It is used by the company to develop these innovative solutions:

- 1) Making city roads safer for all users;
- 2) Transforming urban movement through efficient transport operations;
- 3) Boosting the experience of urban movement by supplying a compelling UX (user experience) interface;
- 4) Enhancing the experience for fleet (service) drivers with real-time data;
- 5) Benefitting the development of an efficient transport system in a city;
- 6) Contributing to enhancing sustainability and urban movement through technical solutions (2019, pp. 5–16).

The upbrought solutions are then communicated both through the platform, where visual interface is serving as a channel for monitoring mobility that can be done privately, corporately and publicly, as also data is exchanged with a municipal governance of a city to provide an insight on advantages and disadvantages of the current mobility plan and provide a basis for further improvement (2019, pp. 17–18).

#### 6.2.5. Assist in the consolidation of mobility solutions developed as a reaction to COVID-19 outbreak and isolation

Despite the fact that the effects of COVID-19 outbreak might not be clearly seen by planners embedded in the planning process of SUMP in Riga (Bergs, 2020; Budiloviča, 2020), the pandemic has uncovered the relationship between mobility, urban space and health, as well as potentially new perspectives of urban transportations through new infrastructures. Lead by ideas of tactical urbanism means, it arises in a bottom up approach aimed at improving the urban space (Ricci, 2020). Reaction from pro-public space activists was almost immediate in many cities in Europe and all across the world with temporary infrastructure means such as ‘pop-up’ bicycle lanes, parks in crossings with high traffic density (at least, before the isolation) and many else temporary urbanism implications. However, implementation and fully functional experiments with the provided solutions are not possible until the moment of full recovery from the pandemic (Ricci, 2020). But, the tendencies of public space to the situation of COVID-19 crisis can provoke more sustainable, long-term urban renewal solutions. With the implication of SUMP on the local scale (see sub-section 6.1.1.), the principles of soft measures can be developed as a basis for potential low-cost solutions done in the urban environment (Pilsēta Cilvēkiem, 2020).

### 6.3. Answering Sub-question 3

*Sub-question 3: Why is it important for Riga Municipality to implement a Sustainable Urban Mobility Plan and what opportunities can it provide?*

Implementing SUMP can be beneficial for Riga on both local, regional and national scales. It provides feasible solutions for embedding local practices in sustainable development strategies, builds structure for policy formulation on the national level and motivates the integrity of the planning region (Chinellato & Morfoulaki, 2019; Rupprecht Consult, 2019). Furthermore, SUMP can also serve as an assisting tool in investigation and appropriation of the best practices in an administrated entity, as well as alignment of digital solutions and consolidation of temporary context-specific implications into long-term practices (Rupprecht Consult, 2019).

## 7. Conclusions

As the result of this research, the socio-technical nature of sustainable urban mobility was uncovered with the help of multi-level perspective. Originating from the landscape of changes in European Integration theories, it is further analysed as a complex socio-technical process that is located in the context of constant transition. Landscape at the macro level and technological niches at the micro level are constantly pressuring the socio-technical regime of sustainable urban mobility, that establishes the co-evolution of this regime in alignment with other socio-technical regimes (e.g. digital technologies, user-oriented planning etc.) (Frank W. Geels, 2004)

Answering the main research question “What is the process of transition to a Sustainable Urban Mobility Plan in Riga and how can the process of transition be handled in the future?” it is necessary to admit that there are existing implications of sustainable urban mobility planning that were put even in the first official document mobility planning document, Riga and Pieriga Mobility Plan (2010a). Ministries, as the highest level public administration institutions incorporate aspects of sustainable urban mobility planning in medium-term and long-term planning documents (Ministry of Environmental Protection and Regional Development of Latvia, 2019a; Ministry of Transport of Republic of Latvia, 2018). However, obstacles such as outdated public sector planning management system, unconsolidated visions of public sector bodies, lack of knowledge and unawareness of insufficient actions to develop infrastructure for micro mobility make the process of adaptation of sustainable urban mobility policy stagnate. Despite the acknowledged efforts to prove importance and provide justification for SUMP implementation in Riga, Riga City Council Development Department did receive minimal support from the higher-level public institutions (Budiloviča, 2020). Thus, the practical meaning of the SUMP implementation is described based on the guideline document developed by (Rupprecht Consult, 2019) with support from European Commission. Projects of local and regional meaning are mentioned to elaborate on the potential impact of SUMP on different levels of planning. Considering the situation of COVID-19 outbreak and the pandemic that took place, the elaboration on the potential SUMP effect is done in the form of discussion.

Summing up everything that was described before, implementation of the SUMP concept is not yet possible in Riga, but several contributions are put in place, that might influence the situation further on.

**Validity** in qualitative research is considered an extent of how measured and analysed data is corresponding to the research objectives established by the researcher (Mason, 2002, p. 39). In terms of this research, qualitative research methods are put to use to analyse the current state, implications and development aims of Sustainable Urban Mobility Plan in Riga. Steps of analysis are synchronized with the steps that are taken in literature review, thus establishing single framework for analysing both theory and practical implications of it.

**Reliability** of the research is embedded in the strategy and approach to the research. For a fact, this research is case study-based and the recommendations produced are unique for the city of Riga and the metropolitan area, but on the basis of the approach in terms of methods of data generation and analysis, as well as the theoretical, another research can be conducted (Mason, 2002, p. 39).

**Ethics of research** are underpinning the connection to ‘real world problems’, applied social science, that does not only provide explanation for the described event, but rather draws on importance of it happening in a specific context. The engagement with the values during the analysis and discussion part elaborate on the potential improvements on political guidance of SUMP issue in Riga (Farthing, 2016; Flyvbjerg, 2004, pp. 283–284). There are further steps taken to produce case specific recommendations and conclusions (Creswell, 2009, pp. 3–5; Farthing, 2016).

## Bibliography

- Adams, N. (2006). National Spatial Strategies in the Baltic States. In *Regional Development and Spatial Planning in an Enlarged European Union* (pp. 155–179). Ashgate.
- Akimov, A., & Banister, D. (2011). Urban public transport in post-communist transition: The case of tashkent, Uzbekistan. *Comparative Economic Studies*, 53(4), 721–755. <https://doi.org/10.1057/ces.2011.18>
- Altbergs, T., Augustāne, K., & Pētersone, I. (2010). *The Railways of Latvia* (E. Velde, Ed.). Retrieved from [https://www.railwaymuseum.lv/sites/muzejs.ldz.lv/files/uploads/dzelzceli\\_latvijaa\\_en.pdf](https://www.railwaymuseum.lv/sites/muzejs.ldz.lv/files/uploads/dzelzceli_latvijaa_en.pdf)
- Apkaimes. (2019). Statistika. Retrieved December 10, 2019, from <https://apkaimes.lv/statistika/>
- APUS. (2020). What is the difference between a thesis statement and a research question? Retrieved May 26, 2020, from American Public University System website: <https://apus.libanswers.com/writing/faq/102559>
- Archer, M., Bhaskar, R., Collier, A., Lawson, T., & Norrie, A. (1998). *Critical Realism: Essential Readings* (Vol. 8). <https://doi.org/10.1163/1569206X-00801024>
- Bal, H. (2016). What is Critical Realism? Retrieved May 26, 2020, from Social Sciences. Education Studies website: <https://warwick.ac.uk/fac/soc/ces/research/current/socialtheory/maps/criticalrealism/>
- Baltic News Network. (2020a, February). Latvian parliament dissolves Riga City Council. *News from Latvia*. Retrieved from <https://bnn-news.com/latvian-parliament-dissolves-riga-city-council-210409>
- Baltic News Network. (2020b, May). Millions paid in taxes do not guarantee state will help during a crisis. *News from Latvia*. Retrieved from <https://bnn-news.com/millions-paid-in-taxes-do-not-guarantee-state-will-help-during-a-crisis-213315>
- Baltic News Network. (2020c, May). State Audit: Poverty reduction measures in Latvia lack a unified approach. *News from Latvia*. Retrieved from <https://bnn-news.com/state-audit-poverty-reduction-measures-in-latvia-lack-a-unified-approach-213368>
- Baltijas Vēstnesis. (1901). “Elektriskie tramvaji vakar uzsāka savu darbību...”
- Banister, D. (2007). The sustainable mobility paradigm. *Transport Policy*, 15(2), 73–80. <https://doi.org/10.1016/j.tranpol.2007.10.005>
- Bergmann, J., & Niemann, A. (2015). Theories of European integration. *The SAGE Handbook of European Foreign Policy*, (January), 166–182. <https://doi.org/10.4135/9781473915190.n11>
- Bergs, I. (2019). *Preparing for SUMP. Presentation in Riga City Council Development Department, 09.12.2019*. Riga.
- Bergs, I. (2020). *E-mail interview with Ivars Bergs*.
- Bhaskar, R. (2008). A Realistic Theory of Science. In *Noûs* (Vol. 24). Retrieved from [https://uberty.org/wp-content/uploads/2015/09/Roy\\_Bhaskar\\_A\\_Realist\\_Theory\\_of\\_Science.pdf](https://uberty.org/wp-content/uploads/2015/09/Roy_Bhaskar_A_Realist_Theory_of_Science.pdf)
- Blaikie, N. (2000). *Designing social research*. Cambridge: Polity Press.
- Blunden, A. (2009). Critical Realism and Reality. *Ethical Politics*, (November 2009). Retrieved from [https://www.ethicalpolitics.org/ablunden/pdfs/Critical Realism and Reality.pdf](https://www.ethicalpolitics.org/ablunden/pdfs/Critical%20Realism%20and%20Reality.pdf)
- Bobică, D. (2010). European Integration and Globalization. In „Ștefan Lupașcu” European Studies Institute (Ed.), *EIRP Proceedings 5* (pp. 210–215). Retrieved from <http://www.proceedings.univ->



- danubius.ro/index.php/eirp/article/download/589/533
- Budiloviča, E. (2020). *E-mail interview with Evelīna Budiloviča*.
- Central Statistical Bureau of Latvia. (2016). *EPM410. Kilometers travelled yearly by fuel type (million km)*. Retrieved from [http://www.csb.gov.lv/lv/stats\\_table\\_metadata/170/](http://www.csb.gov.lv/lv/stats_table_metadata/170/)
- Central Statistical Bureau of Latvia. (2019a). *TRG080. Registered personal car number in Latvian statistical regions by the end of a year*. Retrieved from [http://www.csb.gov.lv/lv/stats\\_table\\_metadata/31](http://www.csb.gov.lv/lv/stats_table_metadata/31)
- Central Statistical Bureau of Latvia. (2019b). *TRG410. Traffic accidents in statistical regions of Latvia*. Retrieved from [http://www.csb.gov.lv/lv/stats\\_table\\_metadata/30/](http://www.csb.gov.lv/lv/stats_table_metadata/30/)
- Central Statistical Bureau of Latvia. (2020a). *ISG050. Inhabitants by declared place of residence in statistical regions*. Retrieved from [http://www.csb.gov.lv/lv/stats\\_table\\_metadata/144/](http://www.csb.gov.lv/lv/stats_table_metadata/144/)
- Central Statistical Bureau of Latvia. (2020b). Statistics. Retrieved June 3, 2020, from <https://www.csb.gov.lv/en/statistics>
- Chinellato, M., & Morfoulaki, M. (2019). *Sustainable Urban Mobility Planning in Metropolitan Regions*. Retrieved from [https://sumps-up.eu/fileadmin/user\\_upload/Tools\\_and\\_Resources/Publications\\_and\\_reports/Topic\\_Guides/sump\\_metropolitan\\_region\\_guide\\_v2.pdf](https://sumps-up.eu/fileadmin/user_upload/Tools_and_Resources/Publications_and_reports/Topic_Guides/sump_metropolitan_region_guide_v2.pdf)
- Cities & Rail. (2019). *Cities & Rail: Increasing potentials for Smart & Just Cities. Final Report*. 1(November), 1–38.
- CIVITAS. (2020a). About CIVITAS. Retrieved June 2, 2020, from City Vitality and Sustainability website: <https://civitas.eu/about>
- CIVITAS. (2020b). Handshake Project. Retrieved June 3, 2020, from This is Handshake website: <https://handshakecycling.eu/about>
- CIVITAS. (2020c). Handshake Project - About Riga. Retrieved June 3, 2020, from <https://handshakecycling.eu/riga>
- CIVITAS. (2020d). Research projects. Retrieved from <https://civitas.eu/projects/research>
- Conteh, C. (2011). Theoretical Perspectives on Policy Implementation. *Canadian Public Administration*, Volume 54(Issue 1), 121–142. Retrieved from <https://www.policynl.ca/policydevelopment/pages/theoretical-perspectives.html>
- Council of Europe. (2017). EU macro-regional strategies. Retrieved from Routes4U website: [https://pjp-eu.coe.int/en/web/cultural-routes-and-regional-development/eu-macro-regions#:~:text=Four macro-regional strategies have,the Alpine Region \(2015\).](https://pjp-eu.coe.int/en/web/cultural-routes-and-regional-development/eu-macro-regions#:~:text=Four macro-regional strategies have,the Alpine Region (2015).)
- Counsell, D. (2004). *Regions, Spatial Strategies and Sustainable Development*. <https://doi.org/10.4324/9780203561249>
- Counsell, D., & Haughton, G. (2003). Regional Planning Tensions: Planning for Economic Growth and Sustainable Development in Two Contrasting English Regions. *Environment and Planning C: Government and Policy*, 21(2), 225–239. <https://doi.org/10.1068/c0221>
- Creswell, J. W. (2009). *Research Design. Qualitative, Quantitative and Mixed Approaches* (Third Edit). Sage Publications.
- Cross-Sectoral Coordination Center Republic of Latvia. (2019). National Development Planning. Retrieved December 30, 2019, from <https://www.pkc.gov.lv/en/national-development-planning/national->

## development-planning

- CVCE. (2016). The European Communities. Retrieved May 20, 2020, from [https://www.cvce.eu/obj/the\\_european\\_communities-en-3940ef1d-7c10-4d0f-97fc-0cf1e86a32d4.html](https://www.cvce.eu/obj/the_european_communities-en-3940ef1d-7c10-4d0f-97fc-0cf1e86a32d4.html)
- Dallhammer, E., Gaugitsch, R., Neugebauer, W., & Böhme, K. (2018). Spatial planning and governance within EU policies and legislation and their relevance to the New Urban Agenda. *European Committee of the Regions*, 1–22. <https://doi.org/10.2863/0251>
- Damidavičius, J., Burinskienė, M., & Ušpalytė-vitkūnienė, R. (2019). A monitoring system for sustainable urban mobility plans. *Baltic Journal of Road and Bridge Engineering*, 14(2), 158–177. <https://doi.org/10.7250/bjrbe.2019-14.438>
- Davis, J. (2020). What are empirical questions? Retrieved May 26, 2020, from Research Methods website: <https://www.sophia.org/tutorials/what-are-empirical-questions>
- Delna. (2019, June). Corruption risks in city-managed infrastructure projects offer bitter lessons. *News*. Retrieved from <https://delna.lv/en/2019/06/11/corruption-risks-in-city-managed-infrastructure-projects-offer-bitter-lessons/>
- Driksna, A. (2020). Progress and Next Steps. *Rail Baltica Online Forum 23.04.2020*, 1–10. Retrieved from [https://www.railbaltica.org/wp-content/uploads/2020/04/Rail\\_Baltica\\_Online\\_Forum\\_2020\\_Agnis\\_Driksna.pdf](https://www.railbaltica.org/wp-content/uploads/2020/04/Rail_Baltica_Online_Forum_2020_Agnis_Driksna.pdf)
- Edquist, C. (2005). Systems of Innovation: Perspectives and Challenges. *The Oxford Handbook of Innovation*, (April). <https://doi.org/10.1093/oxfordhb/9780199286805.003.0007>
- European Commission. (2007). Towards a New Culture for Urban Mobility. *Directorate- General for Energy and Transport*, 1–6. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52007DC0551&from=EN>
- European Commission. (2009). *Action Plan on Urban Mobility*. Retrieved from <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0490:FIN:EN:PDF>
- European Commission. (2011). *White Paper “Roadmap to a Single European Transport Area.”* Retrieved from [https://ec.europa.eu/transport/themes/strategies/2011\\_white\\_paper\\_en](https://ec.europa.eu/transport/themes/strategies/2011_white_paper_en)
- European Commission. (2013a). *Annex “A Concept for Sustainable Urban Mobility Plans” to the Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and The Committee of The Regions. Together towards competitive and resource-efficient urban mobility.* Retrieved from [https://ec.europa.eu/transport/sites/transport/files/themes/urban/doc/ump/com%282013%29913-annex\\_en.pdf](https://ec.europa.eu/transport/sites/transport/files/themes/urban/doc/ump/com%282013%29913-annex_en.pdf)
- European Commission. (2013b). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. “Together towards competitive and resource-efficient urban mobility”.* Retrieved from [www.ec.europa.eu/transport/themes/urban/urban\\_mobility/doc/2010\\_06\\_24\\_apum\\_council\\_conclusion](http://www.ec.europa.eu/transport/themes/urban/urban_mobility/doc/2010_06_24_apum_council_conclusion)
- European Commission. (2013c). *Urban Mobility Package.* Retrieved from [https://ec.europa.eu/transport/themes/clean-transport-urban-transport/urban-mobility/urban-mobility-package\\_en](https://ec.europa.eu/transport/themes/clean-transport-urban-transport/urban-mobility/urban-mobility-package_en)
- European Commission. (2015). *Paris Agreement.* Retrieved from

- [https://ec.europa.eu/clima/policies/international/negotiations/paris\\_en](https://ec.europa.eu/clima/policies/international/negotiations/paris_en)
- European Commission. (2017a). *EU Strategy for the Baltic Sea Region*. 2. <https://doi.org/10.2776/304718>
- European Commission. (2017b). *European Urban Mobility: Policy Context*. <https://doi.org/10.2832/827766>
- European Commission. (2017c). *Sustainable Urban Mobility: European Policy, Practice and Solutions*. <https://doi.org/10.2832/51274>
- European Portal of Integration and Development. (2018). History of European Intergration. Retrieved May 20, 2020, from <http://europejskiportal.eu/history-of-european-integration/>
- EUROSTAT. (2020). *Passenger cars per 1000 inhabitants*. Retrieved from [https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=road\\_eqs\\_carhab&lang=en](https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=road_eqs_carhab&lang=en)
- Farthing, S. M. (2016). *Research Design in Urban Planning : A Student's Guide*. Los Angeles: SAGE.
- Flyvbjerg, B. (2004). Phronetic planning research: Theoretical and methodological reflections. *Planning Theory and Practice*, 5(3), 283–306. <https://doi.org/10.1080/1464935042000250195>
- Forrest, A. (2017). The death of diesel: has the one-time wonder fuel become the new asbestos? *The Guardian*. Retrieved from <https://www.theguardian.com/cities/2017/apr/13/death-of-diesel-wonder-fuel-new-asbestos>
- Galland, D. (2012). Is regional planning dead or just coping? The transformation of a state sociospatial project into growth-oriented strategies. *Environment and Planning C: Government and Policy*, 30(3), 536–552. <https://doi.org/10.1068/c11150>
- Geels, F.W. (2005). The dynamics of transitions in socio-technical systems: A multi-level analysis of the transition pathway from horse-drawn carriages to automobiles (1860-1930). *Technology Analysis and Strategic Management*, 17(4), 445–476. <https://doi.org/10.1080/09537320500357319>
- Geels, Frank W. (2002). Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. *Research Policy*, 31(8–9), 1257–1274. [https://doi.org/10.1016/S0048-7333\(02\)00062-8](https://doi.org/10.1016/S0048-7333(02)00062-8)
- Geels, Frank W. (2004). From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory. *Research Policy*, 33(6–7), 897–920. <https://doi.org/10.1016/j.respol.2004.01.015>
- Geels, Frank W. (2012). A socio-technical analysis of low-carbon transitions: introducing the multi-level perspective into transport studies. *Journal of Transport Geography*, 24, 471–482. <https://doi.org/10.1016/j.jtrangeo.2012.01.021>
- Gehl Architects. (2019). *Riga short-term mobility action plan - A review*. Retrieved from <https://www.rdpad.lv/wp-content/uploads/2019/04/Riga-Short-Term-Mobility-Action-Plan-Gehl-Team-review-28.02.19.pdf>
- Gehl, J. (2010). *Cities for People*. Washington D.C.: Island Press.
- Gehl, J., Kaefer, L. J., & Reigstad, S. (2006). Close encounters with buildings. *Urban Design International*, 11(1), 29–47. <https://doi.org/10.1057/palgrave.udi.9000162>
- Gerlach, J., Richter, N., & Becker, U. J. (2016). Mobility Indicators Put to Test - German Strategy for Sustainable Development Needs to be Revised. *Transportation Research Procedia*, 14, 973–982. <https://doi.org/10.1016/j.trpro.2016.05.077>

- Giddens, A. (1974). *Positivism and Sociology* (A. Giddens, Ed.). London: Heinemann.
- Gillis, D., Semanjski, I., & Lauwers, D. (2016). How to monitor sustainable mobility in cities? Literature review in the frame of creating a set of sustainable mobility indicators. *Sustainability (Switzerland)*, 8(1), 1–30. <https://doi.org/10.3390/su8010029>
- Glaser, B. G., & Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Retrieved from [http://www.sxf.uevora.pt/wp-content/uploads/2013/03/Glaser\\_1967.pdf](http://www.sxf.uevora.pt/wp-content/uploads/2013/03/Glaser_1967.pdf)
- Goodall, Wa., Dovey, T., Bronstein, J., & Bonthron, B. (2017). The rise of mobility as a service - Reshaping how urbanites get around. *Deloitte Review*, 4(20), 114–129.
- Google Maps. (2018). Brivibas street without bicycle lanes, April 2018. Retrieved June 3, 2020, from <https://goo.gl/maps/kAht9YGeYfsBSJHw7>
- Grupa 93. (2019). *Spatial Development Plan of Riga Planning Regions*.
- Hall, P. (2014). The City in the Region. In *Cities of Tomorrow: An Intellectual History of Urban Planning and Design Since 1880* (4th ed., pp. 149–201). Retrieved from <http://ebookcentral.proquest.com/lib/aalborguniv-ebooks/detail.action?docID=1676937>
- Harrison, J., & Hoyler, M. (2015). Megaregions reconsidered: urban futures and the future of the urban. *Megaregions*, 230–256. <https://doi.org/10.4337/9781782547907.00016>
- Healey, P. (2007). Urban complexity and spatial strategies: Towards a relational planning for our times. In *Urban Complexity and Spatial Strategies: Towards a Relational Planning for Our Times*. <https://doi.org/10.4324/9780203099414>
- Held, D., McGrew, A., Goldblatt, D., & Perraton, J. (2000). Global Transformations: Politics, Economics and Culture. In *Politics at the Edge* (pp. 14–28). [https://doi.org/10.1057/9780333981689\\_2](https://doi.org/10.1057/9780333981689_2)
- HERE. (2019). *Harmonizing Urban Mobility. How location intelligence is transforming movement in cities*. Retrieved from [https://go.engage.here.com/rs/142-UEL-347/images/HERE\\_ebook\\_Harmonizing\\_urban\\_movement.pdf](https://go.engage.here.com/rs/142-UEL-347/images/HERE_ebook_Harmonizing_urban_movement.pdf)
- HERE. (2020). Cities. Retrieved April 9, 2020, from Public Sector & Infrastructure website: <https://www.here.com/solutions/public-sector-infrastructure/efficient-cities>
- Holden, E. (2007). *Achieving sustainable mobility : everyday and leisure-time travel in the EU*. Ashgate.
- Ingelstam, L. (1999). Socio-economic aspects of fusion: research in the European context. *Fusion Engineering and Design*, 46(2–4), 423–431. [https://doi.org/10.1016/S0920-3796\(99\)00034-4](https://doi.org/10.1016/S0920-3796(99)00034-4)
- Interreg. (2020a). About Interreg. Retrieved June 2, 2020, from Interreg Baltic Sea Region website: <https://www.interreg-baltic.eu/about-the-programme/about-interreg.html>
- Interreg. (2020b). About the Interreg Baltic Sea Region Programme 2014-2020. Retrieved June 2, 2020, from Interreg Baltic Sea Region website: <https://www.interreg-baltic.eu/about-the-programme.html>
- Kemp, R., Loorbach, D., & Rotmans, J. (2007). Transition management as a model for managing processes of co-evolution towards sustainable development. *International Journal of Sustainable Development and World Ecology*, 14(1), 78–91. <https://doi.org/10.1080/13504500709469709>
- Khan, A. R. (2016). Policy Implementation: Some Aspects and Issues. *Journal of Community Positive Practices*, XVI(3), 2–12. <https://doi.org/2247-6571>
- Knox, P., & Pinch, S. (2010). Urban Social Geography. In *Urban Social Geography* (6th Edition).

<https://doi.org/10.4324/9781315847238>

Krišjāne, Z., & Zīra, M. (2018). Rīgas aglomerācija – vai tikai iedzīvotāju mobilitāte? *LU 76. Starptautiskās Zinātniskās Konference*. Retrieved from [https://www.geo.lu.lv/fileadmin/user\\_upload/lu\\_portal/projekti/gzzf/Konferences/EGEA/Krisjane\\_Zira\\_Rigas\\_aglomeracija.pdf#page=10](https://www.geo.lu.lv/fileadmin/user_upload/lu_portal/projekti/gzzf/Konferences/EGEA/Krisjane_Zira_Rigas_aglomeracija.pdf#page=10)

Latvia.eu. (2019). Politics. Retrieved from Key Facts website: <https://www.latvia.eu/key-facts/politics#node-3190>

Leonard-Barton, D. (1988). Implementation as mutual adaptation of technology and organisation. *Research Policy*, (17), 251–267.

likumi.lv. *Ministru kabineta rīkojums Nr.496. Par Latvijas e-pārvaldes koncepciju.*, (2002).

Loorbach, D. (2004). Governance and transitions: a multi-level policy-framework based on complex systems thinking. *Paper for the 2004 Berlin Conference on Human Dimensions of Global Environmental Change*. <https://doi.org/10.4324/9780367201456-9>

LSM. (2016, March 11). Liepāja steelworks faces shutdown threat. *Economy*. Retrieved from <https://eng.lsm.lv/article/economy/economy/liepaja-steelworks-faces-shutdown-threat.a173164/>

Lyubimov, A. (2015). Critical realism theory. Retrieved May 26, 2020, from Theories Used in Information Systems website: [https://is.theorizeit.org/wiki/Critical\\_realism\\_theory](https://is.theorizeit.org/wiki/Critical_realism_theory)

Majchrzak, A. (1984a). Conceptualizing the Policy Research study. In *Methods for Policy Research* (pp. 43–54). <https://doi.org/10.4135/9781412985024>

Majchrzak, A. (1984b). Technical Analysis. In *Methods for Policy Research* (pp. 55–73). <https://doi.org/10.4135/9781412985024.n4>

Mamba Project. (2020). What is MAMBA about? Retrieved June 4, 2020, from Mobility-Accessibility-Innovations website: <https://www.mambaproject.eu/about-us/#mamba>

Marx, R., De Mello, A. M., Zilbovicius, M., & De Lara, F. F. (2014). Spatial contexts and firm strategies: Applying the multilevel perspective to sustainable urban mobility transitions in Brazil. *Journal of Cleaner Production*, 108, 1092–1104. <https://doi.org/10.1016/j.jclepro.2015.09.001>

Mason, J. (2002). *Qualitative Researching*.

Mattsson, C. (2006). Sustainable Urban Mobility Plans: A Comparison of the Implementation in Spain and Sweden. *Traffic*, 1–79.

Mike's Railway History. (2008). The State Lines of Latvia. Growth of a Modern European System. Retrieved December 13, 2019, from Railways as they were in the years until 1935 website: <http://mikes.railhistory.railfan.net/r096.html>

Mingers, J., & Willcocks, L. P. (2004). *Social Theory and Philosophy for Information Systems*. The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, England: John Wiley & Sons Ltd.

Ministru Kabinets. (2004). Ministru kabineta rīkojums Nr.271. Retrieved December 12, 2019, from Par Latvijas Republikas statistiskajiem reģioniem un tajos ietilpstošajām administratīvajām vienībām website: <http://likumi.lv/ta/id/88074-par-latvijas-republikas-statistikajiem-regioniem-un-tajos-ietilpstosajam-administrativajam-vienibam>

Ministry of Environmental Protection and Regional Development of Latvia. (2019a). Regional policy guidelines 2021.-2027. (in Latvian). In *The Cabinet of Ministers of Latvia* (Ministru k).

- Ministry of Environmental Protection and Regional Development of Latvia. (2019b). *Transport infrastructure development and planning in Latvia, seminar 13.12.2019*. Retrieved from <http://www.varam.gov.lv/lat/publ/Seminari/tap/?doc=28160>
- Ministry of Environmental Protection and Regional Development of Latvia. (2020). About the ministry. Retrieved June 3, 2020, from [http://varam.gov.lv/eng/par\\_ministriju/](http://varam.gov.lv/eng/par_ministriju/)
- Ministry of Transport of Republic of Latvia. (2018). *Transporta Attīstības Pamatnostādnes 2014. – 2020. gadam (Transport Development Guidelines 2014-2020). Ministru kabineta 2018.gada 27.februāra rīkojums Nr.73*. Retrieved from [http://www.sam.gov.lv/images/modules/items/DOC/item\\_7341\\_SAMpamn\\_131213\\_TAP\\_ar\\_270218\\_groz\\_\(2\).doc](http://www.sam.gov.lv/images/modules/items/DOC/item_7341_SAMpamn_131213_TAP_ar_270218_groz_(2).doc)
- Ministry of Transport of Republic of Latvia. (2019). Latvia & Rail. *Cities & Rail Conference*. Riga.
- Moeinaddini, M., Asadi-Shekari, Z., & Zaly Shah, M. (2015). An urban mobility index for evaluating and reducing private motorized trips. *Measurement: Journal of the International Measurement Confederation*, 63, 30–40. <https://doi.org/10.1016/j.measurement.2014.11.026>
- Moradi, A., & Vagnoni, E. (2018). A multi-level perspective analysis of urban mobility system dynamics: What are the future transition pathways? *Technological Forecasting and Social Change*, 126(June 2018), 231–243. <https://doi.org/10.1016/j.techfore.2017.09.002>
- Municipal Portal of Riga. (2019). Structure of Riga Municipality Administration. Retrieved December 20, 2019, from [https://pasvaldiba.riga.lv/EN/Channels/Riga\\_Municipality/Structure/default.htm](https://pasvaldiba.riga.lv/EN/Channels/Riga_Municipality/Structure/default.htm)
- Næss, P. (2015). Critical Realism, Urban Planning and Urban Research. *European Planning Studies*, 23(6), 1228–1244. <https://doi.org/10.1080/09654313.2014.994091>
- O’Sullivan, F. (2017, May). “Guerrilla Bike Lanes” Prove a Reluctant City Wrong. *CITYLAB*. Retrieved from <https://www.citylab.com/transportation/2017/05/guerrilla-bike-lanes-spring-up-overnight-in-riga/527568/>
- OECD. (2012). *Redefining “Urban”: A New Way to Measure Metropolitan Areas*. Retrieved from <https://dx.doi.org/10.1787/9789264174108-en>
- OECD. (2019a). *2019 OECD Economic Survey and Environmental Performance Review of Latvia*. Retrieved from <http://www.oecd.org/economy/latvia-economic-snapshot/>
- OECD. (2019b). Sustainable Development: Critical Issues - free overview of the report. Retrieved from Sustainable Development: Critical Issues website: <https://www.oecd.org/greengrowth/sustainabledevelopmentcriticalissues-freeoverviewofthereport.htm>
- Pawson, R., & Tilley, N. (1997). An introduction to scientific realist evaluation. Evaluation for the 21st century: A handbook,. *Evaluation for the 21st Century: A Handbook*, pp.405-418.
- Peterson Institute for International Economics. (2010). *Latvia’s Post-Soviet Transition*. 5–16.
- Pilsēta Cilvēkiem. (2017). Why are bicycle lanes necessary on the Brīvības street? (in Latvian). Retrieved June 3, 2020, from <https://www.pilsetacilvekiem.lv/brivibas-iela-nepieciemas-velojoslas/>
- Pilsēta Cilvēkiem. (2020). COVID-19: Potential urgent solutions in Riga. Retrieved June 4, 2020, from <https://www.pilsetacilvekiem.lv/covid-19-steidzami-risinajumi-rigai/>
- Raik, K. (2004). EU accession of Central and Eastern European countries: Democracy and integration as conflicting logics. *East European Politics and Societies*, 18(4), 567–594.

- <https://doi.org/10.1177/0888325404269719>
- Rail Baltica. (2020a). Rail Baltica - Project of the Century. Retrieved June 3, 2020, from About Rail Baltica website: <https://www.railbaltica.org/about-rail-baltica/>
- Rail Baltica. (2020b). *Rail Baltica First Online Forum 23.04.2020*. Retrieved from [https://www.railbaltica.org/forum/archive?utm\\_source=railbaltica.org&utm\\_medium=banner&utm\\_campaign=RailBalticaOnlineForum&utm\\_content=materials](https://www.railbaltica.org/forum/archive?utm_source=railbaltica.org&utm_medium=banner&utm_campaign=RailBalticaOnlineForum&utm_content=materials)
- RailTech.com. (2018). *Procurement started for railway connection Riga airport*. Retrieved from <https://www.railtech.com/infrastructure/2018/11/09/riga-airport-to-receive-the-railway-connection/?gclid=accept>
- Railway Pro. (2019). Contract signed for Rail Baltica Riga station. Retrieved June 3, 2020, from Regions. Europe Leads website: <https://www.railwaypro.com/wp/contract-signed-for-rail-baltica-riga-station/>
- Ravazzoli, E., & Torricelli, G. P. (2017). Urban mobility and public space. A challenge for the sustainable liveable city of the future. *The Journal of Public Space*, 2(2), 37–50. <https://doi.org/10.5204/jps.v2i2.91>
- Ricci, G. (2020). Post-lockdown urban policies as an opportunity for radical transformations. *Domus*, (14 May). Retrieved from [https://www.domusweb.it/en/architecture/gallery/2020/05/14/post-lockdown-urban-policies-an-opportunity-for-radical-transformations-tactical-urbanism-mobility-bicycles.html?utm\\_term=Autofeed&utm\\_medium=Social&utm\\_source=Facebook&fbclid=IwAR1eXjX0emcp9ctYWG3bMlq9NE81bUQLNHh-UN1U1nuvG-yfYIFhriz5qw#Echobox=1590272416](https://www.domusweb.it/en/architecture/gallery/2020/05/14/post-lockdown-urban-policies-an-opportunity-for-radical-transformations-tactical-urbanism-mobility-bicycles.html?utm_term=Autofeed&utm_medium=Social&utm_source=Facebook&fbclid=IwAR1eXjX0emcp9ctYWG3bMlq9NE81bUQLNHh-UN1U1nuvG-yfYIFhriz5qw#Echobox=1590272416)
- Riga City Council. (2016). *Riga City territorial Plan*. 205(18), 1–147.
- Riga City Council Department of City Development. (2014). *Sustainable Development Strategy of Riga until 2030 and Development Programme of Riga for 2014-2020, Summary*. Retrieved from [http://www.rdpad.lv/wp-content/uploads/2014/11/ENG\\_STRATEGIJA.pdf](http://www.rdpad.lv/wp-content/uploads/2014/11/ENG_STRATEGIJA.pdf)
- Riga City Council Department of City Development. (2018). *Riga. Facts & Figures 2018*.
- Riga City Council Development Department. (2019). *Riga Sustainable Transportation Mobility System Action programme 2019.-2025*. Retrieved from <https://www.rdpad.lv/rtp/ricibas-programma/>
- Riga City Council Transport Department. (2015a). Existing and proposed bicycle lanes in Riga (in Latvian). Retrieved June 3, 2020, from Bicycle infrastructure in Riga website: <http://rdsd.lv/velosatiksme-riga>
- Riga City Council Transport Department. (2015b). *Riga Bicycle Infrastructure Development Conception 2015-2030*. 1–40. Retrieved from <http://rdsd.lv/uploads/media/557550c430e1f.pdf>
- Riga Planning Region. (2014). *Riga Planning Region Sustainable Development Strategy 2030*. Retrieved from [http://rpr.gov.lv/wp-content/uploads/2019/01/RPR-Strategy-2030\\_edit.pdf](http://rpr.gov.lv/wp-content/uploads/2019/01/RPR-Strategy-2030_edit.pdf)
- Riga Planning Region. (2020). *Riga Planning Region Development Programme 2014 – 2020*. (4).
- Rigas Satiksme. (2020). About Us. Retrieved January 6, 2020, from <https://www.rigassatiksme.lv/en/about-us/>
- Rodrigue, J.-P. (2017a). Mega-Region development. Retrieved April 3, 2019, from The Geography of Transport Systems website: [https://transportgeography.org/?page\\_id=7712](https://transportgeography.org/?page_id=7712)
- Rodrigue, J.-P. (2017b). Transportation and Mega-Urban Regions. <https://doi.org/ISBN 9781138669574>

- Rupprecht Consult. (2019). Guidelines - Developing and implementing a sustainable urban mobility plan. *ELTIS*, (Second Edition), 150. Retrieved from [http://www.eltis.org/sites/eltis/files/sump\\_guidelines\\_en.pdf](http://www.eltis.org/sites/eltis/files/sump_guidelines_en.pdf)
- Ruscio, K. P. (1997). Trust in the administrative state. *Public Administration Review*, (57), 454–458.
- Schafraan, A. (2015). Beyond globalization: a historical urban development approach to understanding megaregions. In J. Harrison & M. Hoyler (Eds.), *Megaregions: Globalization's New Urban Form?* (pp. 75–96). Cheltenham, UK and Northampton, MA, USA: Edward Elgar.
- Schwandl, R. (2013a). RIGA Tram. Retrieved May 30, 2020, from Robert Schwandl's Urban Rail Blog website: <http://schwandl.blogspot.com/2013/07/riga-tram.html>
- Schwandl, R. (2013b). Tram. Retrieved May 31, 2020, from Riga website: <http://www.urbanrail.net/eu/lv/riga/riga.htm>
- Sdoukopoulos, A., Pitsiava-Latinopoulou, M., Basbas, S., & Papaioannou, P. (2019). Measuring progress towards transport sustainability through indicators: Analysis and metrics of the main indicator initiatives. *Transportation Research Part D: Transport and Environment*, 67, 316–333. <https://doi.org/10.1016/j.trd.2018.11.020>
- Seimuskane, L., & Vorstava, M. (2013). Citizens Trust in Public Authorities of Latvia and Participation Paradigm. *European Scientific Journal*, 9(35), 44–59.
- SIA Estonian Latvian & Lithuanian Environment. (2019). *Strategic Environmental Impact assessment of Riga Territorial plan until 2030*. Riga.
- Smętkowski, M., Gorzelak, G., Kozak, M., Olechnicka, A., Płoszaj, A., & Wojnar, K. (2011). *The European Metropolises and Their Regions: From Economic Landscapes to Metropolitan Networks*. (January), 352.
- Stead, D. (2012). Best Practices and Policy Transfer in Spatial Planning. *Planning Practice and Research*, 27(1), 103–116. <https://doi.org/10.1080/02697459.2011.644084>
- SWECO. (2015). Trends and Challenges. Urban Mobility. Retrieved May 30, 2020, from Urban Insight website: [https://www.swecourbaninsight.com/urbaninsight\\_old/urban-life/trends-and-challenges/test/](https://www.swecourbaninsight.com/urbaninsight_old/urban-life/trends-and-challenges/test/)
- UN Habitat. (2013). Planning and Design For Sustainable Urban Mobility. In *Global Report on Human Settlements 2013*. Nairobi.
- Vancane, S. (2018, March). Way off track in Riga, as controversial EU-funded tram project plows ahead. *Bankwatch Network*. Retrieved from <https://bankwatch.org/blog/way-off-track-in-riga-as-controversial-eu-funded-tram-project-plows-ahead>
- Varfolomeev, V. (2018). Image of Riga tram. Retrieved May 30, 2020, from Flickr website: <https://bankwatch.org/blog/way-off-track-in-riga-as-controversial-eu-funded-tram-project-plows-ahead>
- Wiek, A., Binder, C., & Scholz, R. W. (2006). Functions of scenarios in transition processes. *Futures*, 38(7), 740–766. <https://doi.org/10.1016/j.futures.2005.12.003>
- Witteveen Bos. (2010a). *Mobility Plan and Action Program for Riga and Pieriga*. Riga.
- Witteveen Bos. (2010b). *Riga and Pieriga Mobility Plan Final Report*. Riga.
- Yatskiv, I., & Budilovich, E. (2017). Evaluating Riga Transport System Accessibility. *Procedia Engineering*,



178(December), 480–490. <https://doi.org/10.1016/j.proeng.2017.01.091>