

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Ruta Vitkute (Rūta Vitkutė)
Student number	5624010

Studio		
Name / Theme	Design of the Urban Fabric	
Main mentor	R. J. Dijkstra	Urban Design
Second mentor	V. E. Balz	Spatial Planning & Strategy
Argumentation of choice of the studio	<p>My motivation for choosing the Design of the Urban Fabric studio was the approach of the studio to the research and design process. From the beginning, my interest was to investigate how large-scale change impacts the area on a local level. The approach of this studio seems to be location-based, focused on explorations, and eye-level experiences, however, it still includes multi-scalar, data-based research and design methods. This aligned with my personal goal to challenge myself and improve my skills as an urban designer which is one of the roles I wish to pursue in my further career. Moreover, my previous work experience in Lithuania sparked an interest in planning mobility and contributing to the paradigm shift towards a less car-oriented, more sustainable mobility system in Lithuania, my home country. The studio offers mentors who are highly experienced in this topic and could guide me towards graduation and share their experience of Dutch mobility planning. To conclude, I am convinced that this studio is the right choice for me and it sets the clear direction towards graduation.</p>	

Graduation project	
Title of the graduation project	Urban Impact on Major Lithuanian Cities of Rail Baltica Line: Kaunas Case
Goal	
Location:	Kaunas, Lithuania
The posed problem,	According to the European Green Deal (European Commission, 2019), transport currently is responsible for a quarter of the EU's greenhouse gas emissions and

this number is still increasing. Urgent actions have to be taken to create a paradigm shift towards more sustainable mobility to reach climate neutrality goals for 2050.

On the European level, more travelling should happen by train rather than by plane. However, part of Europe is still not well integrated into the European railway network. One of the key projects, especially important for the TEN-T North Sea-Baltic corridor, is Rail Baltica. Soon, it will connect Poland to Finland through the Baltic States with a new, high-speed railway line. The project has the potential to significantly improve connectivity within the region, attract new flows of passengers, and foreign investments and contribute to changing mobility habits. It could be highly beneficial to the major cities that will have Rail Baltica stations. However, the development of each station and adjacent area is a matter of the local government, therefore, it is happening very unevenly. While the capitals of the Baltic countries are taking advantage of the opportunities, Kaunas, the second-largest city of Lithuania, which will become an important railway node, has not yet acted.

Kaunas railway station is currently surrounded by a large infrastructural area, train maintenance depots, and former industrial areas with a mix of some residential and public functions. There is a lot of potential for the redevelopment of the area. It could be developed as a well-functioning mobility hub that promotes a shift towards sustainable means of mobility on both local and regional levels. Moreover, creating new or extending existing city centres towards the railway station could contribute to preventing urban sprawl and suburbanization. The graduation thesis aims to investigate spatial and

	functional conditions needed for these transitions to happen.
research questions and	<p>RQ1. How redeveloping the railway station area could contribute to promoting sustainable, safe and accessible mobility in Kaunas?</p> <p>SQ1.1 How to create a mobility hub that would serve the needs of the increased flows of passengers after the Rail Baltica project is implemented?</p> <p>SQ1.2 How redeveloping the station area could contribute to a change in mobility towards a less car-oriented network in Kaunas?</p> <p>SQ1.3 How to create a well-functioning interconnection between local and regional mobility networks and how it impacts on a regional scale?</p> <p>RQ2. What are the spatial and functional conditions needed for the Kaunas railway station area to become well integrated into the existing urban fabric of the city?</p> <p>SQ2.1 How the Kaunas railway station and the adjacent public spaces should be transformed to fit the changing needs and role of the railway station?</p> <p>SQ2.2 How the area should be redeveloped taking into consideration proximity to the Kaunas centre and industrial heritage present on site?</p> <p>SQ2.3 How much the area should be densified and what kind of quality of living and working could contribute to minimizing urban sprawl and suburbanization?</p>
design assignment in which these results.	This project aims to propose a visionary plan for the Kaunas railway station and its surroundings that would accelerate the transition towards

sustainable, safe and accessible mobility for all and would reintegrate the area into the existing urban fabric.

Process

Method description

My graduation thesis is based on the process of research by design. It aims to develop the project not in a linear way (first, analysis and then design), but to combine those circularly. To achieve this, both qualitative and quantitative methods are used.

Qualitative methods:

Contextual interviews aim to gather knowledge and insights about the specific features and topics regarding the project and the site.

Ethnographic research aims to understand the local context (focusing on the local people).

Observations. To get familiar with the area, two (with a possibility of a third one if needed) site visits are planned.

Literature analysis. To use theoretical knowledge to build a toolbox applicable to the project area. Topics and concepts are reviewed in the following question.

Planning documents analysis aims to understand what kind of future relevant parties (global initiatives, EU, national and local governments) are planning for, especially in terms of mobility and urbanization.

Case study analysis is used to achieve a better understanding of possible results and effects of similar scale and range projects, especially how it affected the area or the city on a larger scale.

Quantitative methods:

Mapping is used to map different elements that are relevant for each scale (S: railway station, M: neighbourhood, L: city).

Data analysis. Open data is used for analysis or to get quantifiable data while testing hypotheses or validating certain decisions.

Process description

In the beginning, my initial knowledge, experience and primary literature analysis were used to choose the topic and formulate a primary hypothesis. During the essential and intensive courses, among others, case study analysis and mapping were used to gather the first findings relevant to the topic and site.

To formulate the problem statement, research aim and research questions, planning document analysis and research about mobility and context were carried out.

Literature, site and case study analysis are developed simultaneously. During the first site visit in January, photographs and notes were taken to capture the first impressions of the area. Mapping is used to understand the main features of the area in different scales.

This leads to an understanding of the topic and related problems, project location and solutions applied in other similar situations.

After P2, I will continue the analysis combined with the first design experiments. The aim is to continuously test solutions found in literature and case studies and to dive into research again when it is needed for the design process. After the design stage, research methods, especially case studies and data analysis will be again used to validate the decisions and to reflect on the regional impact.

In appendix A, the diagram shows which methods are used to gather the knowledge needed to answer the sub-research questions.

In appendix B, the research process diagram shows the relation between the process, chapters of the report, timeline towards P5 and methods used for each phase.

Literature and general practical preference

Firstly, literature and case studies will be used to learn about the main aspects of Transit Oriented Development and 15-minute city concepts and their application on various scales. Moreover, main global and European planning documents analysis was conducted to gain a better understanding of EU aims for mobility and urban development.

Literature sources:

- Balz, V. E. & Schrijnen, J. 2009. From Concepts to Projects: Stedenbaan, The Netherlands. In: CURTIS, C., RENNE, J. & BERTOLINI, L. (eds.) Transit Oriented Development: Making it Happen. Farnham: Ashgate.
- Bertolini, L. 2008. Station areas as nodes and places in urban networks: An analytical tool and alternative development strategies. In: Bruinsma, F., Pels, E., Priemus, H., Rietveld, P. & Van Wee, B. (eds.) Railway Development: Impacts on Urban Dynamics. Heidelberg: Physica Verlag.
- Bertolini, L. (2012). Integrating mobility and urban development agendas: A manifesto. *DISP*, 48(1), 16–26. <https://doi.org/10.1080/02513625.2012.702956>
- Bertolini, L., & Spit, T. (2005). *Cities on Rails: The Redevelopment of Railway Stations and their Surroundings*. Routledge.
- Curtis, C., Renne, J. L., & Bertolini, L. (2009). *Transit Oriented Development: Making it Happen*. Ashgate Publishing Limited.
- Hrelja, R., Olsson, L., Pettersson-Löfstedt, F., & Rye, T. (2020). Transit Oriented Development (TOD): A Literature Review. *Media-Tryck*.
- Stead, D. & Marshall, S. 2001. The relationships between urban form and travel patterns. An international review and evaluation. *European Journal of Transport and Infrastructure Research*, 1, 113-141.

Case studies:

Rotterdam Central station area (The Netherlands), London Stratford station area (United Kingdom), Stuttgart 21 (Germany), Lille-Europe station (France), a proposal for the redevelopment of Riga station area (Latvia), the proposal for the redevelopment of Vilnius railway station and surrounding area (Lithuania).

Planning documents:

- European Commission. (2019). The European Green Deal.
- European Commission. (2022). The Fifth Work Plan of the European Coordinator of the North Sea-Baltic TEN-T Core Network Corridor.
- European Union. (2007). The Leipzig Charter on Sustainable European Cities.
- European Union. (2020a). Territorial Agenda 2030.
- European Union. (2020b). The New Leipzig Charter.
- United Nations. (2015a). Paris Agreement.
- United Nations. (2015b). Transforming Our World: The 2030 Agenda for Sustainable Development.
- United Nations. (2017). New Urban Agenda.

Furthermore, literature sources and case studies will be used to gain an understanding of specific topics through the design process and test various solutions on the site. The starting point will be the topics of density, heritage, walkability, and urban fabric.

Literature references for further research and design:

- Busquets, J., Yang, D., & Keller, M. (2019). Urban Grids: Handbook for Regular City Design. ORO Editions.
- Gehl, J. (2010). Cities for People. Island Press.
- Jacobs, J. (1992). The Death and Life of Great American Cities. Vintage Books ed.
- Mozas, J., & Fernández Per, A. (2004). Density / Densidad: New collective Housing / Nueva Vivienda Colectiva. A+t Ediciones.
- Panerai, P., Castex, J., Depaule, J. C., & Samuels, I. (2004). Urban Forms: The Death and Life of the Urban Block. Architectural Press.
- Sim, D. (2019). Soft City: Building Density for Everyday Life. Island Press.

Possible case studies:

Urban blocks of Paris (France), Barcelona (Spain), Amsterdam (North) (The Netherlands), Stockholm (Sweden), Kaunas New Town (Lithuania) and others to determine what kind of density would be suitable for the area and what is the living quality and the functional mix I should be aiming for.

What is more, if needed, I will ask for consultation with experts in specific fields.

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

The topic of the graduation project focuses on the relations between mobility and urban fabric on a local scale. It involves the design of the Kaunas railway station area.

Therefore, it is highly related to the focus of the Design of Urban Fabric studio. The topic of the studio this year is "Embracing Plurality – Growing Porosity". The chosen site is an open, porous area in Kaunas, currently mainly used as an infrastructure corridor. Due to its central location, there is a potential to shape the space in such a way, that it would better accommodate the needs of the city. As a part of the Urbanism track, the multi-scalar approach is used. Moreover, social, environmental, cultural, economic and other factors are taken into consideration to make a just and inclusive transition towards a sustainable mobility system in Kaunas. As it is a part of the MSc Architecture, Urbanism and Building Sciences programme, my graduation project aims to apply research by design method, look for innovative solutions to target climate and other urgent challenges of modern society and investigate what are the spatial consequences. Discussing with peers and reflecting on my work is an important part of the process at TU Delft.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework?

Societal relevance

As the Rail Baltica high-speed rail is being constructed at the moment, the project is a highly important and unique opportunity for Lithuania.

First of all, completing the missing part of the European railway network for passengers, goods and the military becomes crucial in the time of war in the region. It will bring the Baltic countries closer towards Western Europe.

Secondly, there is a chance for a paradigm shift from the car-dependent mobility system towards sustainable mobility. This shift is crucial to target climate change threats. For a long time, car ownership was considered to be not only a necessity but also a sign of status and wealth in Lithuania. It is still common for the family to own more than one car and to use it daily. Moreover, public transport, especially buses and trolleybuses is criticized for being poor quality and uncomfortable and is often used by less wealthy social groups. The site of my graduation project has the potential to highly contribute to this paradigm shift. The railway station area is where the local and regional mobility systems intersect making it the most connected node in the city. The project aims to experiment with how to create a well-functioning multi-modal hub to ensure a sustainable, accessible and safe mobility network in Kaunas while ensuring an inclusive and just transition.

What is more, better connectivity to Central and Western Europe could attract new foreign investments and create more job opportunities. For a rapidly shrinking country like Lithuania, where emigration, social inequality and poverty levels are rising, creating

an attractive area for business around the railway station could contribute to long-lasting economic and societal benefits.

To conclude, I chose to work on this location and topic as I believe that the Rail Baltica project could contribute to positive societal changes for Lithuania, however, to take advantage of those opportunities, we need to act now.

Professional relevance

During my graduation year, my aim as an urbanist is to redefine my value system to set my priorities, especially while working on a site that is familiar to me since childhood. I wish to learn how to act in a sensitive, site-specific way while combining innovation, experimentation and having a bold approach towards the future. Moreover, my previous knowledge about urbanism was mostly based on work experience, therefore, one of my goals is to strengthen my theoretical knowledge about the field. What is more, I chose the design-based studio to continue improving my skills as an urban designer. Lastly, my previous work experience in Lithuania was quite often related to mobility planning and I do believe that my home country could do a lot to improve the current system and I wish to contribute to this transition. Therefore, I see TU Delft and the Netherlands as great places to learn from when it comes to sustainable mobility planning.

Scientific relevance

My Master's thesis follows the graduation trajectory of design. However, research by design is an important part of the process, therefore, the project aims to investigate and test, how different concepts of mobility can be applied on different scales and how they work together. What is more, I am interested in a combination of data-driven research methods and ethnographic research, observations and other qualitative research methods to bridge the gap between a data-driven approach towards mobility planning and subjective user experience.

References

European Commission. (2019). The European Green Deal.

Appendix 1

Various tools and methods are used to answer the research questions. The size of the red dot indicates the importance of the tool or method to elicit specific knowledge.

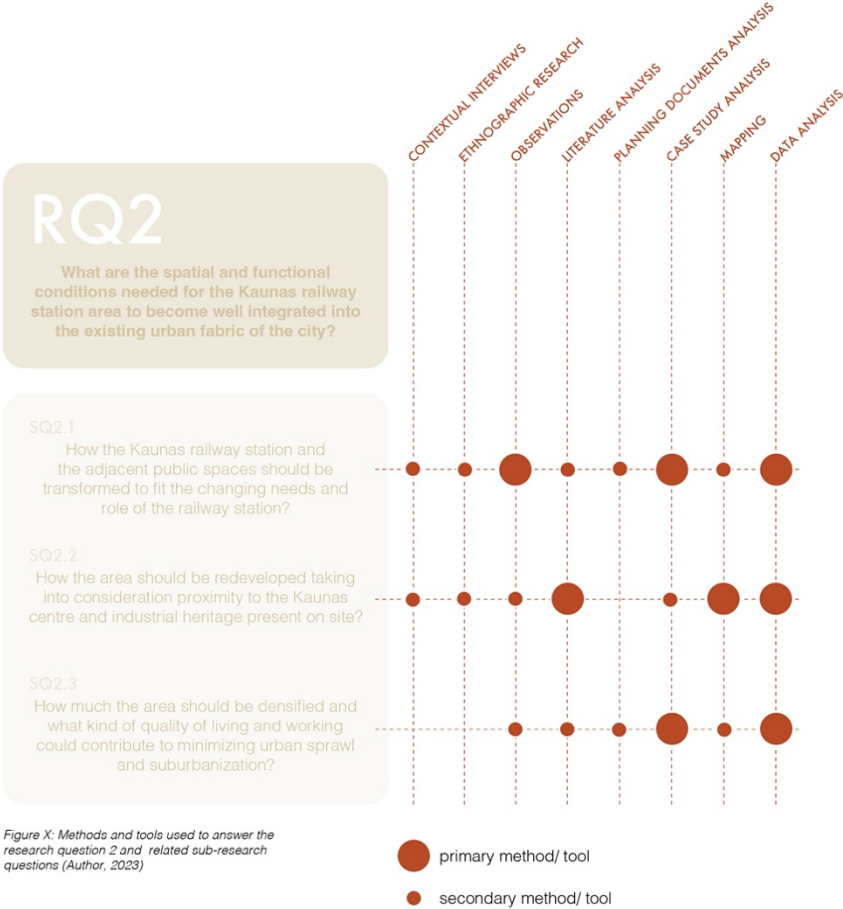
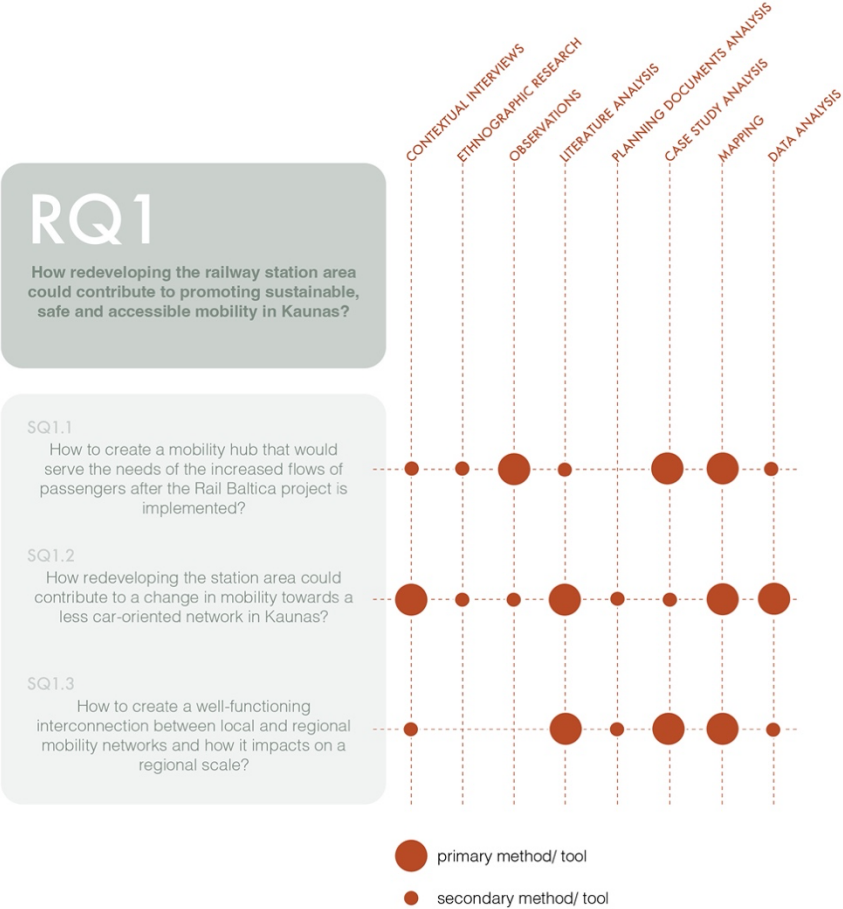
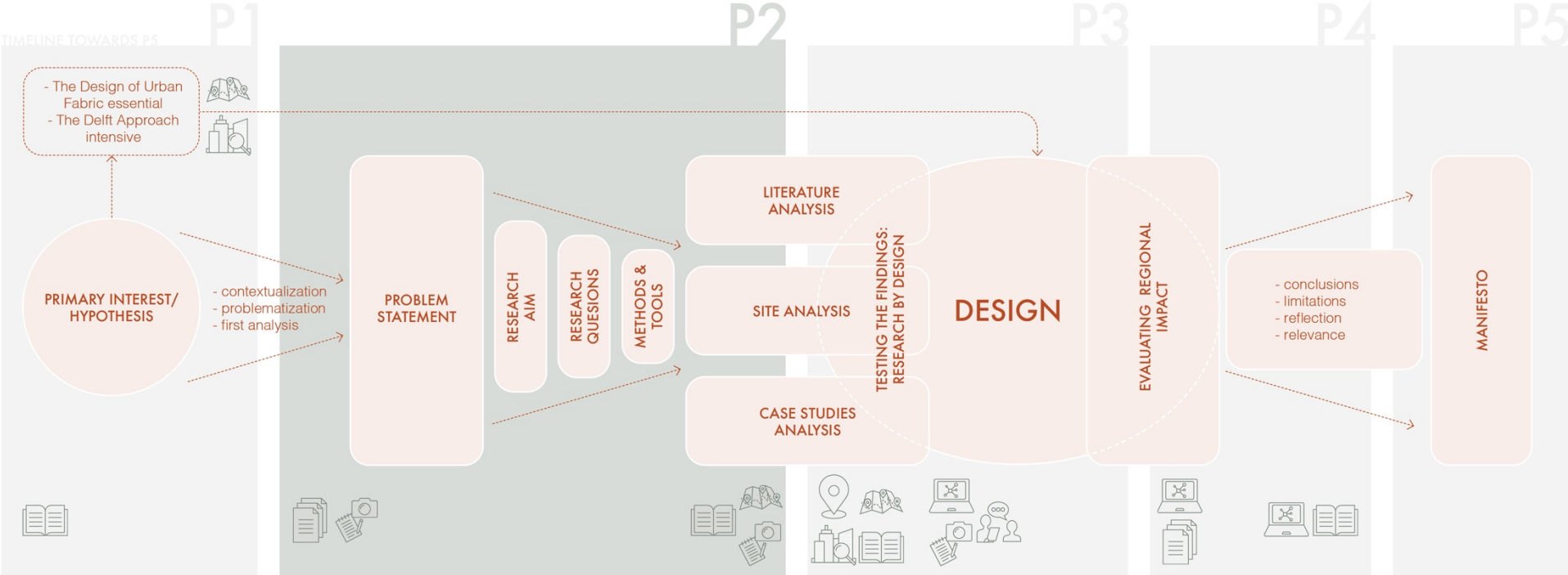










Figure X: Methods and tools used to answer the research question 2 and related sub-research questions (Author, 2023)

Appendix 2



- METHODS & TOOLS**
- 
 CONTEXTUAL INTERVIEWS
 - 
 PLANNING DOCUMENTS ANALYSIS
 - 
 ETHNOGRAPHIC RESEARCH
 - 
 CASE STUDY ANALYSIS
 - 
 OBSERVATIONS
 - 
 MAPPING
 - 
 LITERATURE ANALYSIS
 - 
 DATA ANALYSIS