

Mind the Gender Gap

Analyzing assessments of the gendered experience on urban public transport

Bachelor Thesis

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Abstract

This research project focuses on the gendered experience of public transport in urban areas. As men and women, or people who don't do care work and people who do, move through cities differently, transport and mobility planning need to consider this gender perspective. Specifically, this thesis analyses German infrastructure assessment frameworks that do or do not account for this perspective. The main research question is: *To what extent do existing transport assessment frameworks take gender-specific demands and needs affecting the equality of public transport systems into account?*

The project collects and analyzes indicators from German mobility plans and assessment frameworks meant to evaluate the quality of public transport, focusing on the inclusion of a gender perspective and gender segregated data. The relevant and useful indicators are combined into one framework, using the Moser Gender Analysis framework as a base, and this combined framework is applied to the city of Münster, identifying the shortcomings of the available infrastructure. This project is relevant as the androcentric and patriarchal perspective of urban planning still excludes the experience of many people, especially women, which means they do not have equal accessibility. However, with equality being one of the core values of democracy, this must change and the experience of persons not conforming to the male ideal must be visible in urban planning. This counts especially for mobility planning as it determines the access to the city and its opportunities, both for private and public life.

Introduction

Women use public transport differently than men, because mobility behavior and choices are embedded into societal structures and existing gender inequalities. Mobility opportunities are, like many other opportunities, divided unequally between the genders, areas and classes. (Krause, 2021)

When we talk about women and public transport, most thoughts and literature concern the issue of sexual harassment and other dangers that women face. However, there are also more structural and underlying issues that make public transport usage for women more difficult and less efficient. The reason for this is that public transport planning, like many other urban planning areas, is a victim of androcentrism. *Androcentrism* refers to the tendency to prioritize men as a seemingly "gender-neutral" standard, while "otherizing" women as gender-specific (Bem, 1993).

The theoretical and practical response to this issue is closest defined in the concept of Feminist Urbanism. Conceptualized by the researchers at Col·lectiu Punt 6 in Barcelona, Spain, Feminist Urbanism advocates for the importance of daily life in urban planning processes and aims to move the discipline of urban planning towards a more inclusive, diverse, and less biased future (Muxí, 2018). It also focuses on the differences of people who do paid work and people who do unpaid care work, as well as the public/private space divide, which both often fall on the male/female dynamic. Feminist

Urbanism recognizes these issues of inequality and wants to break through them, with tools such as citizen initiatives and participation, as well as the analysis of spatial bodies and identifying hierarchical difficulties.

As it is clear that the gender issue needs to be more centric to public transport planning and restructuring, it makes sense to include a clear gender perspective in planning tools and assessment frameworks concerning public transport. As the EU and most countries and cities in it have acknowledged the gender inequalities, they have pledged themselves to create a more equal environment for women, most prominently in the Sustainable Development Goals. However, this is difficult to realize when most assessment frameworks do not include a gender-analysis perspective or are not based on gender-separated data. Even when they do collect this data, it is usually not analyzed in the results (Stiewe & Krause, 2012). Examples for this are Aachen Mobility Indicators, which is an indicator framework for public transportation that only has one gendered indicator, which is then not used for relevant analysis.

This paper aims to identify and critically analyze existing indicator frameworks concerning the equal accessibility and “usefulness” of public transport in cities. The focus lies on the different demands and needs that women and men have for public transport solutions and how these are represented in the structure and accessibility of public transport systems. Because the focus is on the assessment of the transit systems, the chosen frameworks are not theoretical ones, but instead indicator assessment frameworks. These frameworks were evaluated and combined into one comprehensive framework focusing on equal usefulness and access, using the Moser gender analysis framework as a theoretical base. The newly combined framework was applied to the city of Münster.

Research question

In urban planning, there are many steps and processes, especially when implementing new strategies and services. However, as German cities already have a public transportation network, it is more relevant to look at the monitoring and evaluation practices of existing systems and not on how to create and implement a completely new system. It is better to rethink and improve the structures that are there and add onto them instead of hypothetically building a new system in place of the old one. I therefore want to look at common issues in already existing systems and identify if and how they are considered when assessing the system’s abilities. This brings me to following general research question: *To what extent do existing transport assessment frameworks take gender-specific demands and needs affecting the equality of public transport systems into account?*

To answer this overarching question, following sub-questions were formulated:

- What gender-specific demands and issues influence the accessibility and equality of public transport?
- To what extent do the current German frameworks address gender inequalities in accessibility and equality in public transport?
- Do the existing frameworks have the same gaps, or do they complement each other?
- Case of Münster: is the framework applicable? What are the difficulties/challenges about applying the framework?
- What is the added value of the applied framework in Münster compared to the other existing frameworks?

Scientific and societal relevance

It is a critical problem that a lot of the world in general and cities in this specific case remains inaccessible to women due to androcentrism. The patriarchal and androcentric view and its ideals has been so deeply ingrained in our values and decision making that the needs of anyone not corresponding to this ideal go wholly ignored. However, to understand these differences and issues, we need to change the way that urban planning and public policy are assessed. We need to measure for these differences, and we need to look at how they are measured and how the results are used, so we can adapt public policy making appropriately. Frameworks like the gender analysis frameworks can help show the way in this direction. However, they are just general tools that need to be minted into a specific discipline like urban mobility planning. Creating a new framework that includes specific issues along the structure of an established gender analysis framework like the Moser framework can be the groundwork to make gender assessments in public transport more common.

Literature Review

This Literature Review is used to give background information on women's mobility and why/how it is different from men's typical travel. This needs to be acknowledged, understood, measured, evaluated and then used for decision-making. It therefore is also important to look at issues which arise with gendered mobility assessments, as they showcase the current approach of transport planning practices.

Androcentrism in Urban and Transport Planning

The androcentric view in institutions and policy is the historically shaped view that elevates masculinity models as the standard for "general" utility and conceives perspectives on climate change and developing solutions as "gender neutral" (Alber et al., 2018). The androcentric thought patterns show in mobility politics in form of masculine norms, which are reproduced without any consideration for a

gender perspective. Factors here are paid employment work instead of unpaid care work, economic growth, and technology. According to Greed (2012), this has been an issue in urban planning generally, for example through the historical separation of land zones – the separation of work in the city centre and home life in the suburbs. If residential areas are a far distance from working areas and other functional spaces of public life, women need more public transport than if one space would fulfill multiple needs, such as mixed-use spaces. However, transport planners have not specifically paid attentions to this, as the general assumption has been that transport use and policy interventions are gender neutral (Queirós & Da Costa, 2020).

This extreme androcentric view in transport politics stems from the fact that most employees in this sector are male, so the system has been designed by men for men (Hamilton et al., 2005; TRANSGEN, 2007). For example, Germany has never had a female mobility minister, and on the municipal levels as well, the decisions are mostly made by men. Mobility is looked at as almost exclusively consisting of car-availability and car usage, and mainly motorised mobility is accepted as mobility, while the reality of many women and intersectionally disadvantaged men, who do not own a car, is hidden. (Spitzner et al., 2020) Car mobility has long been privileged in transport planning, with big highway projects prioritized over smaller projects that enable safer, faster short-distance travel (Litman, 2013). Furthermore, transport planning as a discipline is characterized by a focus on technical realisation instead of social environment of its users, which might also be rooted in androcentric values (Levy, 2013).

For example, public transport systems are often designed radially for routes in & out of the city center, for example Stockholm (fig 1), London or Portland, and not grid-like connections within neighboring areas, like in San Francisco. Radial designs prioritize a downtown area, making it harder to access other locations, which benefits male commuters. Many networks start this way, but some, like Portland (fig 2), convert to a grid (Walker, 2010). If Bus routes are only designed for simple commutes, they are useless for many women. That, in turn, makes it difficult for women to complete their unpaid care work and therefore makes it much harder for them to engage in their paid work. Additionally, the conventional idea is that people do not like to transfer from one bus to another, so many bus networks are planned with long routes that overlap to connect as many origins and destinations as possible without transfers. However, this makes the bus network difficult to understand, and as the routes are so long, it is impossible to provide frequent service on all lines. In Barcelona, the bus system was redesigned to be a grid, easy to understand, with direct lines that go frequently, and abundant transfer points. The aim was that people “become users of the network rather than its single lines” (Badia et al., 2017, p. 1). Even before the new network was completed, it attracted more users than the old network did, and the number of transfers grew extensively – because they were easy to plan and the

frequent line service guaranteed a short waiting time. This suggests that users are not averse to transfer at all, as long as it is encouraged by the system and there is transfer-friendly service provided. (Badia et al., 2017) This shows how androcentrism and the traditional way of planning are outdated, as new structures emerge and are welcomed by users. The same might be the case when restructuring, rethinking and redesigning other parts of the network, away from the androcentric idea. However, to plan this, it has to be looked at how different groups use public transport differently and how to provide adequate service to them.

Figure 1: Portlands Grid-Style Transit System

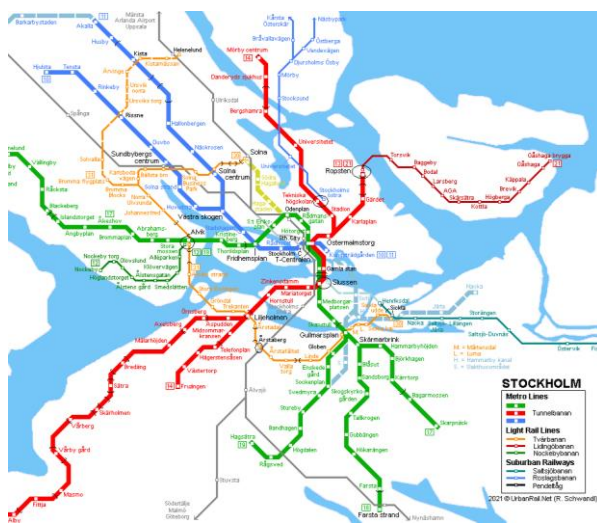


Figure 2: Stockholms Radial Transit System



Using Public Transport (differently)

The research on women or gender in transport started in the 1970s and has consistently shown one thing: there are crucial differences in travel behaviour related to gender (Sánchez de Madariaga, 2013a). There is statistical research that show the difference in transport usage between men and women in all European Countries (Duchène, 2011) and that the transport systems rarely provide enough service to both genders (Queirós & Da Costa, 2020). Generally, women travel shorter distances and tend to stay closer to home (McQuaid & Chen, 2012; TRANSGEN, 2007). They undertake a greater number of trips relating to a greater number of purposes, which are more varied for women than for men (Sánchez de Madariaga, 2013a). Men travel more for work, while women travel more for retail and caregiving trips (Rosenbloom, 1989), and therefore they often travel during different times. Whereas men are more constrained to peak times, when there is high service frequency, women often need public transport during off-peak hours, when services are infrequent and waiting times are higher

(Greed, 2016). Women have less access to a car and therefore rely more on public transport and they stop driving earlier than men (Scheiner & Holz-Rau, 2012).

In Germany, women and men have the same chance of having a drivers licence and yet, men tend to drive a car more often, as women prefer environmentally friendlier modes of transport (Von Den Driesch et al., 2020). They are the main group who performs trip-chaining and multimodal trips, their travel patterns are not straight commutes but polygon-shaped (Rosenbloom, 1989; TRANSGEN, 2007; Turner et al., 2006), they have more safety concerns which leads them to limiting their movements due to risks, as they are smaller and possess less strength they have issues with the spatial and vehicular designs, particularly with safety devices, which are often designed with the male body in mind (Pickup, 1984; Turner et al., 2006). Women have less income and therefore less transport options (Schwanen et al., 2015), especially as many households in the lowest income group are households with lone parents, which are mostly women (Hamilton et al., 2005).

Another factor influencing women's use of public transport, also historically, is the urban structure – including density, mix of uses, availability of transit, location of housing, facilities, and workplaces (Schmucki, 2012; Turner et al., 2006). Regarding labour, the transport sector workforce is strongly male on all levels, also including evaluation committees, with the notable exception of Sweden (TRANSGEN, 2007). Lastly, statistics often prove that women are often part of vulnerable groups such as older people living alone, single parents and working parents who have to perform a majority care work. All of these groups are especially vulnerable and have increased transport needs (Sánchez de Madariaga, 2013a). These different travel patterns influence women strongly, as they pose a significant disadvantage. This disadvantage has further implications, for example, it lessens the access to the labor market, and negatively affects professional development. Women face more travel constraints and time poverty in urban areas, which often forces them to reduce their time in the workplace, decline promotions or quit their work completely (Pickup, 1984; Sánchez de Madariaga, 2013a).

Additionally, Fu and Juan (2017) state that public transportation usage behaviour is influenced by different psychosocial factors and that there is a gendered difference in this influence. This difference is based in the gender-specific desires and activity patterns. For example, perceived car control has a bigger negative influence on the public transportation usage of men than of women. For women, a higher level of satisfaction with their public transport experience directly affects their usage behavior. Fu and Juan therefore suggest that for men to use public transport, strategies should be aimed against cars, for example through less parking spaces and higher parking fees. For women, however, they suggest to improve transport service and create a positive atmosphere, for example through a mobile app or better information at stops and on the website, which creates more certainty in the usage

experience (Fu & Juan, 2017). Additionally, women might often feel unsafe or insecure, especially at night, which keeps them from using public transport (Hamilton et al., 2005). This shows that men and women are motivated to use public transport differently, which must be considered when thinking about how and where they choose to use it. These psychosocial factors should ideally also be taken into consideration when planning public transport assessments.

Accessibility, Equity and Transport Poverty

According to Giuffrida et al. (2022), public transport is the main tool to close the accessibility gap between people who have access to private cars and people who do not have access or can not afford cars. However, they criticize that public transport planning is often only focused on horizontal equity, which means it focuses on providing the same supply to all users. What it does not focus on is the so-called vertical equity, which concerns different supply to groups with different necessities. This is sometimes only shown in different fare groups, for example discounts for elderly people, students or children. According to Giuffrida et al., guaranteed access to public transport is the first step towards horizontal equity, and covering the most vulnerable areas is an important step towards vertical equity. Vertical equity is therefore important when thinking about spatial planning and supplying different areas, but also in terms of user planning and supplying services to different marginalized groups, like women. Another example is what they call “equity of the line routes”. This means that the selection of line routes should cover the main trip patterns of the population, concerning their needs and covering the greatest possible number of destinations, with a feasible number of stops. A reason for this is to provide the user with a service that has the least transfers possible, or to create the system as transfer-friendly as possible (Badia et al., 2017). A direct line between the start and end destination of a trip brings greater equity to all users. However, the bigger a city and user population is, the more complex of a transport network must be created, which results in a lot of different alternative line combinations (Giuffrida et al., 2022).

Transport plays an important role to work against the disadvantage that women have when participating in society. However, the fact that transport is still planned androcentric a lot of the time, leads to women experiencing “transport poverty”, which is the result of inadequate access to transport services and other social disadvantages (Hamilton & Jenkins, 2000; Lucas, 2012). Gender influences all different aspects of mobility, including choices, behavior, perception and experience (Law, 1999). Law also shows that gender directly influences mobility, for example through gendered activity patterns as well as gendered access to resources and money, but also more indirectly, through a gendered experience of embodiment, as well as gendered meaning of practices and the concepts of masculinity and femininity, and the gendered environment of land use and infrastructure (Law, 1999, p. 576). The

“Mobility in Germany” study found that, in Germany, there is a significant influence of gender on mobility patterns, even though the gender roles are slowly changing (Von Den Driesch et al., 2020).

Women do often not have the same access to public transport, as mentioned above. However, it is important to recognize that this limited accessibility does in turn limit the access to other spaces as well, namely public services, social and political participation and household efficiency (Queirós & Da Costa, 2020). When planning for accessible transport, it is important to realize that feminist or gender equal mobility strives for equal accessibility and equity for everyone, not only women. In a concept paper from LIFE e.V. together with the German ministry for environment (Bundesministerium für Umwelt, Naturschutz, nukleare Sicherheit und Verbraucherschutz) and the German Federal environment agency (Umweltbundesamt), there are goals listed for gender equal mobility in Germany. For example, it should consider different forms of everyday life and ways to move through the city. It should consider and support care-work and trip-chaining. It should be affordable and accessible for all, no matter their income, free from classist discrimination. It should be free of barriers and consider the life of persons with mobility restrictions. Additionally, it should be ecological and sustainable. It should prioritise humans over cars and put focus on the security and safety of all persons. And finally, it should consider global inequalities relating to mobility. (LIFE Bildung Umwelt Chancengleichheit e.V., 2022)

Gendered Public Transport Assessments

Even though gender is theoretically recognized as an important aspect to be included in transportation planning, it is often not yet integrated (Hamilton & Jenkins, 2000; Hjorthol, 2016; Sánchez de Madariaga, 2013a; Von Den Driesch et al., 2020). As there is usually not a lot of gender-sensitive data or visualization, there are a lot of research “blind spots” or “gender gaps” (Stiewe & Krause, 2012). Hamilton (2005) criticizes that the gendered experience in public transport is often not visible in the consultation of users. Such assessments often count all users and do not categorize them specifically, or if they do, they don’t further analyze the data and implications that come with the separation of groups of vulnerable users. According to Hamilton, women need to be identified as a specific group to be involved in such assessments and participation processes (Kerry Hamilton et al., 2005). Another problem is that these frameworks often come from a time when economic development and the working man’s mobility were seen as the most important (Sánchez de Madariaga, 2013a). Therefore, even the statistical assessment frameworks prioritize the androcentric type of mobility.

Because of these existing gaps, insights from gender studies and research should be used when creating assessment frameworks. Its necessary to identify possible new gender dimensions as well as bias and omissions that might be influencing the research and policy cycles. It is then crucial to question the frameworks that are based on current research and understanding of transport and policy cycles.

Gender analysis is a tool to find exactly these assumptions, not only in transport research. It also includes tools to suggest new frameworks that work with the new gender dimensions instead of against them. Gender analysis will also shift the focus of transport planning from centering on infrastructure to the individual's needs who use the transport system daily. (Sánchez de Madariaga, 2013a)

In her research, Inés Sánchez de Madariaga (2013b) coins the term of "Mobility of Care". Gender studies as a discipline has studied the concept of care in all its aspects, mainly related to the recognition of (unpaid) care work. What has changed through growing urbanization is that care work now not only happens at home but in different places around the city, which means that the reliance on transport modes also grows (Sánchez de Madariaga, 2013a). This includes bringing children to school, going to different places or markets to shop for different things, taking care of relatives in their home and not your own, bringing the children to a doctor etc. Urban structure and transport systems therefore put a lot of additional work on people who already try to combine paid employment work and care work. All of the daily tasks become mixed in the private and public sphere, which poses additional challenges. (Sánchez de Madariaga, 2013a) As most care work still falls on women (Kerry Hamilton et al., 2005), this challenge of combining paid work and care work mostly falls on women as well. However, most transport assessments differentiate only compulsory (or constrained) mobility from discretionary mobility. Compulsory mobility means any trips that are related to paid employment and education, but the latter counts only for the ones partaking in the education, not for anyone escorting them. These trips are also called constrained as they usually have fixed arrival times. Discretionary travel refers then to all other trips, including leisure, shopping, visits etc. (Sánchez de Madariaga, 2013a).

The idea of care work is not mentioned or defined within these categories. By default, it falls into the "discretionary" category, but realistically, it is not discretionary, as it is not by choice. It is not discretionary to bring children to the doctor or school, do the grocery shopping or care for an elderly relative. Especially when escorting children to school, there is a specific time when they need to arrive, so the trip is not discretionary in nature, instead, it is highly constrained. The focus on compulsory mobility therefore hides the reality of women's mobility and gender issues in public transport, who in fact are highly constrained in their mobility (Sánchez de Madariaga, 2013a). Especially if a person must combine paid employment work and care work, the mobility becomes constrained as they must balance a work and school schedule, opening hours of shops and services, all within the available transportation structure. The proposed concept to measure this type of mobility is the "Mobility of Care" (Sánchez de Madariaga, 2013b). It visualizes all travel that are based in home management or caretaking responsibilities, therefore separating them from the categories of compulsory and discretionary mobility. A lot of these trips are already measured but hidden under names like leisure

or shopping trips or visits. Also, a lot of surveys exclude trips made on foot or trips with less than one kilometer distance, which are often care trips (Sánchez de Madariaga, 2013b). Transport assessment frameworks need to be conceptualized and implemented differently to make care-related trips visible, by specifically naming the trip purposes as care purposes. (Sánchez de Madariaga, 2013b) In terms of transport planning, it is important that this be based on data which includes this kind of travel and is, through a gender-perspective, specifically aware that the Mobility of Care makes up a big share of public transport usage. Public Transport planning needs to be aware of its importance and also its demands, such as accommodating strollers in buses and frequent bus service during off-peak times.

Giuffrida et al. (2022) also criticize transport assessment indices, such as the transport need index (TNI), which can be used to evaluate spatial gaps in transport accessibility and the Gini index, which can for example be used to assess the distribution of accessibility among the population. The first critique is that indices like these are often focused only on horizontal equity. The second critique is that they are very complex and are quite difficult to calculate. This is not practical for public administrations, as they do not have the time and resources for difficult calculations, especially at the beginning of planning or evaluation processes. This is even more crucial for small cities or towns. Furthermore, there are few qualitative studies in this area, and while there are some for women's needs, they are relatively small scale (Hamilton et al., 2005). It is therefore important to consider simplified frameworks and also qualitative frameworks to ensure that vertical equity is included in the evaluation and that the process is feasible for the concerned administration.

Including the gender aspect in transport policy planning will lead to a more equitable transport system for all users, including men, women, sick people, disabled people as well as the young and the elderly (Sánchez de Madariaga, 2013a). All of this shows that public transport is not only planned androcentric, but also often assessed and evaluated and then improved from the same, gender-insensitive perspective. This brings more inequality and does not improve accessibility for anyone who does not already have it. Therefore, transport assessments need a gender perspective, based on gender separated data or experiences.

Theoretical Concepts

Feminist Urbanism and the Moser Framework

The general issue is approached with the theory of Feminist Urbanism, conceptualized by the researchers at Col·lectiu Punt 6 in Barcelona, Spain, especially in the publication *Urbanismo feminista. Por una transformación radical de los espacios de vida* (Col·lectiu Punt 6, 2019). Collectiu Punt 6's definition of feminist urbanism is based on everyday life as a core theme in urban planning, along with

cooperativeness and support systems focused on an intersectional, open, and plural approach. The fight for feminist urbanism involves breaking away from the current neoliberal city model and eliminating the separation of public and private space based on gender roles. Analyzing urban spaces and hierarchies is necessary, and including a gender perspective in regulations can reveal hidden realities and help modify unequal conditions. (Col·lectiu Punt 6, 2019) This includes not only the structure of a city, but also the ability to move through this city and from one point to another. It is important here to recognize that gender often means not only biological gender, but generally whatever breaks from the norm. For example, the norm in transport planning has a fulltime stable job, is an adult, white, socialized as male, has no disabilities and can afford a car or other mode of transport (LIFE Bildung Umwelt Chancengleichheit e.V., 2022) Feminism or the ambition of gender-equal transport is not only for women, but also for anyone who does not fit this norm. However, to reach this goal of all people moving through the city more equally, we need to assess how they move and what they need. We need to assess urban planning in general and urban mobility more specifically with a gendered perspective and this needs to be based on gender-separated data. For the case of Germany, Stiewe and Krause (2012) note that even though some mobility assessments have gender-segregated data, it is not focused on in the results. They also note that we need to collect this data to make the issues visible so we can then concern ourselves with fixing them to create more equality.

The second theoretical framework used in this thesis is the Moser Gender Analysis framework. Gender Analysis frameworks were originally developed as a response to realizing that development was not gender neutral and not of equal benefit to men and women (March et al., 1999). It was developed by Caroline Moser in the early 1980s as a mainstream planning method to incorporate a gender-planning perspective in all development work, as part of the Gender and Development approach. (Moser, 1993) The Moser Framework is built on three core themes. First, Women's Triple role, meaning reproductive work (unpaid/care work), productive work (paid work) and community work. Second, Practical and Strategic gender needs and third, Women in Development and Gender and Development policy approaches. The Moser Framework was used as a guideline for the combination of the indicator frameworks, more about the application can be found in the methods section.

Defining Accessibility in terms of Public Transport

In the case of public transport analyses, there is not one overarching definition of accessibility that works for all different cases, so there are different definitions depending on the direction of the research (Mestre Salleras, 2021). Statistically, it can be measured as connectivity (Kaplan et al., 2014), or through an increase in job opportunities when new lines are developed (Fan et al., 2012) or a combination of distance from stops, reliability of service and waiting times (Wu & Hine, 2003).

Accessibility is defined by Miralles-Guasch and Cebollada (2003) as the ease with which people can travel between two locations and exercise their freedom of autonomy. This affects travel patterns, depending on how much is accessible for an individual within a reasonable radius, which differs depending on how accessible public transport is. Even if a person has very limited spatial mobility, they can still benefit from excellent accessibility through proximity to needs and services. However, the opposite is also possible. An individual may have a lot of reach throughout the city using public transport, but still be unable to easily reach the places they need. This then means they have very low accessibility, even though they have very high mobility. This also applies to people who have to make a lot of trips to reach their desired destinations, especially if they have to travel long distances. (Hernández, 2018). Because women connect different trip purposes and have a path network that includes different modes of mobility, they are usually highly mobile – but that does not mean they have a lot of spatial access (Bauhardt, 2012). For women, good accessibility through public transport means for example being able to bridge distances between neighboring areas as easily as men can travel into the city center. A 2016 study of Chicago showed that for trips from outside the city center to downtown, the time difference between using the Uber pool car sharing app versus public transport was almost negligible. However, when comparing trips to different neighborhoods, the trip took almost double the time on public transport (Schwieterman & Michel, 2016).

Accessibility also needs to be thought of in terms of physical accessibility and design of the transport vehicles and stations. Buses are often difficult to handle for women with children or strollers, as well as for people who have mobility restrictions (Hamilton et al., 2005). When women have children, they are therefore more likely to use a private car instead of the bus. Interestingly, women with children in the household drive more miles per week than women without children, but the same difference does not apply to men (Goddard et al., 2006). Also, as women are often smaller, men should not be the norm when choosing the step height, seating design and positioning of push buttons for stops or rails and handles. (Hamilton et al., 2005)

Lastly, accessibility also includes the issue of affordability. Because of the unpredictability of non-standardized and unregulated fare structures, concerns about the affordability of public transportation may predominate in developing nations. Access to public transportation also affects job market participation (Ribet, 2022). Also, few fare systems accommodate trip chaining. Most are built on a single trip basis, not allowing returns or round-trips.

Another issue is the usefulness of the public transport network. This means that the public transport network sufficiently fulfils/adapts to the needs that women/other groups have for it (i.e. it's fare system accommodates trip chaining), so everyone can get where they need to go without any major issues.

Hypotheses and Limitations

In terms of hypotheses, it is expected that there are a lot of frameworks not covering the connection between public transport and gender. This can happen in both directions, which means that gender frameworks can exclude the public transport dimension and in contrast, indicator frameworks covering public transport can exclude the gendered experience. This limits the pool of frameworks down to a few. Also, when looking at different examples and data points, it is important to keep in mind that different countries and cities have different cultures, which means data might differ. That the data on women's inaccessibility to sufficient public transport still shows up in so many different areas and cities shows that it is an overarching issue which needs to be addressed internationally. It is also important to keep my own bias in mind, as I come from a strongly feminist perspective and will always feel strongly negative about feminist issues not being assessed or left out. However, this is only more reason for me to do good research, so these issues can be seen and fixed.

Methods

This Bachelor thesis started with the book "Invisible Women" by Caroline Criado Perez, in which she describes the issues of women being disregarded in data collection and analysis in multiple aspects of our world. A further review of the book's sources as well as research on Google Scholar and Connected Papers provided enough sources to define the issue of how gender is often disregarded in transport planning. With the literature at hand, the research question was created. The literature to review was then expanded based on references used in the original text. It was clear which scientific contributions were important as many were mentioned in multiple different papers. The method of framework analysis was chosen, as there is already a lot of international literature on the issue itself, but there is not one method as to how to evaluate the consideration of the gender difference in existing public transport systems.

Based on the findings of the literature review, the most common issues and hurdles that women face when using public transport have been singled out. As last theoretical step, useful indicators from the frameworks have been combined into one framework, using the Moser Gender Analysis Framework as a theoretical base. This newly combined comprehensive framework is applied to the city of Münster in a short case study.

Method of data collection & Framework selection

The frameworks have been selected based on thorough research. While this thesis focuses on German examples and practices, there are not a lot of German urban frameworks that look at the connection between gender and transport, if even partly. Most transport frameworks in Germany, no matter if

national or local, look at sustainability and other environmental factors. These could be interesting to look at as well, as women often travel more sustainably, and the issues of gender and sustainability are therefore closely connected in transport. However, this influence is not the focus of this thesis, and the environmental frameworks are therefore not considered in a gender perspective. Therefore, some national-level studies with urban focus have been chosen for the literature as well as some regional urban mobility plans and concepts for the frameworks. The scope of indicators is so specific that it makes sense to pull from different sources. Even if the frameworks are not mainly about gendered mobility or system evaluation, parts have been taken from them that are useful for the analysis. Another issue is that most frameworks look at the behavior of the user, i.e. how many trips people take – which is important, but the issue is that none of the frameworks go further than that.

Regarding the case study, the materials used are reports of Münster's public transport, as well as a transport map and schedules, and (if available) an indicator assessment framework. Most of the information comes from the System and Infrastructure Analyses for the 2025 and 2035 Mobility Concepts.

Method of data analysis

The framework analysis was done through content analysis. This follows the convictions of interpretivism, as knowledge is gained through the interpretation of the indicators and the literature in combination. The concepts accessibility and usefulness have been defined in the theory section. As there is no common framework yet, the analysis was inductive. The indicators have been selected and analyzed through a close reading of literature and the indicator frameworks. Using research that has been looking into this direction, the key issues have been operationalized to specify what to focus on when analyzing the frameworks. The priority were indicators that do not require large amounts of statistics, as ones with large amount statistics have been conceptualized before. As described above, they are often unrealistic to use for communities and do not always see the root of the problem. It was then analyzed how the chosen frameworks are aligning with the before defined concepts and indicators. For example, if they are based on gender-aggregated data and if they address the issue of different demands for public transport at all. It was evaluated how they approach and intend to solve the issue of unequal access and usefulness. It was also checked if all frameworks have the same gaps or if they each complement each other and fill the respective gaps.

What is a useful Indicator?

There are no specific rules as to what makes a useful indicator as they are used so diverse that defining all of them proves impossible. Due to the different goals of different studies, indicators must be conceptualized differently. An indicator that might fulfill the requirements for a chemical experiment

does not hold the same standard in a social science context. However, there are general guidelines. According to the UN, useful indicators are “SMART” – which stands for specific, measurable, attainable, relevant and trackable (UNDP 1997, cited from Meyer, 2004). This translates to the indicator clearly meeting the intended, theoretical facts, being currently measurable in a specific number and proving to be applicable to the desired work context, being relevant to solving the problems at hand, and being comprehensible to all stakeholders. According to Filsinger (2016), useful indicators are statistically valid, timely, revisable, comparable, non-manipulable, and responsive to action. Overall, a good set of indicators should be balanced and non-contradictory "in terms of the dimensions to be measured" (Filsinger, 2016, p. 120). It should be measuring the issue as closely as possible, but it still needs to be feasibly measurable with the existing resources (Meyer, 2004). However, the most important characteristic of an indicator is its theoretical relevance, which justifies why this indicator is included in the evaluation and why the information this indicator measures are important for the results. (Filsinger, 2016) Meyer elaborates “The better an indicator can be theoretically justified, the more suitable it is” (Meyer, 2004, p. 26, translated). It can prove to be difficult, as some indicators that are theoretically justified are not realistic in practical evaluations.

Combination of the Frameworks

The framework combination was coded to the Moser Framework for Gender Analysis. It provides different tools to identify the problems and needs surrounding mobility and access, along with using approachable language that can be used by administration as well. It is also applicable in urban and rural contexts as well as in regional or metropolitan planning, in policy formulation as well as designing and monitoring interventions. (Venter et al., 2007) The Moser framework consists of six tools, each of which can be applied to public transport. The first tool is the identification of gender roles, or women’s triple role in productive, reproductive and community work. This is an activity-based approach to transport and gender policy, which leads the analyst to concerns that might otherwise be overlooked. For example, reproductive work can be care work or other work that sustains the household. The approach here is to consider this activity first and seeing if transport needs are associated with it, like accompanying a child to school. A strength of this approach is that the analyst can consider the complexity of impacts, and how transport interventions interact with them (Venter et al., 2007). This triple role was extensively considered when doing the literature analysis. The second tool is assessing the gender perspective, based on the division in practical and strategic gender needs, which address imminent needs on the one side and underlying assumptions and challenges on the other. Similar to the activity approach, the idea here it to look at travel needs or interests and not just patterns. Additionally, it highlights that transport initiatives need to consider and work with other sectors, for example health care. And lastly, meaningful participation of women in transport planning is needed

for strategic gender needs to be identified. (Venter et al., 2007) The idea of practical and strategic gender needs was used when coding the new framework and verifying the relevance of each target and indicator. The third tool looks at resources and decision making. In relation to transport, it could be the dominance over car usage in households. Transport planning tools and interventions need to be conceptualized with an awareness of gender relations and the power over resources. (Venter et al., 2007) This was also considered in the literature review and the indicator selection, as it is a perspective that needs to be kept in mind. The fourth tool looks again at women's triple role, but this time at how to plan for it. It's important that planning measures for one role do not hinder women's realization of another. Women's triple role is so important in transport because of the struggle with time constraints that women already face. (Venter et al., 2007) This was clear in the literature review, especially when considering the Mobility of Care. The fifth tool aims at the perspective of development with which planning is undertaken. Transport projects usually support the anti-poverty or the efficiency perspective, as they concern themselves with practical gender needs and generally want to decrease poverty and increase development (Venter et al., 2007). In this case, the framework aims for general development, especially in terms of equality and the sustainable development goals. The sixth and last tool is about involving women and gender aware organizations in planning. According to Moser, this is critical to identify gender needs, but it is severely disregarded in most transport interventions (Venter et al., 2007). It was also verified that this was covered in the literature review as well as the framework.

Analysis

In terms of evaluations with a gender perspective on public transport, most evaluations, like the Mobility in Germany study (MiD) or the Mobility in Cities (Mobilität in Städten – System repräsentativer Verkehrsbefragungen (SrV)) do not have a gender perspective. They might ask respondents their gender and maybe even if they have children and so on, but they don't analyse the data with the aforementioned gender aspects in mind, i.e. how are different trip patterns related to gender, what times do they happen and how can they be more supported. The Methods paper on the SrV 2018 is 142 pages long – it mentions "women" once (when noting their response quote), "female" once (in the question which gender the respondent identifies as) and "gender" ten times (when listing the collected personal data and again when talking about response quotes and data grouping). It is not mentioned once as an aspect of further analysis than the simple "women do this, men do this". (Gerike et al., 2020) There is no analysis of the reasons behind this or the implication these differences might have. The 2030 Federal Infrastructure Plan for Germany by the *Ministerium für Transport und Digitale Infrastruktur* (Ministry for Transport and Digital Infrastructure) mentions "female" once – in the note that the grammatically masculine form will refer to both genders in the rest of the document. However, this negligence is also possible in the other direction. The German "Gender Index", conceptualized by

the *Bundesinstitut für Bau-, Stadt- und Raumforschung* (Federal Institute for Construction, Urban, and Spatial Research) is supposed to measure the application of Gender Mainstreaming in Germany (Bundesinstitut für Bau-, Stadt-, und Raumforschung, 2023). However, it does not mention public transport once.

In Germany, most cities over 200.000 inhabitants develop so called TDPs, Transport Development Plans (German: Verkehrsentwicklungsplan, VEP or Nahverkehrsplan, NVP). They are the common mobility planning tool at the municipal or regional level ((GIZ) et al., 2014) that assess the current situation and provide an outlook for the. Most German public transport laws state that the concerns of women, families, mothers etc. are important and should be considered, but there is usually no further information for implementation (Stete, 2006). The analysis of 24 TDPs by von den Driesch et al (2020) shows, that the German TDPs are especially focused on environmental measures and not inclusionary measures, especially gender. Furthermore, next to the environmental focus, most German TDPs focus on dominantly discussed groups, like cyclists, instead of marginalised groups. This lacks an intersectional perspective, which should include non-dominant groups and minorities. The TDPs most addressed group are “children”, but accompanying adults carrying out care work are not addressed. Gender is mentioned rarely, only related to gender mainstreaming, which is defined broadly, inconsistently, and not mentioned in implementation. Limitations of mobility are mostly connected to wheelchair users, but at least 35% of TDPs also mention people with strollers. Accessibility is mostly about elderly people, pedestrians and cyclists. However, limited mobility and accessibility are inconsistently defined. This strengthens the argument of gender “blind spots” in transportation research, which shows that there is need for frameworks assessing the gender perspective. Even when different needs are identified, they are not transferred to measures. Additionally, the needs of different groups are combined, which makes it difficult to see who is impacted how much, which leads to uninformed decision making.

This shows that an analysis with a gender perspective is much needed in Germany, and not yet being properly done. However, there are fragments in some frameworks, with useful indicators collected here. For an overview, a table of the issues from the literature review that should be covered in an assessment framework from a gender perspective has been created. To start the analysis, there is a summary of all issues and challenges, that were repeatedly mentioned in the literature, already connected with possible indicators. During the analysis of the different mobility plans, this summary is matched with indicators from the existing frameworks. If the indicators describe or measure an issue found in the literature, they are considered relevant and useful and are added to the combined framework. This thesis focuses on the system infrastructure and indicators that work for evaluation frameworks, which means they need to be useful for transport planners and/or planning committees.

It is not about the statistics of the user, i.e. how many more trips women take than men. The system and infrastructure Indicators need to work without a huge number of statistics. While it is important to look at these, as mentioned before, it is usually not reasonable for smaller administrations to collect and analyse these. Instead, it makes more sense to include an indicator that measures if the administration and/or planning committees use the statistics available to them from big survey and evaluations like the MiD or SrV survey mentioned earlier. This way they do not have to collect the data themselves, but it is of course important to use all data available to know who uses the public transport system for what. It is however important that the data used has a clear gender perspective and there is a conscious gender analysis. This means, for example, going against androcentric assumptions, including a perspective like the Mobility of Care and evaluating the system and its users based on this.

Table 1: Gender Aspects taken from literature that need to be included in assessment frameworks

| General | Possible Indicator | Note | Example Literature |
|---------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------|
| Transport Sector | Percentage male/female employees | | Hamilton et al. 2005 |
| | Diversity of Committees | Planning and Evaluation Committees | TRANSGEN 2007 |
| Employment | Motivation for women to apply | | - |
| Planning Structures | Prioritises gender perspective | “gender” as in including all marginalised groups | LIFE 2022 |
| | Prioritises humans over cars | Going against androcentrism, knowing where to break with “old” ways of planning | Litman 2013, LIFE 2022 |
| | Planning for individual’s needs, not for infrastructure | | Sánchez de Madariaga, 2013a |
| | Identified bias/omissions that influence policy cycle | | Queirós & Da Costa, 2020 |
| System Design | Route structure – radial or grid? | Also depends on size of city → radial can turn into grid | Walker 2010 |
| | Easy to transfer? Transfers are coordinated → short time → trip chaining/multimodal | “User of the system, not single lines” | Badia et al. 2017 |
| | Areas more covered than others? → white spots | Especially further Neighborhoods | Giuffrida et al. 2022 |
| | Route structure covers main patterns “Equity of the line routes” | Data from mobility surveys needed | |
| | Good pedestrian / biking infrastructure (first/last mile) | | LIFE 2022 |
| | Can generally reach needed locations (how to assess?) | | Queirós & Da Costa 2020 |
| Service Structure | Price system allows trip-chaining | | Rosenbloom 1989, Turner et al. 2006 |
| | Prices are generally affordable → discounts | Children, students, elderly | LIFE 2022 |
| | Frequent, reliable service outside of off-peak (paid work) times | “10 minute or less” - stops | Greed 2016 |
| | App/mobile website timetable → current, online → certainty in usage | | Fu & Juan 2017 |
| | Information at stops about service punctuality and frequency, additional info | | |
| System Design | Low handles, small gaps between bus / bus stop | | Pickup, 1984; Turner et al. 2006 |
| | Seating structure | | |
| | Enough space to carry strollers on buses/trams/trains | | |
| | Lighting design at stops at night | But should also be sustainable? | Hamilton et al. 2005 |
| Usage Measures | How many people use public transport (gender-separated) | | - |
| | Qualitatively – how satisfied are women/ men | | Fu & Juan 2017 |
| | What measures are used to lessen car usage in the city? Effectiveness? | Less parking spaces/high fees | |
| | Mobility of Care → How does the system support “Mobility of Care?” Can it do so? | Framework by Sanchez de Madariaga | Sánchez de Madariaga 2013b |

Indicator Framework Analysis

There are already useful indicators and assessments proposed in the literature itself. In terms of Accessibility, it is a very difficult concept to simplify, especially when thinking of indicators that are supposed to be easy to answer in terms of “Available or Not”, “Sufficient or Not” answers. This thesis uses the operationalization by Geurs and van Wee (2004), who defined four specific types of components that should be used when measuring accessibility. They are land use, transportation, individual and temporal. Land-use refers to the location of travel origins and destinations, as well as the combination of demand and supply. Transportation considers travel and waiting times as well as costs and effort for a journey from an origin to a destination point. The temporal aspect considers other time constraints such as when activities are accessible and individual time budgets such as time poverty. Lastly, the individual aspect considers individual aspects such as needs, abilities and opportunities of individuals that each affect the accessibility to public transport. Based on these aspects, different measures can be created, focusing either on infrastructure, location, persons or utility. In terms of infrastructure-based measures, examples are traveling speed and vehicle hours lost in congestion (transport aspect), peak times or 24h service times (temporal aspect) and trip-based stratification, like home to work (individual aspect). There are no suggested measures for the land-use aspect (Mestre Salleras, 2021). Al Mamun and Lownes (2011) add to this, as they argue that accessibility measurements should include trip coverage, spatial coverage, temporal coverage and comfort. Trip coverage means the connections of origins and destinations, spatial coverage refers to proximity to the service access points and temporal coverage means that the service should be available when it is needed. According to Geurs and van Wee (2004), accessibility measures should always include all of its components simultaneously. However, all of these are statistical indicators that can only be used within a qualitative framework if they have been collected and analyzed beforehand. The German Federal Environmental agency (Umweltbundesamt) has collected accessibility and participation indicators from literature as part of the National Sustainability Strategy, also evaluating their usefulness and scientific background ([Appendix 1](#)). All of these can and should be used to look for statistics to use together with a qualitative evaluation framework, as they can form the basis for many questions regarding accessibility. In terms of a qualitative evaluation framework, it is then important to see how well these statistical indicators are considered when planning for new measures. This means a qualitative framework to evaluate the infrastructure and system needs to consider if relevant statistics for accessibility, as mentioned above, have been used at different planning stages and when making decisions.

However, there are a lot of indicators that relate to accessibility, especially in terms of gender aspects, that are easier to assess. In the aforementioned publication of LIFE e. V., they operationalize some of

the goals for gender equal transport into concrete measures. They mention a good network of bike streets and paths throughout the city, a speed limit of 30 km/h in the city, fair ticket prices including trip chaining, public transport maps that include clear signage for barriers and safety risks, barrier free communication in the public transport network and at stops, ergonomic seating, long green light phases for pedestrians and cyclists, secure pedestrian paths, including good lighting especially at transport stops, underpasses and connection paths, service and information points in trams and buses, as well as being able to speak to the driver or other staff while using public transport (LIFE Bildung Umwelt Chancengleichheit e.V., 2022). In a publication by the German city panel “Deutscher Städtetag”, different scientists look at this issue. One makes a case for cities to create gender-inclusive safety concepts, including the design of in- and outside of vehicles, as well as the areas of stops. This especially means a cohesive lighting design along pathways, cleanliness, technical security equipment, as well as checking the visibility and sightlines of users. It improves the safety conception of women to prove all of this beforehand and to include it in evaluations. (Stanislaw-Kemeneah & Roßberg, 2012) These cover different aspects of accessibility as well as safety when using public transport. As they are also indicators which can be measured by seeing if the infrastructure includes for example lighting and information points, they are usable even for smaller administrations. They also relate directly to some of the issues mentioned in the literature and collected in the corresponding table, which supports their relevance.

However, there are some German frameworks where the indicator collection is not as clear. Neither the Urban Transportation Development Plan for Berlin 2025 “Sustainable Mobility” or the “Urban Development Plan Mobility and Traffic Berlin 2030” have any gendered indicators or targets. In fact, neither the word “gender” nor the word “women” can be found in the documents. The Urban Transportation Development Plan for Berlin 2025 does, however, have general social targets that fit the idea of feminist transport – even if they are not labeled as feminist or gender-related. The first social target is very generic, stating that Berlin wants to provide “equal mobility opportunities by taking into account different needs” (Senate Department for Urban Development and the Environment for the State of Berlin, 2014, p. 5), which fits the idea of feminist public transport very well. The second target is more specific and mentions “strengthening the polycentric city structure through improved accessibility to urban neighbourhoods and between districts and the main downtown centres” (ibid, p. 5). Especially the part about having a polycentric city structure and the connections between neighbourhoods corresponds to the idea of equal accessibility, as they support the pathways of people who do care work. The third target is about “enhancing traffic’s urban compatibility by scaling back oversized roads, upgrading public road spaces, and respecting the traditional network of transportation structures” (ibid, p. 5). This correlates with the idea of re-evaluating the androcentric

planning structure in the city and creating places that everyone can use equally. The goal of compatibility is important in the gender perspective because it relates to trip-chaining and also to multimodal transport journeys, which play a big part in care work. The fourth and last social target relates to transport safety, which is relevant in connection to all the previously mentioned safety concerns that women face when using public transport. However, none of the targets in this document have specific indicators or clear action pathways. In the “Urban Development Plan Mobility and Traffic Berlin 2030” there are also some interesting targets, which are not gender-specific, but through their intersectionally they support a gender perspective. For example, traffic development plans for each district (Senatsverwaltung Umwelt, Verkehr und Klimaschutz & Abteilung IV Verkehr, 2021, p. 4), help with a more detailed plan that enables people to move through and to other districts more easily. Mobility concepts based on multimodality as well as the development of a mobile platform based on inter- and multimodality (ibid, p. 5) are relevant to the gender perspective because of trip chaining and easy transfers. If the public transport offer frequency is adjusted to demand (ibid, p. 6) women can travel easier even during off-peak times, like at night, and more comfortably and safely during peak times, and because of the introduction of specific express bus lines for paid work commuters (ibid, p. 6), some of the commuting strain would be taken off other routes, leaving more space for strollers, grocery bags or wheelchairs. However, while this is going in the direction of seeing where more demand is, the paid work commuters are not currently at a disadvantage. Furthermore, evaluating relevant numbers for the monitoring of other targets, including pedestrian, commuting and bike traffic (ibid, p. 7) will help to plan better and provide useful infrastructure for women and other marginalized groups. Providing traffic related information in more languages, better communication in extreme situations, for example severe weather, as well as in case of construction sites and removing sensory barriers for people with limited abilities (ibid, p. 12) is important, because it makes the system more accessible for a wider variety of people. A better inclusion of the urban society into planning processes, especially in early planning stages (ibid, p. 13) provides the foundation for a more diverse, tailored to demand service experience. Further developing mobility stations and hubs, connecting bike and pedestrian infrastructure with the public transport system as well as sharing offers (ibid, p. 14) motivates people with children or shopping to leave the car and instead use public transport, because it helps to eliminate the first/last mile problem. Improving pedestrian and bike infrastructure (ibid, p. 14-17) is important, and its good to see them both be operationalized and planned separately, because it helps to clearly plan for both demands. Making the public transport system barrier free (ibid, p. 17) supports accessibility when traveling with strollers and wheelchairs. Increasing bus services according to demand (ibid, p. 18) always facilitates travel, as well as better transfer conditions when making a multimodal transfer, including shorter distances and additional access points (ibid, p. 20). These targets come with information on who is responsible for them, as well as an estimate of how much money will

have to be spent which makes it useful and easy to apply for administration. Some come with a deadline, and some with further notes. Many of these notes state that the necessary tools or strategy will still have to be developed, which is also why none of these targets have clear indicators or steps on how to proceed.

One of the first German cities to include gender aspects in its Nahverkehrsplan (NVP, English: local transport plan), was Bielefeld in 1997 (Stete, 2006). The focus was explicitly on women in different life situations, and the analysis included space-structural, social, cultural and demographic aspects. It was based mostly on the collection of statistical data, for example to identify the city districts with above average population of children under 10 years or women over 60 years. The plan also tried to identify which destinations in the city are more relevant to reach for women, for example doctors, hospitals, schools, homes for the elderly, shopping areas, advisory organisations and then it evaluated their availability in different areas (Stete, 2006). This is a good example as to what statistics can be relevant for a gender perspective on city infrastructure and how statistics can be analysed to provide valuable input on how to structure the public transport system. Any qualitative indicator framework evaluating from a gender perspective should therefore check the statistics used in planning processes. Statistics should be gender separated and include relevant destinations, trips and population numbers. Parallel to this, Bielefeld recorded and evaluated the public transport supply and combined this with the infrastructure data, which could be used to recognize accessibility deficits. For example, if one district did not provide sufficient infrastructure, it needed to have enough public transport accessibility to reach facilities in another district. Requirements of women, which were compiled from workshops with local women, were considered when assessing the supply quality, for example when talking about barriers at stops or transfer points (Stete, 2006). This is a good example for how to use local voices and participation tools in the early stages of planning or evaluation processes. It also shows how to further use collected data and statistics and how to reach a comprehensive framework. While it does not have a multitude of useful indicators to transfer, it shows the understanding of a framework and characteristics that such a framework should have.

Another city in Germany, which actually has “gender-relevant” strategies in its traffic development plan (VEP) is Munich. Part of these strategies is avoiding the creation of more traffic as well as more priority to the means of transport that count as “environmentally friendly”, so public transport as well as walking and using a bicycle. All measures are supposed to lead to a city of short distances. (Mentz, 2006) This relates to a gender perspective as women are more likely to travel environmentally friendly, so prioritizing these means of transport supports women’s mobility. If additionally to that, a city of short distances is created, women gain accessibility and can move easier through the city. Therefore, this is a good target to keep in mind when structuring frameworks and indicators. In terms of

infrastructure, it is important to include attractive and secure paths for pedestrians and cyclists, district-based mobility concepts and a user-friendly design of parking garages. Another point is to have secure quality standards in public transport development plans, such as secure access points that are accessible for wheelchairs and/or strollers, broad waiting areas, weather protection, barrier free access to transport vehicles, an electronic schedule information as well as a network plan that includes information about barriers such as the height difference when accessing a vehicle. Munich also has a project on “Nahmobilität”, i.e., “close mobility”, which refers to any mobility that happens in short distance, for example pedestrian and bike mobility. Some measures in this project are longer green phases at traffic lights, orientation help for pedestrians, opening one way streets to cyclists, redoing street surfaces for skaters as well as a better network in the above-ground public transport network, so trams and buses. (Mentz, 2006) All of these measures are great examples for feminism-based indicators for gender inclusive public transport. For example, while the safety measures are probably based on the experience of women not feeling safe while using public transport, including these measures in evaluation frameworks to then improve the system will ultimately make it more comfortable for all users, not only women. The same goes for inter- and multimodality and all other measures discussed.

A good example for positive development on the topic of gender mainstreaming in public transport is Münster. In 2009, the interim analysis of transport in Münster mentioned the word “women” once – when presenting the “*Frauen-Nacht-Taxi*” (English: Women-Night-Cab), in which female passengers above the age of 14 can tell a bus driver, when boarding the bus, at which stop they will need a free cab to take them home. This is a great program, but the development of Gender perspectives needed to be taken further. The 3rd NVP of Münster, adopted in 2016, has a separate section on “Gender Aspects” to “take into account the specific concerns of men and women” (Stadt Münster, 2016, p. 87) during planning and implementation. This suggests that there is sufficient statistical data on different user behaviors to be used here, which shows a recognition of the need to evaluate gender-separated statistics and use them in planning. Furthermore, the NVP defines which gender aspects are especially important in public transport and operationalizes them into clear measures. First, it mentions the network characteristics: there needs to be sufficient access to work, care and free time places, as well as short walkable distances to stops. Furthermore, there needs to be good access to destinations that are relevant to women, such as their workplaces, childcare or medical facilities and retail areas. There need to be transfer free connections to areas surrounding the city and tangential connections between districts and local divisions. In terms of Gender Aspects and Service, there needs to be a user-oriented schedule design considering the opening terms of women-relevant places mentioned above. Relating to infrastructure and vehicles, the city of Münster prioritizes viewable, lit and socially controlled

transport stops, and it sets a norm of stops being 16cm above the road. It also prioritizes vehicles with the “kneeling” function, which means the door side can be lowered to allow easier access. At stops, there should be transparent weather protection, information panels, seats and storage options as well as bike parking options. Buses should have low floors, and space for strollers, wheelchairs, luggage or bikes. Finally, the city of Münster mentions that Gender Aspects are already represented in a lot of measures, even when they are not explicitly mentioned (Stadt Münster, 2016). All of these measures are easy to use and implement, as they can be based on available statistics and data. They can therefore be used by smaller administrations to evaluate a gender perspective related to an existing transport system and its planning processes.

Combination of Indicators in line with the Moser Framework

Issues that were found in the literature review and could not be found in any of the analyzed frameworks, were added into the table where they thematically made sense and measures were created out of the mentioned literature. They were marked in cursive to make gaps visible. While some of the analyzed frameworks covered gaps from others, as each had their focus, none of them covered female employment in the transport sector. Another area where the combined frameworks lack connecting to the issues from literature are planning processes. The Berlin 2030 Plan managed to cover some aspects, but others that were clearly described in the literature were not to be found in any frameworks. Overall, they matched up quite well to a comprehensive framework and each brought different points or indicators into the discussion.

The first, third, fourth, fifth and sixth tool of the Moser Framework were already covered through the literature review, the issue description and then the corresponding indicator selection. During the indicator combination, the focus is on the second tool “Gender needs assessment”, specifically the practical and strategic gender needs. Practical gender needs address immediate needs, while strategic gender needs aim to challenge power inequalities and promote gender equality. Examples of practical gender needs in public transportation include design choices, such as seating arrangements, handlebar and strap height, and safety features. Strategic gender needs, on the other hand, relate to the structure of the transportation system itself. For instance, a transportation system that enables trip chaining can make it easier for women to access the labor market and better balance unpaid care work. Meeting practical gender needs does not challenge women's inferior status, while meeting strategic gender needs does. (March et al., 1999) The indicators taken from the different frameworks as well as the ones from literature were coded into practical and strategic gender needs based on reasoning from literature, the complete reasoning can be found in [Appendix 2](#). A lot of the indicators could also be coded in the other direction based on argumentation. Some authors have argued that the division

between strategic and practical gender needs should not be maintained as rigidly (March et al., 1999), as when practical needs are not met, strategic ones might not be challenged at all and vice versa. They are closely connected (Venter et al., 2007) and it therefore makes sense that indicators can, to an extent, be sorted in both categories.

Table 2: Summary of Useful Indicators from Literature, Plans and Frameworks

| Aspect | Indicator | Note | Institution/Literature |
|-----------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------|
| Accessibility | Polycentric city structure | Means polycentric transit system | Berlin 2025 |
| | “City of short distances” | Like 15-minute city | VEP Munich 2006 |
| | → short walkable distance to stops | | NVP Münster 2016 |
| | Good accessibility between districts | → tangential connections | Berlin 2025, NVP Münster 2016 |
| | Transfer free connections to surrounding areas | | NVP Münster 2016 |
| | Easy Multimodal transfers | Trip chaining with multiple transportation modes possible | Berlin 2025 |
| | → Short distances, additional access points, short waiting time | | Berlin 2030 Target I57 |
| | User-oriented schedule design | Peak vs. off-peak → opening times of women-relevant destinations | NVP Münster 2016 |
| | <i>Frequent, reliable service outside of off-peak (paid work) times</i> | <i>“10 minute or less” - stops</i> | <i>Greed 2016</i> |
| | → safe and adequate service quality and frequency | Also at night | NVP Münster 2016 |
| | Mobility stations/hubs connecting system with pedestrian/bike structure | First/last mile problem, connecting system with rideshare offers | Berlin 2030 Target I5 |
| | Barrier free Public Transport system | Buses, Stations, Trains etc. | Berlin 2030 Target I32 |
| | → Wheelchair and stroller accessible | | VEP Munich 2006 |
| | → Broad waiting area | To keep distance from vehicle | VEP Munich 2006 |
| | → Weather protection at waiting area | | VEP Munich 2006 |
| | → Bus Stops 16 cm above ground, “kneeling” vehicles | | NVP Münster 2016 |
| Offer frequency should be adjusted to actual demand | Both in high and low demand scenarios | Berlin 2030 Targets O18, I33 | |
| Good bike/pedestrian Network | Long green light phases at traffic lights | | LIFE e.V. 2022, VEP Munich 2006 |
| | Orientation help for pedestrians | | VEP Munich 2006 |
| | Opening one-way streets to cyclists | | VEP Munich 2006 |
| | Redoing street surfaces | Benefits cyclists and skaters | VEP Munich 2006 |
| | Better above-ground public transport network | Connects with pedestrians/cyclists | VEP Munich 2006 |
| | Attractive and secure pathways | | VEP Munich 2006 |

| | | | |
|-----------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------|
| | 30 km/h speed limit in city | | LIFE e.V. 2022 |
| | User-friendly Parking Garages | This also counts for bicycle parking | VEP Munich 2006 |
| Fair ticket prices | Including trip chaining | | LIFE e.V. 2022 |
| | Discount System | Students, Children, Elderly → cheaper off-peak ticketing, mult1618trip tickets | LIFE e.V. 2022 |
| Safety | Clear signage for barriers/risks | | LIFE e.V. 2022 |
| | Good Lighting | Especially at stops, and underpasses | LIFE e.V. 2022, Deutscher Städtetag 2012 |
| | Service and Info Points in trams/buses | Plus being able to speak to driver/other staff | LIFE e.V. 2022 |
| | Clear Visibility & Sightlines | | Deutscher Städtetag 2012 |
| | Cleanliness | | Deutscher Städtetag 2012 |
| | Technical Security Equipment | Video Surveillance, SOS-Buttons | Deutscher Städtetag 2012 |
| Communication | Barrier free communication at stops | | LIFE e.V. 2022 |
| | → Removing sensory barriers in communication | Also online, for people with limited abilities | Berlin 2030 Targets K5-K9 |
| | → Network plan includes information about barriers | (i.e. height difference at stops) | VEP Munich 2006 |
| | Mobility platform focused on inter- and multimodality | App | Berlin 2030 Target O11 |
| | → electronic schedule information | | VEP Munich 2006 |
| | Information in multiple languages | | Berlin 2030 Targets K5-K9 |
| Design | Good communication in extreme situations | For example, severe weather/construction | Berlin 2030 Targets K5-K9 |
| | Ergonomic seating | Seating structure is also important | LIFE e.V. 2022 |
| | Transport Stops | → transparent weather protections, information panels, seats, storage, and bike parking options | NVP Münster 2016 |
| | Buses | Low floors, space for strollers, wheelchairs, luggage, or bikes | NVP Münster 2016 |
| Re-Evaluating Planning Structures | District wide plans instead of only city-wide consideration | | Berlin 2030 Target R13, VEP Munich 2006 |
| | Mobility planning centered on Multimodality | | Berlin 2030 Target O10 |
| | Evaluating relevant numbers for targets | Including pedestrian & bike traffic, commuting | Berlin 2030 Targets O33-39 |
| | <i>Prioritises gender perspective</i> | <i>“gender” as in including all marginalised groups</i> | <i>LIFE 2022</i> |

| | | | |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------|
| | <i>Prioritises humans over cars</i> | <i>Going against androcentrism, knowing where to break with "old" ways of planning</i> | <i>Litman 2013, LIFE 2022</i> |
| | <i>Planning for individual's needs, not for infrastructure</i> | | <i>Sánchez de Madariaga, 2013a</i> |
| | <i>Identified bias/omissions that influence policy cycle</i> | <i>→And adapted by thinking about mobility of care instead?</i> | <i>Queirós & Da Costa, 2020</i> |
| | <i>What measures are used to lessen car usage in the city? Effectiveness?</i> | <i>Less parking spaces/high fees</i> | |
| | <i>are local voices and participation tools used?</i> | | <i>NVP Bielefeld 1997</i> |
| Use of statistical data | <i>Including relevant statistics in planning (for example the indicators evaluated by the Federal Environmental Agency)</i> | <i>Including a gender perspective, i.e. gender separated data, impact analysis etc.</i> | <i>NVP Bielefeld 1997 NVP Münster 2016</i> |
| | <i>Relevant trips & destinations, as well as their accessibility</i> | <i>"women-relevant" destinations</i> | <i>NVP Bielefeld 1997 NVP Münster 2016</i> |
| | <i>→ Mobility of Care → How does the system support "Mobility of Care?" Can it do so?</i> | <i>Framework by Sanchez de Madariaga</i> | <i>Sánchez de Madariaga 2013b</i> |
| | <i>→ Is infrastructure available in districts?</i> | <i>If not, is public transport available to access infrastructure elsewhere</i> | <i>NVP Bielefeld 1997</i> |
| | <i>Areas of the city with increased demand</i> | <i>More children or more women, more elderly people</i> | <i>NVP Bielefeld 1997</i> |
| | <i>Qualitatively – how satisfied are women/ men</i> | | <i>Fu & Juan 2017</i> |
| Transport Sector Employment | <i>Percentage male/female employees</i> | | <i>Hamilton et al. 2005</i> |
| | <i>Diversity of Committees</i> | <i>Planning and Evaluation Committees</i> | <i>TRANSGEN 2007</i> |
| | <i>Motivation for women to apply</i> | | <i>-</i> |

Application of Indicator Framework

It was then attempted to apply the framework to the city of Münster. A table with notes, data availability and indicator results can be found in [Appendix 3](#). Münster has quite a strong public transport system. However, one issue are transfer points, as well as only 10% of stops having electronic schedule information. Additionally, pedestrian infrastructure has not been a priority in a long time, which means that multimodality is difficult to realize.

In terms of application of the framework, easily available indicators were marked green, the ones with difficulty yellow and ones that could not be answered with the data at hand, red. Most data was easily available in the two main planning analyses of the last years, but some sectors, like safety, were lacking, as it was only discussed related to car accidents and not from a gender perspective which would include harassment. Another sector where data was sparse was citizen participation, and the planning processes in general, as they were not discussed in the documents. In general, the framework was quite easy to apply, as a lot of the indicators are straight forward and for most of them, data was widely available. Some of them only make sense in certain contexts like having district-based mobility plans only makes sense in a big city. Additionally, it must be kept in mind that this is a first attempt to combine indicators into a simplified qualitative framework to evaluate system infrastructure and planning processes. If it were to be used in actual planning, it should be tested on a much larger scale beforehand and evaluated on different levels such as how reasonable it is to apply the framework in different areas. Still, it brings added value as it is a comprehensive collection of indicators from different frameworks that include an extensive gender perspective. Before implementing it, it would be especially crucial to evaluate the interplay of the indicators in combination with other sectors and frameworks, to see how the gender perspective fits into the planning processes that are already established. However, it must be kept in mind that a misfit of the gender and perspective and planning processes could also be based in the planning processes and their underlying assumptions, which is why it is important to reevaluate these and their timeliness from an open intersectional perspective.

Conclusion

Based on the findings of this thesis, the androcentric traditions of urban city and transport planning are not sufficient anymore. Instead, mobility assessments need to include an intersectional gender perspective, highlighting aspects such as women's and children's mobility as well as different travel patterns, purposes, and preferences. In terms of German mobility plans and their analyses, most of them lack this gender perspective, especially on a national level. However, some of them still have indicators that fit an intersectional gender perspective, even if they are not labeled as such. Most of them therefore have common overlaps and gaps, as they do not address the gender issue specifically

and therefore also do not cover concepts like women's mobility or the "Mobility of Care". In some of the cases, they fill the gaps of others nicely, for example Munich and Berlin both bring different indicators to the table for barrier free communication. Furthermore, Munich's is the plan with the most indicators for pedestrian traffic, while Münster and Berlin have a lot of indicators on accessibility in general. These overlaps are why the different frameworks could be combined into one comprehensive indicator assessment framework to be used in planning. This framework includes a more comprehensive indicator set than any of the other urban frameworks by themselves. It is also important to identify which indicators belong to a gender perspective and are therefore crucial for more inclusion on all levels. However, the combined indicator framework in this thesis is only a first attempt at covering issues found in literature and operationalizing them in a qualitative framework that can be easily implemented in planning processes next to statistical data and other tools. There is a lot of further research that needs to be done on the topic before this could be applied. For example, as this is a framework mainly for urban areas, further research must be put into how any of this can be implemented in more rural areas, as many women living in rural areas still struggle with using public transport, so change is crucial in these places (Bauhardt, 2012). It is also based on observations on infrastructure combined with issues from literature, so other aspects like transport capacity planning need to be considered as well. Additionally, this combined framework would need to be tested and scientifically verified, especially in terms of integration into planning processes and statistical data that can be included. Another option for further research would be further developing the evaluation scheme, as the current application has only three levels. Nevertheless, it is a first approach for a much-needed perspective on public transport systems, both in terms of service and infrastructure.

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Image Sources:

Figure 1: <https://www.urbanrail.net/eu/se/stockholm/stockholm-tunnelbana-map.png>

Figure 2: <https://urbanist.typepad.com/.a/6a00d83454714d69e201310f36ac8e970c-800wi>

Appendix 1: Accessibility Indicators National Sustainability Strategy Germany

| Nationale Nachhaltigkeitsstrategie Tabelle 18: | |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Institution, Quelle | Indikatoren für Erreichbarkeit bzw. Teilhabe |
| Indikatoren, die sich auf die Verkehrsangebotsqualität/-dichte, z. B. im öffentlichen Verkehr beziehen: | |
| (Hesse u. a. 1999; Wehmeier; Koch 2010; Rahman; van Grol 2005) | Einwohneranteile, die unter raumspezifischen Qualitätsstandards der ÖV-Versorgung liegen (meist bezogen auf Entfernung zur Haltestelle + Taktichte) Zum Beispiel (Social Exclusion Unit 2003, S. 129): Anteil der Haushalte, der innerhalb 10 Minuten zu Fuß ÖV-Zugangsstellen erreicht, die mind. 15 Minuten-Takt haben |
| (Hesse u. a. 1999, S. 43 f.) | Wagen-km im Linienverkehr des ÖV, auch: je EW oder je Fläche |
| (Social Exclusion Unit 2003, S. 129) | Anteil barrierefreier Busse |
| (Siedentop; Roos; Fina 2013) | Autoabhängigkeit eines Gebietes (aggregierte Kenngröße aus 5 Indikatoren zur ÖV-Qualität und 4 Indikatoren zur Erreichbarkeit der Grundversorgung mit Fuß/Rad) |
| Indikatoren für die allgemeine Erreichbarkeit, bestimmt durch Siedlungsstruktur und Verkehrsangebot | |
| (Hesse u. a. 1999, S. 46 f.) | Anzahl Lebensmittelgeschäfte, auch bezogen auf EW und je km ² Fläche |
| (Segeer 2013, S. 40; Social Exclusion Unit 2003, S. 129) | Bevölkerungsanteil mit Weg unter 1000 m (500 m) zum nächsten Lebensmittelladen |
| (Marsden u. a. 2010, S. 198 f.) | Anteil der Bevölkerung mit 1 km oder 15 min Fußentfernung zu wichtigen Einrichtungen |
| Nachhaltigkeitsstrategie GB: (DEFRA 2010) | Anteil der Ziel-Bevölkerung, die innerhalb einer bestimmten Zeit Arbeitsplätze, Schulen, Krankenhäuser und Supermärkte zu Fuß oder mit dem ÖV erreichen können |
| (Wehmeier; Koch 2010, S. 458) | Bevölkerungsanteil, der mit dem ÖV das nächste Mittelzentrum in 30 min und das nächste Oberzentrum in 60 min erreicht |
| (Marsden u. a. 2010, S. 198 f.) | Vergleich der gewichteten Auto- und ÖV-Reisezeiten zu Arbeitsplatzzentren, Bildungs- u. Gesundheitseinrichtungen, Lebensmittelgeschäften |
| Indikatoren zu finanziellen Mobilitätsbarrieren, bzw. zu individuellen Mobilitätsmöglichkeiten | |
| (Social Exclusion Unit 2003, S. 129) | Durchschnittliche ÖV-Kosten; auch: ÖV-Kosten pro km |
| (Rahman; van Grol 2005) | Anteil der Haushaltsausgaben für Verkehr (zu Orten der Daseinsfürsorge) |
| (Eurostat 2007) | Verhältnis der Verkehrsausgaben der reichsten und der ärmsten 20% der Haushalte |
| (Marsden u. a. 2010, S. 198 f.) | Verhältnis der durchschnittlichen Auto- bzw. ÖV-Kosten für Wege zu alltäglichen Zielen |
| (Social Exclusion Unit 2003, S. 129) | Anteil der Haushalte mit Zugang zu Pkw |

| | |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (Scheiner u. a. 2012) | Haushalte mit Zwangsmotorisierung (Haushalte, die trotz niedrigem Einkommen einen Pkw haben und über Erreichbarkeitsprobleme bei anderen Verkehrsmitteln berichten) |
| Realisiertes Verhalten + subjektive Einschätzung | |
| Nachhaltigkeitsstrategie GB | Anteil der Haushalte mit bzw. ohne Auto, welche berichten, dass sie Schwierigkeiten beim Zugang zu Einrichtungen der Daseinsvorsorge haben |
| (Rahman; van Grol 2005) | Anteil von Kurzstrecken an der Gesamtmenge der zurückgelegten Wege |
| (Rahman; van Grol 2005) Sayeg u. a. 2013, Seite 4 | Durchschnittliche Fahrzeit je Haushalt um Orte der Daseinsfürsorge zu erreichen, evtl. unterteilt nach Art der Daseinsfürsorge (Gesundheit, Einkauf, Ämter...) |
| Sayeg u. a. 2013, Seite 4 | Durchschnittliche tägliche Reisezeit um Orte der Daseinsfürsorge zu erreichen, diese sollte im Umweltverbund nicht über 90 min liegen |
| (Scheiner u. a. 2012) | Subjektive Bewertung der Erreichbarkeit verschiedener Aktivitätsorte (MID) |
| | Anzahl der Wege pro Tag |
| | Zurückgelegte Distanzen insg. und je Weg (beschreibt Aktionsraum) |

Quelle: Umweltbundesamt, 2015, S. 64

| Nationale Nachhaltigkeitsstrategie Tabelle 19: Vergleichende Bewertung von Erreichbarkeits-Indikatoren | | | | |
|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Indikator | Bewertung je Kriterium | | | |
| | Wissenschaftliche Fundierung | Datenverfügbarkeit | Verständlichkeit | Politische Relevanz |
| Indikatoren zur Beschreibung der allgemeinen Erreichbarkeit | | | | |
| Einwohner- oder flächen-bezogene Angebotsdichte alltäglicher Ziele (z. B. Schulen) | Schlecht: Angebotsdichte erlaubt keine Aussagen zur Erreichbarkeit der Angebote | Mittel bis gut: flächen- und einwohnerbezogene Angebots-dichte meist leicht ermittelbar | Gut bis mittel: Einwohner-bezogener Indikator beschreibt Größe, nicht Erreichbarkeit | Schlecht: Keine Ableitung eines politischen Nachhaltigkeitsziels möglich |

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|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bevölkerungsanteil, der in einer definierten Zeit alltägliche Ziele per Fuß / ÖV erreichen kann | Gut: Bezieht Verkehrsangebot und Siedlungsstruktur ein, auch geeignet zur Darstellung der Nahversorgungssituation | Mittel: stichprobenbasierte Datenermittlung machbar, Pilotanwendung vorhanden (Schwarze; Spiekermann 2013) | Gut | Mittel: Ziel aus dem Grundsatz der Daseinsvorsorge ableitbar, Notwendigkeit der Zielsetzung wird von den Entscheidungs-trägerInnen gesehen, allerdings bisher keine Einigung auf konkrete Mindeststandards möglich (Winkel u. a. 2010, S. 29 ff.) |
| Vergleich der gewichteten Auto- und ÖV-Reisezeiten zu alltäglichen Zielen | Mittel: Nicht im Sinne eines Mindeststandards der Daseinsvorsorge deutbar | Schlecht bis mittel: stichprobenbasierte Daten-ermittlung machbar | Mittel: Ergebnis nicht intuitiv hinsichtlich der Unterschreitung von Teilhabeschwellen deutbar | Schlecht: Keine Ableitung eines politischen Nachhaltigkeitsziels möglich |
| Indikatoren zur Beschreibung der subjektiven Zufriedenheit mit den Erreichbarkeitsverhältnissen | | | | |
| Subjektive Bewertung der Erreichbarkeit verschiedener alltäglicher Ziele | Mittel bis gut: Wirkungskette vorhanden, Indikator ist allerdings nicht im Sinne eines Mindeststandards der Daseinsvorsorge deutbar | Mittel: Indikator ist prinzipiell leicht erhebbar, Integration in bestehende Erhebungssysteme denkbar (MiD, MOP) | Gut | Schlecht: Ableitung eines politischen Ziels aus subjektiven Daten schwierig |

Quelle: Umweltbundesamt, 2015, S. 66

Appendix 2: Reasoning for each indicator being sorted into the Moser Framework

Practical gender needs address immediate needs, while strategic gender needs aim to challenge power inequalities and promote gender equality. Meeting practical gender needs does not challenge women's inferior status, while meeting strategic gender needs does.

| Aspect | Indicator | Note | Institution /Literature | Moser Framework Reasoning |
|---------------|-------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accessibility | Polycentric city structure | Means polycentric transit system | Berlin 2025 | Challenges women's inferior role as the main caretaker who has to run errands and take care of children and/or family members. These indicators are related to the structure of the system and its underlying androcentric assumptions rather than specific measures which are to be taken now. This case specifically relates to women needing accessibility to other districts and not only the downtown centre |
| | "City of short distances" | Like 15-minute city | VEP Munich 2006 | |
| | → short walkable distance to stops | | NVP Münster 2016 | |
| | Good accessibility between districts | → tangential connections | Berlin 2025, NVP Münster 2016 | |
| | Transfer free connections to surrounding areas | | NVP Münster 2016 | |
| | Easy Multimodal transfers | Trip chaining with multiple transportation modes possible | Berlin 2025 | This addresses an immediate need which can be helped easily, for example by adjusting bus schedules and routes. It is related to design features, but does not directly challenge women's inferior status in society. |
| | → Short distances, additional access points, short waiting time | | Berlin 2030 Target I57 | |
| | User-oriented schedule design | Peak vs. off-peak → opening times of women-relevant destinations | NVP Münster 2016 | Challenges women's inferior role as the main caretaker who has to run errands and take care of children and/or family members. These indicators are related to the structure of the system and its underlying androcentric assumptions rather than specific measures which are to be taken now. |
| | <i>Frequent, reliable service outside of off-peak (paid work) times</i> | <i>"10 minute or less" - stops</i> | <i>Greed 2016</i> | |
| | →safe and adequate service quality and frequency | Also at night | NVP Münster 2016 | |

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|-------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Mobility stations/hubs connecting system with pedestrian/bike structure | First/last mile problem, connecting system with rideshare offers | Berlin 2030 Target I5 | This addresses an immediate need which can be helped easily, for example by adjusting green light phases and making small infrastructure changes like signage. It is related to design features but does not directly challenge women's inferior status in society. Women are helped in the moment, but it does not help them challenge their position. Fulfilling these indicators would make it more attractive for women to use public transport, but it does not help them fight for their equality and rights directly. They can run errands and accompany children with more comfort, but it does not enable them to earn more money or fight for more equality in care work per se. |
| | Barrier free Public Transport system | Buses, Stations, Trains etc. | Berlin 2030 Target I32 | |
| | → Wheelchair and stroller accessible | | VEP Munich 2006 | |
| | → Broad waiting area | To keep distance from vehicle | VEP Munich 2006 | |
| | → Weather protection at waiting area | | VEP Munich 2006 | |
| | → Bus Stops 16 cm above ground, "kneeling" vehicles | | NVP Münster 2016 | |
| | Offer frequency should be adjusted to actual demand | Both in high and low demand scenarios | Berlin 2030 Targets O18, I33 | |
| Good bike/pedestrian Network | Long green light phases at traffic lights | | LIFE e.V. 2022, VEP Munich 2006 | This addresses an immediate need which can be helped easily, for example by adjusting green light phases and making small infrastructure changes like signage. It is related to design features but does not directly challenge women's inferior status in society. Women are helped in the moment, but it does not help them challenge their position. Fulfilling these indicators would make it more attractive for women to not use a car, but it does not help them fight for their equality and rights directly. It simply makes their life a bit easier in the position it is in. |
| | Orientation help for pedestrians | | VEP Munich 2006 | |
| | Opening one-way streets to cyclists | | VEP Munich 2006 | |
| | Redoing street surfaces | Benefits cyclists and skaters | VEP Munich 2006 | |
| | Better above-ground public transport network | Connects with pedestrians/cyclists | VEP Munich 2006 | |
| | Attractive and secure pathways | | VEP Munich 2006 | |
| | 30 km/h speed limit in city | | LIFE e.V. 2022 | |
| User-friendly Parking Garages | This also counts for bicycle parking | VEP Munich 2006 | | |
| Fair ticket prices | Including trip chaining | | LIFE e.V. 2022 | |

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|---------------|----------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Discount System | Students, Children, Elderly → cheaper off-peak ticketing, multi trip tickets | LIFE e.V. 2022 | Challenges women's inferior role as the main caretaker who has to run errands and take care of children and/or family members. These indicators are related to the structure of the system and its underlying androcentric assumptions rather than specific measures which are to be taken now. In this specific case, it additionally challenges the notion that women already earn and have less money than men and still pay more money than necessary for basic transport (i.e. when they have to pay for multiple trips because the system does not support trip-chaining) |
| Safety | Clear signage for barriers/risks | | LIFE e.V. 2022 | This addresses an immediate need which can be helped easily, for example by adjusting safety features in buses or at. It is mostly related to design features but does not directly challenge women's inferior status in society. Women are helped in the moment, but it does not help them challenge their position. This is a bit of a difficult indicator, as women's safety and advocacy for such can help challenging their status. But women are not helped directly by just installing security features because the threat still exists in their space. |
| | Good Lighting | Especially at stops, and underpasses | LIFE e.V. 2022, Deutscher Städtetag 2012 | |
| | Service and Info Points in trams/buses | Plus being able to speak to driver/other staff | LIFE e.V. 2022 | |
| | Clear Visibility & Sightlines | | Deutscher Städtetag 2012 | |
| | Cleanliness | | Deutscher Städtetag 2012 | |
| | Technical Security Equipment | Video Surveillance, SOS-Buttons | Deutscher Städtetag 2012 | |
| Communication | Barrier free communication at stops | | LIFE e.V. 2022 | This addresses an immediate need which can be helped easily. It is related to design features but does not directly challenge women's inferior status in society. Women are helped in the moment, but it does not help them challenge their position. In this specific case, it helps women who are busy with a stroller or their grocery bags by making it easier to |
| | → Removing sensory barriers in communication | Also online, for people with limited abilities | Berlin 2030 Targets K5-K9 | |
| | → Network plan includes information about barriers | (i.e. height difference at stops) | VEP Munich 2006 | |

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|------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Mobility platform focused on inter- and multimodality | | Berlin 2030 Target O11 | navigate the system. This makes the system more attractive to use. |
| | →electronic schedule information | | VEP Munich 2006 | |
| | Information in multiple languages | | Berlin 2030 Targets K5-K9 | |
| | Good communication in extreme situations | For example, severe weather/construction | Berlin 2030 Targets K5-K9 | |
| Design | Ergonomic seating | | LIFE e.V. 2022 | This addresses an immediate need which can be helped easily, for example by adjusting bus design or stops and their infrastructure. It is related to design features but does not directly challenge women's inferior status in society. Women are helped in the moment, but it does not help them challenge their position. |
| | Transport Stops | → transparent weather protections, information panels, seats, storage and bike parking options | NVP Münster 2016 | |
| | Buses | Low floors, space for strollers, wheelchairs, luggage or bikes | NVP Münster 2016 | |
| Re-Evaluating Planning Structures | District wide plans instead of only city-wide consideration | | Berlin 2030 Target R13, VEP Munich 2006 | Challenges women's inferior role as the main caretaker who has to run errands and take care of children and/or family members. These indicators are related to the structure of the system and its underlying androcentric assumptions rather than specific measures which are to be taken now. Especially because women also need good mobility within a district instead of only district-downtown connections. |
| | Mobility planning centered on Multimodality | | Berlin 2030 Target O10 | See above. Traveling in/between districts often needs multimodal transfers. Also connected to the system allowing trip-chaining and multimodal journey discounts and easy transfers. |
| | Evaluating relevant numbers for targets | Including pedestrian & bike traffic, commuting | Berlin 2030 Targets O33-39 | Because women and their mobility are underrepresented in transport statistics and evaluations. |

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|--------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <i>Prioritises gender perspective</i> | <i>“gender” as in including all marginalised groups</i> | <i>LIFE 2022</i> | <i>Challenges women’s inferior role as the main caretaker who has to run errands and take care of children and/or family members. If they (and other humans) are prioritised in planning, women can fight the inequality they experience daily.</i> |
| | <i>Prioritises humans over cars</i> | <i>Going against androcentrism, knowing where to break with “old” ways of planning</i> | <i>Litman 2013, LIFE 2022</i> | |
| | <i>Planning for individual’s needs, not for infrastructure</i> | | <i>Sánchez de Madariaga, 2013a</i> | |
| | <i>Identified bias/omissions that influence policy cycle</i> | <i>→And adapted by thinking about mobility of care instead?</i> | <i>Queirós & Da Costa, 2020</i> | <i>This is related to the structure of the system and its underlying androcentric assumptions rather than specific measures which are to be taken now</i> |
| | <i>What measures are used to lessen car usage in the city? Effectiveness?</i> | <i>Less parking spaces/high fees</i> | | <i>This helps as it cuts down on car mobility, which is usually male dominated.</i> |
| | <i>Prioritising environmentally friendly transport</i> | | <i>VEP Munich 2006</i> | <i>See above. Additionally, women often prefer more environmentally friendly modes of transport, which means supporting these transport modes is supporting womens mobility.</i> |
| | <i>Inclusion of urban society into planning processes</i> | | <i>Berlin 2030 Target K14</i> | <i>Because women and their mobility are underrepresented in transport statistics and evaluations. Challenges women’s inferior role as the main caretaker who has to run errands and take care of children and/or family members. These indicators are related to the structure of the system and its underlying androcentric assumptions rather than specific measures which are to be taken now. Women can help actively working against these assumptions.</i> |
| | <i>→ especially in early planning stages</i> | | <i>Berlin 2030 Target K16</i> | |
| | <i>→ are local voices and participation tools used?</i> | | <i>NVP Bielefeld 1997</i> | |
| Use of statistical data | <i>Including relevant statistics in planning (for example the indicators</i> | <i>Including a gender perspective, i.e. gender separated data, impact analysis etc.</i> | <i>NVP Bielefeld 1997 NVP Münster 2016</i> | <i>Challenges women’s inferior role as the main caretaker who has to run errands and take care of children and/or family members. These indicators are related to the structure of the system and its</i> |

| | | | | |
|------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | evaluated by the Federal Environmental Agency) | | | underlying androcentric assumptions rather than specific measures which are to be taken now. Because women and their mobility are underrepresented in transport statistics and evaluations. |
| | Relevant trips & destinations, as well as their accessibility | “women-relevant” destinations | NVP Bielefeld 1997 NVP Münster 2016 | |
| | <i>Mobility of Care → How does the system support “Mobility of Care?” Can it do so?</i> | <i>Framework by Sanchez de Madariaga</i> | <i>Sánchez de Madariaga 2013b</i> | |
| | → Is infrastructure available in districts? | If not, is Public transport available to access infrastructure elsewhere | NVP Bielefeld 1997 | |
| | Areas of the city with increased demand | More children or more women, more elderly people | NVP Bielefeld 1997 | |
| | <i>Qualitatively – how satisfied are women/ men</i> | | <i>Fu & Juan 2017</i> | |
| Transport Sector Employment | <i>Percentage male/female employees</i> | | <i>Hamilton et al. 2005</i> | Including more Women in the transport sector and planning is important because they bring an intersectional gender perspective into discussions and processes. This way underlying beliefs like androcentrism can be countered and service as well as planning can be improved. |
| | <i>Diversity of Committees</i> | <i>Planning and Evaluation Committees</i> | <i>TRANSGEN 2007</i> | |
| | <i>Motivation for women to apply</i> | | - | |

Appendix 3: Application of the Framework to Münster with Notes

Both the Situation in Münster as well as the exemplary framework application are color coded in a traffic light scheme (green = good, yellow = mediocre, red = bad), with grey in those columns meaning no evaluation can be made. In terms of Application green means that specific data was easily available, it was specific and easy to understand. Yellow means data was found with difficulty, unclear or just generally mentioned and unspecific. Red means data was not available.

| Aspect | Indicator | Note | Münster Notes | Application Notes |
|----------------------|-----------------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <i>Accessibility</i> | Polycentric city structure | Means polycentric transit system | Münster has a radial system with almost every line passing the main station as main transfer point | Easily checked by looking at transit plan, also in detail in VEP 2025, possibly more difficult in bigger cities |
| | “City of short distances” | Like 15-minute city | Most places in Münster can be reached in less than 15 minutes on bike | own assessment, no specific data |
| | → short walkable distance to stops | | 300-500m max, but city administration admits it could be better in outer districts | Analysis VEP 2025, Analysis Plan 2035+ |
| | Good accessibility between districts | → tangential connections | Some “axis” connections, but usually other districts only reachable by transferring at main station | Easily checked by looking at transit plan, more difficult to analyse in bigger cities |
| | Transfer free connections to surrounding areas | | From most surrounding places transfer free to city centre or at least main station | See above |
| | Easy Multimodal transfers | Trip chaining with multiple transportation modes possible | Park and ride stations, plus bike parking at bus stations, also ride sharing options | Analysis Plan 2035+ |
| | → Short distances, additional access points, short waiting time | | Easy to transfer from regional trains to buses, clear signage. City admin says bus to bus transfer is difficult at main station and other transfer points | VEP 2025 Analysis, Analysis Plan 2035+ |

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|--------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------|
| | User-oriented schedule design | Peak vs. off-peak → opening times of women-relevant destinations | Defined as weak point by the city: schedule is not as stable as it could be | Analysis Plan 2035+ |
| | <i>Frequent, reliable service outside of off-peak (paid work) times</i> | <i>"10 minute or less" - stops</i> | <i>20 minute frequency outside of centre, 10 minute in city centre and on "axis lines"</i> | Found in the Analysis for the VEP 2025 |
| | → safe and adequate service quality and frequency | Also at night | Reduced service at night, from 21:00 to 1:00, on the weekend all night | Analysis Plan 2035+ |
| | Mobility stations/hubs connecting system with pedestrian/bike structure | First/last mile problem, connecting system with rideshare offers | Bike & Ride points (also outside of city centre and in surrounding villages) | Analysis VEP 2025 |
| | Barrier free Public Transport system | Buses, Stations, Trains etc. | City admin: Public Transport System is not barrier free yet | Analysis Plan 2035+ |
| | → Wheelchair and stroller accessible | | | |
| | → Broad waiting area | To keep distance from vehicle | Not mentioned anywhere | - |
| | → Weather protection at waiting area | | About half of the stops have this | Analysis VEP 2025 |
| | → Bus Stops 16 cm above ground, "kneeling" vehicles | | Most buses have this function, 45% of stops have 16 cm height | Analysis VEP 2025 |
| | Offer frequency should be adjusted to actual demand | Both in high and low demand scenarios | difficult to balance summer/winter demand difference | Analysis Plan 2035+ |
| <i>Good bike/ pedestrian Network</i> | Long green light phases at traffic lights | | Green lights are still mostly focused on cars, sometimes buses, pedestrian percentage in Münster quite low | Analysis VEP 2025, Analysis Plan 2035+ |
| | Orientation help for pedestrians | | Not clear. But some conflicts with cyclists and pedestrians using same spaces, or bikes parked on sidewalks | Analysis Plan 2035+ |
| | Opening one-way streets to cyclists | | Mostly done, as well as signage specifically for cyclists | Analysis VEP 2025 |
| | Redoing street surfaces | Benefits cyclists and skaters | Lots of "bike streets" in the city that are continuously improved | Analysis Plan 2035+ |

| | | | | |
|-----------------------------------|----------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------|
| | Better above-ground public transport network | Connects with pedestrians/cyclists | Bus transport is a priority in planning, also lots of ride sharing options to connect to | Analysis VEP 2025, Analysis Plan 2035+ |
| | Attractive and secure pathways | | Could be better for pedestrians, more potential, but "Promenade" and city centre offer many options | Analysis VEP 2025, Analysis Plan 2035+ |
| | 30 km/h speed limit in city | | In residential areas | Analysis VEP 2025 |
| | User-friendly Parking Garages | This also counts for bicycle parking | Biggest bike parking area in Germany at main station | Analysis VEP 2025 |
| <i>Fair ticket prices</i> | Including trip chaining | | Uniform "Westfalen" Tariff in the city and surrounding area, based on start and end-point including transfers | Analysis Plan 2035+ |
| | Discount System | Students, Children, Elderly → cheaper off-peak ticketing, multi trip tickets | The goals of the 365 Euro ticket or free public transport are mentioned, but not explicitly planned | Analysis Plan 2035+ |
| <i>Safety</i> | Clear signage for barriers/risks | | Not mentioned anywhere | - |
| | Good Lighting | Especially at stops, and underpasses | Defined as important and planned/available | NVP 2016 |
| | Service and Info Points in trams/buses | Plus being able to speak to driver/other staff | Information about schedules, tickets | Analysis Plan 2035+ |
| | Clear Visibility & Sightlines | | Not mentioned anywhere | - |
| | Cleanliness | | Not mentioned anywhere | - |
| | Technical Security Equipment | Video Surveillance, SOS-Buttons | Not mentioned anywhere | - |
| <i>Communication /Information</i> | Barrier free communication at stops | | Available through screens and information panels at 10% of bus stops | Analysis VEP 2025, Analysis Plan 2035+ |
| | → Removing sensory barriers in communication | Also online, for people with limited abilities | | |
| | → Network plan includes information about barriers | (i.e. height difference at stops) | Not visible | - |

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|------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| | Mobility platform focused on inter- and multimodality | | Not focused on inter- and multimodality yet, but app is available with live information, connections and ticket option | Analysis VEP 2025, Analysis Plan 2035+ |
| | →electronic schedule information | | Available online, on different apps and at stops | Analysis VEP 2025 |
| | Information in multiple languages | | At least also available in English | Analysis VEP 2025 |
| | Good communication in extreme situations | For example, severe weather/construction | There was sufficient communication during the public strikes in the last months | Difficult to check at a specific point in time |
| <i>Design</i> | Ergonomic seating | | Not mentioned anywhere | - |
| | Transport Stops | → transparent weather protections, information panels, seats, storage and bike parking options | About half of bus stops have a covered waiting areas | Analysis VEP 2025 |
| | Buses | Low floors, space for strollers, wheelchairs, luggage or bikes | They have the low floor option | Analysis Plan 2035+ |
| <i>Re-Evaluating Planning Structures</i> | District wide plans instead of only city-wide consideration | | This does not seem to be the case, but also not necessary | Makes more sense in bigger cities |
| | Mobility planning centered on Multimodality | | It is mentioned a lot and stated to be a priority | Analysis VEP 2025, Analysis Plan 2035+ |
| | Evaluating relevant numbers for targets | Including pedestrian & bike traffic, commuting | Lots of different survey and data included, still very car-focused, not always gender separated | Analysis VEP 2025, Analysis Plan 2035+ |
| | <i>Prioritises gender perspective</i> | <i>“gender” as in including all marginalised groups</i> | <i>Separate section on gender planning in current NVP</i> | <i>Münster NVP 2016</i> |
| | <i>Prioritises humans over cars</i> | <i>Going against androcentrism, knowing where to break with “old” ways of planning</i> | <i>The intent is there, but proves to be difficult – most of the mobility in Münster still happens by car and can’t be “ignored” during planning</i> | <i>Analysis Plan 2035+</i> |

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|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| | <i>Planning for individual's needs, not for infrastructure</i> | | <i>It is acknowledged that good public transport is important for social participation</i> | <i>Analysis Plan 2035+</i> |
| | <i>Identified bias/omissions that influence policy cycle</i> | <i>→And adapted by thinking about mobility of care instead?</i> | <i>When talking about gender perspective, it is acknowledged that androcentrism is an issue in traditional planning</i> | <i>NVP 2016</i> |
| | <i>What measures are used to lessen car usage in the city? Effectiveness?</i> | <i>Less parking spaces/high fees</i> | <i>The plan is to reduce car parking in the centre and raise prices</i> | <i>Analysis Plan 2035+</i> |
| | <i>Prioritising environmentally friendly transport</i> | | <i>It is, where possible, the priority in planning</i> | <i>Analysis Plan 2035+</i> |
| | <i>Inclusion of urban society into planning processes</i> | | <i>Generally desired, no specific measures, citizens can send in statements that have to be considered in most planning instances. Used in different ways depending on projects, for example through participatory app tracking of bicycle mobility</i> | <i>Analysis Plan 2035+</i> |
| | <i>→ especially in early planning stages</i> | | | |
| | <i>→ are local voices and participation tools used?</i> | | | |
| <i>Use of statistical data</i> | <i>Including relevant statistics in planning (for example the indicators evaluated by the Federal Environmental Agency)</i> | <i>Including a gender perspective, i.e. gender separated data, impact analysis etc.</i> | <i>2020 mobility survey has gender separated evaluations and could be used for further planning.</i> <ul style="list-style-type: none"> - Has gender separated data on trip purposes as well as destinations and travel times and patterns. - Not a lot of recent data on pedestrians, as the city put priority on other modes | <i>Analysis Plan 2035+ Not clear to see how much this is actually used, analyzed and operationalized into implementation</i> |
| | <i>Relevant trips & destinations, as well as their accessibility</i> | <i>“women-relevant” destinations</i> | | |

| | | | | |
|------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------|
| | <i>Mobility of Care → How does the system support “Mobility of Care?” Can it do so?</i> | <i>Framework by Sanchez de Madariaga</i> | <i>This is not specifically evaluated in any documents</i> | - |
| | <i>→ Is infrastructure available in districts?</i> | <i>If not, is Public transport available to access infrastructure elsewhere</i> | <i>Criteria mentioned under gender perspective in NVP 2016</i> | NVP 2016 |
| | <i>Areas of the city with increased demand</i> | <i>More children or more women, more elderly people</i> | <i>Only based on which areas are residential</i> | Analysis Plan 2035+ No specific data |
| | <i>Qualitatively – how satisfied are women/ men</i> | | <i>Not mentioned anywhere</i> | - |
| <i>Transport Sector Employment</i> | <i>Percentage male/female employees</i> | | <i>Not mentioned anywhere</i> | Probably easy to answer from within administration and more difficult from outside |
| | <i>Diversity of Committees</i> | <i>Planning and Evaluation committees</i> | <i>Not mentioned anywhere</i> | |
| | <i>Motivation for women to apply</i> | | <i>Not mentioned anywhere</i> | |

Appendix 4: List of analyzed frameworks

Red: They did not include the desired connection of gender and public transport

| Level | Name | Year | Institution/Organization | Indicators | Focus |
|----------|---------------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| National | Gender Index | | Bundesinstitut für Bau-, Stadt-, und Raumforschung | 21 in 6 Domains | "Assess gender equality in urban and regional areas" |
| | Entwicklung von Indikatoren im Bereich Mobilität für die Nationale Nachhaltigkeitsstrategie | 2015 | Umwelt Bundesamt | | Sustainability |
| | 2030 Federal Infrastructure Plan | 2016 | Ministry for Transport and Digital Infrastructure | - | Infrastructure, Funding |
| Urban | Indikatorenliste VEP Aachen | 16.07.2020 | City of Aachen | 25 (15 Zielindikatoren, 10 Beobachtungsindikatoren) | Sustainability, price, efficiency |
| | Berlin VEP "Sustainable Mobility" | | | 12 Target Fields | Economic, Social, Environmental and institutional |
| | Berlin Stadtentwicklungsplan Mobilität und Verkehr 2030 | 2021 | European Union, Senate Administration for the Environment, Traffic and Climate Protection | 239 Targets & Indicators | does not mention "women", "gender", or "female" in any of them |
| | München VEP | 2006 | - | Includes gender-relevant strategies | Lots of information on accessibility and communication |
| | Münster - Zwischenbericht Verkehrsentwicklungsplan 2025 – Analyse | 2009 | Stadt Münster, Amt für Stadtentwicklung, Stadtplanung, Verkehrsplanung | - | Analysis of all Mobility in Münster, infrastructure, networks, cars, public transport, bikes, pedestrians, environment, security etc |
| | Münster NVP | 2016 | Stadt Münster, Amt für Stadtentwicklung, Stadtplanung, Verkehrsplanung | | Separate Section on Gender Aspects |