Barriers and Best Practices to the Use of Public Transportation: A Case Study of the South Baltic Sea Region

Michael Fellner
Juliette Ténart
James Vierling

Blekinge Institute of Technology
Karlskrona, Sweden
2018
Barriers and Best Practices to the Use of Public Transportation: A Case Study of the South Baltic Sea Region

Michael Fellner, Juliette Ténart, James Vierling

Blekinge Institute of Technology
Karlskrona, Sweden
2018

Report containing an examination thesis submitted for completion of Master of Strategic Leadership towards Sustainability, an abstract and keywords describing the report content.

Abstract

Climate change is a pressing issue caused by the systematic increase of greenhouse gases (GHG). One way to avoid higher GHG emissions is through an increased use of public transportation, transitioning society away from the personal automobile. Public transportation is more sustainable than the personal automobile as its emissions per person are less and it takes up significantly less space. Sustainability is defined through the principle-based definition of the Framework for Strategic Sustainable Development (FSSD).

This research studied barriers and best practices to the use of public transportation in the South Baltic Sea Region (SBSR), in cooperation with the EU funded InterConnect Project. The research team was able to use the resources of the InterConnect Project for their methods in order to discover perceived barriers and potential best practices and ideas to overcome these barriers through the stakeholder perspective.

The research team concludes that by addressing the perceived barriers, a first step towards transitioning society within the SBSR towards more sustainable transportation can be done. As transportation is complex and connected to other systems, the need for a systems perspective and a strategic and collaborative approach was identified. This could be achieved through using the FSSD in the SBSR.

Keywords

Public Transportation, barriers, Baltic Sea, sustainability
Statement of Contribution

Our thesis process has been supported by our commitment to understanding transportation systems with in a spirited team environment. We worked hard together to establish clear goals, a shared purpose and value system, and support for each other during the thesis process. Team bonding time helped create a unified team presence to allow for much needed discussions, address misconceptions and develop high levels of respect for each of the team members. Each member of the team contributed equally to the successful completion of our thesis, including structure, content and analysis. All members of this group greatly contributed towards the development of questions and methods, specifically through the semi-structured interviews. Where these successes appear unified, they were the combined strengths of each individual member, resulting in this thesis paper.

Michael contributed to the success of this thesis by critically thinking, greatly improving the quality of the thesis. He particularly put efforts into making the argument in the introduction stronger and easier to read. He is structured and hardworking, which is shown through the many hours needed to properly format this document and for the time needed to successfully finish on time and meet the requirements. Michael focused heavily on the development of the figures within this document. His networking skills highly contributed to the success of the data collection, especially in regard to interviews and surveys. He has a positive mindset and has always been caring for the other members of the team. Michael has great humor and made the process of writing thesis enjoyable.

Juliette greatly contributed to the success of this thesis through her organization skills, which helped establish a clear structure and layout. She has taken full ownership of the methodologies chapter, becoming the subject matter expert on research topics and models, establishing her as a true leader in this team. Juliette maintained clear communication through the use of project management software and keeping clear timelines. She not only entered the session daily with a great sense of humor but brought a lot of fun into the topic and research. She is a caring person, who invited us to her house to work in much needed sunlight and who provided spaces for interviews and occasional napping.

James contributed to the success of this thesis by having a critical mind, greatly improving the quality of the thesis. He is always ready to take new tasks and is fast to achieve them. He took the extra responsibility as a native speaker to rephrase sentences of the thesis into a higher level of English. In addition to that, he always made sure the thesis appears to be written in one voice. Thanks to his experience in marketing, he built the surveys and put the results together in an understandable way, as shown by the tables, statistical documents and conversions in this document. He has a real passion for the topic of public transportation. James has a “can-do” attitude and is a caring person which made the process of working together enjoyable.

We are each incredibly grateful for our time together and being able to work on this topic. This thesis has created a great friendship and has helped us learn beyond transportation to better understand different worldviews and amazing experiences.
Acknowledgements

First and foremost, we are extremely grateful to each of the interviewees for spending their time with us to help us better understand their transportation system. We enjoyed learning about the system from your perspective and appreciated your openness about how things can be improved, how you use the system, and your knowledge of how to overcome some of these obstacles. The information we received helped us form this thesis and brought a lot of meaning to our thesis group, in addition to a lot of fun stories.

Special thanks to our main advisor, Pierre Johnson, for his insight, time and support in guiding us through the thesis process. His attention to detail and suggestions kept us moving in the right direction and helped our process to improve the results of our research. Our discussions not only contributed to the regions that we were focused on, but also contributed to global changes beyond, which further increased our curiosity of transportation and urbanization.

We also want to thank the InterConnect taskforce, Henrik Ny, Sven Boren and Varvara Nikulina, for including us in the InterConnect project, allowing us to support the InterConnect workshops through facilitation skills learned at MSLS. Their support during the workshops helped us not only secure translators for interviews, but also helped us gather valuable insights about the regions involved with InterConnect. Time given to us before the workshops allowed us to observe the cities and experience a taste of their culture and, specifically, their transit systems. Their additional support in helping us gather region-specific information, greatly contributed to this thesis and helped us develop the paper that is to follow.

A big thank you goes out to Anna Grohovska, MSLS 2017, for helping us translate our survey from English to Polish. Her amazing kindness and speed of return of our survey during such a busy time in her life was incredibly meaningful to our team and we are forever grateful for all of the help and support provided.

To further expand our learnings, we want to thank the TRAM project, specifically Mathias Roos and Magnus Forsberg. Your insights and knowledge of public transportation systems within and beyond Blekinge Region contributed greatly to our learnings. The opportunity to spend time with you and gather insights greatly contributed to our paper and is forever appreciated. In addition, we appreciate the fun that you brought to our group and lessons of tying shoes on a bus.

We appreciate Rachel Gould for her time in helping us in the early stages of this paper and her feedback around structure of our discussion. In addition, we appreciate Karl-Henrik Robèrt for his feedback around the content of our paper and insights to our work.

Finally, we want to thank our classmates and the Master of Strategic Leadership towards Sustainability program and staff for their support and overall learnings. It has been an intense 10 months of learning to think differently, and it has been an honor doing so with all of you. We have been woven into a bigger story and are honored to be a part of shaping the world for the better.

Gruße,

Michael, Juliette and James
Executive Summary

Introduction

The world is facing a global sustainability challenge which requires that action be taken now as the options to correct the problem decrease as time progresses. Since the Industrial Revolution, mankind has consumed the Earth's natural resources at a rate never seen before. One major result is the increased emission of greenhouse gases (GHGs), which have contributed to global warming, threatening the possibility for future generations to live to the current standard.

The systematic increase of GHGs, specifically carbon dioxide (CO₂), in the Earth’s atmosphere is caused by the burning of fossil fuels. The transportation sector is the second largest contributor to overall GHG emissions, just after the electricity/heat sector. In 2017, 98.6% of delivered energy in the transportation sector was directly sourced from fossil fuels. The GHG emissions are not only connected to pollution, but also health conditions, causing respiratory and cardiovascular diseases. Additionally, the infrastructure needed for transportation, such as roads, highways and parking lots, have contributed to the degradation of our natural and cultural environments. Therefore, it can be said that the transportation sector is one interconnected part of the complex sustainability challenge.

This thesis focused on public transportation which is part of the transportation sector. As such it relies on the current society and the health of the planet, as shown in the figure to the right. With high numbers of passengers per vehicle (90 passengers for typical buses and light rails), public transportation is able to reduce the amount of GHG emissions per person and can potentially help more people to get from point A to point B.

Public transportation does not only contribute to decreasing GHG emissions but also contributes to sustainability by reducing the amount of space needed for personal transportation. This is important in order to preserve natural resources and maintain livable standards as cities will become denser, making space a premium commodity. As shown in the graph below, public transportation needs significantly less space to transport 200 people than the personal car.

![Space needed to transport 200 people (in m²)]

Compared to cars, different modes of public transportation do not need as much space.

While the aspects mentioned above can be connected to the sustainability challenge, there was not a political or scientific agreement on the definition of sustainable passenger transportation
at the time this thesis was written, leading to a non-exhaustive understanding of the complex problem behind sustainable transport. The focus on one problem (e.g. only CO₂ emissions) instead of the whole system could potentially lead to unintended consequences.

Hence, a systems perspective is needed. This perspective is provided by the Framework for Strategic Sustainable Development (FSSD). The FSSD provides a systems perspective on how to strategically approach complex systems, such as the transportation system, and helps to identify possible solutions by using the principle of backcasting through eight sustainability principles. The sustainability principles are divided into principles for ecological and social sustainability. These scientifically based principles serve as a guideline to transition humans from an unsustainable society into a sustainable one.

In order to apply the FSSD, a participatory strategic planning process (called ABCD-procedure) can be used in which multiple stakeholders identify a shared, common vision (A-Step), assess the current reality (B-Step), brainstorm steps to connect the two (C-Step) and develop a strategic prioritization process for an implementable action plan (D-Step). Through the implementation of the ABCD-procedure, the FSSD’s scientific definition of sustainability can lead to more strategic actions towards strategic sustainable development.

This thesis was created in close cooperation with the InterConnect Project, a project funded by the European Union (EU), aiming at increasing public transportation between and within the countries of the South Baltic Sea Region (SBSR). The SBSR includes coastal regions in Denmark, Estonia, Germany, Lithuania, Poland, and Sweden and is visualized in the figure to the right.

Each of these regions has a unique history, the InterConnect Project aims at bringing them together by creating a more integrated and collaborative sustainable transportation system. The project aims to increase the number of people using public transportation within and between the coastal regions of the SBSR. One large piece of this project is the creation of a “one ticket” concept, which would integrate bus, ferry and train networks into an easy system to reduce the need for a personal automobile and provide more sustainable transportation in the region.

One collaborating organization in the InterConnect Project was the research institution Blekinge Institute of Technology (BTH). Throughout the project, researchers at BTH organized workshops based on the ABCD-procedure of the FSSD in Blekinge Region in Sweden, Klaipeda Region in Lithuania, and Pomorskie Region in Poland in order for other regions to learn and apply those concepts.

The intention of this research was to identify current barriers to the use of public transportation within and between the SBSR and to suggest best practices and ideas to overcome the barriers. To do so, the following questions were posed:
Research Question 1 (RQ1): What are current barriers to the use of public transportation as perceived by stakeholders in the SBSR?

Research Question 2 (RQ2): What are best practices and ideas as perceived by stakeholders in the SBSR which could help overcome the identified barriers?

Methodologies

For this thesis topic, research methods both in qualitative and quantitative fields, were considered and implemented. The research team had been working with the InterConnect Project and had the opportunity to co-facilitate workshops on-site and interact with local transportation stakeholders who were the targeted audience of the methods of this research.

The main source of data collection throughout this research was semi-structured interviews among selected stakeholders of the local public transportation sectors in the SBSR connected with the InterConnect Project. This method enabled region-specific perspectives and details as the interviewers were allowed to build on answers from the interviewees. To help get a systems perspective, the intention was to get equal stakeholders from the three following sectors: operators, government institutions, and researchers. In total 21 interviews were conducted during this research. Each interview was transcribed and sent to the interviewee for validation.

Online surveys and site observations were used to triangulate data generated from semi-structured interviews and to avoid bias. Those methods helped to gather relevant local information from those with direct system knowledge. Each survey was sent to the InterConnect workshops' participants. In total, three regional specific surveys were sent out to a total of 127 participants. Observations were made from the InterConnect workshops and from the public transportation systems of the collaborating regions. In total, the research team conducted three workshop observations and four region observations. Combined, the methods enabled a holistic understanding of the context of the InterConnect Project and helped to identify potential current barriers to and best practices and ideas for the use of public transportation in the SBSR.

All the data generated from the above methods was coded using open and axial coding to allow for patterns and themes to be identified. Documents from the InterConnect database (regional statistics, good practices and policies) were analyzed and put in relation with barriers and best practices.

Results

RQ1 and RQ2 aimed at finding the barriers as well as potential best practices and ideas within the SBSR that could help to overcome them. Barriers and best practices were identified through stakeholders in all four regions and were summarized into three themes: Politics, containing the barriers of politicians and legal structure, and infrastructure and spatial planning; business, containing the barriers of service, communication and marketing, ticketing and cost, and; general public, containing the barriers of behavior and customer and demand. The results to RQ1 and RQ2 are summarized in the two figures below.
Discussion

Although the regions in the SBSR have varying histories and differences, it was found that many of these regions have similar barriers to the use of public transportation.

Overall, the findings confirmed that transportation in the SBSR is a complex issue and the process of getting to a seamless international transportation network is time consuming, dependent on politics and can be expensive.

Politics play a strong role in the transportation sector. The observed regions were confronted with similar obstacles, including the issue of administrative borders between rural and urban areas, which led to increased traffic from the suburbs and the issue of budgets for public transportation coming from the municipalities while the budget for the road system comes from the state. A lack of political support was determined which resulted in the low priority of public transportation in spatial planning or the existing policies regarding the topic not representing reality. There was a large gap between the current reality of the car-centric landscapes and the wishful thinking of a more robust and integrated international public transportation system.
In order to increase the use of public transportation in the SBSR, a change in people’s behavior was described as necessary. While best practices regarding younger generations, for instance Blekinge Region providing free public transportation in the summer, were identified, it was observed that the behavior of older people was considered as very hard to change. Apart from that, focusing on the promotion of positive aspects of public transportation, such as the ability to use the time spent on it for reading a book, or cost savings compared to individual cars, was considered a way to increase the use of public transportation. It was identified in all regions that there was a benefit in making cars less convenient (or public transportation more convenient than cars). For instance, the cost of parking and higher fees for cars were discussed in all the regions. However, political will is again the foundation for changes like that.

The prioritization of the personal automobile over public transportation was also considered as a result from building cities for the future based on current trends.

Potential areas for future research would be to triangulate the findings of this research with barriers identified from active public transportation end-users. Also, it would be interesting in further research to compare those barriers to other regions around the Baltic Sea. General recommendations for stakeholders in the SBSR include strengthening relationships between the SBSR, normalizing statistics and getting more information of customers.

**Conclusion**

Although the regions in the SBSR are very different from each other, they are facing similar barriers regarding the use of public transportation. Best practices and ideas for potentially overcoming those barriers come from all the regions, especially from Blekinge Region in Sweden and Klaipeda Region in Lithuania.

Transportation is a complex system with strong connections to other systems. When aiming for social and environmental sustainability, it is important to not only look at the shortsighted benefits of potential solutions but to keep long-lasting consequences in mind as well. Therefore, a strategic way to address barriers and to overcome them is necessary. The FSSD can support a transition to a more sustainable transportation sector in the SBSR.

This research aspires to support that by learning from each other and by using the FSSD as a framework beyond the workshops of the InterConnect Project, the regions of the SBSR could not only increase the use of public transportation but could enhance their cooperation as neighbors in a unified Europe contributing to the global movement to overcome the sustainability challenge.
Glossary

**ABCD-procedure**: A process to implement the conceptual Framework for Strategic Sustainable Development in an organizational context to facilitate backcasting from sustainability principles.

**Backcasting**: A method in which a successful outcome in the future is imagined and steps are defined to reach that vision of success in the future.

**Best Practice**: A common English term generally used for the overall concept of something that is good to do, a practice that has produced optimal results or proposed as a standard suitable for widespread adoption.

**Ecosystem**: A complex community of living beings interacting and functioning as a unit within a system.

**Framework for Strategic Sustainable Development (FSSD)**: A systems-based framework that identifies the ecological and societal conditions necessary for human survival within the finite limits of the biosphere. The FSSD is structured in 5 levels (System, Success, Strategic Guidelines, Actions and Tools) and a key aspect is the strategic use of backcasting from the eight sustainability principles.

**Green House Gas (GHG)**: Refers to hydro fluorocarbons, methane, nitrous oxide, perfluorocarbons, Sulphur hexafluoride, carbon dioxides.

**On-site Fleet Company Car**: These are vehicles available for use at the work site, typically for when meetings are held off-site or for other work-related trips.

**One Ticket**: Refers to a common payment system between multiple organizations, including bus, train, ferry and generally across borders. This includes standard payment options and fares, with the system overall designed for a simple trip for the consumer.

**ProjectPlace**: The InterConnect collaborative work management software, acting as a database for the project.

**Public Transportation (PT)**: Transportation such as busses, trains and ferries which exist as a way of moving society from point A to point B.

**South Baltic Sea Region (SBSR)**: South Baltic Sea Regions; the regions around the South Baltic Sea that the InterConnect Project is working with (Blekinge Region, Sweden; Guldborgsund Region, Denmark; Klaipeda Region, Lithuania; Pomorskie Region, Poland; City of Rostock, Germany; Viimsi Municipality, Estonia).

**Stakeholders**: Stakeholders are defined as entities or individuals that can be expected to significantly affect the organization’s activities, products, and/or services and whose actions can reasonably be expected to affect the ability of the organization to successfully implement its strategies and achieve its objectives.

**Strategic**: Using strategic guidelines to select and prioritize tools and actions that help reach success within a sustainable society.
**Strategic Sustainable Development**: Using strategic guidelines based on ‘backcasting from sustainability principles’ to plan and implement actions that assist society to move towards a sustainable future.

**Sustainability**: A state in which the socio-ecological system is not systematically undermined by society. Society must be in full compliance with the eight sustainability principles to achieve full sustainability.

**Sustainability Principles**: Principles that are meant to be used in order to achieve sustainability as boundary conditions.

**Sustainable Development**: A term first used in 1987 by the Brundtland Commission report entitled Our Common Future. Sustainable development refers to ensuring that, as a society, we “meet the needs of the present without compromising the ability of future generations to meet their own needs.”

**Systems Thinking**: A way of understanding systems by focusing not on the individual parts but on the interactions between them and other systems and the resulting behaviors and outcomes.

**Triangulation**: Method using multiple data sources to ensure the coherence and validity of the result.

**Triicity Area**: The populated cities in Pomorskie Region, which include Gdansk, Gdynia, and Sopot, Poland.

**Vision**: A long-term view that envisages a desired future and concentrates on what an organization wants to be, or how it wants the world in which it operates to operate. It is comprised of core ideology (core purpose and values) and an envisioned future (strategic goals and vivid description of the desired future).

**World Café**: A participatory process for leading collaborative dialogue in large groups where participants transition from multiple topics with multiple discussions at the same time.
List of Abbreviations

**BRT**: Bus Rapid Transit

**BTH**: Blekinge Tekniska Högskola (Blekinge Institute of Technology)

**CCTV**: Closed Circuit Television

**CO₂**: Carbon dioxide

**COA**: Percent Change over Average (based on last submitted data)

**FSSD**: Framework for Strategic Sustainable Development

**GDP**: Gross Domestic Product

**GHG**: Greenhouse Gas

**HFC**: Hydrofluorocarbon

**MZKZG**: Metropolitalny Związek Komunikacyjny Zatoki Gdańskiej (Metropolitan Public Transport Association of Gdansk Bay)

**N₂O**: Nitrous oxide

**RPC**: Rides per Capita (annual rides on public transit divided by population)

**SBSR**: South Baltic Sea Region

**YA**: Yearly Average
# Table of Contents

Statement of Contribution ....................................................................................................... ii
Acknowledgements ................................................................................................................ iii
Executive Summary ................................................................................................................ iv
Glossary .................................................................................................................................... ix
List of Abbreviations ............................................................................................................... xi
Table of Contents ................................................................................................................... xii
List of Figures and Tables ..................................................................................................... xv

1 Introduction ......................................................................................................................... 1
  1.1 The Sustainability Challenge .......................................................................................... 1
      1.1.1 Transportation Contributing to the Sustainability Challenge ......................... 1
      1.1.2 Transportation in the Larger System ................................................................. 2
      1.1.3 Public Transportation as a Potential Solution ....................................................... 3
      1.1.4 Sustainable Transportation ............................................................................. 4
  1.2 The Sustainability Challenge in the South Baltic Sea Region ........................................ 5
      1.2.1 EU Strategy 2020 ............................................................................................ 5
      1.2.2 The InterConnect Project ............................................................................... 6
      1.2.3 Community Planning Process Model ............................................................... 7
  1.3 Research Aim .................................................................................................................. 8
      1.3.1 Stakeholder Perspective .................................................................................... 8
  1.4 Research Questions ......................................................................................................... 8
  1.5 Scope and Limitation ...................................................................................................... 8

2 Methodologies .................................................................................................................... 10
  2.1 Data Collection ............................................................................................................. 11
      2.1.1 Semi-Structured Interviews ............................................................................. 11
      2.1.2 Online Surveys ............................................................................................... 12
      2.1.3 Observations ................................................................................................... 13
  2.2 Data Analysis ................................................................................................................ 13
      2.2.1 Transcription ................................................................................................... 13
      2.2.2 Coding ............................................................................................................ 14
      2.2.3 Content Analysis ............................................................................................ 14
      2.2.4 Survey Analysis ............................................................................................. 15
  2.3 Ethics ............................................................................................................................ 15
  2.4 Limitations .................................................................................................................... 15
3 Results ................................................................................................................................. 16
  3.1 Methods........................................................................................................................................ 16
    3.1.1 Semi-Structured Interviews ............................................................................................. 16
    3.1.2 Online Survey .................................................................................................................... 16
    3.1.3 Observations ....................................................................................................................... 16
    3.1.4 Coding ........................................................................................................................................ 17
    3.1.5 Content Analysis ................................................................................................................. 17
    3.1.6 Online Survey Analysis ...................................................................................................... 17
  3.2 Barriers ........................................................................................................................................... 17
    3.2.1 Politics ........................................................................................................................................ 18
    3.2.2 Business ................................................................................................................................... 21
    3.2.3 General Public ....................................................................................................................... 25
  3.3 Best Practices ................................................................................................................................... 27
    3.3.1 Politics ........................................................................................................................................ 27
    3.3.2 Business ................................................................................................................................... 29
    3.3.3 General Public ....................................................................................................................... 31
  3.4 Project Database Results ............................................................................................................. 33
    3.4.1 Summary of Regional Statistics ............................................................................................ 33
    3.4.2 Summary of Policy Documents ............................................................................................. 35
    3.4.3 Summary of Good Practice Documents ................................................................................ 35
4 Discussion ........................................................................................................................................... 37
  4.1 Summary of Findings ..................................................................................................................... 37
  4.2 Critical Assessment ........................................................................................................................ 38
    4.2.1 Shortcomings in Study Design ............................................................................................ 38
    4.2.2 Limitations in Methods ......................................................................................................... 39
    4.2.3 Transparencies in Analysis ................................................................................................... 41
  4.3 Interpretation of Findings .............................................................................................................. 42
    4.3.1 Statistics ..................................................................................................................................... 42
    4.3.2 Complexity ............................................................................................................................... 43
    4.3.3 Political Issues ......................................................................................................................... 43
    4.3.4 Policies and Good Practices .................................................................................................... 44
    4.3.5 Definitions and Meanings ...................................................................................................... 44
    4.3.6 Cost ............................................................................................................................................. 44
    4.3.7 Behavior ................................................................................................................................... 44
    4.3.8 Prioritization ............................................................................................................................ 45
List of Figures and Tables

Figure 1.1. Transportation interacting with other systems in a complex world ....................... 2
Figure 1.2. Public Transportation as part of the larger system ................................................. 3
Figure 1.3. Compared to cars, modes of public transportation do not need as much space (derived from Kretz 2016) .......................................................................................... 4
Figure 1.4. The ABCD-procedure, showing the vision, current reality, brainstorm and prioritization step for a strategic action plan (The Natural Step n.d.) .............................................................. 5
Figure 1.5. The regions of the InterConnect Project (dark grey) around the Baltic Sea. For visibility reasons the regions surrounding Viimsi and Rostock are also dark grey ........... 6
Figure 2.1. Maxwell's Interactive Model of Research Design adapted to this research ......... 10
Figure 2.2. The data from the interviews (grey circles) was analyzed as the primary source in the first step. In the second step the data from the surveys (triangles) and the observation (squares) was analyzed and filtered to address data from the interviews. Through this triangulation, the data from the interviews was enriched by the data from the surveys and the observations in a third step to create the results ........................................................................ 11
Figure 3.1. Within the theme of politics, two barriers were identified which encapsulate four different categories each ........................................................................................................ 18
Figure 3.2. Within the theme of business, four barriers were identified which encapsulate different categories .................................................................................................................. 21
Figure 3.3. Within the theme of general public, four barriers were identified which encapsulate different categories ........................................................................................................ 25

Table 3.1. Regional Statistics of regions Blekinge, Klaipeda, Pomorskie, and City of Rostock (based on data found in Appendix I) ........................................................................ 34
1 Introduction

1.1 The Sustainability Challenge

In the 21st century, the environment and societies are confronted with problems that are not only happening on a globally complex scale but are also affecting several structural layers of interconnected systems within those systems. The world is facing a global sustainability challenge that needs the involvement of multiple stakeholders in order to be addressed successfully.

Since the Industrial Revolution human society has consumed Earth’s resources at an exponential rate never before seen in history. Human activities, by extracting resources from the lithosphere, disrupted natural cycles and increased the amount of greenhouse gases (GHGs) present in the atmosphere by burning fossil fuels. Even though the Industrial Revolution led to many social improvements (such as increasing life expectancy), it has had multiple negative impacts on the environment causing global warming (Broman and Robèrt 2017). Such deteriorations of the environment threaten the possibility for future generations to live to the current standards. The Club of Rome’s “The Limits to Growth” estimated that with current population and economic growth Earth will not be able to support current expansive rates of growth past the year 2100 (Meadows et al. 1972).

Thus said, the current way of living is unsustainable and has created what is commonly called the sustainability challenge (Merkel and Litten 2007). It represents the situation human society is currently facing and the challenge resulting from moving from the unsustainable present to a sustainable future in which the needs of the present are met without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development 1987). The sustainability challenge requires that action is taken now as fewer options will remain available, as natural thresholds will be passed and human life on Earth could be irreversibly threatened (Broman and Robèrt 2017).

1.1.1 Transportation Contributing to the Sustainability Challenge

Climate change is one of the major global problems. It is caused by the burning of fossil fuels and the systematic increase of GHGs specifically carbon dioxide (CO₂), in the Earth's atmosphere. One area that still relies heavily on fossil fuels is the area of transportation. In 2017, 98.6% of delivered energy in the transportation sector was directly sourced from fossil fuels (liquids and natural gas); the remaining 1.4% rely on electricity which can come from renewable and non-renewable sources depending on the energy mix of the country of origin (US Energy Information Administration 2017). Therefore, transportation is a decisive area in which to look when facing the sustainability challenge.

In 2015 the transportation sector contributed to 25.8% of EU GHG emissions, of which 72.9% were emitted by road transportation (European Environment Agency 2017) leading to pollution and causing respiratory and cardiovascular diseases (Titòs et al. 2015). This, however, is not the only way transportation is contributing to unsustainability; noises and vibrations caused by excess of transportation in urban areas also appear dangerous for human health. Additionally, the infrastructure needed for transportation, such as roads, highways and parking lots, have
contributed to an increase in land use leading to the destruction of natural and cultural environments (Swedish Environmental Protection Agency 2001).

With this information, transportation worldwide is contributing to the sustainability challenge and is therefore a crucial sector to change and improve to reach a more sustainable development.

1.1.2 Transportation in the Larger System

The transportation sector is connected to and depends on other systems such as politics and the economy. For instance, transportation makes up 4.8% (€548 billion) of the gross value added of the economy of the EU's 28 states and is connected to more than 11 million jobs (European Union n.d.). Therefore, changes in the sector can have implications in connected sectors. The transportation sector is also dependent on the national context, for instance on the regulations and policies in effect, the road infrastructure and the traffic system. Furthermore, it depends on the international context, for instance on the fuel infrastructure, determined by oil exporting countries and the petroleum industry. The transportation sector is influenced by innovations and technological progress, as well as maintenance and distribution networks and the industry structure. Markets, user practice, and cultural meaning behind transportation also play roles in influencing the transportation sector.

It can be said that the transportation sector is one interconnected part of the complex sustainability challenge which is shown in Figure 1.1.

![Figure 1.1. Transportation interacting with other systems in a complex world.](image)

Modes of transportation include land, water, and air. Land transportation represents 73.8% of the overall GHG emissions of the transportation sector, air transportation is second with 10.6% and water is 11.1% (Sims et al. 2014). Remaining GHG emissions result from pipelines, indirect emissions from electricity generation, and Hydrofluorocarbon (HFC) and Nitrous oxide (N₂O). Land transportation consists of two main categories: private and public (Kii and Hanaoka 2003).

Public transportation, which this thesis focuses on, is a part of all forms of transportation, which relies upon the current society, which again is dependent on the biosphere and the health of the planet. A visualization of this nested system is shown in Figure 1.2.
1.1.3 Public Transportation as a Potential Solution

It is estimated that 70% of the world’s growing population will be living in cities with populations exceeding 1 million by 2050 (Population Reference Bureau 2009). The transportation sector is the second largest contributor to overall GHG emissions at 15%, with electricity and heat contributing at 31% (Center for Climate and Energy Solutions 2017). With increasing demands on natural resources and strains on the ecosystem, human growth and its density in the future only add to the sustainability challenge.

Public transportation operates scheduled services in dense areas, providing vehicles for more people to get from point A to point B. The typical bus can hold up to 90 passengers per vehicle, light rail 90 passengers per vehicle, and subway 100 passengers per vehicle, moving a potential of 200,000 to 700,000 people per direction per line per day (MacKechnie 2017). This is by far capable of moving more individuals per day than the typical personal vehicle, which traditionally only carries less than 1.5 people per car per trip (European Environment Agency 2016). Thus, the amount of GHG potentially released per person is less by public transportation than by personal automobile (both based on fossil fuels), especially when comparing to the average of one to two people in vehicle, as this is the most common trip per car (Romilly 1999).

When comparing the use of space, cars take up by far the most road space needed to get people from A to B: a simulation conducted as part of an EU-funded project comparing the space needed for different forms of transportation in different EU cities (including the city of Gdynia which is also part of this research) shows that for the transportation of 200 people in busses (mean occupancy of 20 people per bus), around 465m² of space would be needed. For transportation with bikes, 476m² of space would be needed, trams (mean occupancy of 40 people per vehicle) would require 690m² of space, and for the transportation in cars (again mean occupancy of 1.5 people per vehicle), 3,333m² of space would be needed (Kretz 2016). This is visualized in Figure 1.3.

Figure 1.2. Public Transportation as part of the larger system.
Apart from that, it is identified that public transportation increases a sense of community and provides means of transportation for people regardless of income (American Public Transportation Association n.d.).

### 1.1.1 Sustainable Transportation

Based on literature review, Holden, Linnerud and Banister stated that "there is as of yet no political or scientific agreement on the definition of sustainable passenger transport" (2013, 67). The absence of rigor in the definition of sustainable transportation leads to a non-exhaustive understanding of the complex problem behind sustainable transport. An example of this would be the mere focus on air pollution and emissions of GHGs. For instance, this does not take into account problems related to space and social issues. The focus on one problem instead of the whole system could potentially lead to unintended consequences.

Hence, for the scope of this research, sustainability is defined through the Framework for Strategic Sustainable Development (FSSD) which is based on a consensus from scientists on solid universal scientific principles necessary and sufficient to reach sustainability and avoid unintended consequences (Robèrt et al. 2017). It provides a systems perspective on how to approach complex systems, such as the transportation system, their problems, and it helps to identify possible solutions using the principle of backcasting. The FSSD has framed the sustainability thinking of the research team and is therefore dominant in this research as a common lens to see and understand sustainable transportation and as a conceptual framework. The FSSD is described in more details in the following paragraphs as this research builds on and refers to it throughout this report.

The FSSD defines sustainability with the help of eight sustainability principles: three principles regarding ecological sustainability and five principles regarding social sustainability (Broman and Robèrt 2017, 23). They describe that in a sustainable society, nature is not subject to systemically increasing…

1. … concentrations of substances extracted from the Earth’s crust;
2. … concentrations of substances produced by society;
3. … degradation by physical means.
In a sustainable society, people are not subject to systematic barriers to…

4. … health;
5. … influence;
6. … competence;
7. … impartiality;
8. … meaning-making

![Diagram of ABCD-procedure](image)

*Figure 1.4. The ABCD-procedure, showing the vision, current reality, brainstorm and prioritization step for a strategic action plan (The Natural Step n.d.)*

In order to apply the FSSD in an organization, an interactive planning procedure called ABCD-procedure can be used. It was designed to help stakeholders identify a shared, common vision (A-Step), assess the current reality (B-Step), brainstorm steps to connect the two (C-Step), and develop a strategic prioritization process for an implementable action plan (D-Step). Through implementing the ABCD-procedure (Figure 1.4), the FSSD's scientific definition of sustainability can lead to more strategic actions towards strategic sustainable development (Broman and Robert 2017).

1.2 The Sustainability Challenge in the South Baltic Sea Region

1.2.1 EU Strategy 2020

As mentioned above, climate change and sustainability related topics have gained importance on the political agenda. The European Union (EU), together with its other institutions, wishes to comply with objectives described in the Strategy 2020, of which the overarching goal is to create and generate "a strategy for smart sustainable and inclusive growth" (European Commission 2010, 1)
Some of the objectives about climate change and energy include: “greenhouse gas emission 20% lower than 1990 levels, 20% of energy coming renewables, and 20% increase in energy efficiency” (European Commission 2010, 9). In order to attain those targets, the European Commission announced that the EU would invest €1 billion in 39 projects in the area of transportation by 2030 (European Commission 2017).

1.2.2 The InterConnect Project

![Figure 1.5. The regions of the InterConnect Project (dark grey) around the Baltic Sea. For visibility reasons the regions surrounding Viimsi and Rostock are also dark grey.](image)

The South Baltic Sea Region (SBSR), as defined by the InterConnect Project, includes the collaborating coastal regions of Blekinge, Sweden; Guldborgsund, Denmark; Klaipeda, Lithuania; Pomorskie, Poland; and the City of Rostock, Germany and Viimsi Municipality, Estonia (Figure 1.5). More details regarding collaborating regions can be found in Appendix A.

The SBSR is not a homogenous group of states regarding transportation: for instance, the collapse of the Soviet Union led to supply shortages in Lithuania (Dodgson et al. 1998) and in Poland the state reduced its efforts for fostering public transportation after 1989 (Taylor and Ciechanski 2010). In contrast the EU's Maastricht Treaty, which Germany (since 1958), Denmark (since 1973) and Sweden (since 1995) agreed upon, mentions environmental protection as a requirement for transportation policy already in 1992 (European Commission 2014). Although there are differences between the regions, the countries of the SBSR are now all part of the EU and there is the potential for an integrated and collaborative transportation system.

Concepts fostering international, environmentally friendly transportation systems are described by the EU as green transport corridors and could be applied to SBSR in the future (Prause and Hoffmann 2017). As the EU plans to increase the share of renewable energy in transportation to 10% by 2020, the focus on public transportation becomes essential, especially for the Baltic States (Barisa and Roša 2015).
The InterConnect Project, an EU project that the research team was collaborating with for this thesis, has been given €3.46 million between June 2017 and May 2020 to "support new and more efficient public transportation services both in and between the coastal regions of the South Baltic area" (Project InterConnect n.d.). The project aims to increase the number of people using public transportation within and between the coastal regions of the SBSR.

The goal of increasing the use of public transportation in the SBSR should be reached specifically through the concept of “one ticket”, allowing for easy transition around the region. InterConnect states “InterConnect supports new and more efficient public transportation services both in and between the coastal regions of the South Baltic area - to give the residents and tourists broader and more sustainable options for realizing their mobility needs.” (Project InterConnect. n.d.) This is particularly relevant within those regions where the average car per person is nearly 1:2, meaning there is one car per every other person (The World Bank Group 2014).

The InterConnect Project itself was not framed around the use of the FSSD. However, it was brought into the project by Blekinge Institute of Technology (BTH), one of the collaborating organizations of the project and the alma mater of the research team for this thesis. Within the workshops of the project that were based on the ABCD-procedure and that happened in the different regions, the scientific definition of sustainability resulting from the eight sustainability principles and a strategic planning process for sustainability were applied (Broman and Robèrt 2017).

Through the application of the ABCD-procedure the workshops aimed at implementing sustainability in the different regions through backcasting from a sustainable vision of the future (Broman and Robèrt 2017). One of the goals of the InterConnect Project was the creation of a roadmap for further development of public transportation, based on the inputs from those workshops.

1.2.3 Community Planning Process Model

The InterConnect workshops described above were planned according to the Community Planning Process Model (Appendix B). This model, used as a conceptual framework, was developed by researchers at BTH with a goal to include stakeholders from the different perspectives necessary for sustainable transportation planning (Robèrt et al. 2017). Those planning perspectives are interconnected and include the resource-base perspective, the spatial perspective, the technical perspective, and the governance perspective.

The resource-base perspective contains essentially all the natural resources that the human civilization is currently relying on such as energy and agriculture (fisheries, forestry, mineral ores and flows) (Robèrt et al. 2017). The spatial perspective covers nature, food, energy and materials, and infrastructure in order to secure their sustainability while planning. The technical perspective focuses on engineering and innovation, and looks at how transportation could be planned more sustainably. The fourth perspective (governance), consists of legal structures that would enable the three other perspectives to exist (Robèrt et al. 2017). In order to reach social and ecological sustainability, all perspectives should comply with the eight sustainability principles.
1.3 Research Aim

The aim of this research was to identify the current barriers towards public transportation in the SBSR through the stakeholder perspective. The research then aimed for finding best practices within the regions which could be used by stakeholders to overcome the barriers to the use of public transportation and to contribute to sustainable development. In order to contribute to the goal of the InterConnect Project, the purpose of this research was to observe the similarities in the regions to understand how they can collaborate further going forward in the project.

1.3.1 Stakeholder Perspective

For this paper, research was taken from the stakeholders' perspective. The stakeholders in the InterConnect Project work for, or collaborate with, public authorities and private companies regarding public transportation and are able to provide an informed overview of the current situation within and/or between the different regions. They aim at improving the current situation regarding public transportation in their regions. For specific details on stakeholders, see Appendix A.

This approach yielded data that may differ from data sourced from the general public or the users of public transportation. Previous research has shown the importance of including stakeholders in the decision-making process in order to get a systemic view and more efficient sustainable transportation (Macharis and Bernardini 2015).

1.4 Research Questions

Research Question 1 (RQ1): What are current barriers to the use of public transportation as perceived by stakeholders in the SBSR?

Research Question 2 (RQ2): What are best practices and ideas as perceived by stakeholders in the SBSR which could help overcome the identified barriers?

1.5 Scope and Limitation

For this thesis, the following areas were excluded from the scope:

- The current barriers were identified with information provided by stakeholders in the different regions. The opinions of regular users of public transportation in the regions were not included in this thesis.
- Solutions which would require changing the political power structures, i.e. which rely on a certain political party to gain or lose power, were not included in this thesis.

This master’s thesis was written in collaboration with the EU InterConnect Project. The following methodological limitations occurred:

- The research team only looked at the following regions situated around the SBSR: Blekinge Region, Klaipeda Region, Pomorskie Region, the City of Rostock, and the Municipality of Viimsi in Estonia. Due to organizational reasons happening during the
research process, the region of Guldborgsund in Denmark was not included in this research.

- The InterConnect Project had already started by the beginning of this research and the research team had no influence on the workshops.
- The Blekinge Region workshop was held in English, however the others (Klaipeda Region and Pomorskie Region) were held in the native language of the country in which they were taking place. For the methods of this thesis, the help of professional translation was used.
- The results of this thesis are based on the informed views of stakeholders. Observations in the SBSR were conducted by the team writing the thesis. The research team was not able to use every means of public transportation and was not able to use it regularly.
2 Methodologies

This chapter outlines the methods used to answer RQ1 and RQ2. Interviews were conducted as the primary source of data collection, followed by surveys and observations. Interviews were transcribed and then coded along with survey results and observations. Additional documents from the InterConnect database (regional statistics, good practices and policies) were reviewed.

Both research questions were answered using the same methods, however, the research team looked at it through different lenses; first looking for perceived barriers, and second looking for best practices regarding those barriers.

Maxwell's Interactive Model of Research Design (Figure 2.1) was created to help guiding qualitative research, developing research questions, and generally designing documents (Maxwell 2013). As seen below, the model was adapted to this research. It assisted the research team in guiding the process of developing this research and provided flexibility, as the InterConnect project was already in progress at the start of this research and the workshops were already designed and scheduled.

![Maxwell's Interactive Model of Research Design](image)

*Figure 2.1. Maxwell's Interactive Model of Research Design adapted to this research.*
2.1 Data Collection

For this thesis topic, different research methods, both qualitative and quantitative, were considered and implemented. As the research team had been working with the InterConnect Project, the targeted audience of the methods were transportation stakeholders in the different regions.

The goal behind combining different kind of research methods including qualitative and quantitative ones was to triangulate the data generated from the interviews and to not only rely on interviewees’ perspectives. The process for this triangulation is visualized in Figure 2.2.

![Figure 2.2. The data from the interviews (grey circles) was analyzed as the primary source in the first step. In the second step the data from the surveys (triangles) and the observation (squares) was analyzed and filtered to address data from the interviews. Through this triangulation, the data from the interviews was enriched by the data from the surveys and the observations in a third step to create the results.]

2.1.1 Semi-Structured Interviews

A semi-structured interview is commonly used for qualitative research, where the researcher asks a set of predetermined questions with the help of an interview protocol (Lune and Berg 2017). Questions to the interviewee are asked based on the direction of the topic, not necessarily in a certain order. The difference between a semi-structured and a structured interview is that the interviewer is allowed and expected to build on the answers from the interviewee to get more information or clarification (Lune and Berg 2017).

The research team chose to conduct such interviews because they are particularly relevant when there is only one chance to interview someone and when more than one interviewer conducts them (Savin-Baden and Major 2013). In addition, as the stakeholders came from a variety of specialties, the semi-structured interview was the most appropriate method.
The criteria for interviewing people required that they were stakeholders in the transportation sector in one of the SBSR. Stakeholder is defined by this research team as entities or individuals that can be expected to significantly affect the organization’s activities, products, and/or services; and whose actions can reasonably be expected to affect the ability of the organization to successfully implement its strategies and achieve its objectives.

Due to the amount of different positions and organizations involved, and in order to get a thorough understanding of the perceived barriers, three different sectors within the stakeholder group were identified and contacted. The three sectors identified were operators (such as route managers), government institutions (such as municipal or regional institutions) and finally those who research these sectors (such as professors). Most of the interviewees were selected because they attended the InterConnect workshop in their region (mentioned in 1.2.2) with a goal to get an equal number of interviews per region and per sectors.

The interviews were scheduled prior to each workshop and were conducted immediately after whenever possible. In Poland a translator supported the research team during the interviews when needed. When stakeholders were not available in person, interviews were held via telephone/Skype. Interviews were conducted by all three members of the research team following a common interview template (Appendix C). Approximately 50% of the interviews were conducted with two members of the research team, allowing for one to conduct the interview while the other listened, observed and took notes. When approved by the interviewee, interviews were recorded to facilitate the transcription process afterwards. The flow of the interviews went from general to specific preset open-ended questions enabling the interviewees to share their viewpoints on the topic (Savin-Baden and Major 2013). The interviews were designed to last between 30 and 45 minutes.

In total, 35 stakeholders were contacted with interview requests. Those included ten stakeholders from Blekinge Region, six from Klaipeda Region, seven from Pomorskie Region, six from the City of Rostock, five from Guldborgsund Region and one from Viimsi in Estonia.

2.1.2 Online Surveys

Online surveys are of quantitative research and are a common way to quickly gather data, especially when the population studied is diverse and geographically spread (Van Selm and Jankowski 2006). The surveys were relevant for this research as they allowed the research team to gather local information from those with direct systems knowledge, as data about this topic in this region and population was relatively focused and limited. They were also used as a means to triangulate data collected from the interviews.

The criteria for respondents of the surveys were that they had to have participated in the InterConnect workshop which implied that they were stakeholders of the local transportation sector. Online surveys were built on Google forms and were sent in English in Blekinge Region, Lithuanian in Klaipeda Region, and Polish in Pomorskie Region with help from translators. The English version can be found in Appendix D. In total the surveys were sent to 127 stakeholders including to 28 in Blekinge Region, 28 in Klaipeda Region, and 71 in Pomorskie Region. They were introduced during the workshops and were submitted to the workshop participants via email within 24 hours after the workshop with request that the survey be distributed throughout each organization. Each survey addressed local information to determine potential barriers within each transit system. Surveys were structured with personal information first, followed
by transportation modes and perceptions of the system. There was a special focus around the primary mode of transportation, as inspired by the research "I can do perfectly well without a car!" (Van Exel, De Graaf, and Rietveld 2010). There was also a section on interregional transportation options (the ferry). Survey reminders were sent out within seven days of the workshop, and the survey was closed after 21 days.

2.1.3 Observations

Observation usually belongs to qualitative research. It was relevant in this research since it allowed the research team to get a holistic understanding of the context of the InterConnect Project and to identify potential barriers to and best practices for the use of public transportation in the SBSR. It was also used as a way to triangulate data collected from the interviews. Two types of observation approaches were used for data collection (Savin-Baden and Major 2013).

Observation from the InterConnect workshops: The workshops were conducted in Blekinge Region, Klaipeda Region, and Pomorskie Region. The participants were stakeholders in the regional transportation sector, invited by the organizations collaborating with the InterConnect Project. The workshops were following the same schedule: Introduction to the project and the workshop, the challenges of the public transportation in the region and how to approach them, visioning session, current challenges according to the vision, and possible future solutions to achieve the vision. 43 stakeholders attended the workshop in Blekinge, 31 in Klaipeda Region, and 52 in Pomorskie Region. The stakeholders participated in identifying a vision (A-Step), assessing the current reality (B-Step), and finally brainstorming possible solutions to reach the vision (C-Step) in a World Café style, meaning based on dialogue in groups. Two of the research team members were table leaders during the workshop in Blekinge where conversations were held in English. In Klaipeda and Pomorskie Regions, the research team assisted local table leaders as conversations were held in local languages (Polish and Lithuanian). The prioritization (D-Step) will be done later in the InterConnect Project by the collaborating organizations. The research team particularly focused on the outputs generated in the B-Step as they helped identify current barriers from the different perspectives described in the Community Planning Process Model; resource base, spatial, technical, and governance (Appendix B). The stakeholders attending the workshops varied by regions; therefore, it was important to assess the current reality through the different perspectives. The results from the C-Step were also used for possible ideas.

On-site observations in the regions: With the help of guideline criteria (Appendix E), the research team gathered a snapshot of the end-user experience to balance the possible biased information provided by the stakeholders of public transportation. This observation was done by using the local transportation systems.

2.2 Data Analysis

2.2.1 Transcription

Transcription is a process of documenting the interview in writing. As the members of the research team typed fast, most of the interviews were transcribed as the interview took place. If the interview was not transcribed in live time, it was transcribed after from a recording. All transcriptions were sent to each interviewee after for validation.
2.2.2 Coding

Coding, usually of qualitative research, is a process of analyzing content by associating one or more words that summarize another series of words (Saldaña 2013). Coding helps organize data into overall themes, allowing for comparison of data to be better analyzed. It was relevant in this research as it provided an insight to the emerging patterns and differences between the interviews and observations.

The data was analyzed using open and axial coding to allow for patterns to be identified (additional information to follow). Data from interviews and observations was divided from paragraphs into sentences and each of them was put into a row in Microsoft Excel (see Appendix F for an example).

The process of coding data was done in two steps. First, the research team wrote open codes in the Excel file for each sentence of the interviews and the B- and C-Steps. Codes were inductive codes as they were defined based on the data collected (Savin-Baden and Major 2013). Three examples of interviews were done together within the research team to have a common understanding of the coding process; the rest of the data was divided equally into the three members of the team.

Second, axial coding was used to help answer the research questions. Two axial codes were chosen: barrier and best practice (to the use of public transportation). As many of the interviewees identified best practices from other regions, the process of applying axial codes allowed for the barriers and best practices to be separated from the overall method and better assist in answering the research questions. All barriers and best practices were weighted based on the number of interviews per region.

The research team then looked at barriers to identify those mentioned in every region, and then, those only specific in one region. The barriers selected (see chapter 3) were those mentioned the most by interviewees. To find best practices that could help to overcome the barriers, the research team filtered the best practice axial codes (from the same data from interviews and observations) with a focus of addressing the barriers previously identified.

2.2.3 Content Analysis

Content analysis, commonly of qualitative research, is a process of analyzing content of documents to look for patterns and themes (Savin-Baden and Major 2013). It was relevant in this research since it allowed the research team to gain understanding about the InterConnect project and the regions involved. It also enabled to look for common patterns observed during the coding of other sources of data in order to validate them or to observe the differences.

The content analyzed was provided by the InterConnect Project and uploaded on ProjectPlace: The InterConnect collaborative work management software, acting as a database for the project. The files analyzed were regional statistics, policies and good practices provided by each region.

The regional statistics including population, number of cars per 1,000 inhabitants, Gross Domestic Product (GDP) in local currency and rides per capita were also included later in the data analysis process.
Policies were defined as "a local/regional/national/international policy document on public transport affecting your geographical area" (Appendix I).

In the context of the InterConnect Project, good practices were defined as "a technological or non-technological solution, process, method or policy of regional and/or cross-border public transport (PT) in the project partner’s area or elsewhere in Europe that has been successfully implemented, tested and proven [...]" (Appendix I).

2.2.4 Survey Analysis

Survey analysis, commonly of quantitative research, is the process of visualizing and analyzing the data generated by the survey. It was relevant in this research because it allowed the research team to once again triangulate the main source of data, namely the interviews, with numbers.

The research team went through the questions from the online survey and selected the relevant ones to answer the research questions. The research team then looked at graphs generated from the survey data and used those numbers to triangulate the other sources of data.

2.3 Ethics

All participants of the data collection methods were informed about the use of data in this thesis. Surveys were introduced at the workshop, were voluntary, and were anonymous. Results of the surveys were sent to participants that had ticked “I am interested in receiving the result of this survey”. Each interview started with the research team briefly introducing the research topic and how the data collected will be used (Appendix C). All interviewees received a written transcription of their interviews within 48 hours and were asked to verify the exactitude of the content. The anonymity of the stakeholders involved in this research was preserved to the best of the research team’s ability – the interviewee’s names were not published in this document in order to avoid unintended consequences resulting from their quotes and opinions at their companies.

2.4 Limitations

Some limitations in the research methods design of this thesis can be acknowledged.

Interviews were conducted after the InterConnect workshops; therefore, many interviewees were tired and may not have had the most energy to answer the questions. Additionally, the surveys were created in an early stage of this thesis, therefore the questions do not always match with the way the scope and the research questions had evolved. Limitations to the observations of the regions due to time, as only two days were spent in Klaipeda and Pomorskie Regions; whereas, observations from Blekinge Region and City of Rostock are from people that live in those areas. The InterConnect workshops happened in a condensed way. This process would normally be done over longer periods of time, which can limit the inputs. Additionally, the workshops in Pomorskie and Klaipeda Regions were held in local languages creating a limit for the research team to actively take part in them. Overall, time was a limit in the development of the research design.
3 Results

The results of the findings are divided into four main categories: methods, barriers, best practices and project database results. The research methods yielded many results, which assisted in answering RQ1 and RQ2. Barriers were determined by the InterConnect stakeholders as problems or reasons to the lack of use of the public transportation system. Best practices were determined as achievements or potential ideas based to help implement change to reduce or remove the identified barriers.

3.1 Methods

3.1.1 Semi-Structured Interviews

Out of the 35 stakeholders contacted, the research team conducted 21 semi-structured interviews. Eight stakeholders were interviewed in Blekinge Region including two operators, four from government institutions and two researchers. No stakeholders were interviewed from Guldborgsund Region. Four stakeholders were interviewed in Klaipeda Region including two operators and two from government institutions. Five stakeholders were interviewed in Pomorskie Region including two operators and three from government institutions. Three stakeholders were interviewed from the City of Rostock from the research field. One stakeholder was interviewed from Viimsi Municipality from government institutions (see Appendix G for the interviewees list).

Out of the 21, only 20 interviews were further worked with, as the research team left the interview from Viimsi Municipality out of the scope as it was the only source of data and there was no way to triangulate the information. The 20 interviews were then coded, yielding the results further on. The interviews lasted between 45 minutes to one hour and each interviewee received a transcription of the interview, most often within 24 hours afterwards, allowing them to validate the content covered.

3.1.2 Online Survey

In total, 52 stakeholders answered the surveys including 18 in Blekinge Region, seven in Klaipeda Region and 27 in Pomorskie Region. The planned workshops in the City of Rostock and in Guldborgsund Region were cancelled, therefore data from online surveys was not collected in those two regions. Additionally, there was no workshop in Viimsi Municipality so no data was collected from the online survey.

3.1.3 Observations

Region Observations

In total, three region observations were conducted in Blekinge Region, Klaipeda Region, and Pomorskie Region by the research team. The observation in the City of Rostock was made by a local collaborating organization of the InterConnect Project. Observations made in Blekinge Region and in the City of Rostock were made by people who lived in those regions, whereas observations in Klaipeda Region and Pomorskie Region were made during the two days that the research team was in the region. Observations were typically made from the ferry port to
the city center and nearby areas; transportation to the rural parts of the regions was not observed directly.

Workshop Observations
In total, three observations from the InterConnect workshops were conducted by the research team in Blekinge Region, Klaipeda Region, and Pomorskie Region. Since there were no workshops in the City of Rostock, Guldborgsund Region, and Viimsi Municipality, there was no data generated from those places.

3.1.4 Coding
In total 59 open codes were created, such as spatial planning, behavior, etc. (Appendix F), to analyze the data from interviews and observations. 20 interviews and three observations were coded. To reduce overlapping codes, the research team discussed the 59 codes and merged them into 30 specific codes.

3.1.5 Content Analysis
Regional statistics from Blekinge Region, Klaipeda Region, Pomorskie Region, and the City of Rostock were analyzed individually and compared based on the following categories: population, number of cars per 1,000 inhabitants, GDP (converted into euro to allow for normalizing), rides per year, and rides per capita (rides per year divided by population). The research team went through the 19 documents of policies and selected eight as being relevant to be analyzed. The same process was done for the 23 documents of good practices, where nine were selected and analyzed.

3.1.6 Online Survey Analysis
In total, out of the 33 questions of the online surveys, 11 were found relevant and further analyzed as they helped to answer the research questions.

3.2 Barriers
The following results answer the first research question of this thesis (RQ1): What are current barriers to the use of public transportation as perceived by stakeholders in the SBSR?

Barriers were defined mainly through the data from interviews supported by data from observations and surveys. The barriers identified in the SBSR were based in three overarching themes: politics, business and general public. The barriers inside the theme of politics were politicians and legal structure as well as infrastructure and spatial planning. In the theme of business, the barriers were service, communication and marketing, ticketing and cost. In the theme of general public, the barriers behavior and customer and demand were identified. The barriers were related to each other mainly within the overarching theme which determined their placement. However, the barriers were also related to other barriers in different themes – transportation is a complex topic with direct and indirect relations to other systems as described in the introduction of this thesis.
3.2.1 Politics

Figure 3.1. Within the theme of politics, two barriers were identified which encapsulate four different categories each.

Politicians and Legal Structure
Blekinge Region, Klaipeda Region, Pomorskie Region, City of Rostock

One of the common barriers to the use of public transportation identified within all of the regions in the SBSR encapsulated the area of politicians and legal structure. There were four main categories that could be identified within this barrier: financial limitations, transportation organizations, the prioritization of cars by politicians and the short-sightedness of politics (Figure 3.1).

Financial limitations were discovered in all of the regions and were discussed in different ways. Pomorskie Region identified different consumer fares, specifically due to the variety of operators in the region (Interviewee 9). The different fares further caused issues at an international level in regard to transportation around the SBSR as stated during the Pomorskie InterConnect workshop “Lack of transparency: tariff [fare] and legislative clutter makes international cooperation difficult or impossible” (Pomorskie B-Step). Additional financial limitations were identified within Blekinge Region, Klaipeda Region and the City of Rostock due to borders between the cities and the surrounding region, or the region and the state overall (Interviewee 3, Interviewee 14, Interviewee 18). “The big part of public transports is paid by the municipalities, there is little support from the state […] there is no fixed part of the taxes that go to public transports” (Interviewee 3). This applied to Pomorskie Region as well where the state was responsible for road construction while the municipalities took care of public transportation (Interviewee 13). As the money only comes from the municipality, bicycle paths ended at the boader of the municipality in Klaipeda Region (Interviewee 14).

The role of transportation organizations was also identified as being a part of the obstacles to the use of public transportation. Organizational structures were identified as being an issue, such as the “lack of seeing outside of the silos” in Blekinge Region (Blekinge B-Step), conflicts of interest such as “region municipalities trying to protect [their] own companies [operators]”
in Klaipeda Region (Klaipeda B-Step) and “problems of administrative boundaries in the organization of public transport” in Pomorskie Region (Pomorskie B-Step). Specific issues with public transportation organizations in Pomorskie Region included the time for negotiations (Interviewee 13), the number of players in the public transportation of the region (Interviewee 9), and conflicting goals (Pomorskie B-Step).

Many of the political issues that were identified were seen as symptoms of an over-arching issue of the political prioritization of the personal automobile over public transportation. When asked about prioritization of transportation systems, at least one interviewee from every region stated the personal automobile was of higher focus than public transportation (Interviewee 9, Interviewee 6, Blekinge B-Step, Interviewee 5, Interviewee 15, Interviewee 18).

“On a political level, there is a lot of talk about improving public transportation. When it comes to real politics, there is still more focus on the car, especially on the local level. Politicians say that they are really focused on public transportation, e.g. on bicycles, which are a hot topic at the moment, but not in practice. In practice, they are focusing on the highways.” (Interviewee 6).

Although similarly identified, small political advancements were noted in Pomorskie Region during the interview with representatives from the Metropolitan Public Transport Authority for Tricity Region: “It is difficult to meet expectations of us and politicians […] Every year it gets a bit better, politicians try to go more for public transportation, but car users are still important. Politicians try to understand and take small steps every year” (Interviewee 10). In Klaipeda Region, it was identified that personal vehicles were prioritized over public transportation, for even if the entire fleet were fully operating, only 10% of the population could be transported with public transportation (Interviewee 17).

The short-sightedness of politics was identified as an obstacle in all three regions where the workshops took place. In Pomorskie Region the political barrier identified specifically focused on public procurement laws and frequent changes in regulations (Interviewee 9, Interviewee 13). Similar to Pomorskie Region, Klaipeda Region noted that political agreements and decisions were not long lasting and that in order for a more convenient transportation system to exist, political agreement was further needed (Interviewee 14). In Blekinge, the political issues were seen in the historical context, specifically noting that the policies and political decisions of the past were still affecting the way they were operating (Interviewee 6). To give better context, “Path dependency: decisions from years ago [are] still affecting todays operations […]” (Blekinge B-Step).

Infrastructure and Spatial Planning
Blekinge Region, Klaipeda Region, Pomorskie Region, City of Rostock

Another common barrier to the use of public transportation in the SBSR was infrastructure and spatial planning. Within this barrier, there were different categories identified: The process of spatial planning within municipalities, the lack of infrastructure for public transportation, the prioritization of cars through infrastructure and its connection to politics were contributing to the barrier.

Obstacles around the process of spatial planning were mentioned in Blekinge Region as originating from the late involvement of the public transportation authority compared to land
owners and constructions companies (Interviewee 3). For the list of priorities for spatial planning in the development of the region, public transportation ranked very low: "sea view, space for cars, school etc. everything is on there, but public transportation is at the bottom" (Interviewee 3). Public transportation was not the primary concern in the planning of new residential areas, "the traffic planners are usually not involved in discussions of how to serve the needs of the people who will be living there" (Interviewee 4). The lack of effective and efficient spatial planning was also identified in Pomorskie Region (Pomorskie B-Step). One example of this could be seen in the connection to the suburbs: “the suburbs are not well connected, if you need to take your child to school in town or go to work, it is hard to use public transport” (Interviewee 9). In connection to that, the road infrastructure in Pomorskie Region in general was criticized as being not good enough for the needs of the people (Interviewee 13). In Blekinge Region, issues like this were the result of forecasting trends. It would be expected that people like to drive a car in the future which is why public transportation was not as relevant in the process of spatial planning (Interviewee 4).

The lack of infrastructure for public transportation was another obstacle mentioned. In the rural municipality of Neringa, which is part of Klaipeda Region, there were “no local routes for public transport [and] the link to Klaipeda [Region] and other municipalities is very poor” (Interviewee 15). Therefore, people relied on the use of a car to get to the City of Klaipeda as they did not have the possibility to go to work with public transportation (Interviewee 15). In the City of Klaipeda itself, the public transportation authority considered this a problem as the amount of cars coming from suburbs, other cities and/or regions caused traffic jams at the entrance of the city (Interviewee 16). The need for a better integration for public transportation services was addressed by participants of the Pomorskie InterConnect workshop, where complementary infrastructure was mentioned which should include road, railway and modernization. (Pomorskie B-Step).

Another obstacle within the barrier of infrastructure and spatial planning was the prioritization of cars. Within the City of Klaipeda, there was not a physical structure between the bus and the road line which hindered the development of dedicated Bus Rapid Transit (BRT) routes (Interviewee 17). The lack of dedicated bus lanes or different traffic lights was also mentioned in Pomorskie Region where there was not priority for public transportation vehicles (Interviewee 12). This made public transportation vulnerable to traffic jams due to the increasing number of cars (Interviewee 10). Furthermore, the infrastructure supporting the use of individual cars also appeared as a barrier regarding space as "there is a limit, in bigger cities, space is very much valuable" (Interviewee 3) and "cars take up much space (parking lots)" (Blekinge B-Step). This also had historical reasons, as from the 1960s onwards there was very little investment on trains until the 1990s when more investment in train infrastructure was made (Interviewee 6). The prioritization regarding investments in infrastructure for individual cars over infrastructure for public transportation (Interviewee 18) was also observed in Rostock where a tunnel was built under the river connecting the left and right bank of the city. The tunnel was designed to make transportation faster but excludes public transportation from accessing it, making it usable only for trucks and cars (Interviewee 20).

The identification of the prioritization of car transportation over public transportation (Interviewee 3), previously mentioned in the barrier politicians and legal structure, was addressed in the area of infrastructure, where even if politicians in Blekinge Region "are saying that the train system is very important, they do not want to invest in it, but invest in the road
system, which makes no sense, because the road system is very good already. Again, the rhetoric is not matched by reality" (Interviewee 6). Stakeholders in Blekinge Region, when asked what they think of the investments made in infrastructure for individual cars versus public transportation, had difficulties to answer: "that is tough, we need it all, it is hard to say we should put more money in public transportation but then take away [services such as] snow removal" (Interviewee 1) and "it is hard to justify cutting down on parking spots and things like that, it is hard to justify that for citizens" (Interviewee 2). The focus was different between stakeholders in the region: "some planners say ‘no, interregional traffic is the priority’ and the people say ‘no, commuting is our priority’, so how to solve this problem? Whose priorities should be appreciated the most? Is it possible to find a compromise? Right now, this is an unresolved problem that brings a lot of bottom-up, grassroots movement in those village areas" (Interviewee 4).

3.2.2 Business

![Figure 3.2. Within the theme of business, four barriers were identified which encapsulate different categories.]

**Service**

Blekinge Region, Klaipeda Region, Pomorskie Region, City of Rostock

Obstacles related directly to services provided by public transportation operators were mentioned in all the regions. Categories identified within the barrier of service were the issue of time, the lack of comfort, the lack of storage space and a low frequency of the offered services (Figure 3.2).

The time it takes to get from point A to point B was identified as an obstacle to the use of public transportation. Busses made frequent stops, making a car the faster and more comfortable option (Interviewee 18, Interviewee 10). In Blekinge Region the time difference in
transportation with individual cars compared to public transportation emerged during an interview: "the car takes 1 hour, the bus 1 hour and 45 minutes" (Interviewee 1). Apart from the difference resulting from speed, delays in public transportation also contributed to the issue, specifically in Blekinge Region where delayed trains lose priority on the tracks (Interviewee 2). This statement was verified by the regional observation (Blekinge Observation) and by the survey after the Blekinge InterConnect workshop in which 55.5% of respondents were unsatisfied or very unsatisfied with the dependability of the entire public transportation system and 44.4% were unsatisfied or very unsatisfied with the services staying on schedule (Blekinge Survey). This "lack of trust in the system" (Blekinge B-Step), was particularly mentioned in Blekinge Region where weather problems (Interviewee 4) and breakdowns (Interviewee 6) made people lose trust in the system (Interviewee 6), causing people to switch from public transportation to their personal automobiles (Interviewee 4). Issues regarding time were also identified in the City of Klaipeda in which buses in traffic jams could lead to 5-7 minutes delays (Interviewee 16). This was identified as an obstacle, particularly when "people do not want to waste their time waiting for the bus" (Interviewee 15). However, 85.7% of respondents of the survey after the Klaipeda InterConnect workshop were satisfied with the dependability of the public transportation system and there was no opinion identified with the services staying on schedule (Klaipeda Survey).

Another issue related to service that was mentioned in all the regions was the lack of comfort. When public transportation was compared to individual cars, it did not seem to be competitive enough: "It is a lot more comfortable [to go with the car] than going with the bus" (Interviewee 16). It was less comfortable in the sense of less convenient, especially for families with children (Interviewee 15, Interviewee 13). The comfort of travelling was considered a decisive factor for the people to use public transportation (Interviewee 4). People cared about "time, money and their own convenience" (Interviewee 2). The perception of comfort was also observed in regard to regional differences, for example, when it came to personal space in Blekinge Region people "do not want anyone to be very close to [each other] because [they] feel it is not comfortable" (Interviewee 4). This hindered people from using public transportation, especially during rush hours in which sometimes a second bus was needed as there was not enough space for everybody (Interviewee 8). The lack of personal space was further addressed in Rostock, specifically regarding business phone calls (Interviewee 19).

Another obstacle mentioned within the barrier of service was the lack of storage space in public transportation. The lack of space made it difficult for transporting luggage (Interviewee 15) and for related tasks as grocery shopping (Interviewee 10, Interviewee 16). The lack of storage space was also relevant when it came to international travelling. Getting to the ferry with additional luggage was considered tricky, noting that public transportation would need to be more flexible regarding luggage for people getting to the ferry terminal in Karlskrona in Blekinge Region (Interviewee 5).

The low frequency was mentioned as a barrier limiting the use of public transportation in rural areas of Blekinge Region (Interviewee 7). In the City of Rostock, using public transportation during the day was considered efficient but at the evening or at night, the availability was not considered as good anymore (Interviewee 18).
The lack of communication and marketing was identified as a barrier to the use of public transportation. Categories within the barrier were the lack of knowledge of public transportation and the prioritization of cars in international transportation.

In Pomorskie Region, an overall lack of knowledge around public transportation and its benefits was identified by the stakeholders. This affected the public transportation within the region (Interviewee 10). Many people in the Tricity Area (Gdansk, Gdynia, and Sopot) in Pomorskie Region did not know how to use public transportation and the lack of information was considered a barrier (Interviewee 10). The lack of knowledge also affected international transportation with the ferry for which more marketing would be needed (Interviewee 13). The ferry operators, such as Stena Line, would have to give more information to the public (Interviewee 13).

When it comes to using public transportation while traveling cross-border within the SBSR the prioritization of individual cars was mentioned. The possibility of transporting cars was considered a way for the ferry company to compete with airlines using the argument that customers could bring their car (Interviewee 5). Therefore, it was easier to go to Poland by car than by public transportation (Interviewee 3). Foot passengers were identified as not being prioritized by ferry lines as their business model would be much more focused on cars and trucks with which they would increase their income (Interviewee 18). However, the overall findings of the surveys from the InterConnect workshops showed that 26.2% of respondents were using the ferry by car whereas the remaining 73.8% reported using the ferry service by foot or by bicycle (Surveys combined).

Issues regarding ticketing were identified in Pomorskie Region and the City of Rostock as being a barrier to the use of public transportation. Specific problems were related to the number of operators within the regions and internationally, to the methods of payment and to the collaboration with stakeholders.

In addition to the barrier of politicians and legal structure, the number of companies operating public transportation services contributed to the barrier of ticketing. There was no common ticketing platform and a variety of fares – the lack of a same price principle, particularly for changes between the modes of transportation (Interviewee 11), i.e. a variety of different tariffs (Interviewee 9) was named as one of the big issues in Pomorskie Region. The lack of integration of ticketing systems across multiple transportation organizations was also identified as a barrier to the use of public transportation between neighboring cities. In the Tricity Area it was not possible to use a ticket from Gdansk in Gdynia as there were different providers and different systems regarding bus and railway transportation (Interviewee 10). Also, it was observed that in Pomorskie Region, tickets were sold depending on the distance travelled, and not depending on the number of passengers.

Traveling by public transportation outside of the region was also considered a barrier due to the variety of tickets required and the time needed for planning trips:
“For example, if we organize a project and if we have not one system, my volunteer spends three days for buying tickets. It takes a lot of time and the system is not fast. For one trip, for one person, he had to buy five different tickets. [...] if money is time, that matters a lot” (Interviewee 13).

A similar situation was identified by one interviewee in the City of Rostock. Customers can buy a train ticket in the Polish City of Szczecin, located at the German border. This ticket could be used for the public transportation in Szczecin as well as in the train in the German region of Mecklenburg-Vorpommern in which Rostock is located. However, it was not possible to use this ticket in the City of Rostock itself as there is a contract between the City of Szczecin and Deutsche Bahn, the operator of the train; however, there was no agreement between Deutsche Bahn and the City of Rostock (Interviewee 20).

In Rostock, the current payment and ticketing system was identified as a barrier. Payment by credit card or mobile phone on trains was not possible. It was only possible to pay with cash (Interviewee 18), which was considered a problem for tourists and people who were not German citizens (Interviewee 20). This was confirmed in the regional observation, where it was mentioned that on trains, ticketing machines only accepted cash or German Girocards, international credit cards would not be accepted (Rostock Observation).

A one-ticket system exists between the City of Rostock and the Danish City of Nykøbing, called the InterCombi Ticket. This ticket allows for transfer by bus, ferry and train (InterCombi-Ticket n.d.). However, there is difficulty finding information about this ticket as the ticket is not marketed on the websites of the involved operators (Interviewee 20), showing a gap of collaboration with the InterCombi Ticket stakeholders in the City of Rostock. Also, there were too little attractions and reasons to take the trip (Interviewee 19). This lack of support for the ticket was considered a barrier (Interviewee 18).

**Cost**

Klaipeda Region, City of Rostock

The barrier of *cost* was perceived mainly in the City of Rostock and in a rural municipality in Klaipeda Region.

In the City of Rostock, the cost of tickets for public transportation was identified as a regional barrier (Interviewee 18). It was mentioned that with a lower price, the municipality could attract more users (Interviewee 18). The available public transportation passes were stated as too expensive, especially when compared to ticketing structures in other cities like Vienna (Interviewee 18). When only calculating with the cost for fuel it would be cheaper for families to use cars (Interviewee 18).

Such a comparison was also made in Klaipeda Region, where it cost more to use public transportation when compared to using a car (Interviewee 15). However, this statement was not supported by 77.8% of the survey respondents of the Klaipeda InterConnect workshop, who disagreed or somewhat disagreed that public transportation was more expensive than owning a car. Throughout the three regions of the InterConnect workshops 71.2% of respondents disagreed or somewhat disagreed with the statement that public transportation was more expensive than owning a car. Furthermore, 63.5% of respondents agreed that public transportation was affordable for everyone (Surveys combined).
3.2.3 General Public

**Behavior**

Blekinge Region, Klaipeda Region, Pomorskie Region, City of Rostock

People’s behavior was mentioned as a barrier throughout the regions. Within the barrier of behavior, people's mindsets and habits were described as being a barrier as well as the lack of incentives for them to change their behavior (Figure 3.3).

The mindset of the population was described as a barrier in different regions. In Pomorskie Region, owning a car was considered a status symbol, a luxury good, as it was important for people to have a better car than their neighbor (Interviewee 10). In Blekinge Region, people over 35 and 40 grew up with the notion that the car should be used for transportation (Interviewee 6). The habits of people, especially old men who had been driving their cars for 30 years were hard to change (Interviewee 3). Many people were identified as being "stuck in their patterns", making them less likely to consider public transportation (Interviewee 2). Even if people spoke about the importance of public transportation they were still focused on using their cars as that would be the most practical means of transportation (Interviewee 6). It was people without cars that would use public transportation making it "mostly a negative choice" (Interviewee 6). This mentality was also observed in Pomorskie Region where “public transportation is for the poor, the students and for elderly people. Many people think that public transportation is only for people who cannot afford a car” (Interviewee 9). The need for changing this mentality was also identified in Pomorskie Region where a growing number of cars on the roads could potentially lead to big problems due to growing bottlenecks in the next 10-20 years (Interviewee 13). This result resembled the situation in Klaipeda Region where public transportation was used by people who could not afford or do not drive cars (Interviewee 14). People preferred using their cars because using public transportation was not attractive enough (Interviewee 15).

The necessity of creating incentives for people to use public transportation was mentioned throughout the regions. One way to change the behavior would be through making the use of a personal vehicle more expensive. In Klaipeda Region parking fees "were introduced nine years
ago" (Interviewee 17) to incentivize public transportation and reduce car traffic. However, "the price stayed the same since then and did not get adjusted due to inflation" which made it "too cheap" and "play no role" in increasing people's use of public transportation (Interviewee 17). In Rostock, the use of a car was too convenient, and parking was too cheap in order to create behavior change (Interviewee 18). Also, car owners "don't see the price of the car, only the price of fuel" (Interviewee 18). In Pomorskie Region, it was mentioned that "there are no special offers for car users to get them to change, the only thing is to make more restrictions, we would have to ask them to pay for using the car" (Interviewee 10). Too little efforts were made by companies and municipalities when it comes to informing people so as to change their behavior (Interviewee 13). In Klaipeda Region influencing people for changing their behavior was seen differently:

"We are not trying to do any influence. Our main aim is not to make influence on people to use public transport. The main influence is to ask the municipality to raise parking prices, like the parking price for one hour is 100€, no one is going to go by car. But our main aim is to make public transport more friendly." (Interviewee 16)

Customer and Demand
Blekinge Region, Klaipeda Region, Pomorskie Region

Another barrier mentioned was in regard to customer and demand. One issue identified was that public transportation would not fit the needs of certain groups of people, such as the working population and people living in rural areas. The lack of knowledge about customer needs and the low demand for international transportation were also mentioned as barriers.

The workforce was identified as a group not using public transportation Klaipeda Region and in Blekinge Region (Interviewee 14, Interviewee 3). In Blekinge Region specifically, they used company cars or were reimbursed for using taxis (Interviewee 3) as they were "very time-bound and they have to get to work (e.g. in a factory) efficiently and fast, for them it is perceived as more convenient to use their individual cars" (Interviewee 4). This was confirmed in the survey of the InterConnect workshop in Blekinge Region in which 50% of respondents said that their employers provide on-site fleet company cars and free parking lots (Blekinge Survey). Also, public transportation was "built for children, elderly, and physically handicapped people, but workers and tourists remain excluded leading to an increase of car use and CO2 emissions" (Blekinge B-Step).

Besides the working population, people living in rural areas were mentioned as another group not using public transportation in Blekinge Region. Reasons for that were the low frequency (Interviewee 4) or the lack of integration between public transportation and small municipalities (Interviewee 1). Public transportation in rural areas targeted the schools rather than the people who go to work (Interviewee 7). This was confirmed in the InterConnect workshop in Blekinge Region, in which it was stated that public transportation would not suit families with children in rural areas (Blekinge B-Step).

Within the barrier of customer and demand, the lack of knowledge of customer needs was mentioned. In Blekinge Region, the service providers did not have enough insights of what customers want (Interviewee 7). The public transportation authority would need to invest a lot of time to investigate the different user needs of different age and work groups in different parts
of the area, requiring a lot of consultation in order to come up with a system which would incorporate "a lot of transportation modes" (Interviewee 4). In Klaipeda Region, there was little knowledge of the reasons which kept people from using public transportation (Interviewee 16).

Regarding cross-border travels within the InterConnect regions, a lack of demand or interest was identified. In Klaipeda Region, the mobility within the Baltic Sea Region was described as being "terrible" (Interviewee 14). There were bus lines that go to the ferries in the City of Klaipeda, but the public transportation authority of the city was only responsible for "the city, the region, maybe the suburbs" but not for international transportation (Interviewee 16). This was confirmed in the Klaipeda InterConnect workshop survey in which only 42.9% of respondents were aware of the ferry connection to Karlshamn in Blekinge Region but no one had actually used it (Klaipeda Survey). In this context, the research team observed that there was no information, no public transportation service, and minimal infrastructure for pedestrians or cyclists to connect the train station at Karlshamn with the ferry terminal (Klaipeda Observation). In Pomorskie Region the ferry was described as not being prioritized due to good flight connections (Interviewee 11). However, the survey of the InterConnect workshop in Gdynia showed that 85.2% of respondents were aware of the ferry connection to Karlskrona and 73.9% had used the connection (Pomorskie Survey). In Blekinge Region, one interviewee mentioned that there would be no reason to use the ferry although she was aware of it (Interviewee 7). Indeed, 94.4% of respondents of the survey of the InterConnect workshop in Blekinge Region were aware of the ferry connections, 94.1% of those respondents had used the ferry from Karlskrona to Pomorskie Region while only 5.8% had used the ferry from Karlshamn to Klaipeda Region (Blekinge Survey).

### 3.3 Best Practices

The following results help answer the second research question of this thesis (RQ2): What are best practices and ideas as perceived by stakeholders in the SBSR which could help overcome the identified barriers?

Best practices were defined mainly through the data from interviews supported by data from observations and surveys. The best practices were categorized in the same themes as the barriers which they should potentially help to overcome. Only best practices which may address identified barriers were taken into account, further best practices were not included. As transportation is a complex topic, the identified best practices might also address other barriers and potentially other systems.

#### 3.3.1 Politics

**Politicians and Legal Structure**

Blekinge Region, Klaipeda Region, Pomorskie Region

Obstacles identified within the barrier of politicians and legal structure may be discussed through the best practices and ideas identified in different regions. The best practices included changes regarding transportation organizations, the collaboration with the municipalities and the InterConnect Project. Ideas for a better relationship with politicians were mentioned as well.

Having regional or national organizations to address issues in public transportation was identified as a positive measure in Blekinge Region. Sveriges Kommuner och Landsting was
mentioned as a national organization connecting different counties across the country, which tried to map the development of public transportation in Sweden. It measured how each county performs (Interviewee 3). Kollektivtrafikbarometern was mentioned as a national organization which aimed at measuring numbers regarding public transportation: "They have a way to measure each county in Sweden and you can compare to other counties. For instance, one measurement is: how big is the part of your kilometers that you do without using fossil fuel" (Interviewee 3).

In Klaipeda Region, the public transportation authority works closely with the infrastructure department of the municipality sharing advice and opinions (Interviewee 16). In the past, this partnership has allowed for recommendations regarding the development of parking areas so that the parking lots could be reached easily by public transportation (Interviewee 16).

In regard to the entire SBSR, there was the InterConnect Project itself mentioned which “is not only connecting the services of the territories but also the mindsets.” (Interviewee 4).

A positive relationship with politicians was identified as important to work towards in Blekinge Region, Klaipeda Region and Pomorskie Region (Interviewee 16, Interviewee 3, Interviewee 13). “We are trying to improve [public transportation] as best as we can. The politicians see that, and they are trying to support us. They give more and more money for special things, for example, there were bus stops on our main street with really critical situations.” (Interviewee 16). Working with politicians allowed for the regions to better implement public transportation and infrastructure strategies (Interviewee 3, Interviewee 13).

**Infrastructure and Spatial Planning**
Blekinge Region, Klaipeda Region, Pomorskie Region, City of Rostock

Within the barrier of infrastructure and spatial planning, best practices included limiting the number of parking lots, the creation of bus lanes and fostering bicycle transportation. Apart from that, an idea regarding traffic lights for public transportation was mentioned.

In Blekinge Region, limiting the number of parking lots in the city was mentioned as an initiative undertaken by Karlskrona Kommun which would increase the number of people on busses (Interviewee 8). Also, in the City of Rostock, no additional parking lots were being built (Interviewee 20).

Another initiative to shift the priority to public transportation had been undertaken in Blekinge Region through "building new roads [...] have the bus traffic in mind [and] creating bus lanes only for busses" (Interviewee 8).

Similar to that, the creation of bicycle routes in the City of Klaipeda was mentioned as an achievement in Klaipeda Region (Interviewee 14). The relevance of bicycles was also mentioned in Pomorskie Region as more bicycle transportation would mean "fewer cars in the streets, the traffic flow will improve, which means that also the punctuality of public transportation will improve, and consequently, public transportation will become more attractive" (Interviewee 12).

Furthermore, the idea of having a special traffic light for public transportation (Blekinge C-Step) was mentioned as potential future direction to overcome the barriers related to spatial planning and infrastructure.
3.3.2 Business

Service
Blekinge Region, Klaipeda Region, Pomorskie Region, City of Rostock

In order to address the obstacles within the barrier of service, best practices regarding time, the adoption of new technology and services for rural areas were mentioned. Ideas concerning the expansion of services and environmentally friendly transportation modes were collected.

In Blekinge Region, the public transportation provider stopped accepting cash in busses in order to get passengers more quickly into the bus and therefore decrease time at each stop (Interviewee 8). In Rostock, the synchronization of timetables of public transportation with ferry arrivals allowed passengers to quickly get to the city (Interviewee 18).

The adoption of new technologies was mentioned as part of providing modern services that would meet end users' needs. For example, CCTV cameras in busses in Klaipeda Region allowed the public transportation authority to deal with unexpected situations such as accidents (Interviewee 16). Blekinge Region promoted their mobile app as a means of payment (Interviewee 8). Also, in Blekinge Region it was decided to buy hybrid busses in order to protect the environment (Interviewee 3). In Pomorskie Region, the “passenger information system” was named as a factor improving the quality of their systems making people use their services more willingly (Interviewee 12).

Offering public transportation services for rural areas was considered important. In Klaipeda Region, smaller vehicles were used to "fill the gap between big public busses and private cars" (Interviewee 17). Similarly, in Blekinge Region, smaller busses (almost like taxis) pick up people from the countryside (Interviewee 2).

There were different ideas mentioned regarding the barrier of service. The possibility to bring a bike in the bus (Interviewee 1), mobility as a service (Interviewee 4), the extension of the offer to car-pooling and car-sharing systems (Interviewee 7, Blekinge B-Step), and the installation of Wi-Fi on trains and busses (Interviewee 3) were mentioned as possible ways for improvements in order to overcome the obstacles regarding services. In Pomorskie Region “providing access to other environmentally friendly transportation modes, e.g.: by offering a bike-share service, taxis and car share, building or modernizing bicycle infrastructure” was mentioned as an idea to improve the modes of transportation in the region (Interviewee 9).

Communication and Marketing
Blekinge Region, Klaipeda Region, Pomorskie Region

Regarding the barrier of communication and marketing, best practices were identified in the work of a regional organization, in branding, in marketing the time advantage of public transportation and in customer service. Ideas addressed the topic of promotion.

In the Pomorskie Region, an InterConnect Project partner called Euroregion Baltic stated that providing information and dialogue is the organizations task and in order fulfill it, they used different online channels (Interviewee 13). In terms of company branding, the unified design of the vehicles was mentioned as a best practice in Klaipeda Region (Klaipeda B-Step). Also, in Klaipeda Region, the public transportation authority organized a yearly competition in which they determined which means of transportation (bus, car, bike) was the fastest:
“They are starting to go from the same spot, the furthest spot of our city, and they are going through here. From one side of the city to another side of the city, [by] the bus and the car [...]. Both of them cannot pass the speed limit, the bicycle has to drive on the bicycle track, it cannot go in the street. If it is red, you cannot pass, even if you have a bicycle, you need to stop. So everybody is following the rules. And we are showing that if you take the car, it is not faster all the time. If I am not mistaken, this year the first place goes to the bus.” (Interviewee 16).

The results of this competition were promoted on the organizations website and via the local radio station (Interviewee 16).

Customer service was something that Klaipeda Region focused on as well. Even if errors occurred, the customers should know that there would be improvement and they should not lose trust in public transportation (Interviewee 16).

Ideas were mentioned regarding promotion. In Klaipeda Region, providing more information oriented towards tourists and promoting public transportation through Very Important Persons were two ideas mentioned (Klaipeda C-Step). In Pomorskie Region the necessity of creating a joint system encompassing all the public transportation companies was emphasized (Interviewee 13). In Blekinge Region, the marketing and communication of transportation cards were mentioned as ideas (Interviewee 1).

**Ticketing**
Klaipeda Region, Pomorskie Region, City of Rostock

Within the barrier of ticketing, best practices were identified regarding the number of operators and different ticket options. The idea of a one ticket system was mentioned as well as increased collaboration.

Having a limited number of operators and the value of having a single public transportation provider was mentioned in Blekinge Region: “It is a big advantage that we have only one bus company for the whole region. If a bus breaks down in Karlshamn and we have to replace it, that would be really difficult to do that if there is another company operating there.” (Interviewee 8).

A variety of ticket options was stated as being attractive for customers, including “daily tickets, family tickets, weekly tickets, group tickets, monthly tickets” in the City of Rostock (Interviewee 20). In Klaipeda Region, providing a variety of ticket options was considered valuable as a “variety of options provide freedom to choose and motivate to use” (Klaipeda B-Step). That said, it was also identified that the amount should be simple as too many options would cause confusion (Interviewee 9).

The idea of a one ticket system was considered valuable in Pomorskie Region as it would make “public transportation more user-friendly and less difficult, that might be the reason why they [customers] start using public transportation” (Interviewee 13). To work on that idea, Pomorskie Region created an organization called InnoBaltica to implement a one ticket system. “InnoBaltica is the body responsible for implementation the project of integration tariffs [fares], managing the system of joint ticket and passenger information for the region. At the moment we are working on the technical aspects of the IT system” (Interviewee 9). Increasing the
collaboration "on the national level in order to work better locally" (Interviewee 6) was also mentioned as an idea in Blekinge Region.

3.3.3 General Public

Behavior

Blekinge Region, Klaipeda Region, Pomorskie Region

Many best practices were mentioned in connection to changing the behavior of people. Discounts, park and ride facilities, educating young people and new policies were used to change behavior. Ideas collected are about obstacles for car users, especially when it comes to parking and informing people about cost differences.

Public transportation authorities would be able to provide better offers and services through discounts by better identifying customers’ needs. For the first-time, children were able to use public transportation in Blekinge Region during the whole summer (Interviewee 8, Interviewee 7). Apart from that, “free public transport for selected groups (e.g. children)” was named as a reason for using public transportation in Pomorskie Region (Interviewee 9). Discounts for different groups were also available in other regions: in the City of Rostock students (Interviewee 19, Interviewee 18) and in Klaipeda Region kids, elderly or disabled people (Interviewee 15) were eligible for discounts. Also, in Klaipeda Region, “a higher discount is used to incentivize the use of the e-ticket” but paper tickets were not cut completely in order to not exclude groups that were not in favor of technology (Interviewee 17).

Park and ride concepts were identified as a means to reducing car traffic in the City of Rostock and in Klaipeda Region. In Klaipeda Region, those facilities would "reduce the pollution in the city, reduce bottlenecks and traffic jams" and as an incentive, parking a car there was free (Interviewee 16). This concept was also used with a boat route in Klaipeda Region "people can leave the car at the other side of the lagoon and they can take a boat. They cannot take the car in the boat, so we get tourists without cars" and regarding bicycles for which there would be containers at the park and ride space (Interviewee 16). However, park and ride facilities existed “only at one place at the moment” (Interviewee 16). In the City of Rostock, park and ride facilities were used to reduce congestion and to increase the use of public transportation (Interviewee 18).

In the Metropolitan Public Transport Association of Gdansk Bay (MZKZG) specific activities for increasing the knowledge about public transportation among school-aged people were mentioned:

“We are conducting school projects and education in school, we educate children about the advantages of using public transportation and we are trying to promote public transportation, we teach them how to use it. It starts in primary school, we speak to pupils as public transport clients of the future, we try to change the lifestyle from an early age on. It is difficult to change mindset of adults. Politicians try to do that, e.g. with parking restrictions.” (Interviewee 10).

The different mentality of young people was also observed in Blekinge Region where they would not see the advantages of a car as it would be parked in one’s home most of the time (Interviewee 2)
Another best practice was a policy that was introduced in Klaipeda Region in 2010 which made entering the bus only possible through the front door, “[solving] the problem of homeless people in the busses [...] and it saved time" (Interviewee 17)

Apart from the measurements above that are already in place, several ideas were mentioned regarding changing behavior. In Blekinge Region, one interviewee talked about “using assets like parking lots” to charge for parking in order to “make going by your car a little bit expensive” as a tool to accelerate behavior change (Interviewee 3). The public parking fee should cost "at least as much as the public transportation card" (Interviewee 3). In Klaipeda Region, it was mentioned that physical obstacles for car users would influence customers behavior more (“up to 10-15% increase”) than “free public transport with WIFI (up to 5% increase)” (Interviewee 17). This idea was supported by the increased total number of passengers in Summer 2014 when there was a major construction that led to the blocking of one of the bridges in the city for cars (Interviewee 17). An idea already in use in another region in Sweden was a congestion fee: "For not having congestion you have a fee, that has decreased the number of cars in Stockholm and Gothenburg" (Interviewee 6).

Another idea that one interviewee suggested in Blekinge Region was to put a bigger emphasis on informing people about the true cost of public transportation and of owning an individual car: “You have a bus card, it costs 12,000 SEK per year, you have a car, that costs 50,000 SEK per year, you can go on two luxury holidays” (Interviewee 2).

**Customer and Demand**

Klaipeda Region, Pomorskie Region, City of Rostock

When it comes to the barrier of customer and demand, best practices identified included the focus on suburbs and the working population as well as understanding customers' needs and reacting to them in a flexible way.

One thing that Klaipeda Region focused on was providing public transportation to the growing suburbs around it (Interviewee 16). In order to reach more customers, the public transportation authority cooperated with private businesses which would pay for additional bus lines to their premises: “I think that we are the only ones in our country that have agreements with business companies, for example, we have this bus line that is fully compensated by one of the business companies.” (Interviewee 16)

Understanding customers’ needs had been identified as valuable for overcoming barriers to the use of public transportation. Blekingetrafiken (the transportation authority in Blekinge Region) looked at customer needs by directly "standing at the main road of the center and recorded the license numbers to find out where the people come from, they looked for potential places where people come from, as a result they created fast busses that take the people from those places and stop less" (Interviewee 8). In Pomorskie Region, the “satisfaction level about public transportation” was measured through surveys (Interviewee 12).

When it came to customers' needs, flexibility was perceived as a strength in Klaipeda Region. For instance, if an airplane was late, the bus schedule was adjusted to the circumstances (Interviewee 16). Furthermore, if people demanded a bus line in an area that had no bus line yet, the public transportation authority tried to be flexible and to cooperate with the people affected:
“They sign a sheet of paper with hundreds of names and ask us for a cooperative meeting […] So we make a meeting, we talk about what would be like the best times, how to make a schedule […] Then we are making records of that line for a few months and we see that the bus is going back and forth 5 times a day, but only four times it has passengers, that one particular time it has like two passengers. So we remove one of the times and leave only four” (Interviewee 16).

3.4 Project Database Results

3.4.1 Summary of Regional Statistics

Regional data for Blekinge Region, Klaipeda Region, and Pomorskie Region, as well as the City of Rostock was provided by the InterConnect Project partners and was reviewed by the research team (see Table 3.1; created from data found in Appendix I). As data was given in local currencies, the research team converted the rates to the Euro as this is the most common form of payment in the SBSR. More information about the exchange rates can be found in Appendix H.

Results of the data are listed below. For data not reported, the term “N/A” is placed in the box, meaning “not available”. The “Yearly Average” (YA) column is the overall average of all years that data is provided. To determine recent trends, the column “% Change over Average based on Last Submitted Data” (COA) computes the YA to the last year of submitted data, determining percentages of growth or decline.

Blekinge Region, Pomorskie Region, and the City of Rostock all reported a steady increase in population (3.35%, 2.04% and 1.65% COA). Klaipeda Region showed a decline in population (-5.50% COA) between 2007 and 2017.

The number of cars per 1,000 inhabitants increased in Blekinge Region (3.15% COA), Pomorskie Region (17.59% COA), and the City of Rostock (2.25% COA). By contrast, Klaipeda Region showed a decrease in car ownership of -16.44% COA. It must be noted that the number of cars per 1,000 inhabitants in Klaipeda Region decreased by 34.46% between 2013 and 2014 and increased before and afterwards, except for 2010. Noting this, all regions show an increase in cars per 1,000 inhabitants between 2014 and 2016.

All regions show increases in regional GDP, with Blekinge Region at 11.31% COA, Klaipeda Region 10.39% COA, Pomorskie Region 19.58% COA, and the City of Rostock 12.98% COA. That said, the regional GDP of Klaipeda Region decreased by 0.97% between the last two years reported (2015-2016), however is still above their overall average from 2007-2016.

Rides per year on public transportation increased in Blekinge Region, Pomorskie Region, and the City of Rostock (12.78%, 0.51% and 2.02% COA). These three regions also showed growth in the last two years that the statistics were reported. In Klaipeda Region, the rides per year declined (-19.41% COA), especially from 2014 - 2015 (-16.23%), and 2015 - 2016 (-18.64%).

Blekinge Region is the only region which showed an increase in rides per capita (RPC) at 9.08% COA. RPC declined in Klaipeda Region (-15.53% COA), Pomorskie Region (-0.72% COA), and the City of Rostock (-1.36% COA). That said, for the last two years of data submitted,
Blekinge Region, Pomorskie Region, and the City of Rostock reported no changes in rides per capita while Klaipeda Region reported a decline of -1.97% in RPC between 2015 and 2016.

Table 3.1. Regional Statistics of regions Blekinge, Klaipeda, Pomorskie, and City of Rostock (based on data found in Appendix I)
3.4.2 Summary of Policy Documents

The policies provided by collaborating regions were analyzed and those considered to help overcome the barriers are summarized below:

Regional Strategy for Public Transports of Blekinge, Strategy for Climate and Energy Issues in Blekinge

Two policies implemented in Blekinge Region led in the direction to overcome the barriers infrastructure and spatial planning and service. The main objectives were to increase the ridership while providing environmental friendly transportation options. Prioritizing public transportation in the planning process resulted in having a more attractive transportation system running with 96% of renewable fuels (ProjectPlace 5, ProjectPlace 6).

Klaipeda Strategic Plan 2013-2020: Klaipeda SUMP

One policy implemented in Klaipeda Region was leading in the direction to overcome the barrier service. The main objectives were to provide a reliable public transportation system with a unified ticket system and to increase the ridership number. This resulted in an increase in number of lines and therefore an increase in ridership (ProjectPlace 7).

Mobility Plan for Olsztyn Functional Urban Area 2025(MPOFUA), Regional Strategic Programme for Transport “Mobility of Pomorskie”, Metropolitan Area’s Transport and Mobility Strategy until 2030

Three policies implemented in Pomorskie Region led in the direction to overcome the barriers infrastructure and spatial planning, service, ticketing and cost. The main objectives were to propose alternative modes of transportation that were more environmental friendly reducing the GHG emissions. Higher safety and equal transportation opportunities for everyone were also goals of these policies. This resulted in a modernization of the public transportation system and the infrastructure needed, such as electrification of trains, tram and bus lines. Infrastructure for walking and cycling were also improved. Problems were also addressed by providing education on sustainable mobility and road safety (ProjectPlace 8, ProjectPlace 9, ProjectPlace 10).

Mobilitätsplan Zukunft, Rostock 2025 – Guidelines for Urban Development

Two policies implemented in the City of Rostock were leading in the direction to overcome the barriers infrastructure and spatial planning and service. The main objectives were to ensure efficient and sustainable mobility and reduce traffic congestion. Public transportation should be more comfortable, more flexible and result more attractive. Actions taken to reach the objectives were general improvements of train, bus, bicycle and walking infrastructure (ProjectPlace 11, ProjectPlace 12).

3.4.3 Summary of Good Practice Documents

The good practices provided by collaborating regions were analyzed and those considered to help overcome the barriers are summarized below:

Suburban Communication in Dywity Municipality, Improving the Sustainable Mobility of the Elblag’s Citizens, Project: Modernisation and Development of Integrated Public Transport System

Three projects from Pomorskie focused on the optimization of the public transportation system in other regions of Poland. The main activities consisted in the launch of integrated and simpler
ticketing systems, the implementation of information system providing fast passenger information and emphasis on urban – rural connections. Those projects resulted in better transportation connections, an improvement of the transportation offer with higher frequency and flexible ticketing systems and increases in the use of public transportations and in the end-user satisfaction (ProjectPlace 13, ProjectPlace 14, ProjectPlace 15).

**Interface, Interface Plus, Traffic Association Warnow**

Two projects from the City of Rostock (Interface and Interface Plus) had objectives to revitalize passenger traffic on ferries to make it more comfortable, affordable and environmentally friendly to travel in the South Baltic Sea. The main activities consisted in harmonizing timetables of public transportation and ferry departures/arrivals and in creating combined tickets for foot passengers. The project resulted in general improvements of the services available for ferry foot passengers such as the implementation of a passenger information system providing real-time information on schedules, delays etc. (ProjectPlace 16, ProjectPlace 17).

Another project (Traffic Association Warnow) from the City of Rostock aimed at optimizing the public transportation network of the city and at creating a single ticket system for multimodal transportation. The project resulted in the creation of a single fare scheme for the City of Rostock, harmonized timetables and a smartphone app for real-time information (ProjectPlace 18).

**Tallinn Free Public Transport**

One project from Viimsi Municipality introduced a free-fare public transportation to improve accessibility and mobility of inhabitants. The main activities consisted in providing free transportation to the 400,000 residents of the city, making it easier for low-income or unemployed people to use public transportation. This project resulted in an increase in the use of public transportation and a decrease of car traffic in the City of Tallinn (ProjectPlace 19).
4 Discussion

This research focused on public transportation within and between selected regions in the SBSR, specifically Blekinge Region in Sweden, Klaipeda Region in Lithuania, Pomorskie Region in Poland, and the City of Rostock in Germany. This chapter discusses the results of the research to RQ1 and RQ2, yielding a summary of findings, a critical assessment of the findings, an interpretation of the findings, and recommendations.

4.1 Summary of Findings

This research focused on the barriers to the use of public transportation in the SBSR and best practices and ideas that could overcome those through semi-structured interviews as a primary source of data and online surveys, observation and content analysis to triangulate those. In this section the research questions will be summarized. Further details and definitions of the barriers and how the stakeholders described them can be found in the results.

RQ1: What are current barriers to the use of public transportation as perceived by stakeholders in the SBSR?

The result returned eight barriers categorized under three main themes: politics, business, and general public.

Under the theme politics, the barriers of politicians and legal structure, and infrastructure and spatial planning were identified. The barrier politicians and legal structure included issues such as financial limitations, transportation organizations, prioritization of cars by politicians and short-slightness. The barrier infrastructure and spatial planning included the process of spatial planning within the regions, the lack of infrastructure for public transportation and the prioritization of cars through infrastructure.

Under the theme business, the barriers of service, communication and marketing, ticketing and cost were identified. The barrier service included issues of time, the lack of comfort, the lack of storage space and the low frequency of the offered services. The barrier communication and marketing included the lack of communication and marketing, the lack of knowledge of public transportation and the prioritization of cars in international transportation. The barrier ticketing included the number of operators within the regions and internationally, the methods of payment and the collaboration with stakeholders. The barrier cost included the cost of public transportation for end-users.

Under the theme general public, the barriers of behavior, and customer and demand were identified. The barrier behavior included people's mindsets and the lack of incentives for change. The barrier customer and demand included the unmet needs of certain groups of population, the lack of knowledge around customer needs and the low demand of international transportation.

RQ2: What are best practices and ideas as perceived by stakeholders in the SBSR which could help overcome the identified barriers?
Best practices and ideas to overcome the barriers found in RQ1 were listed for each one of the eight barriers also categorized into three main themes: politics, business and general public with the same barriers identified above.

Under the theme politics, best practices to overcome barriers related to politicians and legal structure included changes regarding transportation organizations, the collaboration with the municipalities and the InterConnect Project itself. Best practices to overcome barriers related to infrastructure and spatial planning included limiting the number of parking lots, the creation of bus lanes, and fostering bicycle transportation.

Under the theme business, best practices to overcome barriers related to service included time, the adoption of new technology and services for rural areas. Best practices to overcome barriers related to communication and marketing included work of a regional organization, branding, marketing the time advantage of public transportation and customer service. Best practices to overcome barriers related to ticketing included the number of operators and different ticket options.

Under the theme general public, best practices to overcome barriers related to behavior included changing the behavior of people, discounts, park and ride facilities, educating young people and new policies were used to change behavior. Best practices to overcome barriers related to customer and demand included the focus on suburbs and the working population as well as understanding customers' needs and reacting to them in a flexible way.

4.2 Critical Assessment

4.2.1 Shortcomings in Study Design

It must be said that when discussing transportation, different perspectives yield different results. This study focused on the stakeholder perspective of the InterConnect Project and did not include the user perspective or the non-user perspective, for instance. As the findings of barriers and best practices are primarily based on interviews, they may be different even if the same process were applied to different targeted interviewees and survey respondents.

Furthermore, the stakeholder perspective taken in this research may be limited. There is a possible bias coming from the stakeholders because they were all part of the transportation system. This might prevent them from thinking beyond what is currently done and generate creative and unique solutions.

Time played a large role in the result of this thesis, as the team was given a limited amount of time to begin this project. As InterConnect workshops were already scheduled through the InterConnect Project, the research team had no influence on them and was limited in their time to gather the data needed for this topic. Methods may have been adjusted, added or removed had there been more time given, especially data collection protocols, guidelines and questions would have been different. That said, time also helped deliver results for the term "current" in RQ1 and RQ2, as results may have changed over time had more time been given.
4.2.2 Limitations in Methods

Semi-Structured Interviews
The goal of the interviewee selection process was to have equal amounts of stakeholders per sector (operators, government institutions, and researchers) per region, however those willing to be interviewed limited this goal. The research team was unable to secure balanced amounts of people per sector per region, which if the team had been able to, would have enable a systems perspective and may have yielded different results in the research. For example, having more operators interviewed could have increased the barriers of politicians and legal structure, and spatial planning and infrastructure, as they work with both government and general public. The overall goal of having even amounts of people per category per region was also to support triangulation of the overall results, as three researchers from the same region who identify the same barrier would be of stronger value than just one. However, it is important to mention that most often the research team interviewed no more than two people per organization (except in the City of Rostock, see Appendix G) therefore the interviewees' opinions were their own and not representative of the organization.

Other factors such as the character of the interviewees were observed as having an influence on the answers generated during the interviews. For example, extrovert interviewees replied with long answers and lots of details which helped to build on for additional questions in a semi-structured interview context. The opposite scenario was observed as more introvert interviewees provided brief answers to what was asked.

The template for interviews included questions related to the different scope addressed in the online survey. As the interviews were semi-structured, the questions were adapted in order to serve the purpose of this thesis.

Online Survey
The amount of responses to the online survey was an overall limitation to the methods, as additional data from respondents would have potentially increased or decreased support of statements made by the interviewees. Also, the responses per region were a limitation to this study, as a higher response rate by region may have yielded different responses from the perspective of the participants.

Invitations to the workshops were sent by collaborating regions, which means that the regions defined and chose the stakeholders invited from the local transportation sector. It is important to note that even if some stakeholders invited were users of the local public transportation systems, simple users were not invited to the workshops. Even if the survey was sent to the whole list of workshop participants, many on that list did not attend the workshop, and not everyone that did answered the online survey. Also, not everybody invited to the full day workshop signed up as a participant. Therefore, the results of the online surveys did not capture the opinions of all stakeholders relevant for the local transportation sector. The online survey was introduced at the end of the InterConnect workshops to participants as a five to ten-minute mobile-friendly survey.

As already addressed, time was a consistent factor, as the research team started working with gathering data from the InterConnect workshops early-on in the process. That said, the scope of the thesis changed from focusing on communication for an increased use of public transportation to identifying barriers and best practices to the use of public transportation,
resulting in 22 questions in the survey which were no longer relevant to the new scope; therefore, the Maxwell's Interactive Model of Research Design was relevant. Had the survey been more focused on the topic of identifying the barriers and ways to overcome them, more of the questions may have been useful for the triangulation of the interviews. That said, 11 questions from the survey were still applicable to this thesis research.

Observations
The InterConnect workshops in Blekinge Region, Klaipeda Region, and Pomorskie Region were overall a limitation to the research as they were very condensed. Most often, implementing the ABCD-procedure through a workshop takes several hours or days per step, as the process of World Café, although intended to be inclusive for all, generally takes a lot of time. In the InterConnect workshops, the D-Step was not included, and the A-, B-, and C-Steps were done in less than two hours each.

No workshops happened in Guldborgsund Region, the City of Rostock and the Viimsi Municipality during the time when this thesis was written, thus less data was gathered to further triangulate the findings as planned. Guldborgsund Region cancelled their workshop due to organizational reasons and there was no workshop scheduled for the Municipality of Viimsi. Thus, there was no first-hand experience in these regions, except for the City of Rostock where observations were completed by Interviewee 20.

Content Analysis
The method of content analysis focusing on the documents from ProjectPlace was a limitation as a source, as all content on the platform was placed there by one person. Many of the policies and good practices were of regions from the same people, there was not a process of deciding what a good practice was and other potential good practices may have been missed.

Overarching Limitations
Overarching limitations were encountered in the areas of translation and stakeholders. Also, there was a potential bias towards Blekinge Region. Guldborgsund Region and Viimsi Municipality were further limiting the research.

Translation is a tool that was required for this research, specifically for the methods of semi-structured interviews, survey, and observations of the InterConnect workshops. That said, it limited the research as there were issues in translation. First and foremost, the term "workshop" itself was not translated fully in other languages, as its closest translation was often the term “seminar”. This alone created a limitation on the overall results of the InterConnect workshop as people attending may not have been prepared for an interactive session and were expecting to be sitting and listening to expert speakers talk most of the time. The research team also noticed that the use of translation may have caused interpretation to the questions asked, resulting in a different response than intended. All the other interviews were conducted in English, but the research team acknowledged that some stakeholders had limited vocabulary and therefore the answers were sometimes not specific and elaborated. Additional translational limitations were given with the survey, as the intended questions were interpreted by a translator into another language, of which the purpose was to gather the best data possible, as not all attendees were expected to speak English. Additional translation that limited the findings came from the observations of the workshops, as certain words (when translated to English) may have different meanings. Examples of these are found later on in section 4.3.
Workshop participants limited the methods as the research team selected stakeholders to interview based on the list of people attending the workshops. To get a systems perspective, the research team reached out to identified experts beyond the stakeholders at the workshops (but in the organizations of the project, such as BTH), specifically for the research category, to gather more information about this topic. Each participant had their own biases, as they were all part of different organizations with different positions, interests, languages and cultures, which may have been a limit to the data collection methods in which they were involved. In addition to that, the stakeholders might have worked in their area for years, and while this is a great advantage when it comes to knowledge, it could also limit their ability to think outside their very own silos and to create innovative solutions.

It must be addressed that there is potential for a bias towards Blekinge Region as the research team is based in this region, creating more familiarity with the system, thus potentially not seeing it with fully transparent eyes. That said, observations were stronger in this region, whereas observations in the other regions were generated in two days of observations from the research team or in the case of Rostock, from a stakeholder. The observations in Klaipeda Region and Pomorskie Region could be biased towards a positive or negative experience during those two days and do not encapsulate the same experience that one could have if living in those regions.

Guldborgsund Region and Viimsi Municipality were limiting the methods due to the lack of available stakeholders in which to interview. Guldborgsund Region had no responses in time for the scope of this project and the Viimsi Municipality had only one expert who was available to be interviewed. Had additional stakeholders been available for interviews, results may have changed in this project, as additional barriers and ways to overcome them may have been brought forth or further triangulated.

4.2.3 Transparencies in Analysis

Coding
Interviews and observations were coded to begin the data sorting process. Open-codes were used in order to avoid bias; however, the choice of open-codes is interpretative. Moreover, the process was done by three members of the research team individually, so it must be noted that statements may have been coded differently if it would have been done by one person.

Additionally, each of the research members coded regional information to ensure findings were not lost by the region, which provided consistency in coding. When writing the results chapter, each team member further reviewed each other’s sections to include information pertinent to their region in the overall findings.

Content Analysis
Content analysis of the documents within ProjectPlace was done later in the process. Having been able to analyze the content before beginning the data collection may have possibly changed questions in the template for the semi-structured interview and questions during the generation of the survey.

Statistics from Table 3.1 were provided by each region individually, and it should be mentioned that the research team did not have any influence on the data collection methods of this numbers. For example, regarding ridership in the regional statistics, the numbers may differ as
some regions charge for distance while others charge per trip. Thus, further normalizing this data may return different results that what is shown in this figure.

It is also important to note that data was not equally provided across all regions, as data was not available for some of the years for all regions. It was assumed by the research team that the data in the missing years continued along the trends of the previous and upcoming years and that there were no abrupt changes in those years. Complete sets of data for all regions were only provided for the years 2010, 2012-2015.

4.3 Interpretation of Findings

4.3.1 Statistics

Overall, the statistics show similarities and differences between the regions of the SBSR. The biggest similarities were seen in Blekinge Region, Pomorskie Region, and the City of Rostock where regional GDP, population and the number of cars per 1,000 inhabitants increased in the period observed.

This is different in Klaipeda Region where it was discovered that cars per 1,000 inhabitants decreased at a rate faster than the population decrease (-5.5% COA compared to -16.44% cars per 1,000). Rides per year decreased even more so at -19.41%. However, it must be noted that the dramatic change in cars per 1,000 inhabitants between 2013 to 2014 (34.46%) seems very unusual and may have resulted from a change in calculation methods by the region, similar to the note from the City of Rostock, where their statistics from 2007 onward are a reflection of a new form of data collection.

In Pomorskie Region, the strong increase in car ownership at 17.59% was accompanied by an increase in regional GDP by 19.58%; expenses related to cars also contribute to the calculation of GDP. Additionally, a stronger economy may allow for additional expenses on “luxury goods”, such as a car (Interviewee 10), which is seen as a status symbol in the region.

Blekinge Region stands out as the only region with an increase in RPC. However, the number (59 in 2017) is also the lowest in absolute numbers compared to the other regions. With 193 RPC in 2015, the City of Rostock has a number more than three times of Blekinge Region, but it must be considered that it is a city as opposed to an overall region, making the number less directly comparable. Rides per year were increasing at a larger rate than the growth of population both in Blekinge Region (12.78% versus 3.35% COA) and the City of Rostock (2.02% versus 1.65% COA).

Taking the numbers above into account, Blekinge Region is ahead in increasing the use of public transportation. This was supported through this research, as many best practices and ideas were provided by Blekinge Region. Despite the struggles that Klaipeda Region seems to be facing, the public transportation authority there saw their actions as a best practice within their country, which may explain the amount of best practices and ideas provided by this region.

The statistics confirm, that many circumstances in the regions are different and that positive actions from one region cannot be applied to another region, expecting the same output. Therefore, the research team considers a strategic approach important.
4.3.2 Complexity

Overall, it can be stated that the interpretation of the findings was simplified from its actual context. As described in the introduction, transportation is part of a larger system and connected to other systems. Therefore, it is a complex issue. Where it was commonly stated that many people want a robust transportation network, and through the InterConnect Project, a linked and seamless international transportation network, the process of achieving that is time consuming, dependent on politics and finances. Given the complexity and connectedness of the topic, a systems perspective is necessary to avoid unintended consequences.

4.3.3 Political Issues

In regard to the regional focus, people typically did not live within a regional border or stop existing at the city limits but tended to live where the situation suited them best, specifically in suburban areas from which they would commute to work. This caused problems for public transportation, specifically regarding funding and infrastructure.

In contrast to the road infrastructure, public transportation was financed by the municipalities in the regions which allocate budgets for it (Interviewee 3, Interviewee 14, Interviewee 13). However, the administrative authority of the municipalities ended at its regional borders. Therefore, the creation of silos that do not cooperate with each other is considered understandable (Blekinge B-Step). Other negative consequences of this administrative problem are traffic jams at the border of the City of Klaipeda (Interviewee 16), competition within Pomorskie Region or conflicting goals, such as the different focus needed for tourists or daily commuters. The abrupt ending of a bike lane at the city border in Klaipeda Region and the lack of a seamless transportation system in Pomorskie Region can also be seen as effects of this political issue.

Commonly found in modern day society, major changes (even when intended to be positive) may not be perceived as positive, causing a lack of political support, including the fear of job losses and loss of political office by voters. Politicians and legal structure were identified in each region as being a barrier because the transportation sector and the management of its infrastructure is a highly political topic. This can be a potential reason for the amount of effort needed to transition public transportation to a more robust, enhanced and modernized system needed to allow the implementation of best practices in other regions and a unified SBSR transportation corridor.

Regarding spatial planning, when land owners develop properties, it was found that public transportation was lower on the list of priorities. This results in spatial planning issues such as the unsustainable use of natural resources through land degradation, urban sprawl that requires the building of more roads, and eventual issues of bottlenecks which clog the roadways and delay those using public transportation when a dedicated bus lane does not exist.

In order to create long-lasting, strategic solutions, it is important to include different (political) stakeholders. Involving stakeholders and collaboration beyond the InterConnect Project could avoid the potential for silo-thinking. Involving public transportation authorities in a broader context, for instance, in spatial planning, could help to avoid negative experiences and costs in the long-term.
4.3.4 Policies and Good Practices

Regions in this research were compared with each other within the context of the entire SBSR but were not compared to other studies. As seen in the results of the content analysis, when comparing the policies and good practices provided by the regions with the barriers identified by the research team, it seemed that the barriers already have been addressed in the past or could be overcome thanks to a supporting policy. However, this research proved that the barriers are current ones.

Therefore, more collaboration and willingness to share and improve the public transportation systems in the SBSR could lead to a reduction of current identified barriers and increased use of public transportation beyond policies.

4.3.5 Definitions and Meanings

The term "comfort" was addressed differently by each interviewee. Although used properly, it often alluded to other subtle words that may have better described the intent of the statement from the interviewee. In many of the cases, the term comfort could be replaced with convenience, in Sweden it was mentioned in regard to physical space, in Klaipeda it was mentioned in respect to timeliness. To a native English speaker, the term comfort could imply physical comfort and possibly a safe environment.

An additional example of the difference in definitions and meanings came from a translation of the term “tariff”. While the term “tariff” was meant to be a term for payment to ride public transportation (a fare), the term to native speakers would most likely refer to a tax placed on imported goods. In general, as explained in the limitation of methods, there was a possible implication of language differences.

4.3.6 Cost

The barrier of cost for end-users was identified in Klaipeda Region and in the City of Rostock. However, none of the interviewees mentioned a best practice or an idea to overcome this barrier. This can be interpreted by the fact that cost might not be the best leverage point to make people use public transportation.

4.3.7 Behavior

Changing consumers’ behavior is a topic including many different ideas. One particularly interesting finding in this research was the paradox of time: people consider the use of public transportation as a loss of time and driving a car was not perceived this way, even if the driver is not allowed to do anything else than driving in that case. Only one interviewee specifically identified longer times on public transportation as a benefit as it allowed them to multitask, while another similarly identified marketing campaigns where public transportation authorities would emphasize the gain of time by showing the users that the time spent in public transportation can be used for other activities such as reading books (Interviewee 7, Interviewee 13). This can be linked to the topic of informing consumers that was mentioned in the City of Rostock where it would be beneficial to show people the actual costs (not only the cost of gasoline) of a car and compare them to public transportation as cars would still be seen as cheaper, especially for families (Interviewee 18).
In addressing behavior change, each region seemed to identify the process differently. Blekinge Region saw behavior change through fees and taxes, such as parking prices. However, behavior change was considered as relevant for future generations as mindsets that have always been used to have and drive a car would be harder to change. Klaipeda Region specifically did not see the need for influence on behavior change. The assumption from the research team is that Interviewee 16 did not want to name it that way. Again, this might be linked to the high implication of politics in the transportation sector. However, their response to behavior change was the result of being the best transportation option possible, and when unable to service those outside of their service area, identified park and rides as incentives. Pomorskie Region saw behavior change through the integration of a one ticket concept, in that by making the entire system a seamless transition, more people would use it. Additionally, Pomorskie Region also was the only region that identified behavior change with the youth, as they were proactively teaching school children about public transportation, which was proven by their recent announcement that school children can ride for free. The City of Rostock looked at behavior change through incentivized pricing, making the system more affordable for others. Especially men over 35 and 40 (Interviewee 6) were defined as hard to change. However, there was talk about potential bottlenecks to the road transportation systems in the next 10-20 years (Interviewee 13).

Pressurized incentives, such as increased parking fees, may be necessary to increase the use of the transportation systems in the SBSR, as Blekinge Region’s system is quite advanced but is still not converting select demographics, such as “old men” (Interviewee 3). Additionally, the research team believes that better collaboration between the SBSR may help address many of the barriers, as one region may have experience which may help overcome other region's barriers.

4.3.8 Prioritization

It was identified in all regions that there was a benefit in making cars less convenient (or public transportation more convenient than cars). Sweden was often identified as a leader for taxes and fees for cars (Interviewee 6) and one ticket (Interviewee 13). However, it should also be noted that this comment may have only been brought up as the research team is studying in Sweden and the interviewees may have identified it as a local example for the research team. Prioritization of cars over public transportation was a recurrent topic in this research. The research team noted a large gap between the current reality of the car-centric landscapes and the wishful thinking of a more robust and integrated international public transportation system. An interviewee specifically stated that regions build cities for the future based on current trends, of which the current trends were now and have been for many decades, focused on cars. Spatial planning still relies on forecasting, where a backcasting approach would be needed. The problem with the forecasting approach and the short-sightedness of politics leads to regions having difficulties in adjusting to developments in public transportation. This can be seen in Neringa, a rural province of Klaipeda Region where there is no local infrastructure to allow for public transportation. The fact that the City of Klaipeda can provide public transportation to a maximum of 10% of its population provides a perfect example of how this prioritization looks like in practice.
A clear definition of sustainable transportation could help the collaborating regions develop a sustainable future through strategic supportive strategies.

### 4.3.9 Regional Differences

Sustainable transportation was seldomly discussed by the majority of interviewees, which this research team found interesting as many of the interviews were conducted before, after or during a workshop focused around strategic sustainable development. The lack of discussion around sustainable transportation could be linked back to the introduction and the identified lack in rigor in the definition of sustainable transportation.

Another interesting observation was that the best practices regarding the barriers were mainly coming from Blekinge Region and Klaipeda Region. 39.1% of the responses mentioned for RQ2 came from Blekinge Region, 36.2% came from Klaipeda Region, 18.8% from Pomorskie Region and 5.7% from the City of Rostock.

Regarding payment, it was discovered that no region accepted all different forms of payment being mobile, cash, credit card and transit card. From a tourist perspective, in Klaipeda Region, Pomorskie Region and the City of Rostock, using public transportation would require a withdrawal of cash to ride the bus. In Blekinge Region, it was not possible to ride the bus paying with cash. As none of the regions shared a common ticketing platform, this may serve as a barrier and be a reason for the demand of one ticket, which could help the tourism industry in the area by normalizing ticketing platforms and increase the use of public transportation.

### 4.3.10 Regional Similarities

It was interesting for the research team to observe how common barriers were identified in regions that traditionally would have very little in common as seen in the introduction. An example of this were Blekinge Region and Klaipeda Region in which both public transportation authorities appeared to be proactive in identifying trends, which was shown by Sweden’s one ticket approach and Klaipeda’s work towards integrating a new ticketing platform by the Fall of 2018. In addition, both countries had proactively ensured a consistent public transportation system for their customers, and even when these systems were run by multiple operators, the consumer does not need to know, as all of the systems were housed together in one operational platform. Klaipeda Region, for example, had eight different operators of public transportation, Blekinge Region had only one, but customers would not know this due to consistent branding of the vehicles and common and integrated ticketing systems.

The need for more (or better) customer data was discussed lightly in every region. Surveying of customers had rarely been done, and it was shown that potential customers were not aware of all the services provided by the public transportation authorities. Details regarding use, habits, and demographics would be necessary for making overall improvements. The lack of customer data was especially proven in Pomorskie Region and Klaipeda Region where the measurement of ticket sales was different. However, both regions were in the process of building better ticketing platforms at the time of this research which may provide better data for their services.

The use of parking lots for individual cars was seen as a potential leverage point for making public transportation more attractive in many of the regions. Specifically, limiting or charging
for the cost of parking was discussed in all of the regions. A unique finding was that the public transportation authority in the City of Klaipeda was also responsible for the administration of parking lots, which could give them a unique leverage point to influence the use of cars and public transportation in their region. Despite the similarity of seeing the use of parking lots as a leverage point, there are differences in how to further proceed in that direction as described in the results.

4.3.11 InterConnect Project

The InterConnect Project itself exists to group together concepts of one ticket at a macroregional level of the SBSR. That said, some of the findings from the interviewees show a lack of desire for travel around the SBSR. This is shown by the lack of use of the ferry connection between Blekinge Region and Pomorskie Region and by the lack of awareness and use of the ferry connection between Blekinge Region and Klaipeda Region.

Organizations who are working on the InterConnect Project were busy working on different projects. Klaipeda Region was testing a digital-ticket, mobile-based ticketing platform for their pilot of on-demand flexible bus systems and was hoping to expand it to their entire system in late 2018. Pomorskie Region was already working on a one ticket solution; therefore, an organization was established to address this issue, called InnoBaltica.

In order for the InterConnect Project to be achieved, it was necessary to have support and partnership with local ferry providers. StenaLine was labeled as an associated partner in the project, which operates the ferry between Blekinge Region and Pomorskie Region. The ferry provider between Blekinge Region and Klaipeda Region, DFDS Seaways, was not a partner with the project but would be relevant for fostering exchange between the regions. Additionally, the ferry companies focused on car and freight trucks as primary customers, with little focus on foot and bicycle traffic. When asked about current marketing campaigns, Interviewee 5 stated they were at capacity and trying to keep up. It was observed by the research team that the rooms on the ferries come with two to four beds while a ticket was sold by room. This could be linked back to the topic of comfort and convenience while travelling.

4.4 Recommendations

4.4.1 Further Research

One research recommendation will be to look at the identified barriers from the stakeholder perspective and then assess barriers by more specific groups especially by the users and by the non-users of the system to determine similarities and differences from those perspectives. If identified barriers are similar (thus triangulated) across different research areas, developing a strategic action plan to overcome those barriers would be recommended to overcome the barriers.

A way to better understand whether the issues related to the InterConnect regions were specific to them or in common with other regions outside the project would be to use the data from this study and compare it with other regions in order to see similarities and differences. For instance, it would be interesting to see the regions compared to other regions around the South Baltic Sea.
4.4.2 Further Practice

The InterCombi Ticket enables the connection between the City of Nykøbing and the City of Rostock. Although the ticket is existing and gives users a one ticket experience, it is not promoted enough and therefore not as useful as expected. As the InterConnect Project was inspired by the InterCombi Ticket, it is recommended that the project establishes an ongoing relationship with relevant stakeholders so as to not lose function of this project’s achievement. Specifically mentioned, marketing ferry use to the other regions may increase demand, thus increasing more sustainable transportation around the SBSR.

As noted in the results chapter of this paper, many barriers are shared within the SBSR. Despite cultural and historical differences, practices from other regions and enhanced collaboration among the regions may help to overcome the barriers. For instance, Blekinge Region has one operator in public transportation and could support Pomorskie Region in this direction. In Pomorskie Region it was identified that marketing campaigns could help regarding behavior change, which might be interesting for other regions as well (Interviewee 13).

As the research team has noted, normalizing numbers between regions was difficult as numbers were based on different calculations and ticketing platforms. This report is based on the views of stakeholders. Although the triangulation of data was attempted at the highest ability, more information, especially from the users of public transportation, would be very beneficial for practitioners. Therefore, further collaboration is recommended for practitioners.
5 Conclusion

In a complex system such as transportation, it is important to not only look at the shortsighted benefits of potential solutions but to keep long-lasting consequences in mind as well. Transportation is connected to many other systems; therefore, a systems perspective is required. The future of sustainable transportation must consider how transportation affects and is affected by other systems, otherwise it may cause misdirection towards sustainable transportation for future generations.

The goal of this thesis was to define barriers to the use of public transportation and then to identify possible best practices and ideas through the stakeholders' perspective. The following eight barriers were identified: politicians and legal structure, infrastructure and spatial planning, service, communication and marketing, ticketing, cost, behavior and customer and demand. Best practices and ideas were identified based on the findings of barriers to possibly overcome them. By looking at the SBSR through a stakeholders’ perspective and by focusing on smaller cities and regions while applying a rigorous definition of sustainability, this research presents a unique case study.

As anticipated by the research team, many best practices and ideas came from Blekinge Region which was confirmed to be a leader regarding public transportation in the SBSR. By contrast, it was surprising to see that many best practices and ideas came from Klaipeda Region. As all regions have a very different history, it was also unexpected to see how many barriers they have in common. Apart from that, this research identified that the idea of having one ticket for multiple transportation services was considered more important within the regions than between the regions.

While the best practices and ideas generated worked for the regions they were generated in, it cannot be assumed that they lead to the same results in other regions and a strategic approach is necessary to assess different actions. In a complex system dependent on politics it is necessary to include stakeholders in the planning process as well as in the implementation of actions. Collaboration with stakeholders and learning from each other beyond the InterConnect Project is necessary in order to accelerate the process towards a sustainable transportation sector in the SBSR.

Therefore, the overall recommendation of this research is to further use the FSSD, which was part of the InterConnect Project workshops organized by BTH. The FSSD is necessary for strategic sustainable development and decision-making processes, which are used within the InterConnect Project, for an increased use of sustainable public transportation. Through its precautionary approach and through a systems perspective, the FSSD avoids unintended long-lasting consequences. The FSSD also relies on the concept of backcasting from the future instead of forecasting current trends which, could address current and future spatial planning issues. The FSSD and the ABCD-procedure could guide the development of strategic actions which support the goals of the different regions and their transition to sustainability. The FSSD’s definition of sustainability establishes a common understanding of sustainable transportation for researchers and practitioners, enabling them to think strategically and to strive for long-term success for society and the environment.
6 References


Appendices

Appendix A – Collaborating Organizations

InterConnect workshops were held:
13 February 2018       Blekinge Region in City of Karlskrona
22 February 2018       Pomorskie Region in City of Gdynia
8 March 2018           Klaipeda Region in City of Klaipeda

Blekinge Region
The region of Blekinge in Sweden is the lead partner in the project. Blekinge Region is a regional public transportation authority, responsible for producing public transportation strategy guidelines and organizing public transportation services in the region. The region includes the cities of Karlskrona and Karlshamn, which both have ferry ports.

Pomorskie Region
Pomorskie Region (Voivodeship) in Northern Poland organizes public transportation services in the region. The Office for Transport Integration and the Department of Finance and InnoBaltica Organization will be involved in the InterConnect Project. Major cities in the Pomorskie Region, known as the Tricity Area, include Gdansk, Gdynia and Sopot.

University of Rostock
The Hanseatic Institute for Entrepreneurship and Regional Development at the University of Rostock in Germany is a partner in the InterConnect Project. It focuses on the Baltic Sea Region and deals with applied research in the fields of innovation, human resources development, evaluation, concepts and strategies of learning regions and entrepreneurial education.

Hanseatic City of Rostock
The office for urban development, urban planning and economic promotion in the City of Rostock in Germany is a partner in the InterConnect Project. The City of Rostock is labeled as a “regiopolis”, which is an independent force which drives independent development within the larger region.

Guldborgsund Municipality*
The rural region of Guldborgsund in Denmark is a partner organization in the InterConnect Project and is responsible for planning of local public transport, local roads and infrastructure.

Klaipeda Public Transport Authority
Klaipeda is a city and municipality in Lithuania. It owns the InterConnect-partner organization which manages the inner city public transport.

Association of Polish Communes Euroregion Baltic
The Association of Polish Communes Euroregion Baltic is a non-profit organization focusing on the development of international cooperation in tourism, culture, environmental protection, and people-to-people cross-border cooperation on the local and regional levels. It is another partner in the InterConnect project.

Viimsi Municipality*
Viimsi is a suburban area near Tallinn in Estonia and a partner in the InterConnect Project.

* These partner organizations work with the InterConnect Project; however, their application to this thesis was limited, as explained in the methodologies chapter of this paper.
Appendix B – Community Planning Process Model

The Community Planning Process Model was developed by (Robèrt et al. 2017) and used in the InterConnect workshops.

“A illustration of an iterative process for sustainable transport planning. Based on an overall societal vision, framed by basic sustainability principles, experts from relevant sectors draw conclusions, applying the ABCD planning procedure of the FSSD. The resulting ideas regarding challenges, opportunities, and plans of prioritized actions in each sector are compared with those from the other sectors. This leads to modelled and coordinated solutions from numerous meetings within and across sectors: big and small, formal and informal, planes as well as spontaneous meetings. Thus, the figure denotes the logic of sector-interdependencies to inform effective cooperation across disciplines and sectors, but it does not suggest to always organize big formal meetings.” (Robèrt et al. 2017, 56).
Appendix C – Semi-Structured Interview Template

Semi-Structured Interview Template

Time of Interview:
Date:             Place:
Interviewer:           Interviewee:

1) Introduction

2) Interview procedure

You are being asked to participate in a research study regarding public transportation services in the South Baltic Sea Region. The purpose of this study is to research barriers to the use of transport and ways to assist in the increased use of public transportation. During this interview you will be asked to respond to several open-ended questions. You may choose not to answer any or all of the questions. The interview may be recorded, which will then be transcribed verbatim. While your responses may be released in the overall findings of the reports, the record and the transcription will not be publicly shared. If you are interested, we are happy to provide you with the transcribed version of the interview and/or the results of our thesis.

3) Questions

Basic Data

What is your name?
What is your position in your organization and for how long have you been working here?
What are your tasks and responsibilities?

Public Transportation

How do you work and interact with public transportation?
What are the biggest changes and major trends in transportation currently in your region?
What are your organizations biggest achievements in the past (infrastructure change, investments, etc.)?
How does your organization measure success?
What are currently the biggest challenges or problems?
Comparing the investments your region makes in public transportation, road systems and overall infrastructure, what do you consider is prioritized?
If everything would work the way you imagine a perfect public transport system in your region did work, what would be different?

Barriers
Semi-Structured Interview Template

What do you think are major barriers to the use of public transportation in your region?
What are the causes for those barriers?
What do you think would have to change to overcome those barriers?
What is your organization currently doing to overcome those barriers?
What could your organization potentially do to overcome those barriers?

What do you think are major barriers to the use of public transportation for travelling between your region and other InterConnect regions?
What are the causes for those barriers?
What do you think would have to change to overcome those barriers?
What is your organization currently doing to overcome those barriers?
What could your organization potentially do to overcome those barriers?

Behavior

Why do people use public transportation in your region?
How are customers in your region influenced in order to use public transportation?
Are there any incentives offered to car users for switching to public transportation (e.g. subscriptions)?
Are there any groups not using public transportation, and if so, why do you think they do not use it?

4) Closing

Thank you for participating in this interview. We appreciate you taking the time to do this. We may contact you in the future for the purpose of follow up interviews. If you have any questions, please contact me by phone or email.
Appendix D – Survey

Public Transportation Systems Survey

We appreciate your time in providing data for our masters thesis from Blekinge Institute of Technology. We are cooperating with the InterConnect Project (http://interconnect.one).

All information gathered is individually confidential, however collective results from the workshops in Sweden, Germany, Poland and Lithuania will be compiled to support the survey. A summary of this survey will be sent back to those who wish to see it.

Please share this survey with coworkers to help us gather as much data as possible.

* Required

1. Email address *

2. Do you want to receive a summary of the results of this survey? *
   Mark only one oval.
   - Yes
   - No

3. What is your gender? *
   Mark only one oval.
   - Female
   - Male
   - Other
   - Prefer not to say

4. What is your age? *
   Mark only one oval.
   - <18
   - 18 - 24
   - 25 - 34
   - 35 - 44
   - 45 - 54
   - 55 - 64
   - 65 - 74
   - 75+
5. How Many People Live In Your Household (including yourself)? *
   Mark only one oval.
   
   [ ] 1
   [ ] 2
   [ ] 3
   [ ] 4
   [ ] 5+

6. Occupation Status: *
   Mark only one oval.
   
   [ ] Self-Employed  Skip to question 6.
   [ ] Employed Full Time  Skip to question 6.
   [ ] Employed Part Time  Skip to question 6.
   [ ] Working in Own Household  Skip to question 8.
   [ ] Retired  Skip to question 8.
   [ ] Student  Skip to question 8.
   [ ] Other  Skip to question 6.

Transportation Benefits
Here we ask about incentives or benefits provided.

7. Does your employer fund or reimburse public transit use? *
   Mark only one oval.
   
   [ ] Yes
   [ ] No
   [ ] Not Sure
   [ ] Not applicable

8. Which car-focused benefits does your employer provide? (Select all that apply) *
   Check all that apply.
   
   [ ] On-site company car
   [ ] Personal company car
   [ ] Free parking
   [ ] Discounted parking (ex: subsidized parking)
   [ ] Fuel discounts
   [ ] Reimbursement for personal vehicle use
   [ ] None of the above
   [ ] Not applicable
Primary Transportation

In this section, we will ask how you get around. Primary transportation is the transportation mode used most often. When selecting "walking", please only use this in regards to going from point A to point B (e.g.: home to work.) Walking also includes those with disabilities, such as wheelchairs, canes, etc.

9. What is your primary form of transportation? *
Mark only one oval.

☐ Walk After the last question in this section, skip to question 15.
☐ Bike After the last question in this section, skip to question 19
☐ Car After the last question in this section, skip to question 11.
☐ Bus After the last question in this section, skip to question 17.
☐ Tram After the last question in this section, skip to question 11.
☐ Train After the last question in this section, skip to question 11.

10. Which days do you use your primary mode of transportation? (select all that apply) *
Check all that apply.

☐ Every Day
☐ Monday
☐ Tuesday
☐ Wednesday
☐ Thursday
☐ Friday
☐ Saturday
☐ Sunday

11. In which ways do you rely on your primary transportation? (select all that apply) *
Check all that apply.

☐ Work
☐ School
☐ Shopping/Errands
☐ Social Activities (ex: restaurants, potlucks, etc)
☐ Big events (ex: concerts, etc)

Primary Additional Information: Car

It looks like you have selected personal automobile as your primary means of transportation. We have a few more questions for you.
12. How old is your automobile? *  
* Mark only one oval.  
- <1  
- 1-5 years  
- 6-10 years  
- 10-15 years  
- 15+  

13. How many cars are in your household? *  
* Mark only one oval.  
- 1 
- 2 
- 3 
- 4 
- 5+  

14. How many licensed drivers are in your household? *  
* Mark only one oval.  
- 1 
- 2 
- 3 
- 4 
- 5+  

15. Which part of public transportation, if modified to fit your needs, would reduce your dependence on a car? *  
* Mark only one oval.  
- Bus  
- Tram  
- Train  

16. Based on your prior response, what would be the necessary change? *  
* Mark only one oval per row.  

<table>
<thead>
<tr>
<th>Change Required</th>
<th>1. Little change needed</th>
<th>2. Some change needed</th>
<th>3. High amounts of change needed</th>
<th>4. Significant changes needed</th>
<th>0. No opinion / not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of transit stops</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Frequency of bus/tram/train times</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Total trip time</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Cost</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>More information on the system</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A more reliable, on-time system</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

17. Specifically, if not mentioned above, what keeps you from using public transportation?
Primary Additional Information: Bus, Train & Tram

It looks like you have selected public transport as a primary means of transportation. We have a few more questions for you.

18. How many years have you been riding... *
   Mark only one oval per row.

<table>
<thead>
<tr>
<th></th>
<th>&lt;1 Years</th>
<th>1-5 Years</th>
<th>5-10 Years</th>
<th>10-15 Years</th>
<th>15-20 Years</th>
<th>21+ Years</th>
<th>Service not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tram</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19. How is current transportation information (schedules, updates, delays, new services) communicated to you? (select all that apply) *
   Check all that apply:
   - Email
   - Text Message
   - Printed materials (ex: brochures, maps)
   - Company website
   - Third-party Website (ex: Google)
   - Digital boards (ex: train arrives at 9:15, etc)
   - Smartphone App

Secondary Transportation

In this section, we ask about your secondary mode of transportation. This may include leisure activities, weekend use, or your backup for when your primary transportation isn't available.

20. What is your secondary most used mode of transportation? *
   Mark only one oval.
   - Walk       After the last question in this section, skip to question 29.
   - Bike       After the last question in this section, skip to question 29.
   - Car        After the last question in this section, skip to question 24.
   - Bus        After the last question in this section, skip to question 22.
   - Tram       After the last question in this section, skip to question 21.
   - Train      After the last question in this section, skip to question 22.

21. Which days do you use your secondary mode of transportation? (select all that apply) *
   Check all that apply.
   - Every Day
   - Monday
   - Tuesday
   - Wednesday
   - Thursday
   - Friday
   - Saturday
   - Sunday
22. In which ways do you rely on your secondary mode of transportation? (select all that apply) *
   Check all that apply.
   - Work
   - School
   - Shopping/Errands
   - Social Activities (ex: restaurants, potlucks, etc)
   - Big events (ex: concerts)

Secondary Additional Information: Bus, Tram & Train
It looks like you have selected public transport as a secondary means of transportation. We have a few more questions for you.

23. How many years have you been riding... *
   Mark only one oval per row.

   <1 Years | 1-5 Years | 5-10 Years | 10-15 Years | 15-20 Years | 21+ Years | Service not available

   Bus
   Tram
   Train

24. How is current transportation information (schedules, updates, delays, new services) communicated to you? (select all that apply) *
   Check all that apply.
   - Email
   - Text Message
   - Printed materials (ex: brochures, maps)
   - Company website
   - Third-party Website (ex: Google)
   - Digital boards (ex: train arrives at 9:15, etc)
   - Smartphone App

Secondary Additional Information: Car
It looks like you have selected personal automobile as your secondary means of transportation. We have a few more questions for you.

25. How old is your automobile? *
   Mark only one oval.
   - <1
   - 1-5 years
   - 6-10 years
   - 10-15 years
   - 15+

26. How many licensed drivers are in your household? *
   Mark only one oval.
   - 1
   - 2
   - 3
   - 4
   - 5+
27. How many cars are in your household? *
   Mark only one oval.
   ○ 1
   ○ 2
   ○ 3
   ○ 4
   ○ 5+

28. Which part of public transportation, if modified to fit your needs, would reduce your dependence on a car? *
   Mark only one oval.
   ○ Bus
   ○ Tram
   ○ Train

29. Based on your prior response, what would be the change? *
   Mark only one oval per row.

<table>
<thead>
<tr>
<th></th>
<th>0. No opinion / not applicable</th>
<th>1. Little change needed</th>
<th>2. Some change needed</th>
<th>3. High amounts of change needed</th>
<th>4. Significant changes needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of bus/train stops</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Frequency of bus/train times</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Total trip time</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Cost</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>More information on the system</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>A more reliable system</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Skip to question 29.

**Impressions of Public Transportation**
Based on your view, how do you view public transportation in your area? As a reminder, individual answers are kept confidential.
30. Please rate your impression on the following: *
   Mark only one oval per row.

<table>
<thead>
<tr>
<th>0. No opinion / Not applicable</th>
<th>1. Very unsatisfied</th>
<th>2. Unsatisfied</th>
<th>3. Satisfied</th>
<th>4. Fully satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleanliness of bus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleanliness of tram</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleanliness of train shelter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleanliness of tram stop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleanliness of train station</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of seats</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affordability of bus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affordability of tram</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affordability of train</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependability of system</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On-time with schedule</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competence of personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment options</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

31. What can you bring with you on the bus? (select all that apply) *
   Check all that apply.
   - Wheelchair
   - Baby stroller
   - Bicycle
   - Pet
   - None of the above
   - I don't know

32. What can you bring with you on the tram? (select all that apply) *
   Check all that apply.
   - Wheelchair
   - Baby stroller
   - Bicycle
   - Pet
   - None of the above
   - I don't know
   - Service not available
33. What can you bring with you on the train? (select all that apply) *
   Check all that apply.
   - Wheelchair
   - Baby stroller
   - Bicycle
   - Pet
   - None of the above
   - I don't know
   - Service not available

34. How can you pay for public transport? (select all that apply) *
   Check all that apply.
   - Cash
   - Credit Card
   - Transport Card
   - Smartphone App
   - I don't know

Communication of Transportation Systems
Here we ask questions around how transportation systems are communicated to you.

35. Do you see advertisements for public transportation? *
   Mark only one oval.
   - Yes
   - No
   - Not that I can think of

36. Where do you gather information about the frequency of public transport? (select all that apply) *
   Check all that apply.
   - Station / Shelter
   - Print materials (ex: schedules, brochures)
   - Company website
   - Third party website (ex: Google)
   - On the vehicle (ex: Next stop: City Center)
   - In the vehicle (ex: internal announcements)
   - Smartphone App
   - Not applicable
37. Do you know about either of the below ferry connections? *
   Mark only one oval.
   [ ] Karlskrona - Gdynia or Karlskrona - Klaipeda      Skip to question 37.
   [ ] Do not know             Skip to question 43.

Interregional Transportation
This section researches your use of transportation between the regions

38. Which of the following ferry connections are you aware of? (select all that apply) *
   Check all that apply.
   [ ] Karlskrona - Gdynia
   [ ] Karlskrona - Klaipeda
   [ ] Do not know

39. How often have you used the ferry connections? *
   Mark only one oval per row.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1-3 times</th>
<th>4-6 times</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Yearly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karlskrona - Gdynia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karlskrona - Klaipeda</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

40. Did you take these trips via: (select all that apply) *
   Check all that apply.
   [ ] Car
   [ ] Bicycle
   [ ] Walk
   [ ] Not Applicable

41. How did you find out about these services? (select all that apply) *
   Check all that apply.
   [ ] Email
   [ ] Text Message
   [ ] Print materials (ex: brochures, maps)
   [ ] Digital Advertising
   [ ] Company Website
   [ ] Online Search (ex: Google)
   [ ] Smartphone App
   [ ] Word of Mouth
   [ ] Not Applicable
42. **Would you recommend these services to a friend?**
   *Mark only one oval.*
   - Yes
   - No
   - Unsure
   - Not Applicable

43. **What was your primary reason for choosing these services over others? (select all that apply)**
   *Check all that apply.*
   - Cheaper than flying
   - Quicker than going around the entire region
   - I needed my primary transport with me on the other side
   - Vacation / quick getaway
   - More eco-friendly
   - No other options available
   - Not Applicable

### Intentions and Beliefs
This is the final section where we ask about your perceptions of public transportation.

44. **Overall, Public Transportation (bus/tram/train/ferry)...**
   *Mark only one oval per row.*

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>is a step towards sustainability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>heavily increases global warming</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>is needed for future generations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>is more expensive than owning a car</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>is affordable for everyone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>provides the flexibility needed for a car-free life</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>is the most effective way to commute within the city</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>is the most convenient way to commute within the region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>is the most convenient way to travel around the Baltic Sea Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Thank you!**
We appreciate your time in helping us in our research of public transportation in the Baltic Sea Region. Please share this survey with coworkers and colleagues. A copy of this survey, if requested, will be shared within two weeks. Thank you for your time, if there are any additional questions we will reach out directly.
## Appendix E – Observation Template

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
<th>Yes / No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stations</td>
<td>Are the stations designed to shelter people for bad weather?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stations</td>
<td>Are the stations clean?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stations</td>
<td>How big are the stations?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stations</td>
<td>Are the stations visible and easy to find?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>Is there a bus system?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>Is there a train system?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>Is there a subway?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>Is there a tram system?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>How clean is the bus?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>How clean is the tram?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>How clean is the train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>How clean is the bus shelter?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>How clean is the tram stop?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>How clean is the train station?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>Are there enough seats available?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>Are busses/trams/trains on time?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>Does it feel safe to ride the bus/tram/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment</td>
<td>Can you pay with cash in the bus/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment</td>
<td>Can you pay with cash before entering the bus/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment</td>
<td>Can you pay with credit card in the bus/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment</td>
<td>Can you pay with credit card before entering the bus/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment</td>
<td>Can you pay with a transportation card in the bus/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment</td>
<td>Can you pay with a transportation card before entering the bus/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment</td>
<td>Can you pay with your mobile phone in the bus/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment</td>
<td>Can you pay with your mobile phone before entering the bus/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment</td>
<td>Are there any other forms of payment?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment</td>
<td>How much are the tickets?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Is information available in English?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Is there help available in English?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Do the personnel speak English?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td>Is the ticketing easily understandable?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>How often do the main lines go?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>How often do the secondary lines go?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>Are there different zones? How are they structured?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>Does the transportation company run a website?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>Does the transportation company run a mobile application?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>What is communicated at the stations?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>What is communicated in the app?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>What is communicated on the website?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>What is communicated on the bus/train? (inside + outside)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>Are there more communication forms?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>What is communicated via printed materials?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>What can be found over third-party websites? (e.g. Google Maps)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>Are there digital boards at the station or in the trains/busses?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
<td>Is it possible to enter the bus/train with a wheelchair?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
<td>Are the trains/busses easily accessible for old people?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
<td>Is it possible to bring your bicycle on the bus/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
<td>Is it possible to store suitcases on the bus/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
<td>Is it possible to bring a baby stroller on the bus/train?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
<td>Is it possible to bring a pet on the bus/train?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix F – Coding Example

Sentence numbers were stated to support discussion within the group and to help organize where the statement came from in the interview.

Interviewee Name: Question/Response categorized each question and responses to the questions.

Open Code was used to give an overall code to the statement, initially starting with 59 codes and ending with 30 (codes such as “ticket”, “payment” and “one ticket” were merged into the overall barrier ticketing).

Axial Code was defined as either “barrier” or “best practice” to help sort information to better identify barriers and best practices.

<table>
<thead>
<tr>
<th>Sentence Number</th>
<th>Interviewee Z: Question/Response</th>
<th>Open Code</th>
<th>Axial Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>What are currently the biggest challenges or problems in regard to public transportation in your region?</td>
<td>Question</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Huge amount of main public transport players - operators, carriers, service providers, lot of different tariffs, different goals of the players, no interoperability standards, problems with integration</td>
<td>Legal Structure</td>
<td>Barrier</td>
</tr>
<tr>
<td>25</td>
<td>If everything would work the way you imagine in a perfect public transport system in your region, what would be different?</td>
<td>Question</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Giving priority to public transport over private cars</td>
<td>Prioritization</td>
<td>Best Practice</td>
</tr>
<tr>
<td>28</td>
<td>What do you think are the major barriers to the use of public transportation in your region?</td>
<td>Question</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Variety of tariffs makes using difficult</td>
<td>Payment</td>
<td>Barrier</td>
</tr>
</tbody>
</table>
## Appendix G – Interviewee List

<table>
<thead>
<tr>
<th>Region</th>
<th>Number</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blekinge Region</strong></td>
<td>Interviewee 1</td>
<td>Olofström Kommun</td>
</tr>
<tr>
<td></td>
<td>Interviewee 2</td>
<td>Karlshamn Kommun</td>
</tr>
<tr>
<td></td>
<td>Interviewee 3</td>
<td>Region Blekinge</td>
</tr>
<tr>
<td></td>
<td>Interviewee 4</td>
<td>Region Blekinge</td>
</tr>
<tr>
<td></td>
<td>Interviewee 5</td>
<td>Stena Line</td>
</tr>
<tr>
<td></td>
<td>Interviewee 6</td>
<td>Blekinge Institute of Technology</td>
</tr>
<tr>
<td></td>
<td>Interviewee 7</td>
<td>Blekinge Institute of Technology</td>
</tr>
<tr>
<td></td>
<td>Interviewee 8</td>
<td>Bergkvarabuss</td>
</tr>
<tr>
<td><strong>Pomorskie Region</strong></td>
<td>Interviewee 9</td>
<td>InnoBaltica</td>
</tr>
<tr>
<td></td>
<td>Interviewee 10</td>
<td>MZKG</td>
</tr>
<tr>
<td></td>
<td>Interviewee 11</td>
<td>South Baltic Programme Joint Secretariat</td>
</tr>
<tr>
<td></td>
<td>Interviewee 12</td>
<td>Gdańskie Autobusy i Tramwaje</td>
</tr>
<tr>
<td></td>
<td>Interviewee 13</td>
<td>Euroregion Baltic International Permanent Secretariat</td>
</tr>
<tr>
<td><strong>Klaipėda Region</strong></td>
<td>Interviewee 14</td>
<td>Acquisition Klaipėda region</td>
</tr>
<tr>
<td></td>
<td>Interviewee 15</td>
<td>Neringa City Municipality</td>
</tr>
<tr>
<td></td>
<td>Interviewee 16</td>
<td>Public Enterprise &quot;Klaipėda Passenger Transport&quot;</td>
</tr>
<tr>
<td></td>
<td>Interviewee 17</td>
<td>Public Enterprise &quot;Klaipėda Passenger Transport&quot;</td>
</tr>
<tr>
<td><strong>City of Rostock</strong></td>
<td>Interviewee 18</td>
<td>Hanseatic Institute for Entrepreneurship and Regional</td>
</tr>
<tr>
<td></td>
<td>Interviewee 19</td>
<td>Development at the University of Rostock</td>
</tr>
<tr>
<td></td>
<td>Interviewee 20</td>
<td></td>
</tr>
</tbody>
</table>
Appendix H – Currency Conversion Rates

Currencies not in the Euro conversion were converted on May 7, 2018 in order to normalize the statistics provided, specifically around GDP. The conversions were based on exchange rates from www.xe.com/currencyconverter/, which uses live mid-market rates.

On this date, the conversion rate was identified as the following:

1 Swedish Krona = 0.09487 Euro
1 Polish Złote = 0.235166 Euro

As a result, the following was concluded:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blekinge Region (SEK)</td>
<td>48179000000</td>
<td>48151000000</td>
<td>48011000000</td>
<td>47761000000</td>
<td>47640000000</td>
<td>47438000000</td>
<td>46813000000</td>
<td>46921000000</td>
<td>45831000000</td>
<td>45285000000</td>
<td>N/A</td>
</tr>
<tr>
<td>Kaguada Region (EUR)</td>
<td>3269000000</td>
<td>3267000000</td>
<td>3253000000</td>
<td>3241000000</td>
<td>3226000000</td>
<td>3168000000</td>
<td>3116000000</td>
<td>3018000000</td>
<td>2901000000</td>
<td>2686000000</td>
<td>N/A</td>
</tr>
<tr>
<td>Pomeranian Region (PLN)</td>
<td>67807000000</td>
<td>71438000000</td>
<td>79240000000</td>
<td>81784000000</td>
<td>89013000000</td>
<td>94357000000</td>
<td>95039000000</td>
<td>97833000000</td>
<td>10160800000</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>City of Rostock (EUR)</td>
<td>5507000000</td>
<td>5835000000</td>
<td>5978000000</td>
<td>6128000000</td>
<td>6113000000</td>
<td>6284000000</td>
<td>6728000000</td>
<td>7064000000</td>
<td>7094000000</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blekinge Region</td>
<td>48179000000</td>
<td>48151000000</td>
<td>48011000000</td>
<td>47761000000</td>
<td>47640000000</td>
<td>47438000000</td>
<td>46813000000</td>
<td>46921000000</td>
<td>45831000000</td>
<td>45285000000</td>
<td>N/A</td>
</tr>
<tr>
<td>Kaguada Region</td>
<td>3269000000</td>
<td>3267000000</td>
<td>3253000000</td>
<td>3241000000</td>
<td>3226000000</td>
<td>3168000000</td>
<td>3116000000</td>
<td>3018000000</td>
<td>2901000000</td>
<td>2686000000</td>
<td>N/A</td>
</tr>
<tr>
<td>Pomeranian Region</td>
<td>15945900962</td>
<td>16804021696</td>
<td>18513201844</td>
<td>19323016144</td>
<td>20952811515</td>
<td>22211681432</td>
<td>22349464474</td>
<td>25089905278</td>
<td>2456597928</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>City of Rostock</td>
<td>5507000000</td>
<td>5835000000</td>
<td>5978000000</td>
<td>6128000000</td>
<td>6113000000</td>
<td>6284000000</td>
<td>6728000000</td>
<td>7064000000</td>
<td>7094000000</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
## Appendix I – InterConnect Documents

<table>
<thead>
<tr>
<th>Document Type</th>
<th>Number</th>
<th>Submitted By</th>
<th>Document Title</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statistics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ProjectPlace 1</td>
<td></td>
<td>Blekinge Region</td>
<td>Information from Blekinge</td>
</tr>
<tr>
<td>ProjectPlace 2</td>
<td></td>
<td>Klaipeda Region</td>
<td>Klaipeda</td>
</tr>
<tr>
<td>ProjectPlace 3</td>
<td></td>
<td>Pomorskie Region</td>
<td>Pomorskie</td>
</tr>
<tr>
<td>ProjectPlace 4</td>
<td></td>
<td>City of Rostock</td>
<td>Rostock HNO_jahrbuch 2017</td>
</tr>
<tr>
<td><strong>Policy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ProjectPlace 5</td>
<td></td>
<td>Blekinge Region</td>
<td>Regional Strategy for Public Transports of Blekinge</td>
</tr>
<tr>
<td>ProjectPlace 6</td>
<td></td>
<td>Blekinge Region</td>
<td>Strategy for Climate and Energy Issues in Blekinge</td>
</tr>
<tr>
<td>ProjectPlace 7</td>
<td></td>
<td>Klaipeda Region</td>
<td>Klaipeda Strategic Plan 2013-2020 Klaipeda</td>
</tr>
<tr>
<td>ProjectPlace 8</td>
<td></td>
<td>Pomorskie Region</td>
<td>Mobility Plan for Olsztyn Functional Urban Area 2025 (MPOFUA)</td>
</tr>
<tr>
<td>ProjectPlace 9</td>
<td></td>
<td>Pomorskie Region</td>
<td>Regional Strategic Programme for Transport “Mobility of Pomorskie”</td>
</tr>
<tr>
<td>ProjectPlace 10</td>
<td></td>
<td>Pomorskie Region</td>
<td>Metropolitan Area’s Transport and Mobility Strategy until 2030</td>
</tr>
<tr>
<td>ProjectPlace 11</td>
<td></td>
<td>City of Rostock</td>
<td>Mobilitätsplan Zukunft</td>
</tr>
<tr>
<td>ProjectPlace 12</td>
<td></td>
<td>City of Rostock</td>
<td>Rostock 2025 - Guidelines for Urban Development</td>
</tr>
<tr>
<td><strong>Good Practice</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ProjectPlace 13</td>
<td></td>
<td>Pomorskie Region</td>
<td>Suburban Communication in Dwyta Municipality</td>
</tr>
<tr>
<td>ProjectPlace 14</td>
<td></td>
<td>Pomorskie Region</td>
<td>Improving the Sustainable Mobility of the Lithag’s Citizens</td>
</tr>
<tr>
<td>ProjectPlace 15</td>
<td></td>
<td>Pomorskie Region</td>
<td>Project: Modernisation and Development of</td>
</tr>
<tr>
<td>ProjectPlace 16</td>
<td></td>
<td>City of Rostock</td>
<td>Interface</td>
</tr>
<tr>
<td>ProjectPlace 17</td>
<td></td>
<td>City of Rostock</td>
<td>Interface Plus</td>
</tr>
<tr>
<td>ProjectPlace 18</td>
<td></td>
<td>City of Rostock</td>
<td>Traffic Association Warnow</td>
</tr>
<tr>
<td>ProjectPlace 19</td>
<td></td>
<td>Viimsi Municipality</td>
<td>Tallinn Free Public Transport</td>
</tr>
<tr>
<td><strong>InterConnect Workshop</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ProjectPlace 20</td>
<td></td>
<td>Blekinge Region</td>
<td>Karlskrona Workshop Results</td>
</tr>
<tr>
<td>ProjectPlace 21</td>
<td></td>
<td>Blekinge Region</td>
<td>Karlskrona Workshop Results</td>
</tr>
<tr>
<td>ProjectPlace 22</td>
<td></td>
<td>Klaipeda Region</td>
<td>BSC-Step Harvest Klaipeda</td>
</tr>
<tr>
<td>ProjectPlace 23</td>
<td></td>
<td>Klaipeda Region</td>
<td>BSC-Step Harvest Klaipeda</td>
</tr>
<tr>
<td>ProjectPlace 24</td>
<td></td>
<td>Pomorskie Region</td>
<td>Gdynia B-S Top</td>
</tr>
<tr>
<td>ProjectPlace 25</td>
<td></td>
<td>Pomorskie Region</td>
<td>Gdynia C-S Top</td>
</tr>
</tbody>
</table>

*As defined by the InterConnect templates “good-practice-template_20171218” and “policies-template_20171218”*